Intuition and process

A critical and reflective commentary on a portfolio of compositions

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Declaration

I declare that the compositions and the accompanying commentary that constitute this submission are my own work and that the use of all material from other sources has been properly and fully acknowledged.

Signature……

Name……Michael Cryne……

Date……14/12/15……

Abstract

This thesis consists of a portfolio of nine compositions accompanied by a written commentary, plus audio recordings of most of the works. The compositions span a wide variety of instrumentations from a work for large orchestra to solo instrumental and chamber works, some including electronics.

In the accompanying commentary I examine the technical foundations of my compositional language, discussing my interest in counterpoint and my evolving approach to vertical harmony. I also discuss my use of melodic and rhythmic cells in helping me develop my material and to maintain a sense of aural coherence.

I investigate how I use extra-musical content to help me determine various elements of my music, from form and large-scale structure, through to broader aesthetic impulses. I discuss the importance of titles in my work, and how I view the relationship between music and the world. I explain how the views of composers Kaija Saariaho and Jonathan Harvey have helped shape my approach to extra-musical stimuli.

Finally, I discuss my own work in context, discussing the challenges of determining a personal style in the 21st century. I consider the tension between my intuitive method and my desire for a coherent musical experience from the listener's point of view.

Contents

Acknowledgements

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I'm hugely indebted to all the musicians that have performed on the recordings, and others that helped me create the works in other ways, most notably Rebecca Turner's hours spent helping me refine the playing system for *Hearing Voices*.

Finally, I would like to thank my wife Kristina and my mother Clare, without whose constant support none of these works would exist.

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Introduction

'Your intuition knows what to write, so get out of the way.' (Ray Bradbury)

It is extremely tempting, when beginning work on a portfolio of compositions that will be held up for technical and aesthetic examination, to reach for the comfort blanket of some fully explicable compositional system. I often think how reassuring it would be to be a composer of total serial music, in which every single note placement, harmonic or rhythmic choice was justified by some highly sophisticated system or another. Each choice could be logically justified and questions concerning formal unity would resolve themselves.

The process of making art is, however, a relentless compromise between the intuitive and reflective/analytical faculties. As a composer I have always been reluctant to create process-driven music. This is not down to a dislike of the results; a great deal of process-driven music has had a significant influence on me as a composer. Instead, I am drawn to the process of composition due to the sheer joy that is allowing my musical intuition as free a rein as possible. I will discuss and examine the tension between intuition and presenting a coherent musical experience to the listener, and I will make frequent reference to the importance of the listened experience in my compositional output and process.

Purely intuitive art, if such a thing were possible would (presumably) involve no critical reflection or technical underpinning at all. While in the commentary I have focussed on the process by which I aim to allow intuition to flow freely, it cannot be over-emphasised that critical reflection and analysis of my compositional methods play a hugely significant part in my process. I will discuss several composers and their discoveries, and the various ways they have influenced me, but this influence is assimilated and informs my intuitive decisions at a subconscious level, rather than me seeking to directly imitate any specific technique or approach of theirs.

This written commentary accompanies a portfolio of 9 compositions which were written in the period between 2010 and 2015. In the first chapter I will discuss the various influences on my compositional language, discussing composers such as Arnold Schoenberg, George Benjamin, Olivier Messiaen and Witold Lutoslawski and their thinking about harmony. I will outline my thoughts on bass function, discussing the various ways I use the bass register, why the bass is considered something of a 'problem' by Benjamin, and my response to this problem. I will also explain how the spectralist movement, in

particular Gerard Grisey's thoughts on timbre and 'inharmonicity[1]' alongside Messiaen's thoughts on resonance have influenced how I think about vertical harmony. I will discuss the tension in my music between the horizontal and vertical dimensions – at certain points I allow individual lines to weave independently, with vertical harmony a secondary concern, whereas in other points in the music there's a strong focus on the vertical. I will discuss how I create harmonic 'fields' to create a sense of harmonic consistency, despite most of my music being primarily post-tonal in its harmonic vocabulary.

In the final section of chapter 1 I will talk about my techniques of developing material – primarily in relation to melodic and rhythmic cells. I will discuss how I aim to create logical continuity in my re-using of short sections of musical material, often breaking it down into smaller cells and working with these individual cells to develop this material.

Chapter 2 is an examination of my relationship to extra-musical content and how I use it to shape and determine various parameters of my music. Jonathan Harvey and Kaija Saariaho have informed my views on extra-musical impulses, and I will examine the approaches of both composers and discuss how their approach has shaped mine. I use extra-musical material to determine structure, and discuss exactly how I do this in relation to *Fire Whirls* (2015) for orchestra, *Prism* (2012) for string quartet and *Winter Myths* (2011), for small ensemble. I will also discuss how extra-musical stimulus has shaped broader aesthetic impulses, from the electronic performance system of *Hearing Voices* through to the textural aspects of *Energeia* (2011) for solo piano.

In chapter 3 I will examine some of the decisions and considerations that have helped me settle on a personal style, discussing the tension between my intuitive approach and my desire for musical coherence.

[1] Inharmonicity is a term used to describe any particular sound in which the constituent frequencies depart from the fundamental harmonic overtone series. Many percussion instruments, such as cymbals, create inharmonic sounds.

Chapter 1 - Technical foundations

Harmony and timbre

Origins and influences

> The question of harmony is perhaps the most important of this [the 20th] century. There is a big problem here ... which comes out of dodecaphonic thinking. If you use a series in an orthodox fashion, like Schoenberg and some of his successors, the problem is that the twelve notes move so quickly across a texture that there is no form of audible harmony. That means the music has become almost entirely horizontal, the vertical aspect often being without any kind of control. The lines may be interesting but the vertical rules are only negative, 'against', there are no rules 'for'. Besides, if the ear is constantly saturated with twelve notes repeating quickly across all registers it perceives only a harmonic chaos of limited interest ... This means there is no harmonic background, and thus there is no harmonic *rhythm* ... The problem with serial music is first and foremost the lack of poetry, of meaning, of harmonic control. But there is also a loss of speed and energy, everything that comes from mastery of harmony.[2] (George Benjamin)

As George Benjamin says, harmony is of fundamental importance to music. I have found myself, over the course of the creation of the works in the portfolio, increasingly persuaded by Benjamin's appeal for harmonic rhythm. Benjamin often emphasises the necessity to control the vertical dimension of music. However, much of the work I am influenced by (Knussen, Adés, Saariaho and Harvey amongst others) is firmly placed within a post-tonal landscape. One of the central research questions involved in creating the portfolio of works has been in trying to resolve this (as I see it) tension, attempting to create harmonic interest in a post-tonal framework.

The evolution of my own harmonic thinking as I have created this portfolio of works has been a gradual shift away from textural music, mainly freely atonally composed, towards a greater degree of planning and control of vertical relationships, gradually adding a degree of pitch-centricity into my own compositional lexicon, without re-imposing the functionality demanded by tonality. I will describe this trajectory in the first chapter.

Linear Counterpoint and Texture in *Winter Myths and Prism*

Winter Myths

I wrote *Winter Myths* in 2010, for a workshop with Brian Ferneyhough at the Institute of Musical Research in January 2011 with Ensemble Exposé. I will discuss the form of the piece in chapter 2, in

[2] Risto Nieminen, *George Benjamin* (Faber & Faber, 1998), 14.

which I outline my uses of extra-musical content in providing structural backbones to pieces. However, *Winter Myths* is the ideal starting point for a discussion of the evolution of my harmonic thinking – it is chronologically the first piece I wrote for the portfolio, and contains many of the ideas that I developed while creating many of the subsequent works.

One of my earliest musical memories was hearing Giovanni di Palestrina's *Missa Papae Marcelli* (c.1562). Counterpoint has fascinated me ever since, and I still use the techniques learned from a study of counterpoint (melodic inversion, retrograde and inversion, augmentation and diminution) frequently in my music. Certain composers in the 20th century used a counterpoint that was much less concerned with vertical harmony, with so-called 'linear counterpoint' being defined by Ernst Kurth in his 1922 book *Fundamentals of linear counterpoint*.[3] Linear counterpoint was enthusiastically taken up by composer Ernst Krenek and criticised by Arnold Shoenberg in his article entitled 'linear counterpoint.[4]' This dominance of line was pushed even further by Witold Lutoslawksi in his use of 'aleatoric counterpoint' in *Jeux Venitiens* and many subsequent works, in which players are given a substantial amount of freedom, albeit within a carefully controlled harmonic framework. Individual parts are independent in time as different rhythms are played simultaneously. In a similar vein, György Ligeti's early music often employs micropolyphony, a similar contrapuntal development in which moving tone-clusters are created through dense canonic structures.

> Technically speaking I have always approached musical texture through part-writing. Both Atmosphères and Lontano have a dense canonic structure. But you cannot actually hear the polyphony, the canon. You hear a kind of impenetrable texture, something like a very densely woven cobweb. I have retained melodic lines in the process of composition, they are governed by rules as strict as Palestrina's or those of the Flemish school, but the rules of this polyphony are worked out by me. The polyphonic structure does not come through, you cannot hear it; it remains hidden in a microscopic, underwater world, to us inaudible. I call it micropolyphony.[5]

The opening of *Winter Myths* takes this 'line first' approach, adapting it in two ways. The string texture at bar 3 consists of three independent lines all moving at different speeds, each repeating a defined cycle of pitches, subsequently transposed as the lines progress. The lines are overlaid without consideration of any vertical correspondence, although register is carefully controlled:

[3] Translated into English in *Ernst Kurth: Selected Writings* (Ed. Lee A. Rothfarb Cambridge University Press, 1991)
[4] This essay appears in *Style and Idea* (Arnold Schoenberg, Philosophical library, 1950).
[5] Bernard, Jonathan W: *Voice Leading as a Spatial Function in the Music of Ligeti* in Music Analysis 13 pp 227–53

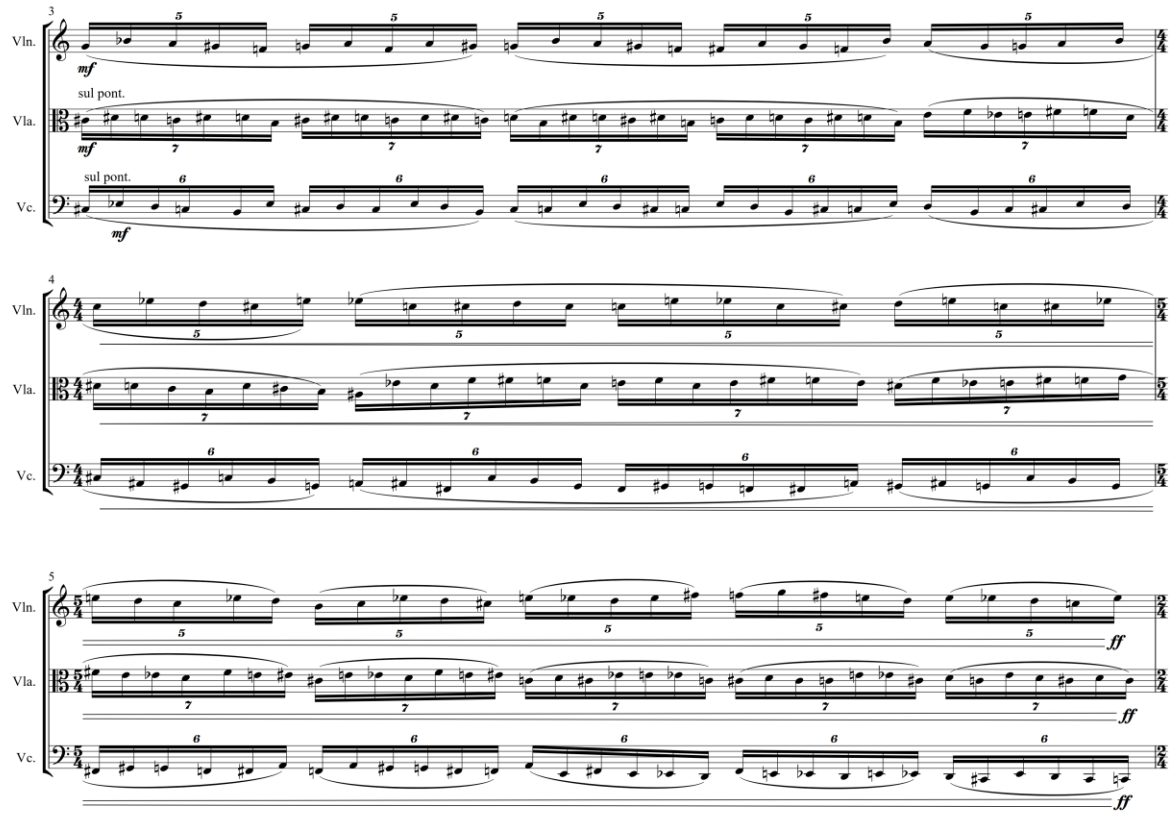

Figure 1 - Winter Myths bars 3-5 (strings)

Bars 1-4 in the flute and the oboe take a similar approach to predominance of line, although the end result is manifestly different. The central motif around which much of the piece is based is introduced in the first bar of the flute, with a secondary melody in the oboe. Bar 4 (and onwards) is a simple division of a single line between the two instruments – a hocket of sorts.

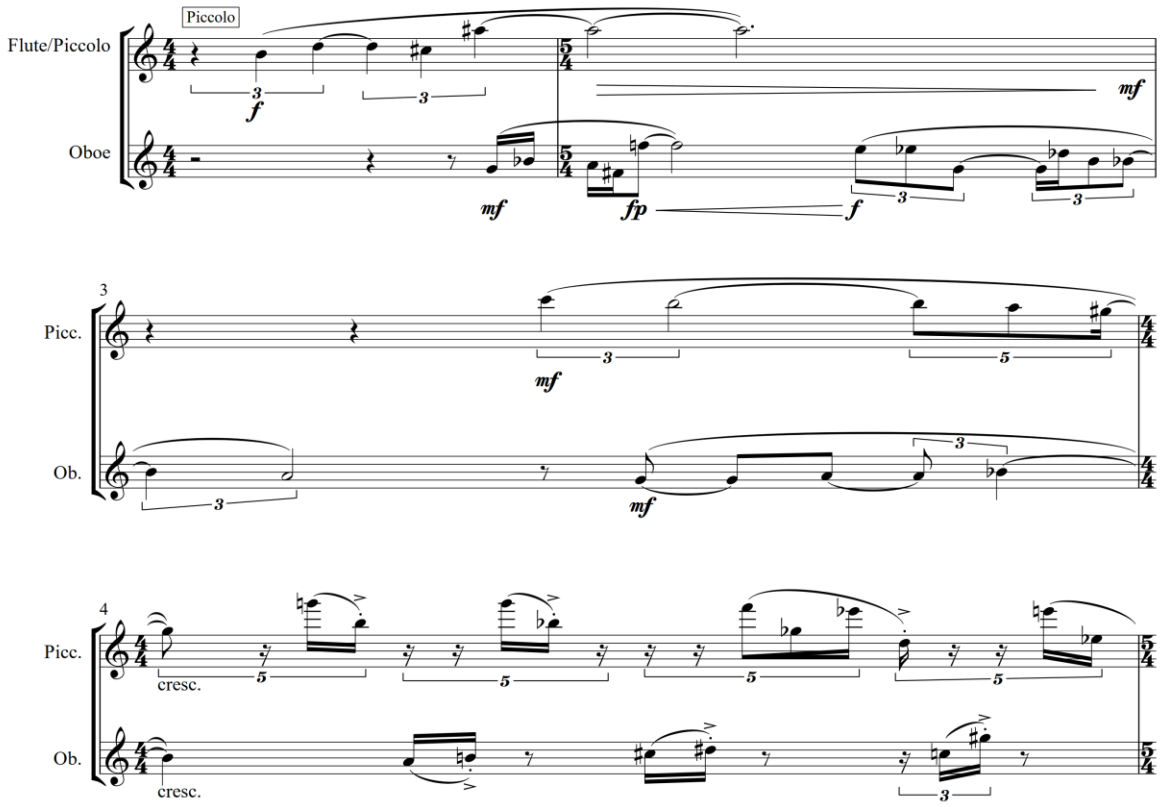

Figure 2 - Winter Myths bars 1-4 (piccolo and oboe)

There is more concern in the woodwinds for the vertical relationship – this material is substantially more melodic than the string material shown in Figure 1, but these opening bars allow the independence of the line to prevail over vertical considerations. Figure 3 shows a similar example of overlapping and interweaving lines which allow the direction of the line to predominate.

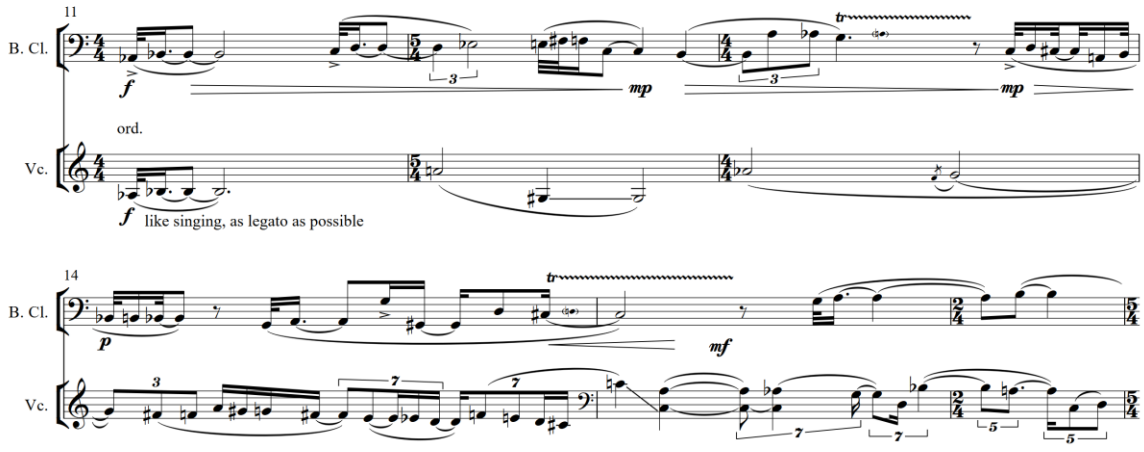

Figure 3 - Winter Myths bars 11 – 16 (bass clarinet and cello)

The opening of *Winter Myths* is a perfect example of my thinking at the outset of the creation of the portfolio. At this point creating aurally interesting textures and employing this 'linear counterpoint'

were two of my major areas of musical interest. Interest in creating interesting textures remains something of a pre-occupation, a much of the music within the portfolio is textural at least in part.

Prism

Prism is a 10-minute work for string quartet that I composed in 2012, and was premiered at the Conservatoire de musique, Montreal, as a winner of the Molinari String quartet 5th annual composition competition. As the title of the piece suggests, the piece is structured according to what happens when white light hits a prism. Each of the colours are revealed individually, as constituent elements of white light itself. I decided to take the sequence of colours (Red, Orange, Yellow, Green, Blue, Violet) as a structural sequence – there is a 'red' section of around a minute, followed by an 'orange' section, and so on. It's primarily the timbral and textural characteristics of each section that create the sense of structure.

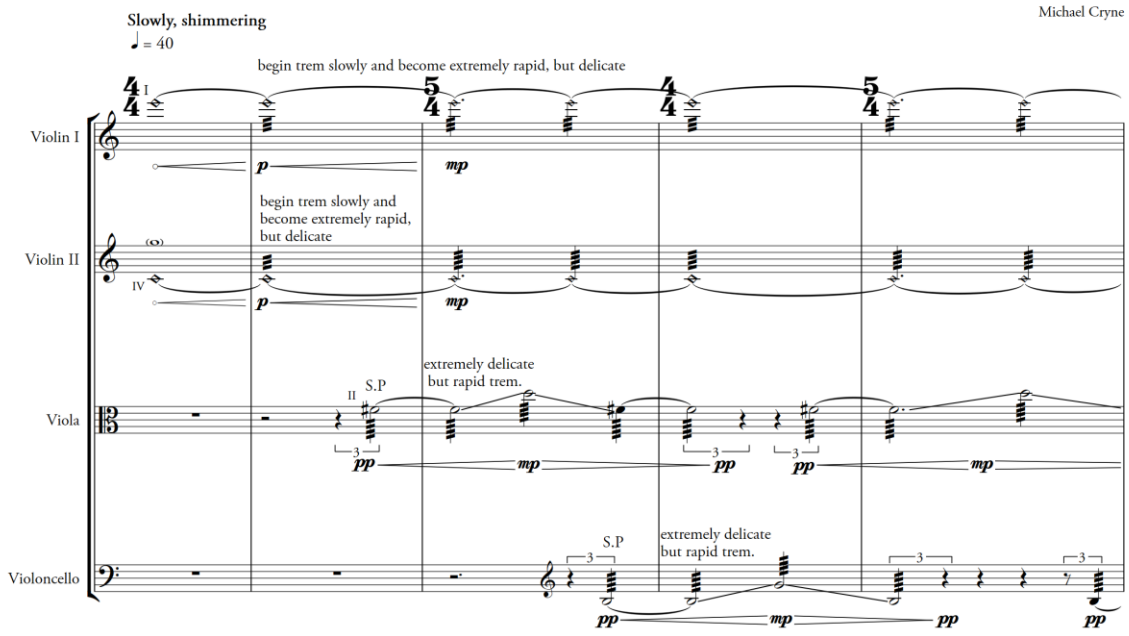

Figure 4 - Prism opening

Figure 4 shows the opening of the piece. Pitches C and G are presented first (being part of the same harmonic series) but 'foreign' pitches (F♯ in the viola and B♮ in the cello) are introduced almost immediately, to obscure any sense of definite pitch centre. The texture quickly thickens, with static chords at the upper and lower register beginning to emerge through the dense, microtonal fog (*Figure 5*).

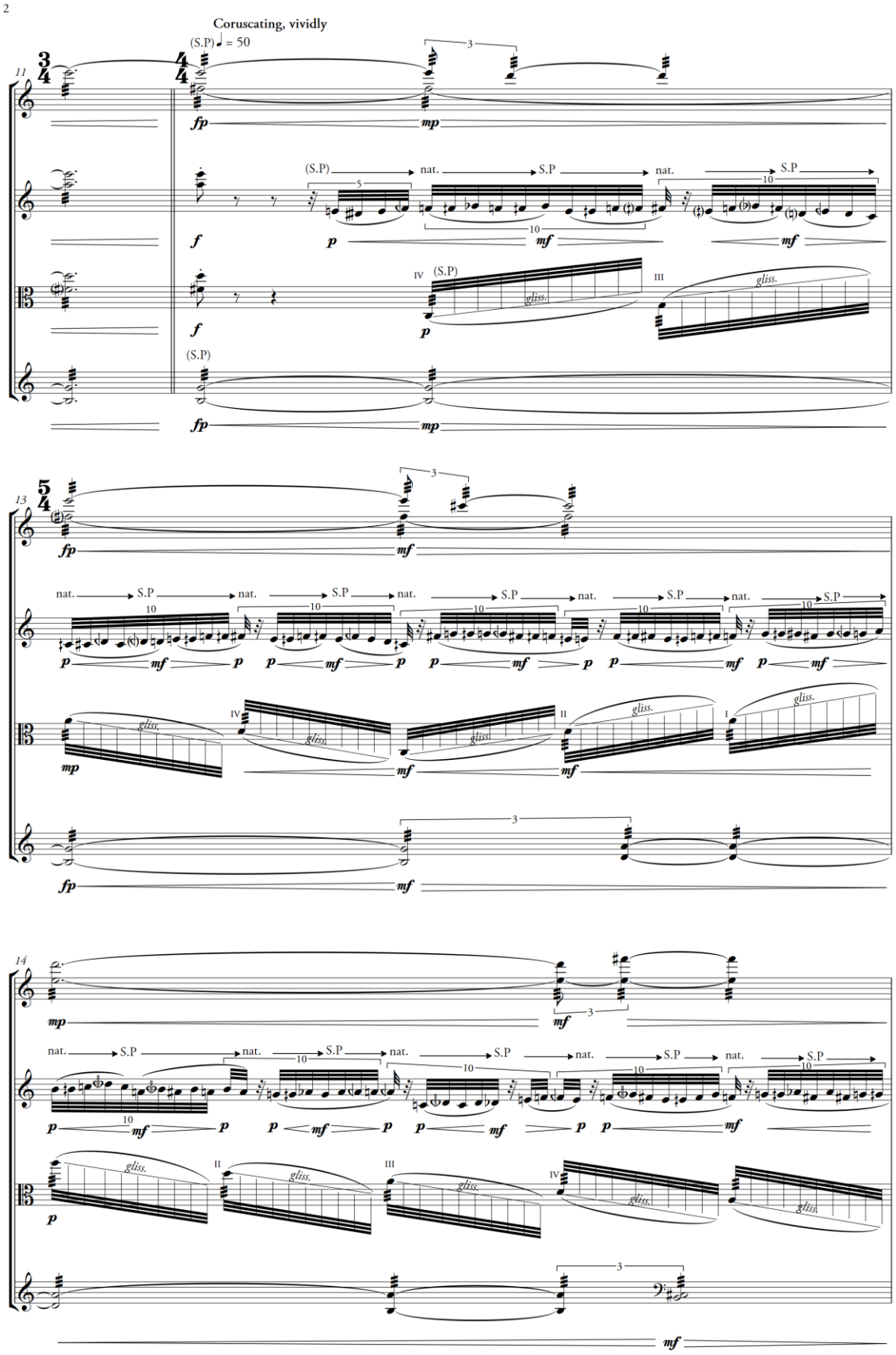

Figure 5 – Prism bars 11- 14

The opening section of *Prism* is similar to the opening section of *Winter Myths* – the music at this point is textural – the use of microtones in the 2nd violin is an extension of the techniques I was exploring in *Winter Myths* – the glissandi in the viola is almost entirely independent in terms of vertical harmony from the 2nd violin and the slow-moving chordal material in the 1st violin and cello. Careful attention is obviously being paid at this point to registral balance – the lower three parts occupy the same range of the register/frequency spectrum, and therefore the aural effect is of much closer interleaving of the parts, rather than the registral separation that existed in the opening of *Winter Myths*. This interleaving gradually separates out – each instrument begins to occupy its own space in the register, and the material gradually becomes more rhythmically straightforward and a melodic cell is introduced and then modified as the piece develops.

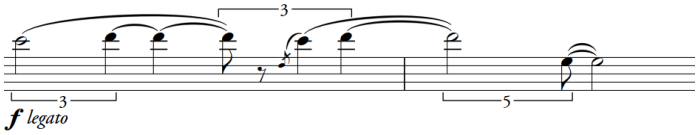

Figure 6 - Prism melodic cell

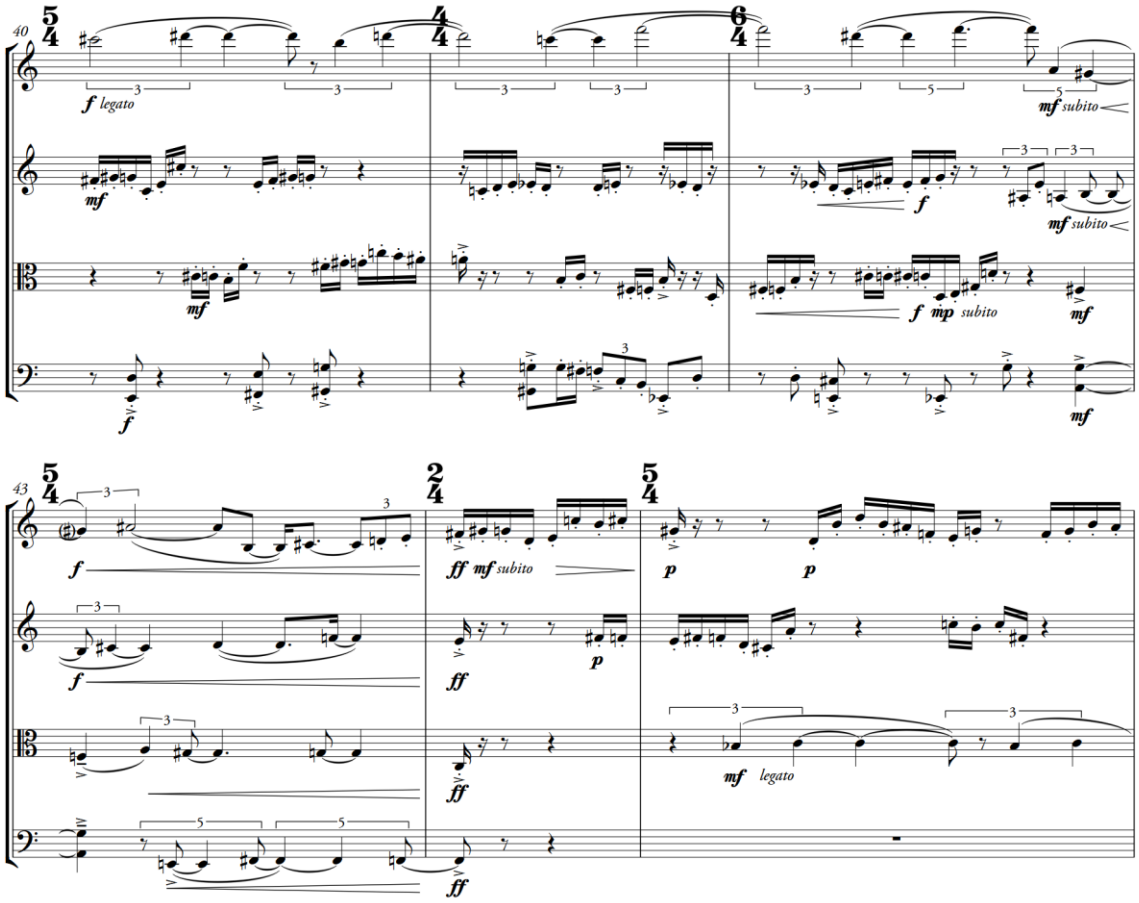

Figure 7 - Prism bars 40-45

Figure 7 is an example of the prevailing texture in *Prism*. A central melodic cell is foregrounded, over linear counterpoint. While more attention is paid at this point to vertical combinations than at the opening (*Figure 5*), the balance is generally toward allowing the lines substantial freedom, and focussing on timbral and textural variation as the primary means of structuring the composition. During the process of composing *Prism* I had been studying electronics, in particular MAX-MSP[6], and learning various ways to expand my timbral palate through electronic means.

Extending Timbral and textural possibilities in *Hearing Voices*

Hearing Voices (2012) is a piece for solo cello and electronics. The signal from either amplified or electric cello is fed into a piece of software called Ableton Live, which is then modified by various effects to modify the sound. The signal flow is easiest to demonstrate in diagrammatic form (Figure 8). I chose Ableton Live because of its non-linearity; the software works very differently from a traditional sequencer, in which MIDI or Audio events are triggered at a pre-determined point in time.[7] Rather, an operator is capable of triggering either pre-recorded MIDI or audio clips at any given point in time, in any sequence, with a simple key or pedal press.

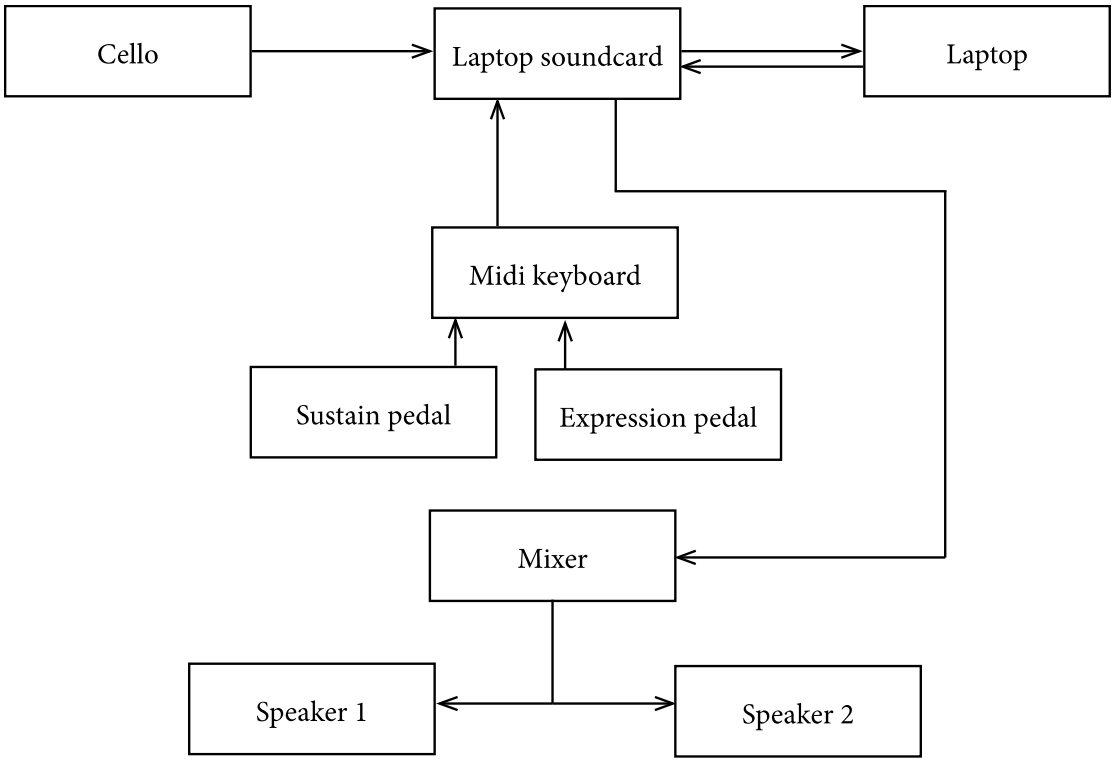

Figure 8 - Signal Flow in Hearing Voices

[6] MAX-MSP, created by software developer Cycling 74 is a visual programming language that processes data and audio signals.

[7] Most sequencers still function in a linear fashion, almost replicating the process of recording to tape, found in recording studios in the 20th Century.

Rather than the electronics being an additional pre-recorded element, the electronic sounds are all generated by the cello signal passing through the various effects. By creating 'dummy clips' (a clip with only silence in it), and placing effects on each one of these 'clips', the performer or electronics player can easily select the assigned effects at the click of a button. While some minor tweaking may need to be done, depending on the performance space, the entire concept behind the performance system is that it is extremely straightforward to use.

Since the clip-based architecture in Ableton live enables effects presets to be selected at any given point in real time, the need for a click track or external synchronisation is negated completely, enabling a much more organic performance. I have prepared these effects presets, so that all the live electronics player is left to do is to control overall volumes and press the requisite buttons on the keyboard at the appropriate points in the score. For example:

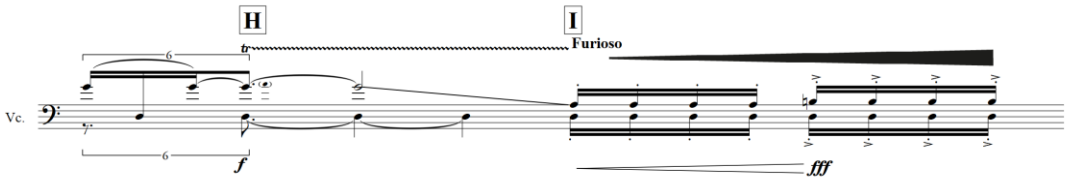

Figure 9 - Rehearsal Marks as Clip launch trigger points

The 'rehearsal marks' are actually cues for the electronics performer and/or cellist. The cellist can operate a foot pedal, which will launch/trigger the next 'clip' in the sequence. Alternatively, an electronics performer can press the required button on the keyboard, triggering the next 'clip'. In rehearsal, we found this ability to be able to shuffle backwards and forwards invaluable, facilitating the quick and easy repetition of any given passage.

In addition to triggering clips, with effects presets, an expression pedal is assigned to control the level of a feedback loop, and a sustain pedal controls a grain freeze effect.[8] With some experimentation, and some practice, it is reasonably simple for the cellist to balance these three tasks.

[8] A feedback loop is generated by feeding an audio signal back on itself. Grain freeze, or Granulation, is the process of taking a section of audio and repeating it continuously, as though it were 'frozen'.

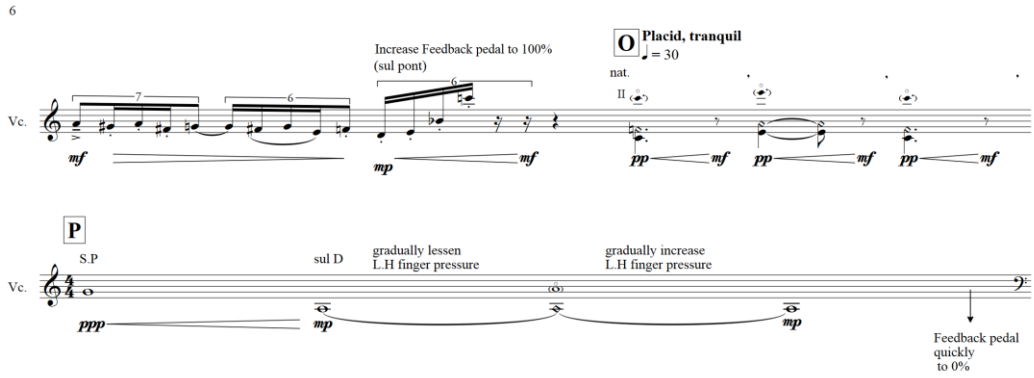

Figure 10 - Use of the expression and sustain pedal

In the example above (Figure 10), the cellist first returns the expression pedal to 0%, and then triggers clip 'O' with the trigger foot pedal. Launching this clip sends the cello signal through a grain freeze, a filter and a frequency shifter. The sustain pedal then triggers the granulation, 'freezing' the sound. As the granulation is stopped, the player then triggers clip 'P' with the trigger pedal, causing the signal to be processed by a quartertone frequency modulator, with a delay.

While the underlying architecture of the performance system may be complex, the performers' interaction with it is quite simple. The cellist merely has to become familiar with using foot pedals. While in rehearsal this did take some practice, it is relatively straightforward for the player to accomplish.

While the performance system is noteworthy in and of itself, it is the timbral possibilities that it opens up that are truly interesting. While the vocabulary of musicians is extremely well-developed in discussing structure, harmony, rhythm etc, issues concerning timbre can be much more difficult to articulate, although, J F Shouten's five timbral categories are of some use here:

1. The range between tonal and noiselike character.
2. The spectral envelope.
3. The time envelope in terms of rise, duration, and decay (ADSR—attack, decay, sustain, release).
4. The changes both of spectral envelope (formant-glide) and fundamental frequency (micro-intonation).
5. The prefix, or onset of a sound, quite dissimilar to the ensuing lasting vibration.[9]

While these categories are useful, especially when considering sound at an objective level, they leave much to be desired in describing the subjective character of sound, which is of central importance to any discussion of timbre. The widening of the timbral palette enabled by directly processing the sound enables greater possibility for expression with one instrument. A crucial aspect of this, especially when

[9] J. F. Schouten, '*The perception of timbre.*' In *International Congress on Acoustics*, Tokyo (1968).

striving for timbral unity is that the electronic sounds are all generated from the cello, and in real time. Therefore, any electronic sound that is being heard comes from the cello signal.

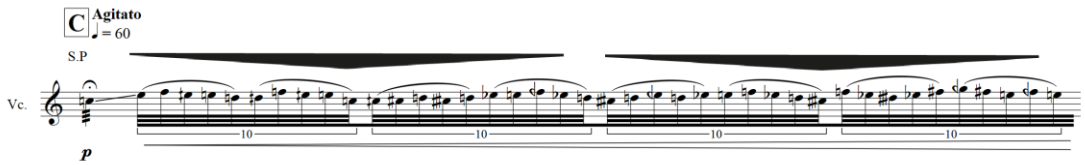

Figure 11 - Use of bow strength to facilitate a shift along Shouten's first axis

This electronic sound is clearly identifiable as a cello sound at points in the score, and moves away from this tonal character, towards more noise-like character, along Shouten's first axis. This process is aided by various extended techniques, such as the use of bow pressure as illustrated in Figure 11. While, at this point, the signal never becomes absolute noise, there is definite movement along the axis of tone/noise. The signal is also processed with a quartertone delay effect, which moves the sound away from clearly identifiable cello tone. The microtonal writing, coupled with the delay in the effects, also generates a type of sound which is closer to harmony; in essence, timbre becomes harmony, through both the instrumental content and the signal processing.

As Jonathan Harvey says of his 1982 work *Bhakti*, 'Just as the ear 'modulates' between live and recorded, moving along the rich continuum which electro-acoustic techniques provide to connect different sounds, so the mind traces different paths through the nexus of spiritual and secular associations which the music can create'[10]

I agree implicitly with Harvey, and while I have been more explicit in directing the listeners' associations, I employ this continuum in an analogous way. The underlying assumption here is that these types of associations are capable of being formed, and that the phenomenological experience of timbre is a central aspect of my compositional process.

Music more often than not presents itself to my consciousness at first as pure atmosphere, an extremely ephemeral, evanescent sensation. This is simultaneously a musical sensation, and couldn't be otherwise, even if I had skills as a painter or dancer, the sensation is directly and obviously musical. But it is *simultaneously* of the world, it is both a musical and worldly sensation.

With *Hearing Voices*, timbre came immediately with this sensation, and informed the choices I made. Bar 6, as shown in Figure 12, was the first section I wrote. This section, weaving and microtonal[11], is

[10] Arnold Whittall, *Jonathan Harvey* (Faber and Faber, 1999), 29.
[11] The example occurs in the accompanying recording at c.30 seconds. Because of the imprecision of language when discussing timbre, the reader is strongly encouraged to refer to both score and recording.

also processed by a delay[12], and the variation bow pressure creates an oscillation between a more musical sound and a more noise-like texture. A harmony of sorts is created in this texture, a contrapuntal, dense and disturbing texture, constantly shifting around a narrow pitch band.

The sensation is one of multiple strings, several 'voices' happening simultaneously. With careful mixing in the live environment, it should be extremely difficult to tell at this point what is the raw sound of the cello, and which are the effects. This sensation, which fills the entire piece, is both musical and extra-musical, it is more than mere atmosphere, accompaniment waiting for image, but a musical sensation in its own right.

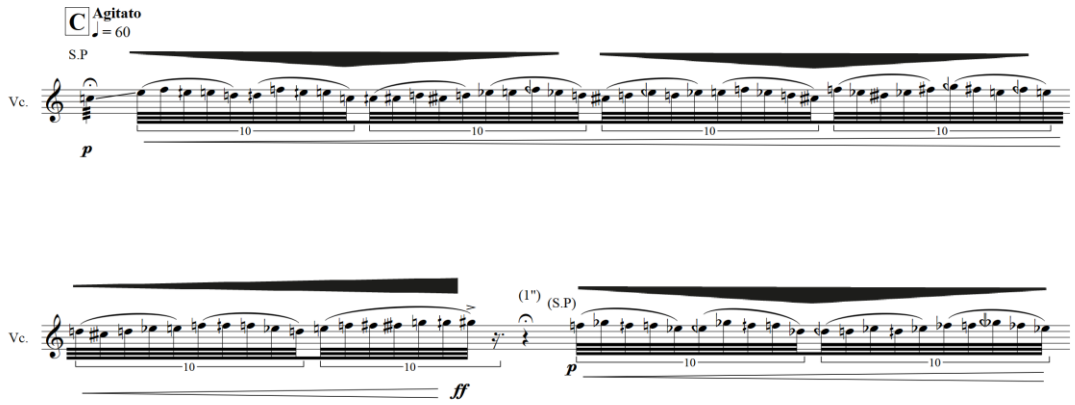

Figure 12 - Hearing Voices bars 6 - 7

It will be immediately apparent, on even cursory listening to this section, that the delay, coupled with the reverberation, generates a textural quasi-harmonic quality. While not harmony in the traditional sense, I have used these quasi-harmonic textures in various ways throughout the piece.

An additional element concerning the writing can be demonstrated here, that of writing appropriately, and being informed by the effects one is using. In order to create unity and coherence from a timbral point of view, the cello writing began to take on some of the qualitative properties of the electronic effects.

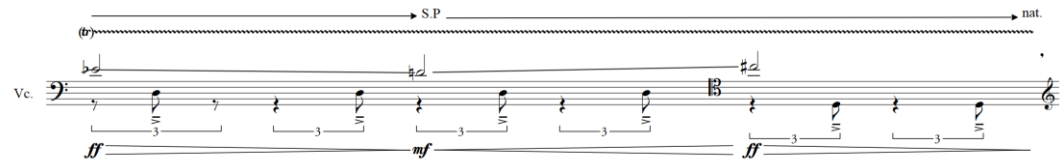

Figure 13 - Hearing Voices bar 16

[12] The entire signal is sent to a reverberation effect post any effects.

Figure 13[13] shows the lower voice in the cello, on repeated notes, imitating a delay effect. That the signal is also processed at this point by delay blurs the lines further between the instrumental content and the electronics. The extensive use of extended technique throughout the piece augments this quality, creating a sonic palette which is seemingly neither purely electronic, nor purely acoustic, moving along an axis between the two points. Figure 14 demonstrates this movement along this axis.

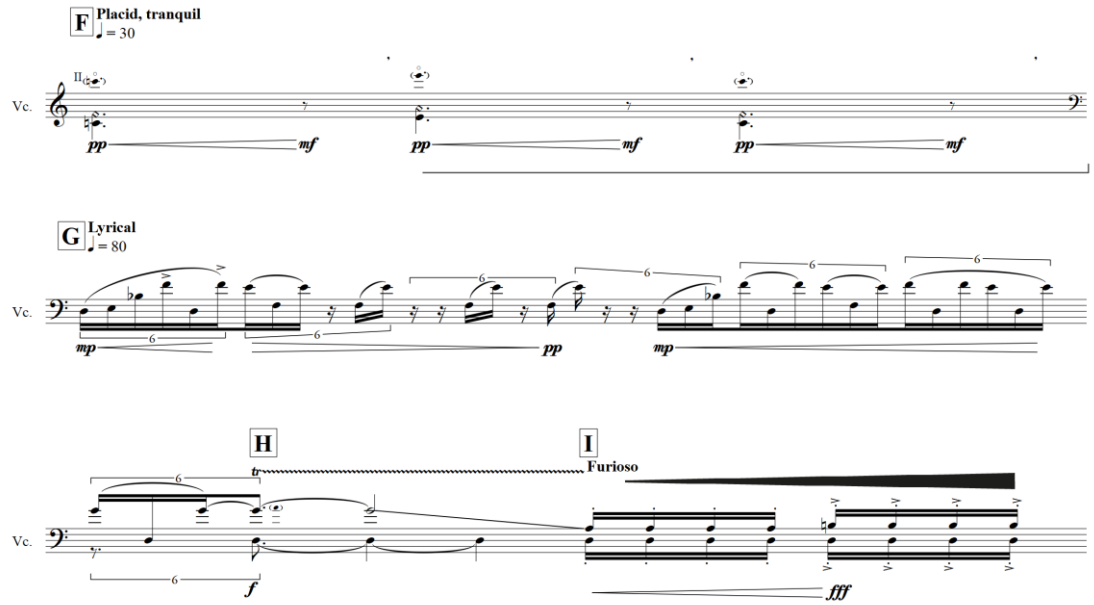

Figure 14 - Movement along the axis of acoustic/electronic, and timbre generating tension/release

Figure 14[14] also demonstrates another important role of timbre in the piece, that of movement and stasis, or tension and resolution. As explained earlier, each 'rehearsal mark' indicates that the signal is to be passed through a different set of effects, detailed here:

F – Grain freeze, frequency shifter and filter
G – Reverb only
H – Delay with modulation
I – Reverb only

The timbral shifts that occur within this section are obvious upon listening. Section F is static, using high frequencies and a grain freeze to present stasis, almost cadence-like. In the middle sits melodic, lyrical material (I will discuss the role and importance of melodic, motif-like material later in this section), and another timbral shift in H and I propels the movement of the piece forward, along with the rhythmic quality of the material. But it is not any harmonic progression, tonal or otherwise, that has generated this, the two non-tonal pitch centres of C and then D do not function structurally. It is

[13] c. 1'30' in the recording.
[14] c. 1'40' in the recording.

the combination of timbre and motivic material that generates this sensation of tension and release, here and throughout the piece.

> Another valuable pre-occupation in my recent music is that the invention is provoked by timbre, though not *defined* by it…When I compose, I usually write into full score, I don't orchestrate…I think of the sound as I write the note. The thought of a specific instrument inspires a specific kind of line.[15]

Like Benjamin, I usually write into full score. Timbre and invention are inextricable for me. My aural imagination is, almost always, initially provoked by some quality of sound, not usually by some specific melodic figure or harmonic combination. With instrumental writing, the palette is hugely varied, but within given parameters. Instruments can be broadly defined as being bowed, plucked, blown, hit, or some combination of the above. If I hear a pizzicato sound on a double bass or cello, for example, I immediately have a complete set of associations (some might say historical baggage) associated with that sound. When a melodic line does present itself to my imagination, it is always at least partially timbrally formed – I know whether the instrument I am hearing in my mind's ear is a string instrument, percussion or woodwind etc. Working with electronics is a different proposition altogether. As I've shown in the above discussion of *Hearing Voices*, one way of limiting and defining this timbral palette is to use sounds produced by an instrument, albeit electronically modified in real time.

Spectralism

As I was writing Prism and Hearing Voices, I became interested in the musical movement commonly known as *spectralism*. For a working definition of a somewhat problematic term, Gerard Grisey's definition will serve adequately as an introduction:

> Spectralism is not a system…like serial music or even tonal music. It's an attitude. It considers sounds, not as dead objects that you can easily and arbitrarily permutate in all directions, but as being like living objects with a birth, lifetime and death. This is not new. I think Varese was thinking in that direction also. He was the grandfather of us all. The second statement of the spectral movement -- especially at the beginning -- was to try to find a better equation between concept and percept -- between the concept of the score and the perception the audience might have of it. That was extremely important for us.[16]

As is often the case with labels and art, many of the composers associated with the school reject being pigeon-holed into what they perceive as a reductive artistic category. Grisey's objection to the term 'spectral music' was that it is 'very limiting, as are all descriptions. It's something like a sticker.'[17]

[15] Nieminen, *George Benjamin*, 28.
[16] From an interview with Gerard Grisey, published in the journal *20th Century Music, Vol. 3, Issue 3 (1996*).
[17] From the same interview.

Joshua Fineberg characterises spectral music thus: '[The] panoply of methods and techniques' used are secondary, being only 'the means of achieving a sonic end. The composition of spectral music is concerned with timbral structures, especially when decisions about timbre are informed by a mathematical analysis known as a Fast Fourier Transform (FFT). FFTs can be used to provide graphs that illustrate details about the timbral structure of a sound, which might not be initially apparent to the ear.'[18]

Much of this sounds rather abstract, and the resultant compositional working methods were extremely diverse. However, to take one example, in his 1975 work *Partiels* (1975), for 18 musicians, Grisey looked at a sonogram analysis of a pedal E with a fundamental frequency of 41.2Hz. From analysing the component elements of this complex tone, including their dynamic strength, he orchestrated these constituent overtones, gradually introducing 'inharmonic' elements. The phenomenon of 'inharmonicity' occurs 'when any component is not a whole-number multiple of the fundamental.'[19] The process engaged in by Grisey in this piece is remarkably similar to the process of using an additive synthesiser, in which overtones have to be manually added to a simple tone in order to create a complex tone.

Awareness and usage of the natural harmonic series is hardly a new technique, Messiaen's *chord of resonance*[20] is arguably a proto-spectral chord – built around the overtones of the fundamental C.

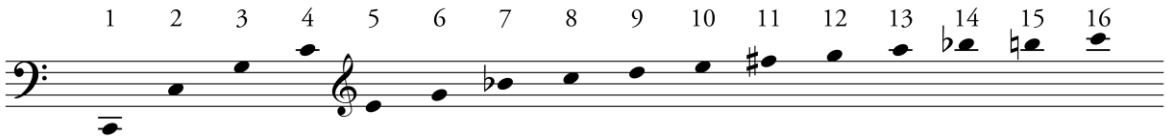

Figure 15 - Overtones of the C fundamental

The 4th, 5th, 6th, 7th, 9th, 11th, 12th and 15th partials of the fundamental are tempered and stacked on top of each other, and made to fit Messiaen's third mode of limited transposition:[21]

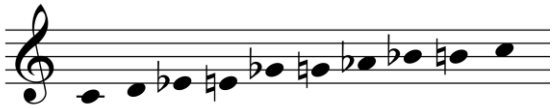

Figure 16 - Messiaen's Third mode of limited transposition

[18] Joshua Fineberg (ed.), *Spectral Music: History and Techniques* (Amsterdam: Overseas Publishers Association, 2000), 2.
[19] Rose, François Rose, *'Introduction to the Pitch Organization of French Spectral Music'* in *Perspectives of New Music* Vol. 34, No. 2 (1996).
[20] As referred to in Olivier Messiaen, *Technique Of My Musical Language* (Alphonse Leduc, 2002).
[21] A full explanation of the modes of limited transposition can be found in Messiaen, *Technique Of My Musical Language* (Alphonse Leduc, 2002).

The chord that is formed, according to Messiaen, reflects the 'natural' shape of this harmonic series – the (tempered) partials are all within the 3rd mode of limited transposition, but the distribution is determined not by the mode itself but by considering each note as a partial of the fundamental:

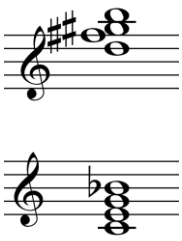

Figure 17 - The chord of resonance

This resonance is described by Messiaen as both a theoretical construct *and* a physical sensation – the resonance is felt and heard as much as it is rationalised. My growing awareness of this physical connection between notes in the harmonic series has informed my harmonic development. Like many beginning composition students, I was initially cautious of consonance – it sounded 'old', and dissonance was an obvious way to sound 'new'. George Benjamin describes his experience at the Paris Conservatoire:

> …when I played more consonant chords on the piano, other students at the Conservatoire made fun of me, the teachers too. They all found it funny, except for Messiaen, of course.[22]

The rise of spectralism, and the various compositional responses to it, re-awakened my interest in vertical harmony. I'll now discuss exactly how this manifests itself in the later works in the portfolio.

The vertical dimension in *Jo-Ha-Kyū*, *Tendrils, Slipstream* and *Fire Whirls*

My study of spectralism has gradually shifted my practice towards a more structured approach to the vertical dimension in my music. After my experimentation with extended timbral possibilities in *Hearing Voices*, I was left with a sense of frustration – *Hearing Voices* had been a successful piece, and I will continue to explore these extended timbral possibilities, but I felt extremely motivated to explore the vertical dimension more fully. As I have become more interested in harmony, away from a mainly textural/timbral approach, my methodology has altered as a result, and I have encountered several issues that require elucidation. I will discuss the role of the bass, pitch-centricity and the emergence of clearer pitch centres in my music.

[22] Nieminen, *George Benjamin*, 9.

Bass function

> There is [a] problem in the idea of harmony in today's music; the bass. It is simple: you play a loud, long single note in the bass, with very few other notes around it. A classical bass results. Everything that happens above relates to this bass note in a way reminiscent of tonal thinking…there is [also] the linear bass…This is a bass line where the notes sound only momentarily, giving a horizontal energy to the writing which doesn't give the bass time to settle, to resonate[23].

Benjamin rightly outlines the problem, as he sees it, with the conventional or traditional bass function. In functional harmony, once a tonal centre is established by the bass the rest of the harmony becomes subordinate to it. The ear perceives the lowest note in a chord as the foundation of the harmony – if this note is in the bass register the sensation of foundation is magnified and much more pronounced. While I don't consider this to be as much of a problem as Benjamin, I don't always wish the harmony to be this clearly defined. I often use this linear bass to create horizontal energy without subordinating the rest of the harmony to the bass line. Figure 19 shows the string parts of the opening movement of my work for large ensemble, *Jo-Ha-Kyū* (2013). A term taken from the Japanese theatre, Jo-Ha-Kyū roughly translates as 'beginning, middle and end.'[24] The term originated in the theatre, but is more broadly a general aesthetic principle, which was applied to the tea ceremony, several martial arts, and describes a slow build up with a final flourish. I added an introductory movement to this structure, titled *Netori*. The *Netori,* was the musical introduction to a Japanese Noh play, most often with the shakuhachi heavily featured. The opening movement is constructed as a feature for the piccolo, which plays music inspired by typical shakuhachi melodies (Figure 18).

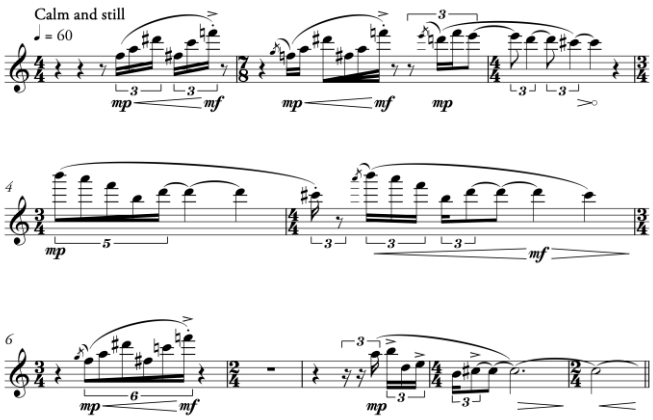

Figure 18 - Jo-Ha-Kyū bars 1 - 10 (piccolo*)*

[23] Nieminen, *George Benjamin*, 16.
[24] Masaru Sekine, *Zeami and His Theories of Noh Drama* (Colin Smythe Ltd, 1985), 161.

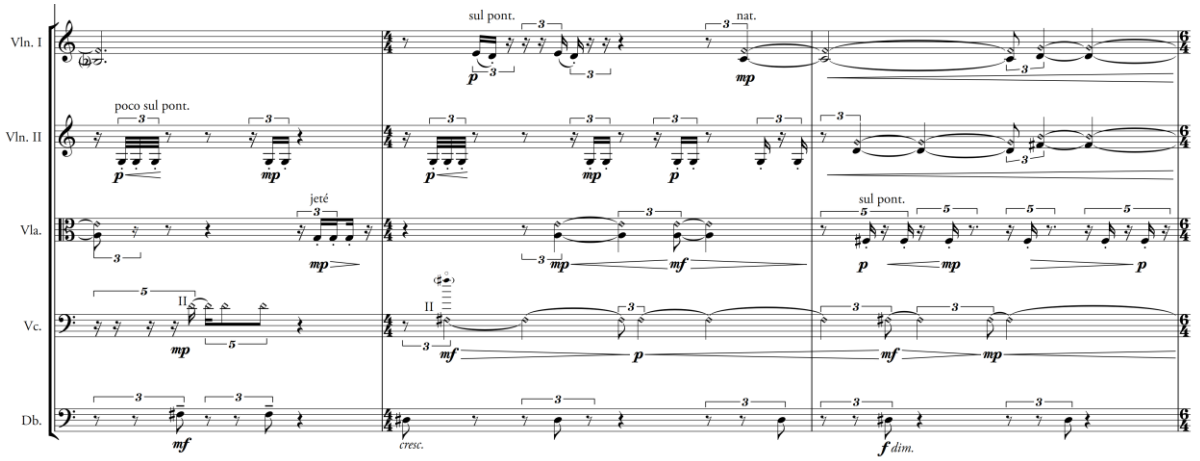

Figure 19 - Jo-Ha-Kyū bars 13-15 (strings)

The bass in Figure 5 has its resonance curtailed by only sounding for a short time, the 'linear bass' as described by Benjamin. The bass note in this register doesn't have time to settle and resonate as a functional bass note would. The harmonic pacing at this point is also quite slow – chordal changes happen roughly only every bar as shown in Figure 20. The relative stasis of the harmony combined with the lack of resonating bass results in an ambiguous harmonic quality.

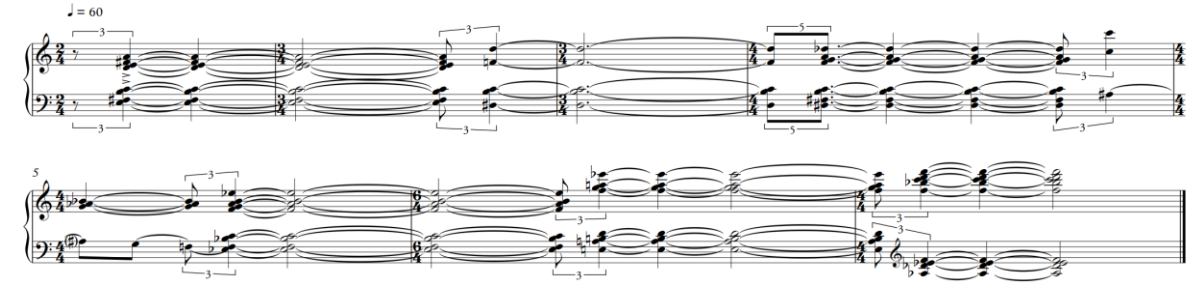

Figure 20 – Jo-Ha-Kyū harmonic pacing, bars 11 - 17

Another solution to the bass problem is to simply remove bass frequencies altogether. For short periods of time, and in the appropriate textural density and logically appropriate place, removing the bass can be an effective method for avoiding traditional bass functionality. *Figure 21* shows the final bars of the introductory movement of *Jo-Ha-Kyū*, the *Netori*. I deliberately wanted to create a kind of harmonic stasis, a textural and harmonic pre-figuring of the first movement proper. Removing the bass entirely at this point serves this purpose extremely well. In a similar vein, I create this harmonic stasis with the absence of bass at the opening of *Slipstream*, my 2014 piece for all-Australian String Orchestra *Ruthless Jabiru*, as part of Sound and Music's[25] *Portfolio* Scheme. Figure 22 shows the opening section, in which an ascending melodic figure, played by the violas in the middle register is

[25] Sound and Music is the national charity for new music. The *Portfolio* scheme provides a key development opportunity for composers to create new work with and for some of the UK's leading ensembles and presenters of new music.

accompanied by high harmonics in the violins and lower strings. Again, the intention was to create a kind of harmonic stasis, before introducing more clearly-defined pitch centres.

The avoidance of bass frequencies is a compositional device I tend to use in introductions, and, for short periods of time it is highly effective. However, when working with longer musical structures I much prefer the completeness of sound that using the bass register offers, and I have gradually come to centre my harmony around what I call non-functional pitch centres, which I will discuss in the next sections.

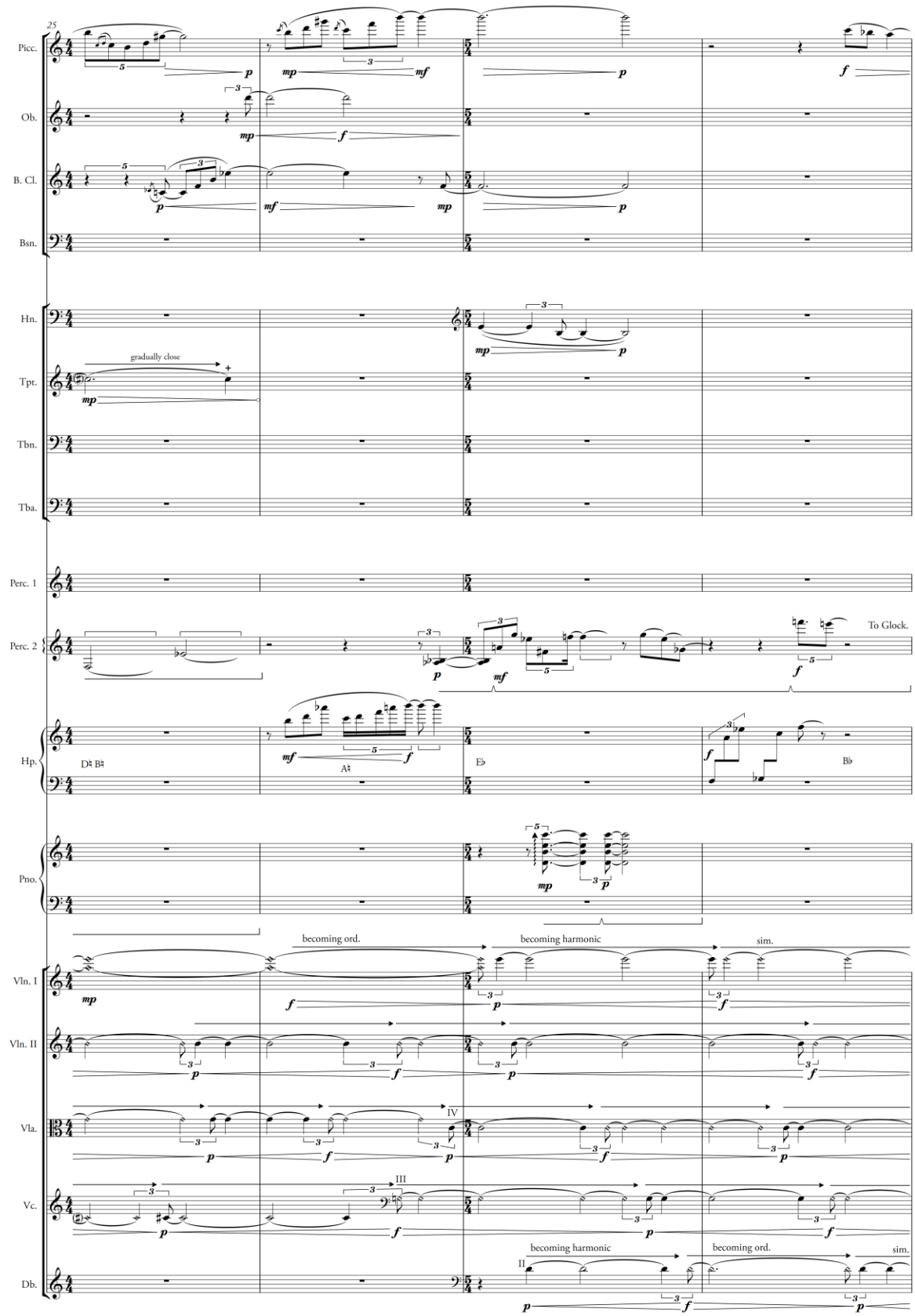

Figure 21 - Jo-Ha-Kyū bars 25-27

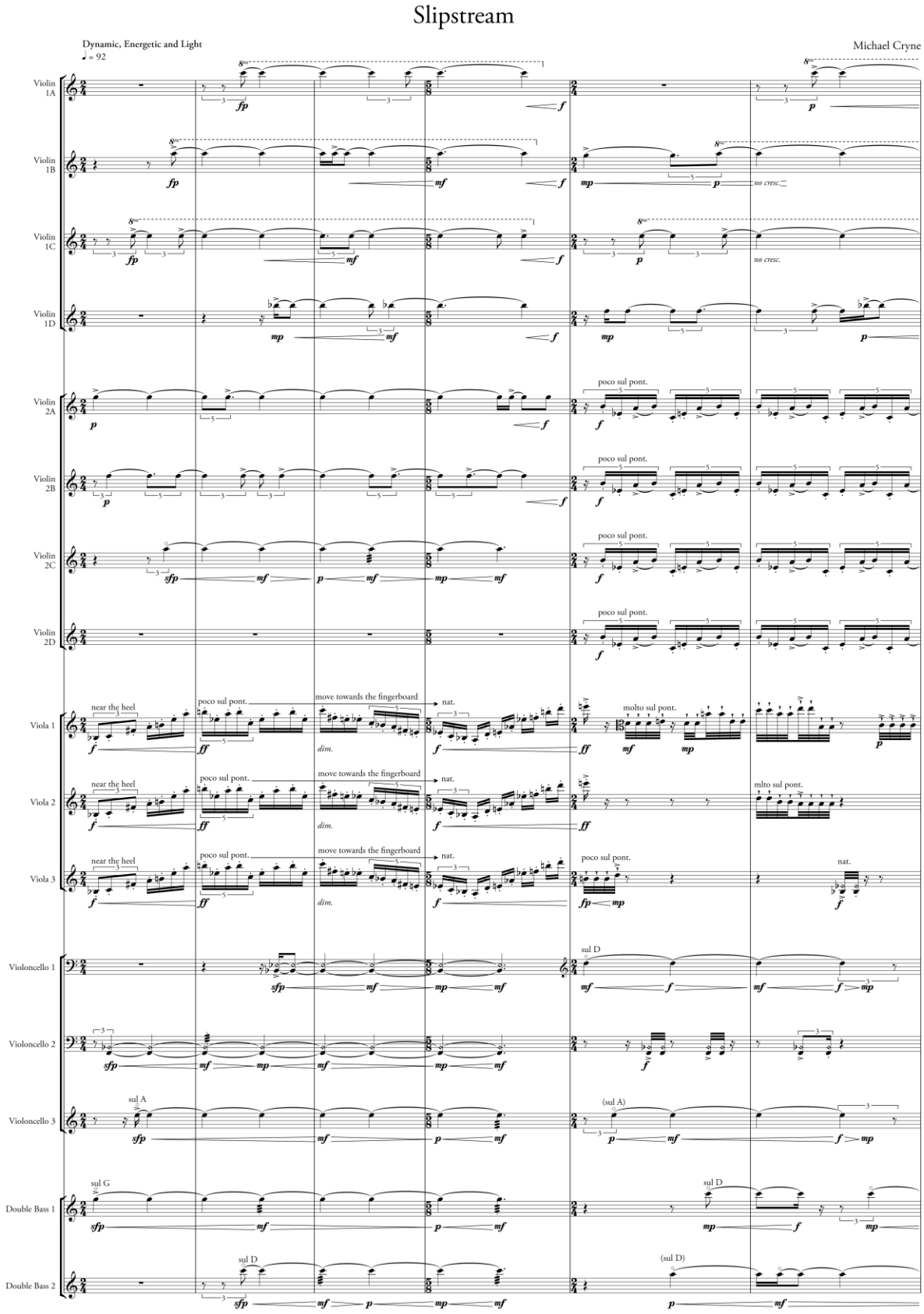

Figure 22 - Slipstream opening

Harmonic Fields in *Jo-Ha- Kyū*

The emergence of these non-functional pitch or tonal centres has been a gradual, evolutionary process, in which I began to think more carefully about the horizontal dimension in my music. While lines weren't simply overlaid without any consideration to their vertical implications, horizontal and textural concerns were more significant priorities. A lot of the modernist works and philosophical underpinnings had left a significant impact on me – although I found some of the 'rules' somewhat proscriptive. As Esa-Pekka Salonen says:

> "As a European Modernist, Salonen said, he had been inculcated with negatives, such as to avoid melody, harmonic identity and rhythmic pulse. Secretly, though, he was attracted to John Adams, who was then dismissed overseas as being simplistic. "Only after a couple of years here did I begin to see that the European canon I blindly accepted was not the only truth," he said. "Over here, I was able to think about this rule that forbids melody. It's madness. Madness!"
>
> Without a European musical elite looking over his shoulder, Salonen began to feel that it was fine to have his own ideas. "My focus moved from an ideological principle to a pleasure principle" is how he described the composition of his breakthrough piece, "LA Variations," which the Philharmonic premiered in 1997.[26]"

Esa-Pekka Salonen's *LA Variations,* an orchestral work composed in 1996, was an important work (for me), which I discovered during my PhD studies. Salonen describes in the programme note this 'ambiguity, combining serial and non-serial thinking [which is a]…characteristic of my work since the mid-eighties'. I see this as a creative ambiguity, in which all possibilities are opened. A composer can combine elements of serial thinking, free atonality, modality, traditional tonality and any variant thereof, even in the same piece, always assuming of course that these various elements and approaches are handled with skill and care. This is postmodern music, in which Jean-Francois Lyotard's 'incredulity toward metanarratives[27]' is writ large. This approach, neatly summarised by Salonen, greatly influenced my harmonic approach when composing *Jo-Ha- Kyū*. The opening movement, *Netori* takes its material from a central melodic theme, which is only presented in its complete form at the opening of the third movement in the flute (*Figure 23*).

[26] Taken from a profile of Esa-Pekka Salonen in the *Los Angeles Times*, 17 September 2008

[27] Lyotard famously rejected the modernist idea of a central, unified nexus as 'grand narrative' or 'meta-narrative' in his 1979 book *The Postmodern Condition*.

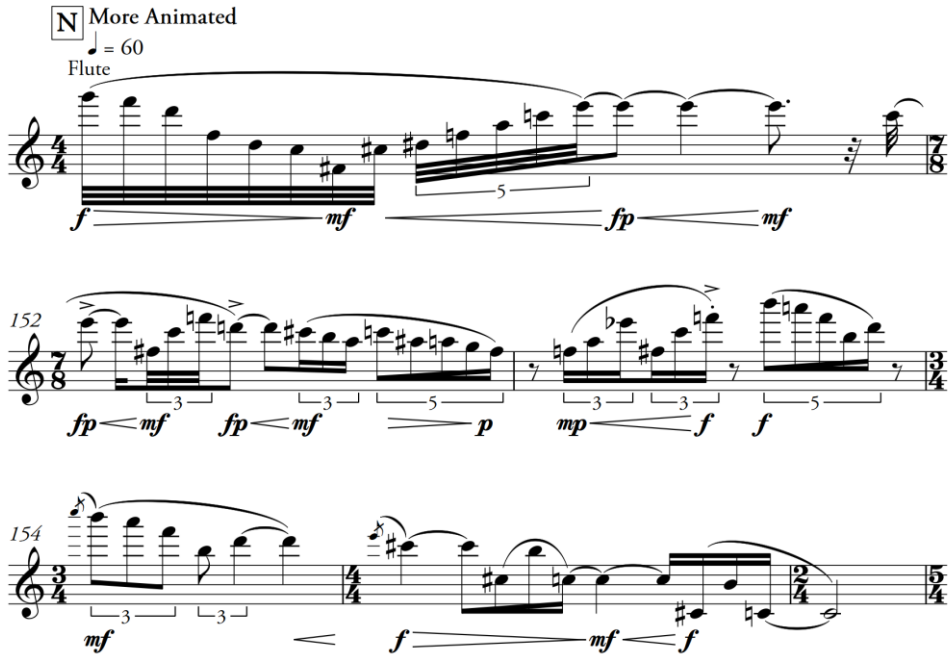

Figure 23 - Jo-Ha-Kyū main melody

This melody was the first element of *Jo-Ha-Kyū* I composed. This melody is freely atonal, with no real pitch centre, and was composed by intuition. In the first movement I fragment this motif, breaking it up and disrupting the contour to provide a more introductory feel. I'll discuss the various ways in which I manipulate melodic cells later in this chapter, but cells created from sections of this melody also provide a basis for the harmony as well. Certain elements of this melody provide the basis for chords – I borrowed the sense of the interchangeability between vertical and horizontal from Salonen – his use of individual chords to create modes, scales and bases for serial processes is something I've come to use widely in my own music. At the opening of the LA variations. Salonen uses two interlocking hexachords to form the harmonic basis for all the music, subjecting the chords to serial processes, making them into hexatonic modes, or using them with a substantial degree of chromatic freedom. In the opening bars, Salonen takes the two chords and presents them as overlapping lines, each played at different speeds in a canonical manner (*Figure 24* shows a reduction of these overlapping lines).

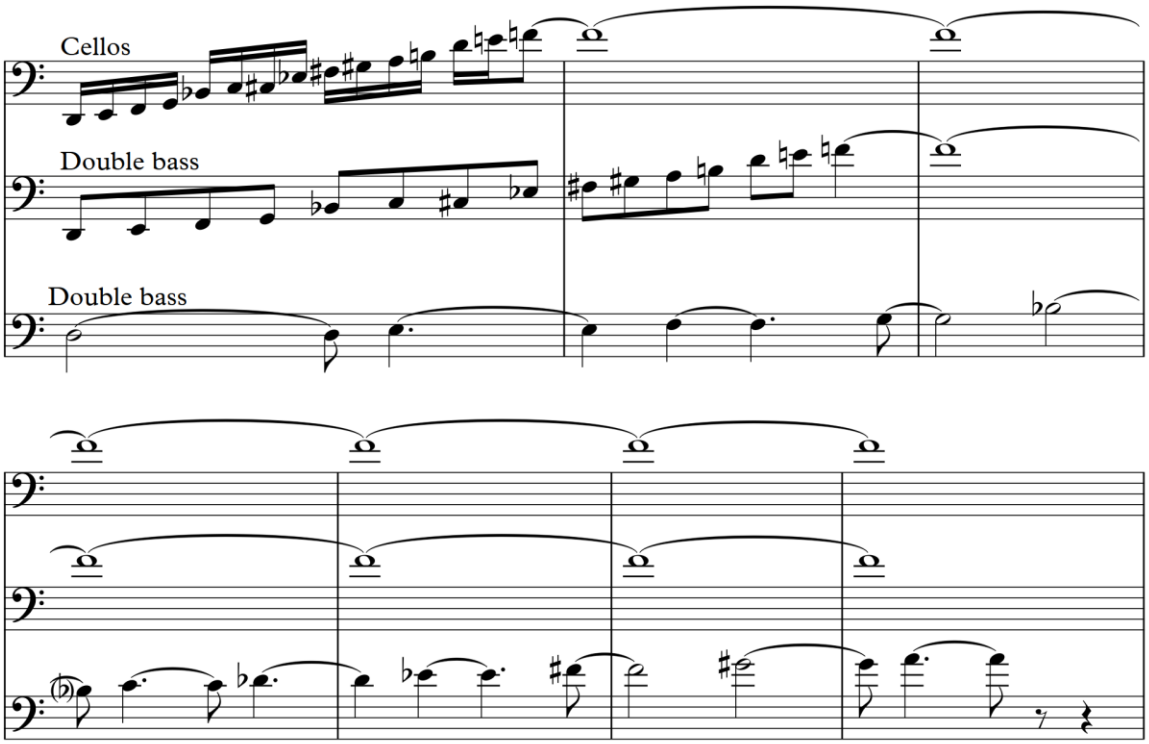

Figure 24 - Opening of LA Variations (cellos and basses)

Jo-Ha-Kyū takes this idea of interdependence between horizontal and vertical, and develops it further. From the melody presented in *Figure 23* I isolated certain fragments and created chords from them.

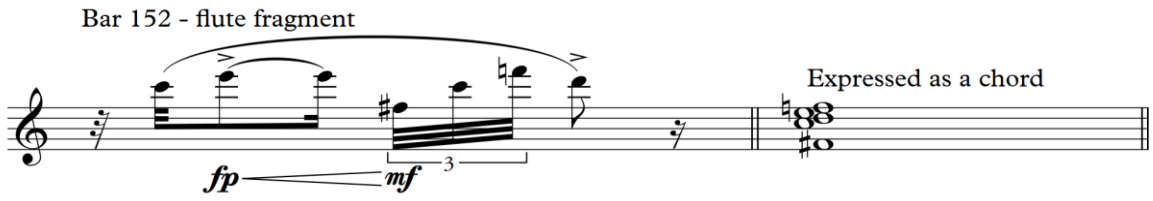

Figure 25 - Melodic fragment expressed as a chord

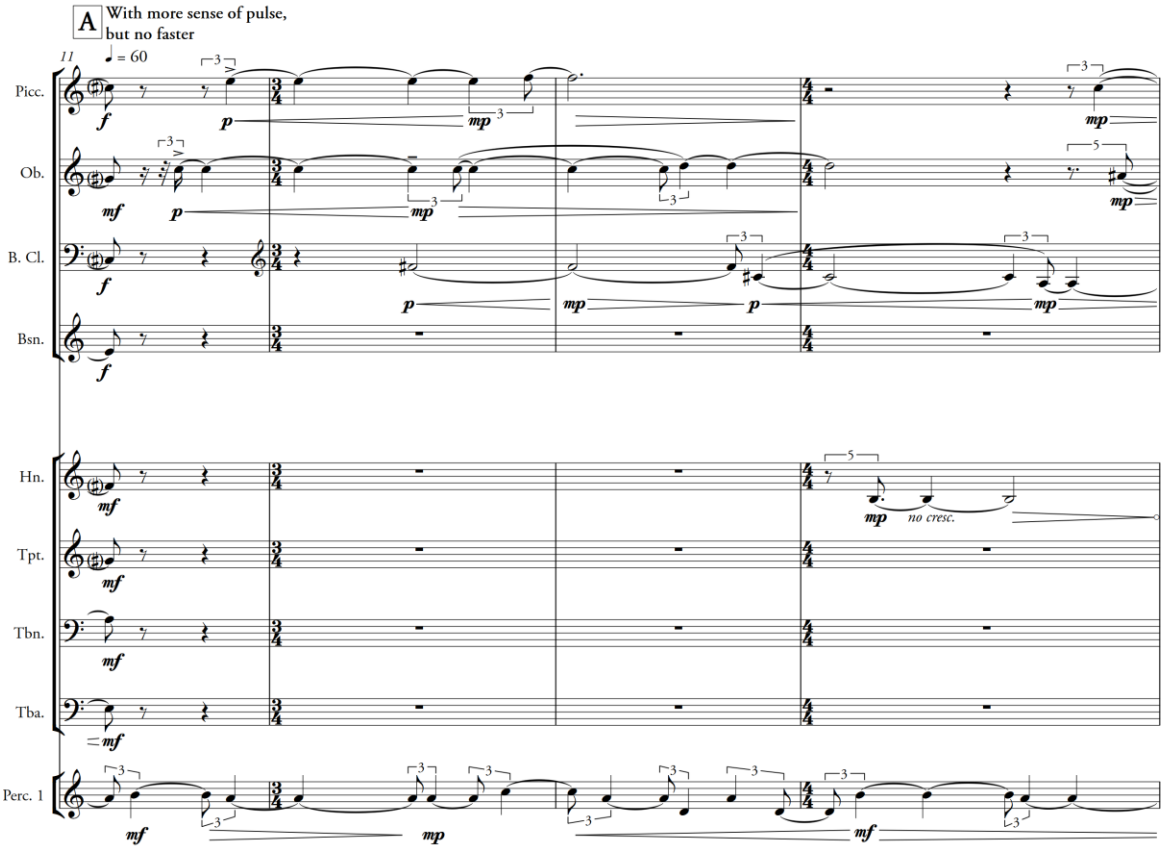

Figure 26 - *Jo-Ha-Kyū* bars 11 – 14 (woodwind and brass)

Figure 26 shows the chord created from the melodic material in *Figure 25* elongated and overlaid to form a moving chordal texture. The harmonic quality is the same, but the more gradual introduction of pitches generates more aural interest than presenting a vertical homophonic chord. The derivation of pitches from a single chord, along with their careful control, means that harmonic 'fields' are created. The percussion and brass are simultaneously playing an ostinato on A, B and D, creating a second layer of musical activity and harmony – this ostinato continues through the entire movement, and the harmonic fields shift in relation to this constant. How quickly these harmonic fields shift gives a sense of harmonic rhythm and pacing that didn't really exist within my work up until this point. *Jo-Ha-Kyū* marks a definite shift in my approach towards a more careful consideration of the vertical dimension. As I began to think about the vertical dimension more, I began to investigate ways of establishing firm pitch centres. As harmonic pacing and progression became more important to my music, I felt myself wanting to employ pitch centres. I'll discuss the use of pitch centres in three of the later works in the portfolio, *Tendrils*, *Slipstream* and *Fire-Whirls*.

Pitch centres in *Tendrils*, *Slipstream* and *Fire-Whirls*

Tendrils is a piece I wrote in 2013 for the Kaleidoscope Saxophone Quartet. Formally, the piece is constructed around the idea of three 'tendrils' – harmonically free sections in which manipulations of the line are allowed to determine the vertical harmony 'unwinding' from more pitch-centred sections, becoming longer in turn.

Tendrils is slightly unusually scored in that it has two soprano saxophones, one alto and one tenor. The scoring is worth noting as the writing is most confined to the upper range of the tenor avoiding the lower range for a great deal of the piece. Tonal centres drift in and out of focus:

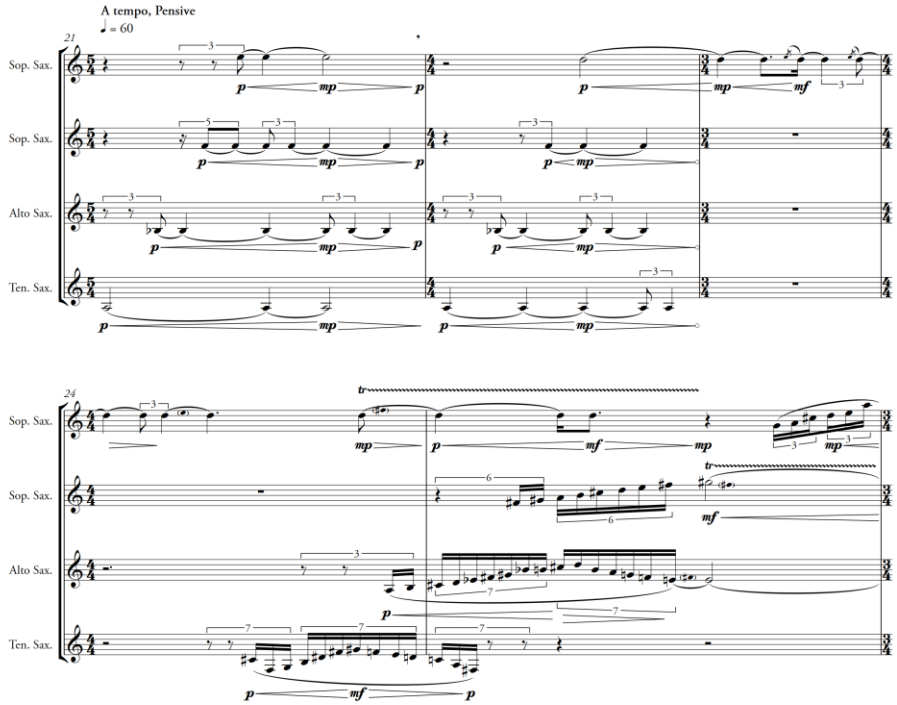

Figure 27 - Tendrils bars 21 - 25

In the example above (Figure 27), the pitch centre shifts over the course of a bar (bar 21) from A3[28] to D5 (bar 22). The tonal centre is shifted by a fourth – I employ changes of pitch centre using consonant intervals (perfect 4ths, 5ths etc) when I want the change of pitch centre to be smooth, as in the above example. However, rather than the pitch centre being defined by the bass note, the focal instrument shifts from tenor to soprano I – the lowest note and the highest are both capable of determining the pitch centre, depending on the scoring. The pitch centre remains as D5 over the next few bars, as the writing becomes more contrapuntal, and line-focussed. The interlacing, contrapuntal lines obscure and gradually dilute the strength of the pitch centre.

[28] For the purposes of the example, the score has been transposed to concert pitch.

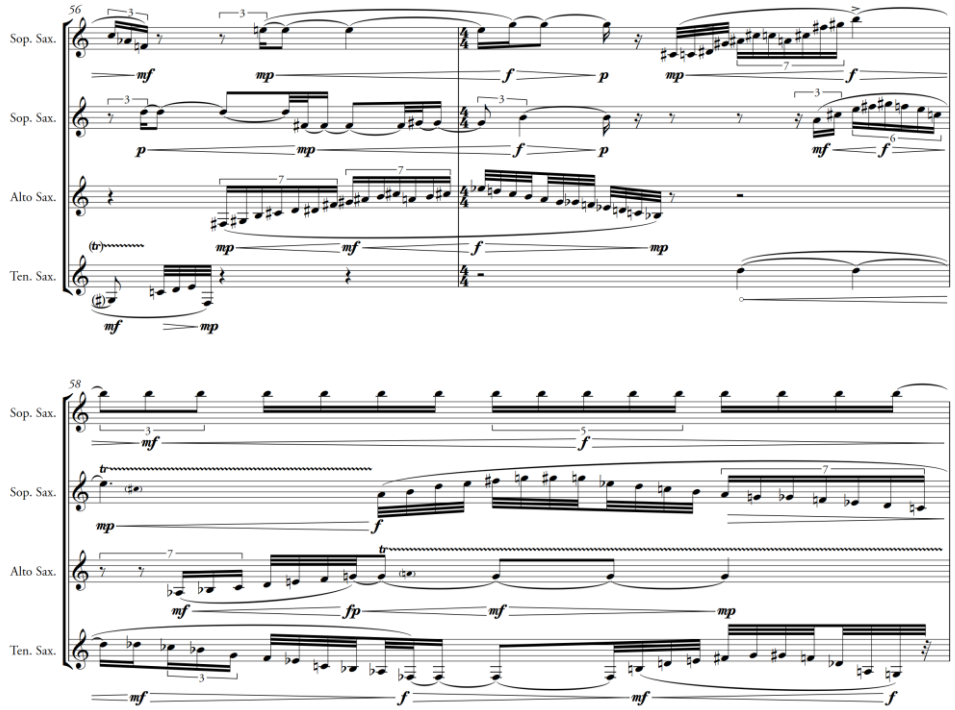

Figure 28 - Tendrils bar 56

In the example above, (Figure 28) the pitch centre is consistently placed in the upper register, and 'hung' from the top note. While the pitch centres are being strongly diluted at this point, they are still audible as pitch centres, mainly due to their length. Hanging harmony from upper notes is a technique I developed further with *Slipstream*. Looking at rehearsal marks B to C (bars 33-38 in the full score), there is a clear and definite pitch centre of D established. Figure 29 shows a simplified version of the harmonic outline. There are three layers going on at this point – a high pedal point, setting the pitch centre of D, a scalic, winding passage all based on a D7 chord, and a third chordal section, in which added note harmony all based on the chord of D is played by the violas and cellos. Pitch centres here are clearer than in *Tendrils* – the D is sustained for an entire six bars, before moving away. The vertical is if at least equal weight in *Slipstream* as the horizontal, the apparent motion of the line is merely a decoration of the chord. The pitch centre is extremely clear, and the harmony transparent, but 'hung' from the top, rather than built from the bass up. *Slipstream* makes much use of this harmonic device.

Figure 29 - Harmonic reduction of bars 33-38 of Slipstream

Tonal centres from the bass in *Fire Whirls*

Fire Whirls is a 3 minute piece I composed for the London Symphony Orchestra in 2014, as part of the Panufnik scheme for young composers. The piece uses a much more consistently traditional harmonic texture than many of the works that precede it in the portfolio – that of bass line and chords. As my interest in controlling the vertical dimension increased, I decided to plan the chordal structure of much of the piece very early on in the composition process. The title of *Fire Whirls* is significant, and I will discuss this more fully in Chapter 2, but it is important to note at this stage that the Fire Whirl, or Fire Tornado, consists of swirling vortices, interrupted by updrafts. For the vortex sections, I wanted very florid and mobile material in the woodwinds, and for the speed of the vortex to increase with each iteration (the vortex sections repeat three times). However, I wanted the speed to increase not by the music actually getting faster but by increasing the harmonic pacing – the rate at which the chords change.

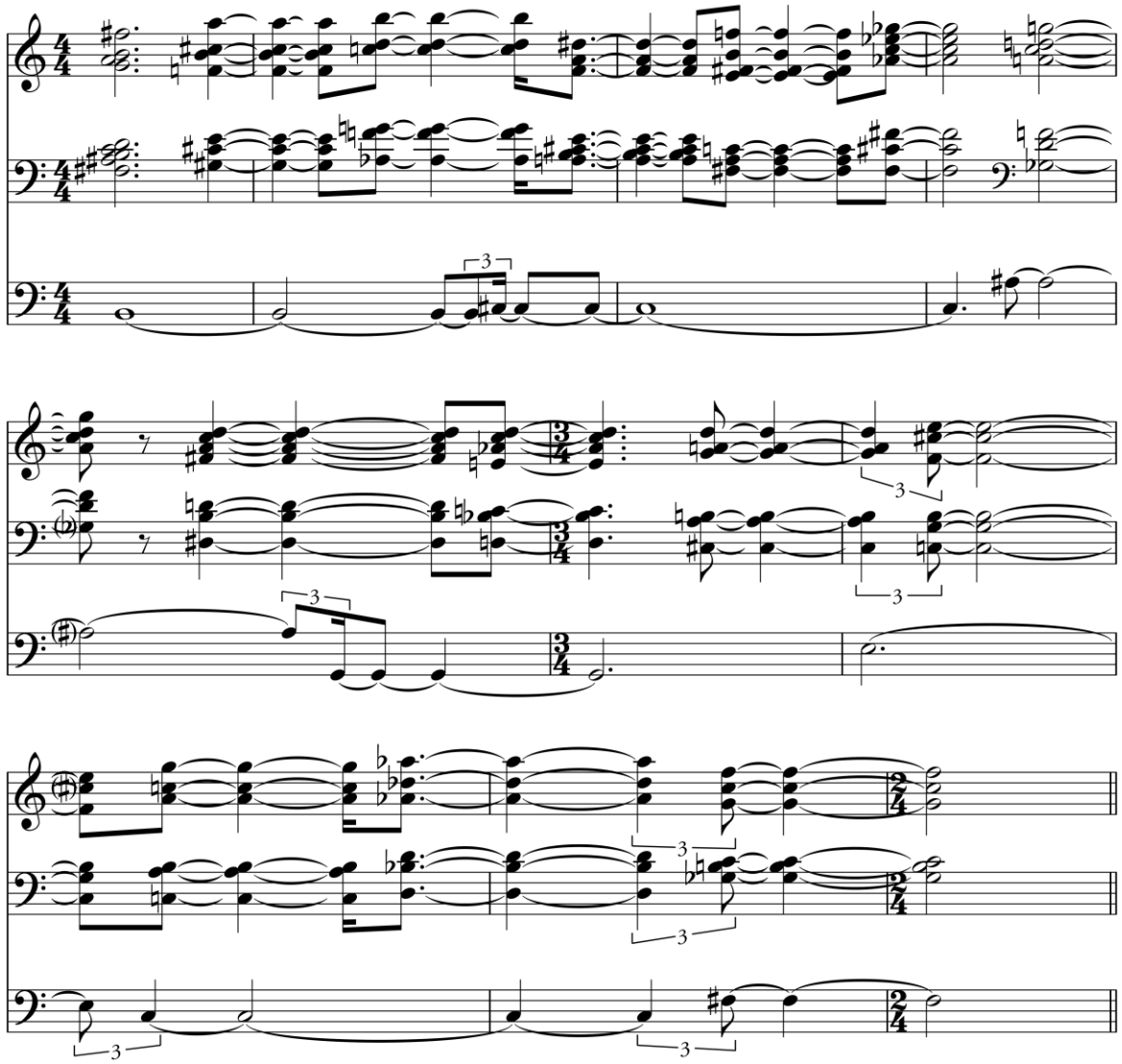

Figure 30 - Fire Whirls harmonic structure - first vortex section

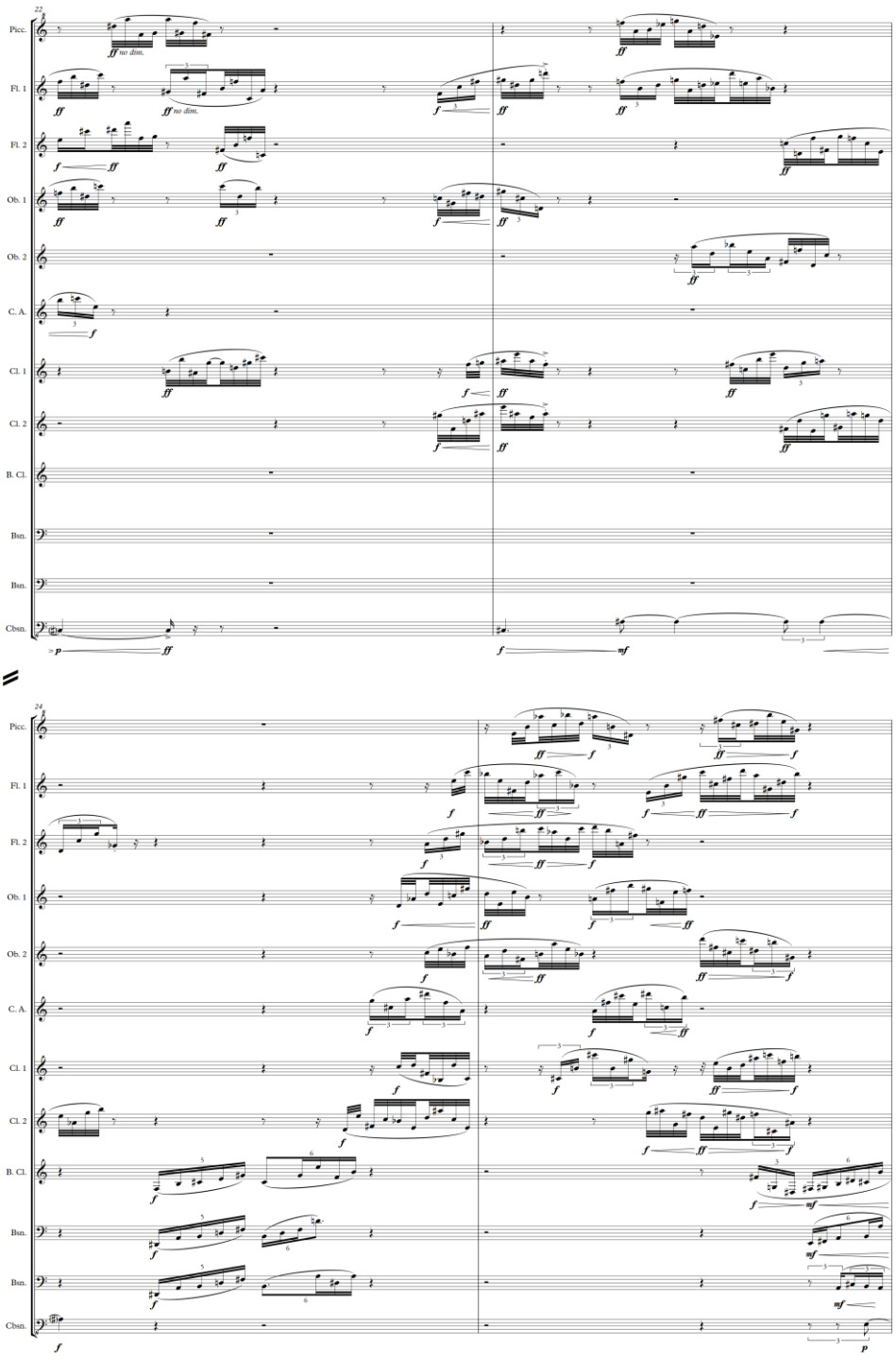

Figure 31 - Fire Whirls bars 22-25 (woodwind)

Figure 30 shows the (simplified) chordal outline of the first vortex section (bars 20-28 in the full score). While the full score will show that there's considerable blurring and overlap as the chords are orchestrated, I found this harmonic 'scaffolding' to be extremely useful. Figure 31 shows a section of this first vortex – as will be obvious, the texture is florid and the gestures elaborate. In order to maintain clarity, this well-defined harmonic framework seemed necessary. While these chords become gradually more complex, break down and blur with each iteration of the vortex, there is a

clear harmonic pace to each of these sections, which increases by a proportion of roughly a third at each iteration. For this change of pace to be clear, it seemed absolutely necessary to me that the vertical harmony be planned and controlled, with pitch centres clearly defined. For this purpose, the classical bass, whereby the bass note defines the harmony above it was an obvious choice. Because of the florid texture, and the need to highlight harmonic pacing, the overall harmonic structure needs to have a significant degree of clarity about it. The more traditional bass/chord approach serves this purpose extremely well.

The second half of works in the portfolio mark a significant change in approach and priorities in my composition process. From *Jo-Ha- Kyū* onwards, I began to re-prioritise vertical harmony, this interest in the vertical always co-existing alongside a desire for interest within each line. *Fire Whirls* has the most defined harmonic structure in the portfolio, but the listener will also hear the overlapping lines in each of the vortex sections – counterpoint is a constant in my process. Harmonic rhythm, a harmonic ebb and flow, help provide a coherent listened experience. I was becoming dissatisfied with a predominantly textural approach. While exploring new textures is one of the most rewarding elements of being a composer, as well as a necessary part of the inevitable development process of music, there's a sense in which something is lost in the listened experience when a primarily textural approach is adopted, a level of aural coherence that I don't want to sacrifice. I will now explore the second major way in which I try to aid this aural coherence, namely the use of motifs or cells, and their role in my composition process.

Cell manipulation and coherence

As a composer working in a post-serialist aesthetic, I have always been aware of a tension between the (often complex) panoply of techniques employed by composers and the listened experience:

> …I realised – well, I knew already – that this was not what I wanted. These guys were drawing these unbelievable diagrams on the blackboard, systems and interactions, and all of that – and what did you hear of it in the music? All of that complexity, for what aural result?...Perception, hearing what's happening in music, had been so important with Gerard's (Grisey) music and Tristain's (Murail) music.[29] (Kaija Saariaho)

> The chief requirements for the creation of a comprehensible form are *logic* and *coherence*. The presentation, development and interconnection of ideas must be based on relationship. Ideas must be differentiated according to their importance and function[30]

[29] Tim Howell, *Kaija Saariaho: Visions, Narratives, Dialogues* (Ashgate , 2011), 9.
[30] Arnold Schoenberg, *Fundamentals of Music Composition* (Faber and Faber, 1970), 1.

So says Arnold Schoenberg, the father of serialism. There's no doubt that Schoenberg, Webern, Boulez, Babbitt and the many other composers who helped define the serialist aesthetic were concerned with crafting a musically coherent experience. In a field often filled with invective and sometimes offhand dismissal of different aesthetics and working practices, it's worth reminding oneself sometimes that the great works of the serial composers were well-intentioned, in absolute earnest and crafted with the utmost artistry and skill. The question for me was always the aural intelligibility of what was being presented. Pre-composition forms a varying part of my compositional process, and I often craft a form around extra-musical content. But what has become of critical import to my own process throughout the creation of the works in the portfolio is the idea of the aurally coherent experience. As I have outlined earlier in this chapter, the increased use of pitch/tonal centres and the (relatively) greater sense of harmonic rhythm this provides is an important element of this process. However, the second element I wish to elucidate in this chapter is my use of motifs and cells, in helping to enhance this coherence.

Cell manipulation and development in *Jo-Ha- Kyū* and *Slipstream*

Royal Holloway is fortunate enough to have Japanese Noh theatre. The Handa Noh Stage, built according to traditional design, was a gift to the College in 1991 from the Japan Festival Committee and Mitsubishi Motors Corporation. The attractive exterior of the Noh studio and the vastly extended Noh auditorium were made possible in 1999 by a generous donation from Haruhisa Handa - a Japanese patron of the Arts. I worked in the Noh theatre in 2012 in a collaborative project with the Drama department at Royal Holloway, and became interested in Noh theatre and subsequently Gagaku, the court music of Japan.

As outlined earlier in the chapter, Jo-ha-kyû is a primary and ubiquitous principle of formal construction in Japanese arts, widely used in *gagaku* court music in Japan. It frequently describes the musical development on all formal levels. It can govern the structure of a musical program, the form of a piece, the development of a section, musical phrase or even of an individual note. It can be roughly translated as: jo = slow introduction, ha = faster build-up and kyu = fast conclusion. It is traditionally understood as a constant but extremely gradual, sometimes almost imperceptible acceleration of the music. On a highest formal level the different sections maybe clearly delineated as representing one of the three but when applied at lower levels the principle becomes more vague and implies mostly the slow change of tempo and a constant transformation from relatively formless introduction through more defined development to a fast rushing into a breakup.

As one might expect, Gagaku is a highly formalised music – the seating arrangement is prescribed, the order of entry of individual instruments happens according to a preset order, and pieces have a well-

defined multi-movement structure[31]. The Japanese composer Yoritsune Matsudaira (1907 – 2001) spent many years integrating many of the conventions of Gagaku into his music, which was mainly serial, although it explored open form and aleatoric processes as well[32]. *Jo-Ha- Kyū* uses some of these conventions, albeit in a much less formalised way than Matsudaira. One of the central aspects of Gagaku that I used was the principal of timbral transformation – each movement has a defining timbral character, and much of my pre-composition work was in defining how each individual movement would be timbrally structured. The other significant element of Gagaku I decided to incorporate into this piece was the idea of simultaneity. Like much Western music, Gagaku is based on multiple elements being gradually overlaid, and the piece introduces additional elements over the course of each movement, which are in turn modified and developed.

The bulk of the material comes from one melodic phrase, which is presented in its fullest form at the opening of the third movement. I had immersed myself in Shakuhachi music, but rather than try to directly imitate the *honkyoko* (solo traditional) style, I instead borrowed the type of melodic contour I heard frequently. I have referenced it earlier (*Figure 23*), but will re-produce it here. I will refer to this theme as the 'Ha' theme, since it is in the 'Ha' movement that it is heard in its fullest:

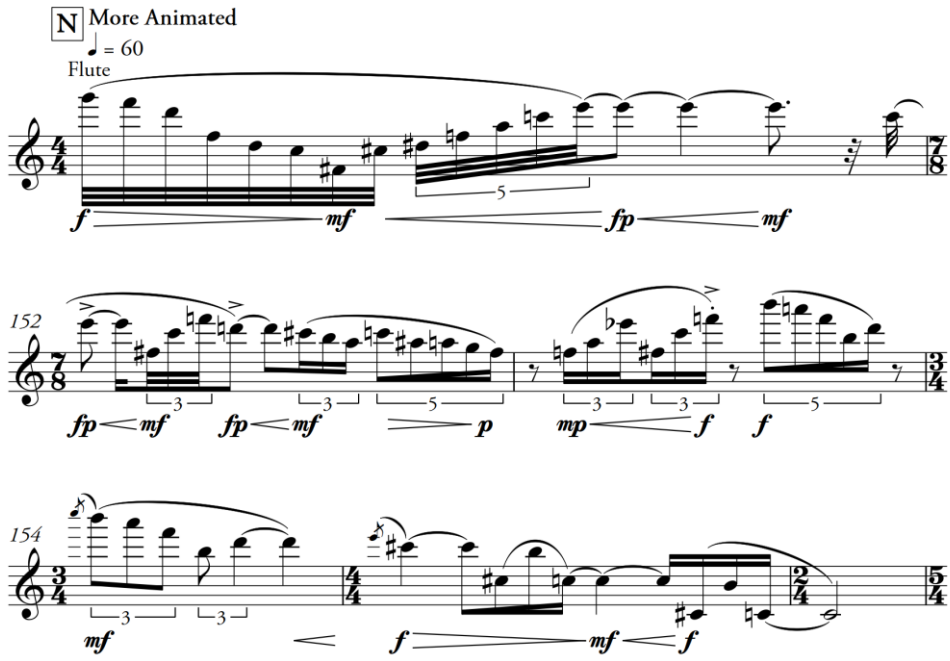

Figure 32 - Jo-Ha- Kyū main melodic phrase – the 'Ha' theme

[31] To read further on the conventions and traditions of Gagaku music, the University of Stanford has a collaborative research project in collaboration with Tokyo University of Fine arts: https://ccrma.stanford.edu/groups/gagaku/about-en.html

[32] For a full account of Matsudaira and his approach to Gagaku in his music, see Gagaku and Serialism: A portrait of Matsudaira Yoritsune (Contemporary Music Review), Routledge 1999.

I have already explained how sections of this melody are fragmented and layered to create harmonic 'fields', but Jo-Ha- Kyū also uses this melodic phrase throughout in various ways to enhance the unity of the piece.

The opening movement, the *Netori*, serves as a prelude, an introductory movement. Elements of the *Ha* theme are broken up into cells and presented as smaller melodic fragments, mainly played by the piccolo. In the example below (*Figure 33*), the piccolo plays elements from the 'Ha' theme, accompanied by a counter-melody in the bassoon.

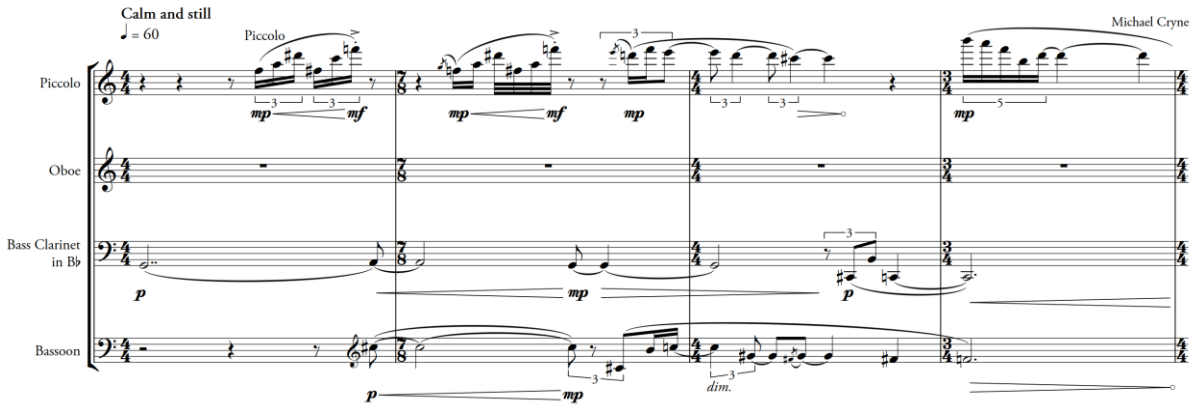

Figure 33 - Jo-Ha- Kyū opening (woodwinds)

With one or two chromatic alterations, the pitch material for this counter-melody is taken from the fragment of the *Ha* theme being played in the piccolo. This idea is continued throughout this movement; elements of the *Ha* theme are fragmented and largely presented unaltered, the most significant alteration being slight modifications to rhythmic values. Figure 34 shows an example of this – bars 153 and 154 of the *Ha* theme (see *Figure 32*) are swapped around. Bar 154 is transposed down the octave, and rhythmically altered to become a septuplet, and the material from bar 153 is transposed to begin on B and rhythmically augmented by half.

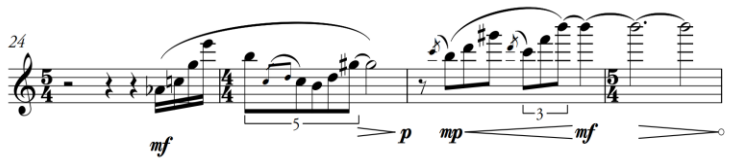

Figure 34 - Jo-Ha- Kyū bars 24-27 (piccolo)

The rest of the movement is constructed according to this principle. Broken up and modified, the cells melodic line is always in the foreground, despite the fact that the textural density ebbs and flows as additional complementary lines are added and the harmony thickened as a result.

The second movement, *Jo*, introduces a second element. In Gagaku, interlocking rhythmic patterns are played on the Kakko (small barrel drum) and the Taiko (large flat drum). Again, like the *Ha* melody,

I wasn't trying to imitate these patterns, which can be quite regular (and a little predictable), instead borrowing the sensation of acceleration of the phrase often found in the *uchihajime* (opening pattern).

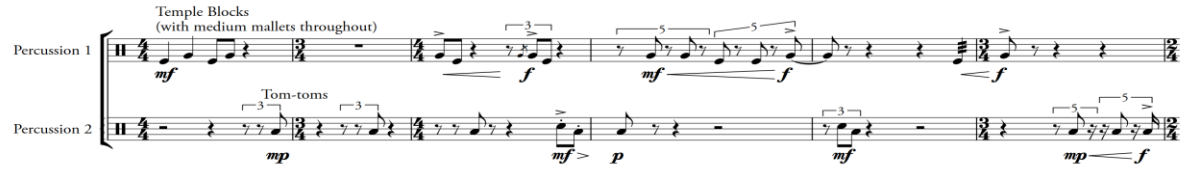

Figure 35 - Opening rhythmic pattern of *Jo*

Figure 35 shows this interlocking pattern played by the two percussionists. Melodic content is gradually introduced over the top of this pattern in a *Klangfarbenmelodie*, based on pitch material from the *Ha* melody. This technique allows a gradual introduction of pitch-based content into a primarily percussive timbre.

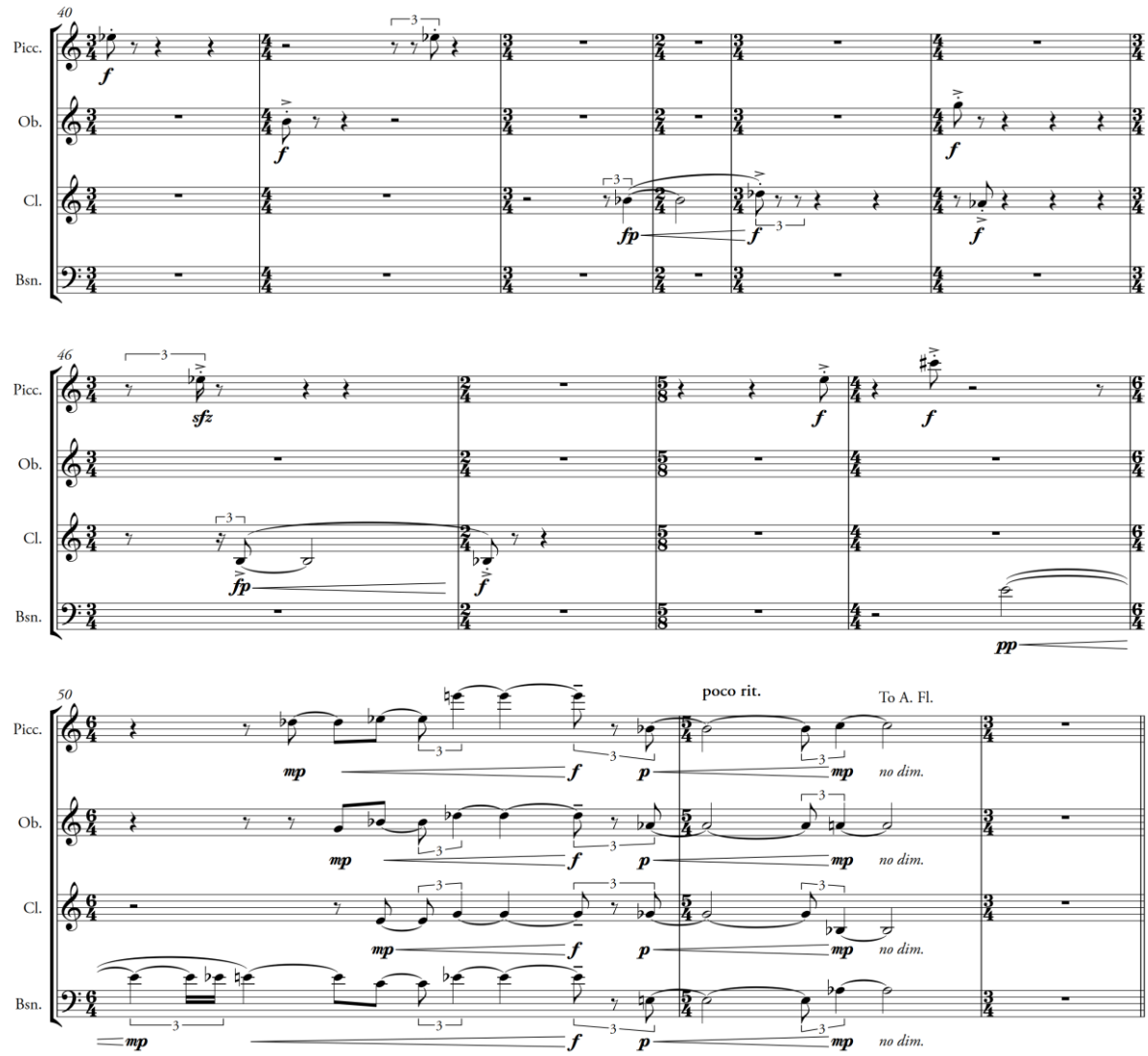

Figure 36 - Klangfarbenmelodie at the opening of Jo-Ha- Kyū

Figure 36 shows the woodwind parts at bar 40, through to bar 50. This is 9 bars into the second movement, *Jo*. The pitch content is taken from the *Ha* melody, and used initially in a *Klangfarbenmelodie* and then 'verticalised' – creating vertical chords by overlaying combinations of pitches. The remainder of the movement develops these ideas in tandem – the two ideas are overlaid concurrently, forming a counterpoint of textures.

The rhythmic material shown in Figure 35 is subjected to similar processes as the *Ha* melodic material, broken up into smaller cells and put through various permutations, rhythmic displacement, augmentation/diminution, alteration by intuition (in which various cells are simply altered by musical judgement).

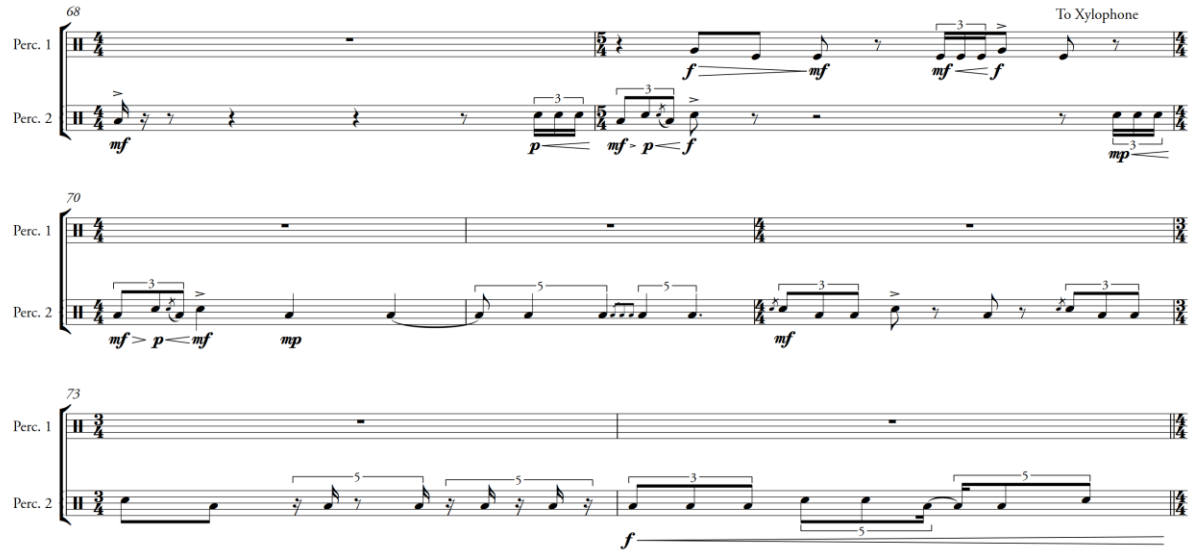

Figure 37 - Jo-Ha- Kyū bars 68-74 (percussion)

Figure 37 shows some of these processes. The original rhythmic pattern (*Figure 35*) is broken up into three discrete cells – a crotchet and quaver pattern, a triplet pattern and a quintuplet pattern (Figure 38).

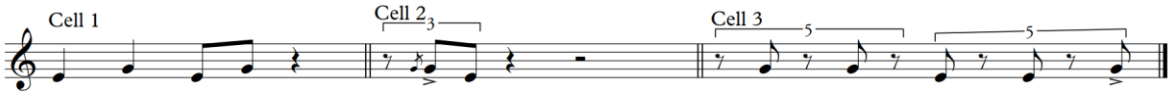

Figure 38 - Rhythmic Cells in *Ha*

The quintuplet cell is broken up by the triplet cell, and placed on the tom-toms. A rhythmic diminution of the triplet cell has also been added to extend and develop the pattern in both drums and temple blocks. The triplet and quintuplet cells are placed in sequence, rather than simultaneously, and used as building blocks to create longer phrases.

From the opening of the third movement, after the *Ha* theme has been introduced in its fullest form, the two materials (the *Ha* melodic theme and the *Jo* rhythmic pattern) are intertwined and modified very organically. This is a very intuitive process, in which I feel highly attuned to the demands and possibilities of the material. A blow-by-blow account would be extremely lengthy, and not necessarily illuminating, but I will present two examples of the sort of processes I use when developing my material.

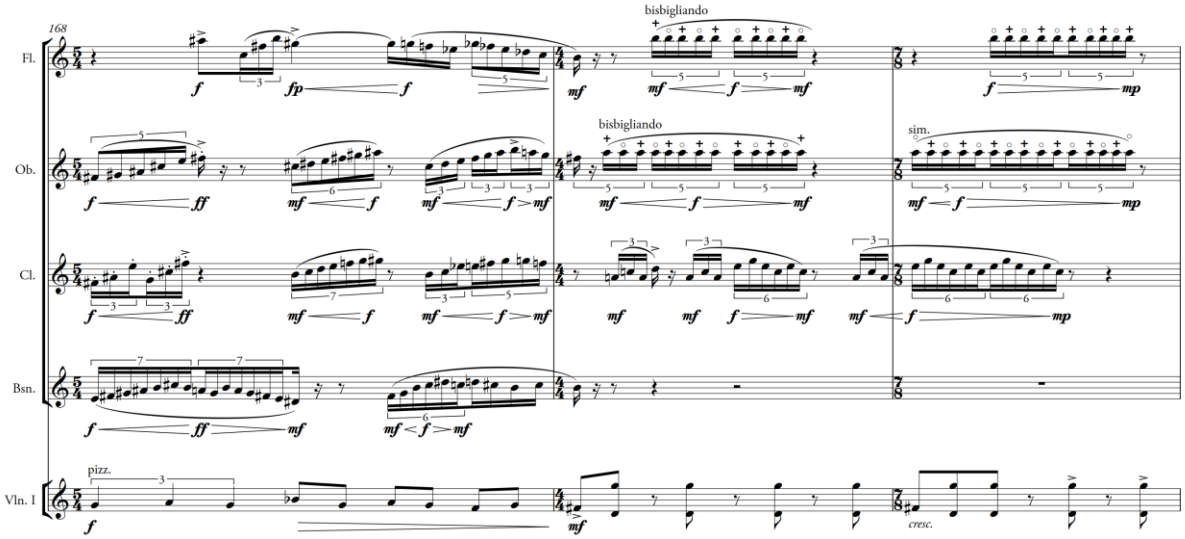

Figure 39 - Jo-Ha- Kyū bars 168 - 170 (woodwinds and violin I)

Figure 39 is a section of the woodwinds and the first violin. The flute is playing material from the *Ha* theme, the ascending triplet figure by now is extremely recognisable, and has been heard many, many times over. The oboe, clarinet and bassoon are using pitch material from the *Ha* theme in a in a scalic pattern and heterophonic manner, with one or two chromatic alterations with the vertical dimension in mind. This pitch material is then combined with the triplet cell from the *Jo* rhythmic pattern in the clarinet in bar 169 and 70 – the pitch material of the flute and the oboe stabilise as to allow clarity of presentation of this development – the bisbigliando effect in the flute and oboe keeps the sustained tones from appearing too static. Alongside this, the violin is using the *Jo* cells as a counterpoint – the triplet quavers have been modified to become triplet crotchets and the quaver pattern broken up to provide a sense of syncopation at bars 169 and 170. There is clearly quite a lot of musical activity here – the texture is quite thick at this point, but the simultaneity of the development of these ideas is offset by the fact that the development is all carried out on these (by now) extremely familiar two musical ideas.

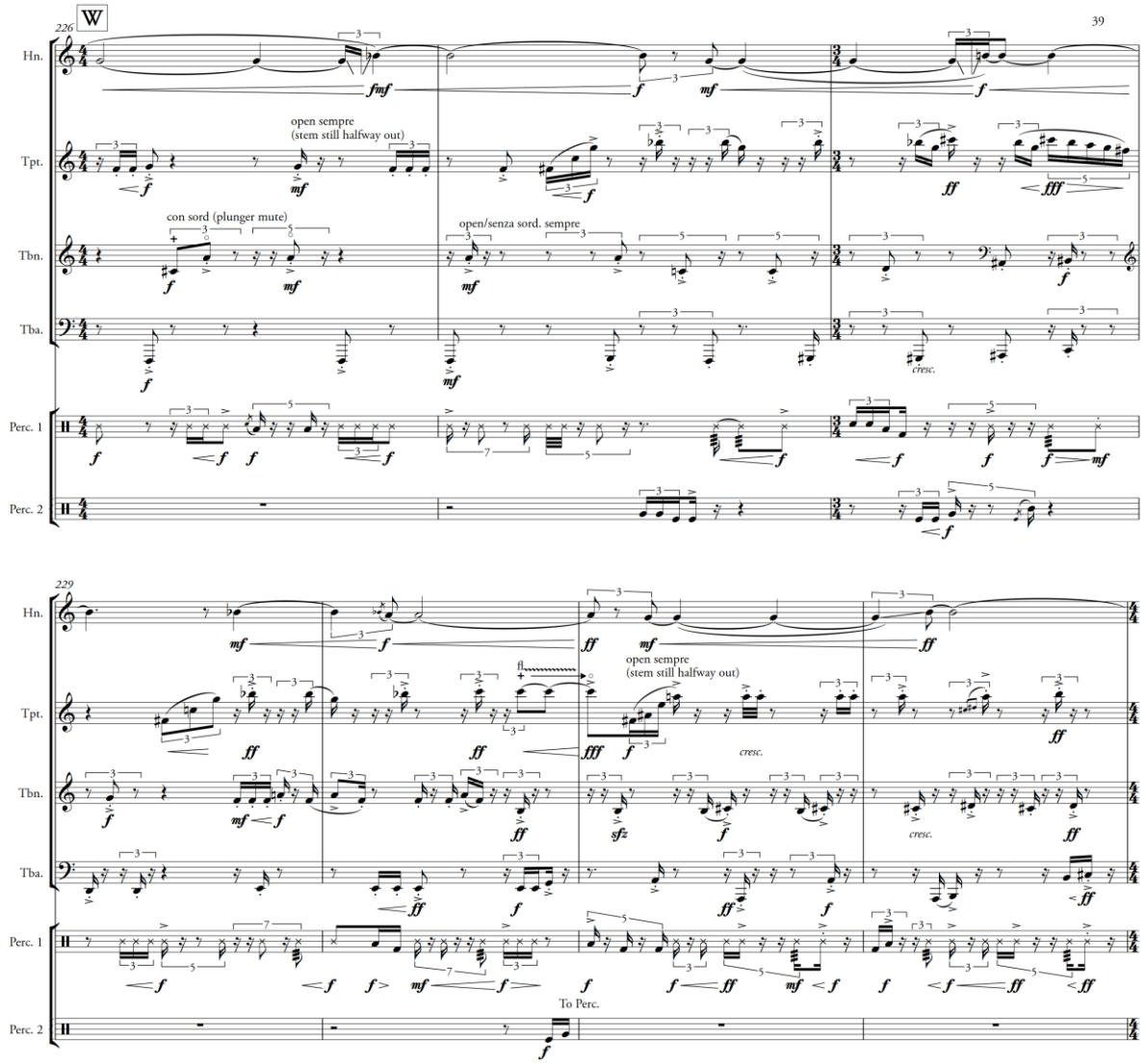

Figure 40 - Jo-Ha- Kyū bars 226 – 228 (brass and percussion)

Figure 40 shows another variation on this intertwining of ideas. The trumpet plays a very animated combination of cells from the *Ha* melody and the *Jo* pattern, with a high degree of rhythmic modification and syncopation added. The horn is playing a rhythmically augmented version of the *Ha* melody, again with chromatic alterations as I felt the vertical harmony demanded. The two percussion parts are playing a highly syncopated pattern, all still created from the 'Jo' cells. The modification of both the *Ha* and *Jo* material is much greater than at any point so far in the piece; the degree fragmentation and intertwining is significant. Both the trumpet and horn lines are stretching the aural link to the original *Ha* theme as far as they will go – however, they are still recognisable as materials from the *Ha* theme. A similar process is taking place in the percussion parts – the same processes that I began earlier in the piece are simply taken further – the individual cells are now subjected to an even greater degree of alteration, and placed on the snare drum. The material is highly identifiable, and yet has completely changed in character – this section of the piece is spiky, aggressive, and yet the

material has all been derived from the same two materials that created the restrained, ritualistic *Jo* pattern, and the flowing, lyrical sweep of the *Ha* melody.

Slipstream is a refinement of some of these techniques. *Jo-Ha-Kyū* is a 20 minute piece, a piece of some scale in which there was considerable space for development of ideas. The brief for *Slipstream* was much tighter – this was to be a short piece, 5 minutes maximum (the piece is in fact just a little over 3 minutes long), and I felt that the development of one musical idea was sufficient.

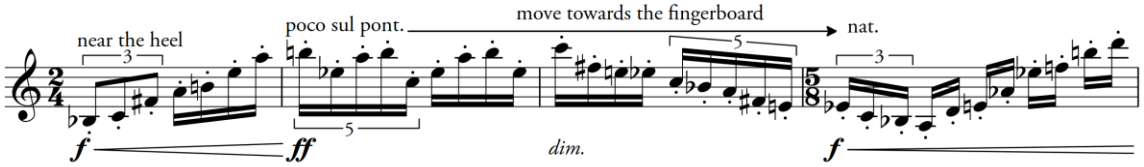

Figure 41 - Slipstream main melodic figure

Again, the main melodic motif came to me from improvisation. However, unlike in *Jo-Ha-Kyū* , I present this melody in its complete form at the outset, and then divide it into two discrete cells.

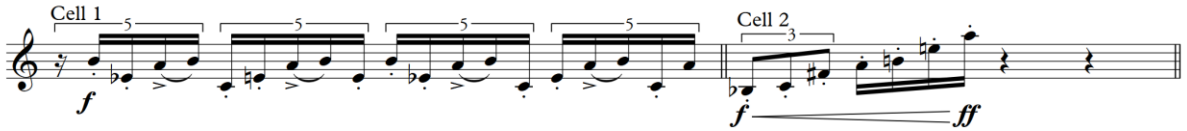

Figure 42 - Slipstream cells

Cell 1 is a rotating pattern of 5 pitches, and cell 2 is an ascending melodic motif. Because of the shorter duration of *Slipstream*, the material isn't as varied – I wanted the listener to get a sense of how tightly focussed the material was around these two ideas.

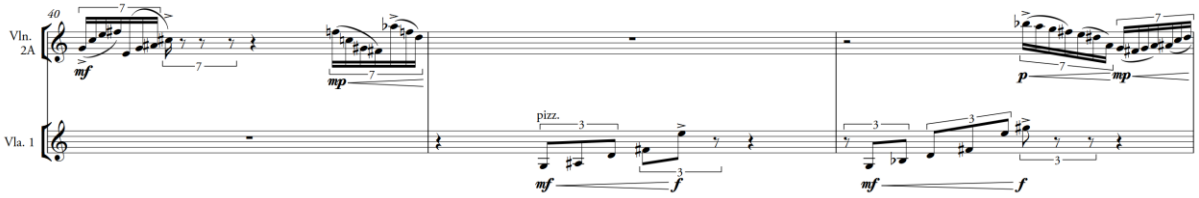

Figure 43 - Slipstream bars 40 – 43 (violin 2 and viola)

Bar 40 in the violin takes the 2nd half of the 2nd cell and immediately repeats it, beginning a minor 3rd lower. While interval relationships aren't preserved in the duplication of this cell, the contour is – the second half of this phrase is clearly linked to the first. In the second half of bar 40 the cell is inverted, beginning on F. interval relationships are preserved here – this is a fairly substantial modification to the original cell, and I often preserve interval relationships when inverting cells. The violas present an altered version of the ascending 2nd cell, the cell is rhythmically augmented by half, and made rhythmically consistent. The additive process in which bar 42 is simply a repetition of bar 41 with an added pitch at the end of the phrase is a technique I first used in *Listen to the Singing Wind*, cumulatively building up a phrase by increments.

Like in Jo-Ha-Kyū, once the cells are establish in the ear of the listener, they can begin to be manipulated with more freedom.

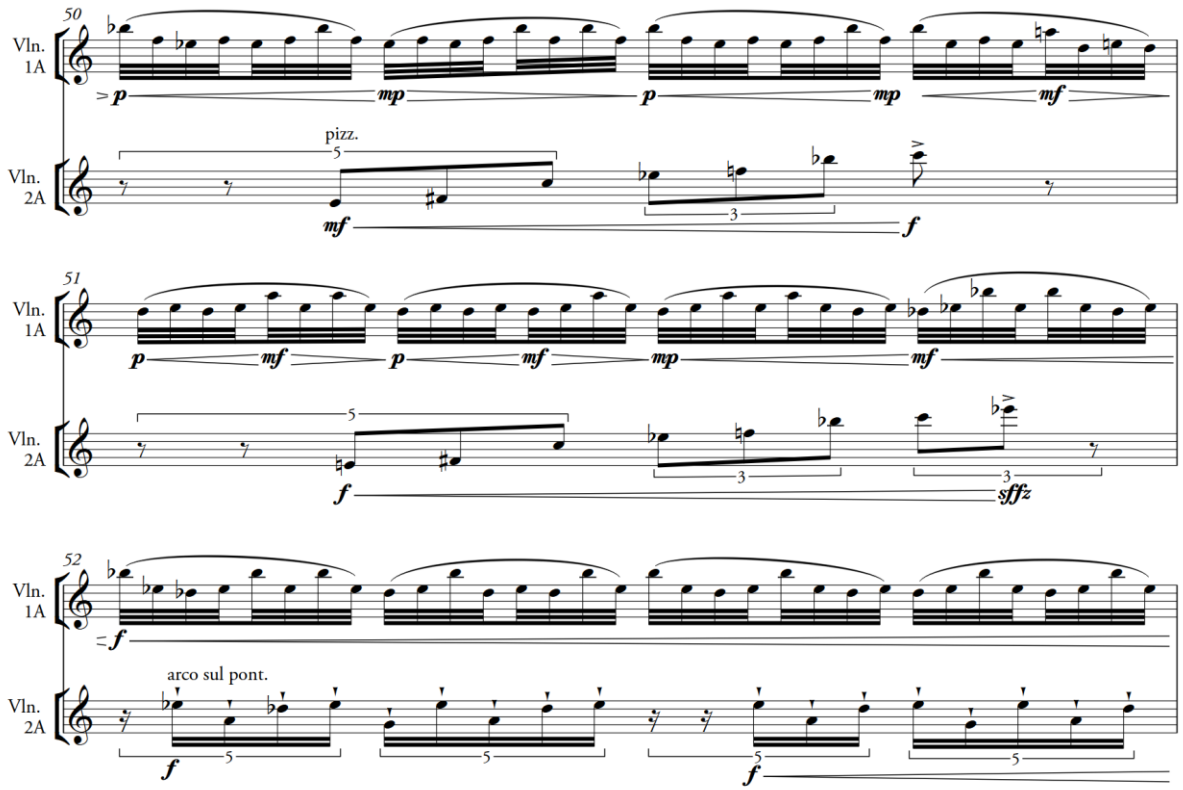

Figure 44 - Slipstream bars 50 - 52 (violin 1 and viola 2)

The first violins play a modified version of cell 1 (see *Figure 42*) – rhythmically altered to form a regular semiquaver *perpetuum mobile* type figure. The rhythmically augmented version of cell 2, with a (by now familiar) added note extending the phrase at the end, leads directly into a largely unmodified presentation of cell 2. The cell is broken up and rhythmically offset – two semiquaver rests are added to the middle of the phrase to achieve this alteration of the rhythm. As in *Jo-Ha- Kyū*, the overlaying and modification of these cells is both a primary method of development, and also a unifying factor. *Slipstream* is extremely tightly constructed around use of these cells, and as a result the piece has a high degree of aural coherence, despite the complex textures that often result from overlaying ideas.

Repetition and the motif – *Listen to the Singing Wind* and *Hearing Voices*

Another of my musical pre-occupations is the gap between process and perception. The composer must decide how much of the process he or she wishes to make explicit. American minimalist composer Steve Reich is particularly clear, even hardline, on this:

> What I'm interested in is a compositional process and a sounding music that are one and the same thing…Then the composer isn't privy to anything. I don't know any secrets of structure that you can't hear. We all listen to the process together since it's

> quite audible, and one of the reasons it's quite audible is because it's happening slowly…The use of hidden structural devices in music never appealed to me. Even when all the cards are on the table and everyone hears what is happening in a musical process, there are still enough mysteries to satisfy all.[33]

In terms of this gap between precept and object, I consider Reich's work to be at one end of one axis of a kind of continuum. Every composer makes his or her own choice as to how much the listener is aurally invited in to the compositional process, whether this be completely (Reich) or (arguably) barely at all (Babbitt). As I will discuss later, many of my macro structures are determined by some extra-musical stimulus, which is only ever party explained by the title. I make this decision on a piece-by-piece basis, and I will discuss one example of where Reich's work and writings have greatly influenced me.

Listen to the Singing Wind

Listen to the Singing Wind is a piece I composed for solo soprano saxophone in 2012. 'Listen to the singing wind' is a line taken from the poem 'Wind Song' by Carl Sandburg. I was struck by the idea of the song of the wind and the woodwind instrument; the soprano saxophone is often compared to the singing voice, and the link seemed obvious. However, I wanted to make this link explicit – to involve the listener in this link that I had made. By allowing the simplest of material to evolve very gradually from wind/breath itself (Figure 45), I involve the listener in this link, sharing the composition process, much in the way that Reich does.

[33] Steve Reich, *Writings on Music: 1965-2000* (Oxford University Press, 2002), p35.

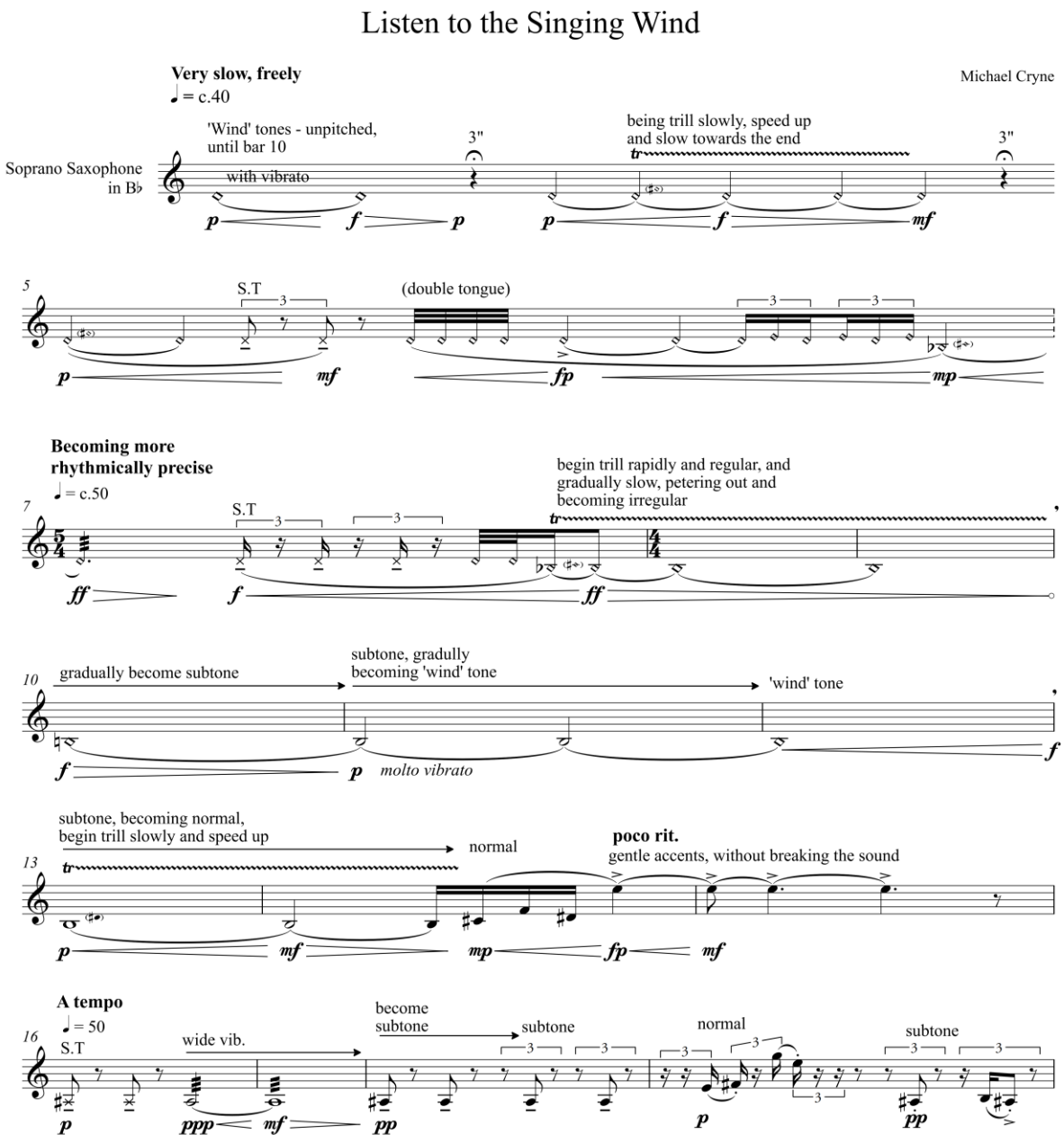

Figure 45 - Listen to the Singing Wind opening

Likewise, the formation of the central motif which forms the aural anchor point as the piece develops is composed in front of the listener (Figure 46):

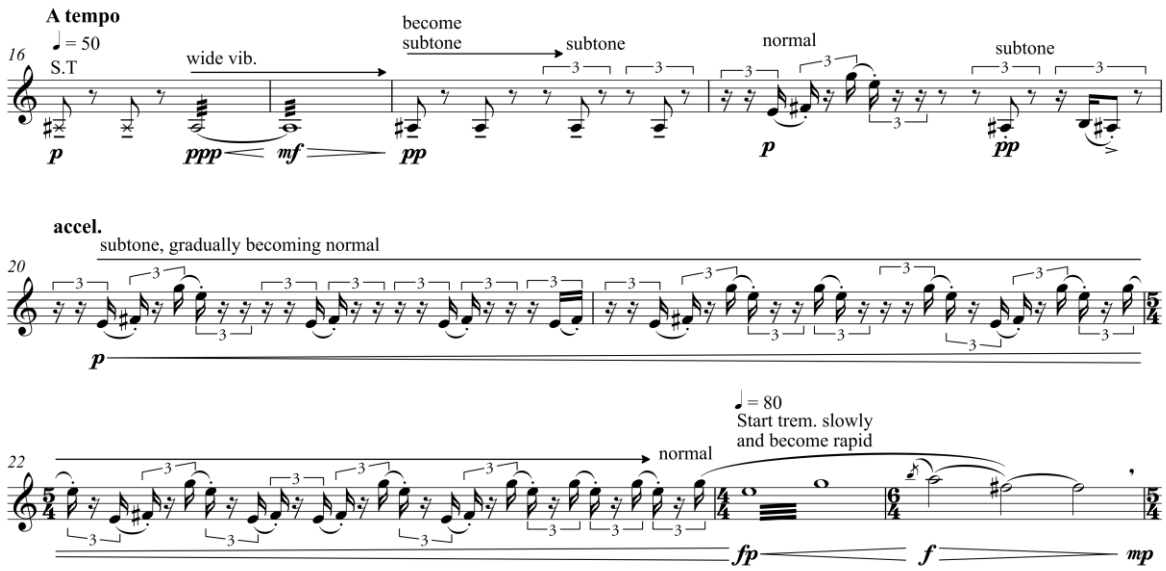

Figure 46 - Listen to the Singing Wind bars 16 - 24

This opening section of music owes a huge debt to Reich. But once it is formed, I feel as though this material now has demands of its own. I don't want to be limited to the gradualism that Reich imposes on his own music – I don't feel obliged to make the process explicit at every point in the piece. I want to allow the material to breathe, to sing and to allow the freedom of compositional intuition. I find being limited to Reich's demands of a constantly explicit musical process, being obliged to forever show your working is as suffocating as working with any serial-type schema.

In *Listen to the Singing Wind*, I wanted to create an improvisatory feel. Repetition, and the use of a simple motif, forms a huge part of crafting a coherent structure. The material becomes more and more virtuosic, more twisting and winding, moving away from the breath sound and the motif. However, the music periodically returns to this original, two-note motif, creating an anchor point to orient the listener. I don't feel that coherent musical experience depends on every single compositional micro-decision being made explicit. Instead, the simple motif is re-introduced in between improvisatory passages, as an anchoring device. Figure 47 shows how florid, highly chromatic passages are frequently interspersed with brief re-statements of the motif.

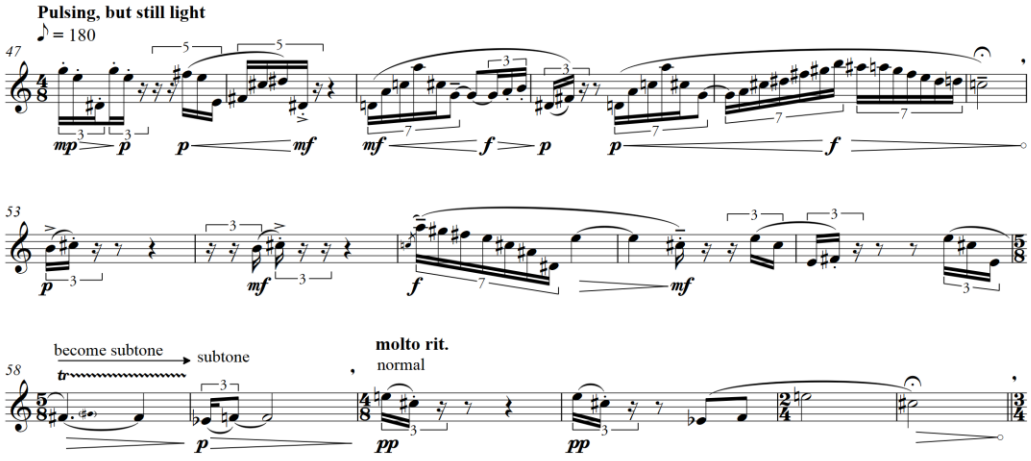

Figure 47 - Listen to the Singing Wind bars 47 – 63

As I developed the piece further, moving into very free chromatic harmonic territory – the bulk of the 3rd page of *Listen to the Singing Wind* is freely chromatic with no clear pitch centre, I modified the motif to fit better with the more flowing line. The motif is aurally recognisable – the rhythmic character is broadly the same, with an additional triplet semiquaver added – enough to be recognisable, but aurally different. The modified motif serves as an aural anchor, in a similar way to the example shown in Figure 47, but rather than slow the pace of the phrase it propels it anew, setting up the next flourish of descending and ascending scales.

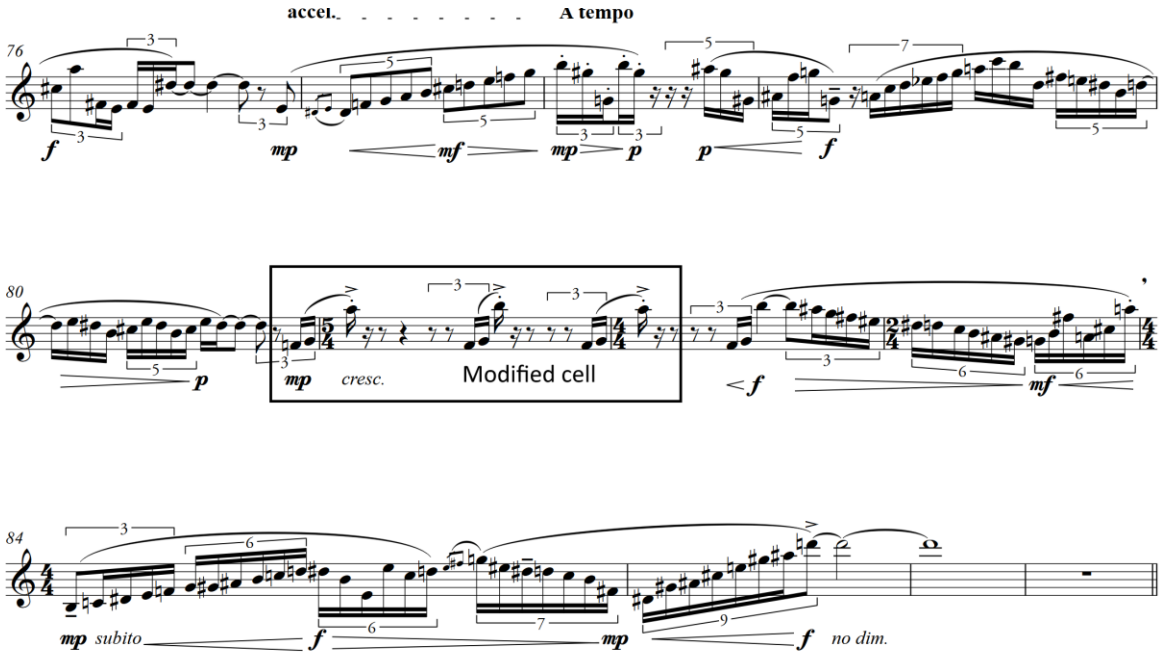

Figure 48 - Listen to the Singing Wind bars 76 – 87

Figure 48 shows the modification – the modified cell occurs at bar 81 (boxed). The ascending major second element of the cell is preserved (see Figure 46), but a leap is added to each phrase – a 9th, 10th

and a 9th again. The cell is identifiable, but split from its 'answering' element (the descending minor 3rd, see Figure 46).

For the end of the piece, I wanted a reversal of the formulation process that began the piece, as the melodic content. The anchor motif gradually begins to occur more frequently, the florid nature of the line becoming less active, and the tessitura narrowing.

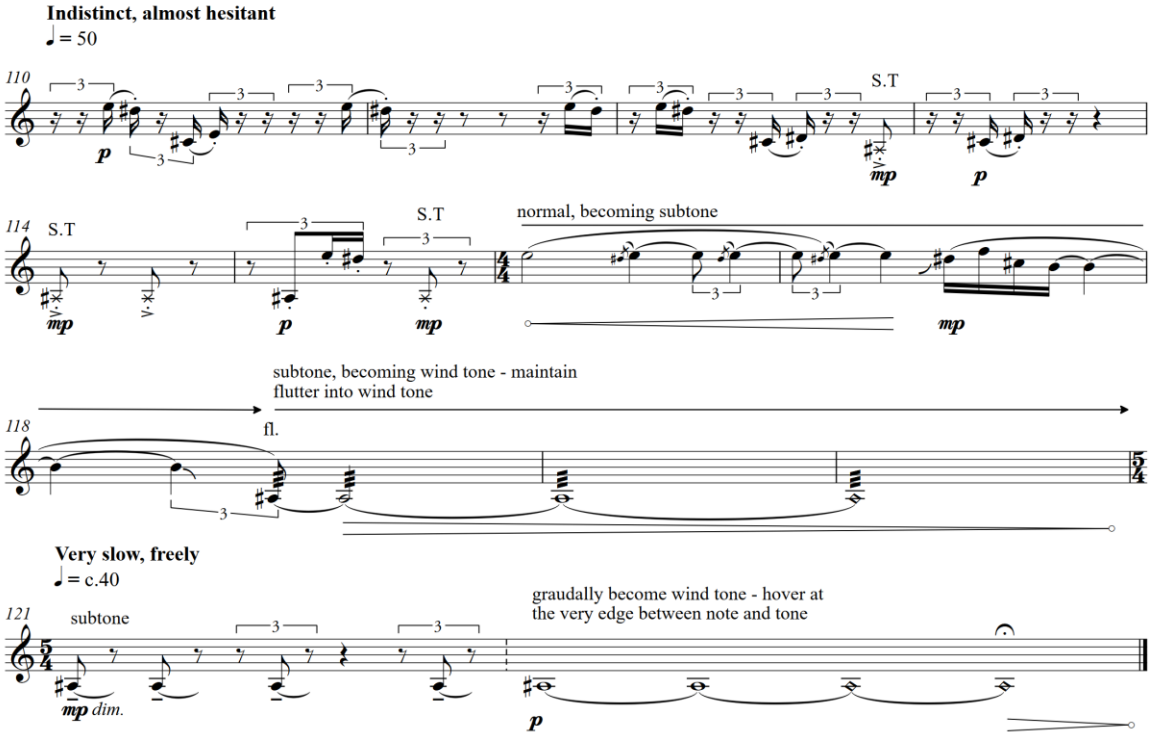

Figure 49 - Listen to the Singing Wind bars 110-122

Figure 49 shows the 'dissolving' of the cell to signal the end of the piece. The key pitch of E, emphasised at the opening, functions as a pitch centre, with chromatic alterations of the cell weaving around it. Bar 110 shows an inversion and chromatic alteration – the pattern of ascending/descending contour is broken up, fragmenting the motif – there is no answering section of the phrase in bar 111. The slower tempo adds to this fragmenting, dissolving effect.

Hearing Voices

I use a similar technique in *Hearing Voices*. A central, unifying motif is used to bind the piece, which (as discussed above) uses abstract, noise-like and timbrally complex material (Figure 50).

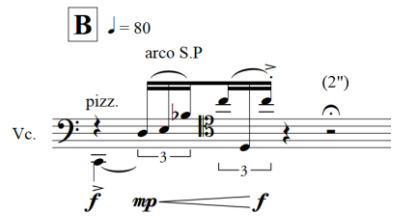

Figure 50 - Hearing Voices central motif

Figure 51 demonstrates how the listener is immediately directed towards a certain type of listening; using C as a pitch centre the central motif of the work is presented, represented with a slight modification, and then presented again finally with an upward moving gesture and pause.

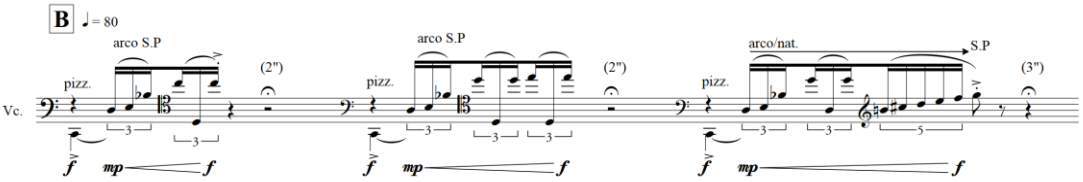

Figure 51 - Hearing Voices bar 3

This motif is designed to orient the listener; pitch stability and repetition firmly embed this motif in the mind of the listener, before the timbral palette develops and the listener is disoriented. Because this timbral palette will become so wide, I use the recurrence of this motif, modified in various ways yet usually very recognisable as an anchor point, assisting the listener in orienting him/herself to the work. While the piece isn't designed around the 'working-out' of this material, repetition of this material, albeit modified melodically or timbrally, does facilitate orientation, which is then subverted in the middle section.

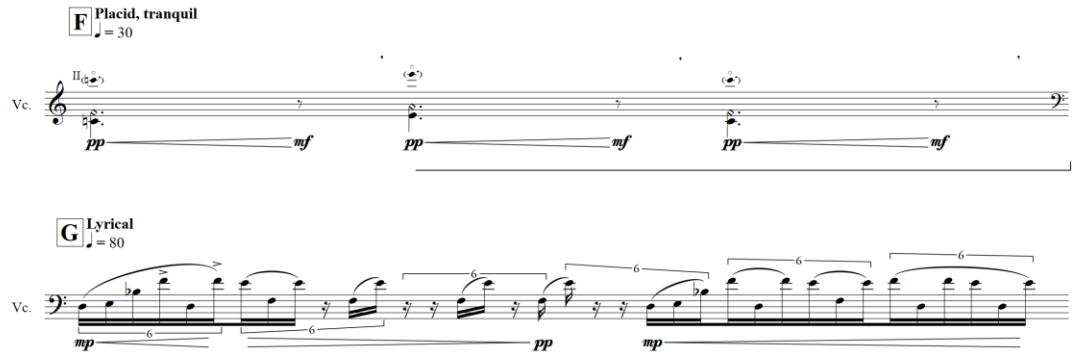

Figure 52 - Hearing Voices bar 18

Figure 52 shows a functional role of the modification of this motif. Following on from the cadential stillness on the preceding line, the motif simultaneously changes the pitch centre (there is some ambiguity at this point, with both D and E having equal gravitational force) and denotes a new section of music.

I use repetition again to denote the closing of the first major section, and transition into a new section with different material, as shown in Figure 53. As the pitch centre returns to C, similar material heard at the opening is presented; while the structure of this section is modified, it is clearly recognisable. Using recurrence in this way; motivically, timbrally and returning to a clearly audible pitch centre, provides some sense of geography to the listener, a recognisable landmark.

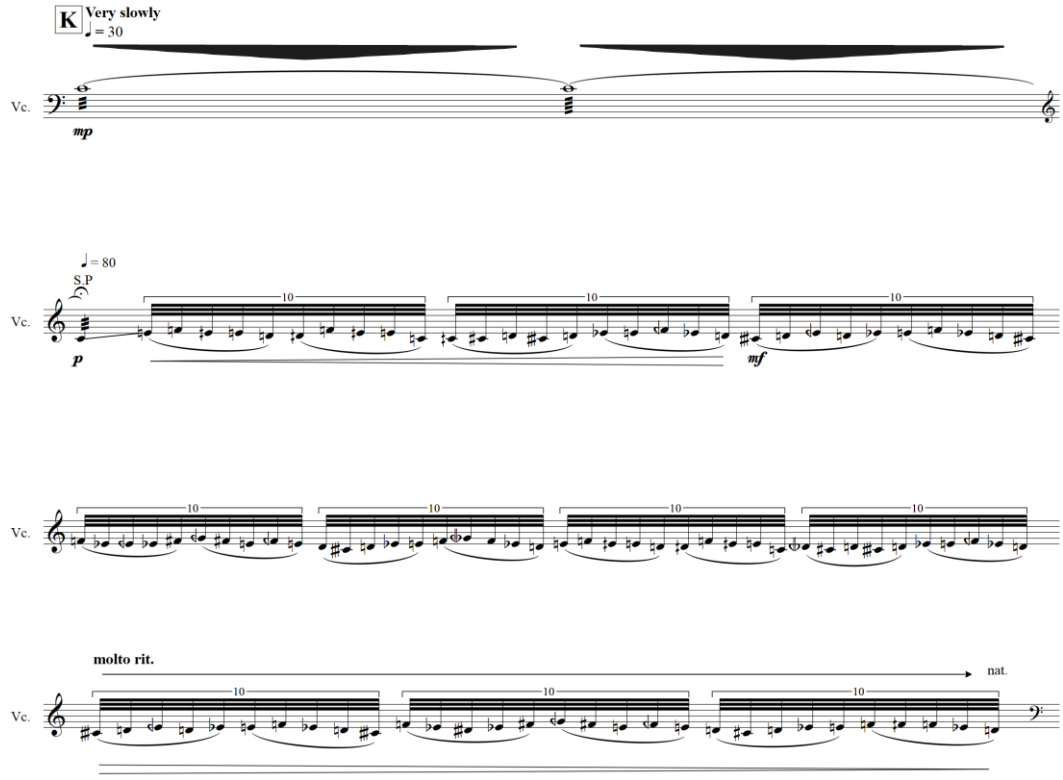

Figure 53 - Hearing Voices bar 28

Since the material is fairly abstract in itself, almost direct repetition is an extremely useful device in achieving unity, and aiding listener orientation. There is no classical-style motivic development in either *Hearing Voices* or *Listen to the Singing Wind*, but rather the motif anchors more abstract and fluid material.

Another significant part of the aurally coherent experience is large-scale, or macro form. One of the most pressing pre-occupations for me as a composer is how to control structure at this macro level. As I've set out above, cell manipulation and careful control of repetition, combined with an increasing level of control of the vertical harmonic pacing forms a significant part of this. However, with more abstract material, making decisions about large-scale form has always presented a difficulty to me. In the next chapter, I'll discuss how my music uses extra-musical stimuli to help overcome this problem.

Chapter 2 - Form and extra-musical content

Extra-musical content – 'beyond programme music'

Extra-musical material is a central element of my work, aiding and prompting my compositional decision making at several levels, from aesthetic to structural. Each piece in the portfolio has some link to extra-musical content, which determines at least one parameter. In this chapter, I will discuss two composers who have greatly influenced my own musical approach, Jonathan Harvey and Kaiija Saariaho. In their writings and interviews, each has discussed how some thing-in-the-world influences their compositional processes in different ways. Saariaho describes her own relationship with titles very elegantly:

> When I have the right title, I can focus my material. The title is very important for feeding my imagination[34]

Composers have often been prompted by stories, narrative shapes and even their own lives. Richard Strauss's *Till Eulenspiegel* (1895), Hector Berlioz's *Symphonie Fantastique* (1830) and Paul Dukas' *Sorcerer's Apprentice* (1897) are extremely famous examples of this approach. In the early part of the 20th Century Claude Debussy followed in this tradition. However his piano *Preludes* (1909-13) place the title at the end of the piece, encouraging a level of ambiguity in interpretation. Representation of extra-musical material became more imprecise and indistinct. Composers throughout the 20th Century and the early 21st have used extra-musical material as a stimulus. Even with the rise of serialism in the 20th Century, composers still turned to extra-musical sources to provide inspiration for various elements of the composition process. As examples, Alban Berg's *Lyric Suite* (1926), Luciano Berio's *Sinfonia* (1969) and George Benjamin's *Ringed by the Flat Horizon* (1980) all use extra-musical content, from the motivic A-B♭-H-F cypher in the *Lyric Suite,* to the Levi-Strauss quotations in the *Sinfonia*, to the vivid and almost literal depiction of a thunderclap towards the end of *Ringed by the Flat Horizion*.

I became interested in the relationship between extra-musical material and musical content when studying the work and writings of Jonathan Harvey. As Harvey himself says:

> Messages can't be avoided in music. Those who say that they are not interested in messages are really deluding themselves. Music is never value-free; even though it seems to be silent on things, those silences are significant - they add up to a statement. Therefore, one has to take on board that music has a purpose and think about it and make sure that, as a composer, your music has the purpose you have thought carefully about.[35]

[34] Anders Beyer, *The Voice of Music: Conversations with composers of our time* (Ashgate, 2000), 134.
[35] Arnold Whittall, *Jonathan Harvey* (Faber and Faber, 1999), 19.

The relationship between musical material and the world is a thorny philosophical and musicological issue, far from settled in debate. I cannot possibly hope to do justice to the arguments and debates, and neither do I intend to. Instead, my intention is to illustrate the relationship between extra-musical content and musical material in *my* works, and demonstrate the conscious ways in which it influences my compositional choices. There are, of course, unconscious ways in which this also occurs, although these would be quite impossible for me to describe. Saariaho says:

> It has sometimes been claimed in print that I need an extra-musical impulse as the seed for my music. I would prefer to say that, in my consciousness, music is strongly connected with other senses and that I am only partly aware of these connections. Human breathing, bird flight, continuous changes in light, the rhythms and the smells of the sea have all produced materials for my concertos, but when I process them at my work desk they become 'just' the sounding materials, rhythms and pitches, with which I operate.[36]

Extra-musical concepts, ideas, shapes or sounds immediately suggest themselves to me as music, almost subconsciously, at some fundamental and intuitive level. Whether or not music is objectively an art of content about the world, or whether it cannot possibly hope to be; for me as a composer there is a relationship between the world and musical content. While I formalise this relationship in many of my works, using the extra-musical stimulus to define various parameters including form, structure and timbral properties, it is this subconscious connectivity that encouraged me to develop this way of working. This methodology begs the question of whether I'm writing programmatic music. I would rather say that despite a thing-in-the-world being a stimulus for such-and-such a musical parameter, and despite my titles being broadly descriptive, a programmatic listening is only one level on which a listener can engage. I find the relationship between extra-musical stimulus and compositional process more interesting than the relationship between extra-musical stimulus and the listened experience.

Macro-level Structures – *Winter Myths*, *Prism* and *Fire Whirls*

While extra-musical impulse may also help me to shape melodies, determine pitches and rhythms, it very often helps me determine macro-structure and form. I'll discuss three examples of how I use an extra-musical stimulus to determine the overall macro-structure of a piece.

[36] Pirkko Tuukanen, *'Kaija Saariaho, 'Matter and Mind in Music''* in the journal *Matter and Mind in Architecture* (2000).

Winter Myths

This was my first attempt at using an external point of reference or extra-musical content to structure a piece of work. I wanted to reference literature in some way, but also to avoid literalism – I didn't simply want to write a 21st century *Till Eulenspiegel*. I became familiar with the writings of Northrope Frye, the Canadian literary critic, and specifically his 1957 work *Anatomy of Criticism*. The publisher's note describes the book like so:

> In four stylish and sweeping essays, Frye attempts to formulate an overall view of the scope, principles, and techniques of literary criticism and the conventions of literature - its modes, symbols, archetypes, and genres. He makes the case for criticism as a legitimate and structured science, a science that he would go on to wield with great influence over the course of his distinguished career.[37]

It is a sprawling work, and doing justice to the complexity of thought is far beyond the scope of this commentary. The assertion that interested me was to do with his categorisation of narrative. Frye claims that all narratives fall into one of four 'mythos'; spring (comedy), summer (romance), autumn (tragedy) or winter (irony & satire).

Musically, I immediately saw parallels between the mythos of winter (specifically as he refers to a dystopian narrative) and music, and was also attracted to the idea of narrative categories. I viewed this meta-category as an effective way to avoid being overly specific in my musical treatment of the extra-musical content.

Frye identifies irony and satire as being the crucial elements to the structure of a dystopian work. The dystopian structure is predominantly one in which the protagonist first perceives a problem with the dominant structure, seeks to change or alter it, but invariably fails, and is either killed or subsumed.

> Tragedy and tragic irony take us into a hell of narrowing circles and culminate in some such vision of the source of all evil in a personal form. Tragedy can take us no farther; but if we persevere with the ***mythos*** of irony and satire, we shall pass a dead center, and finally see the gentlemanly Prince of Darkness bottom side up.[38]

The Structure of the mythos of winter

Structurally Frye identifies 6 phases of the mythos of winter.

Phase 1: The satire of the low-norm
Phase 2: The quixotic phase
Phase 3: The high norm
Phase 4: Tragedy from below
Phase 5: The natural cycle

[37] Northrope Frye, *Anatomy of Criticism: Four Essays* (Princeton University Press, 2000).
[38] Ibid., 239.

Phase 6: Visio Malefica

For the following explanation, I have used the following abbreviations:

[P] – Protagonist

[E] – Establishment

Phase 1: The satire of the low-norm – bars 1- 11

Normal or prevailing social conventions are played out in this phase, presumably with our protagonist at least a witness, if not party to, events as they unfold. The satire typical of this phase may be called the satire of the low norm.

> It takes for granted a world which is full of anomalies, injustices, follies, and crimes, and yet is permanent and undisplaceable. Its principle is that anyone who wishes to keep his balance in such a world must learn first of all to keep his eyes open and his mouth shut.[39]

I created two contrasting musical ideas. One, [P] is a simple ascending melodic motif, comprising 4 pitches. The second, [E] is much more dense in texture, with no clear melodic content. Weaving strands of polyphony obscure any clear tonal centre, and noise effects are used in the strings by bow pressure effects.

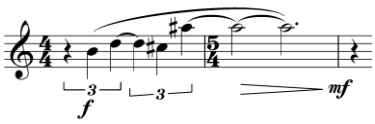

Figure 54 - The [P] motif

The two ideas are presented simultaneously in the opening (bars 1 – 6). Figure 55 shows the textural effect created in the strings. The two musical ideas are presented simultaneously, indeed, [P] is a witness to and participant of [E], and yet the material retains its own identity.

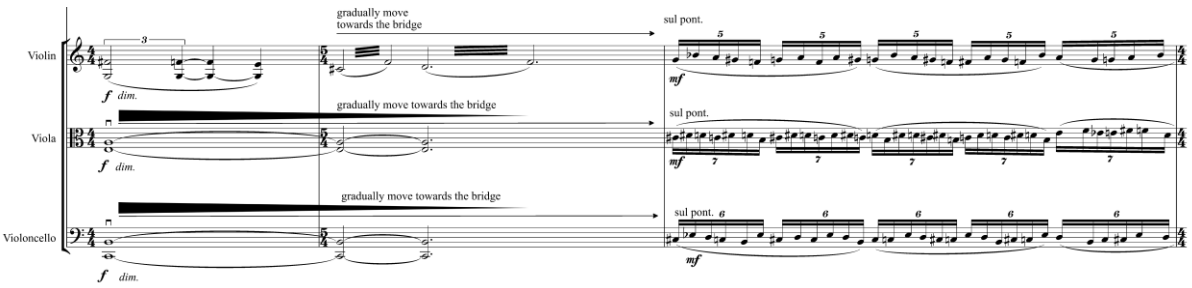

Figure 55 - Winter Myths bars 1 - 3 (strings)

[39] Frye, *Anatomy of Criticism*, 226.

Phase 2: The quixotic phase, or the noble savage - bars 18 – 28

[P] here becomes the central focus point. He removes himself from the dominant situation, rather than try to alter it.

> The central theme in the second or quixotic phase of satire, then is the setting of ideas and generalizations and theories and dogmas over against the life they are supposed to explain.[40]

The most important element of this idea is that [P] grants no acceptance of the premises that make the society look ridiculous to those who have come to accept it. However, there is nothing (yet) offered in its place.

I decided to reflect this quixotic phase with cold, static chords, with a variant on the [P] motif set against it. The chordal material represents [E] and is still dominant, and unchanging – hence the relative stasis, but the aural focus is very much on the [P] material, which is presented in the cello. The [P] motif is elongated, the broad contour of the melodic shape is retained, but modified and obscured – it is only very loosely connected to its original manifestation at the opening (see Figure 54).

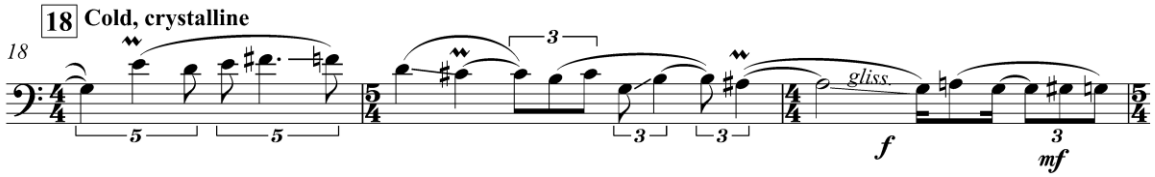

Figure 56 - Winter Myths - bars 18 - 20 (cello)

Phase 3: The high norm – bars 30 - 62

This is the 'rearing up' of the giant power. This is the exuberance of [E] – the dominance of the predominant mode of thought or expression. The Danse Macabre imagery is often employed here, since the baser aspects of these environments are shown in all their unveiled state.

Musically, this was the most obvious section to realise. The static chords and tempo (which has until this point remained at ♩ = 60) quite rapidly develop into a much more rhythmic section (bars 28-29), with a polyrhythmic transformation with added decoration of the [P] motif. The [E] material is much more dominant here, and the [P] material is only heard very briefly.

[40] Frye, *Anatomy of Criticism*, 230.

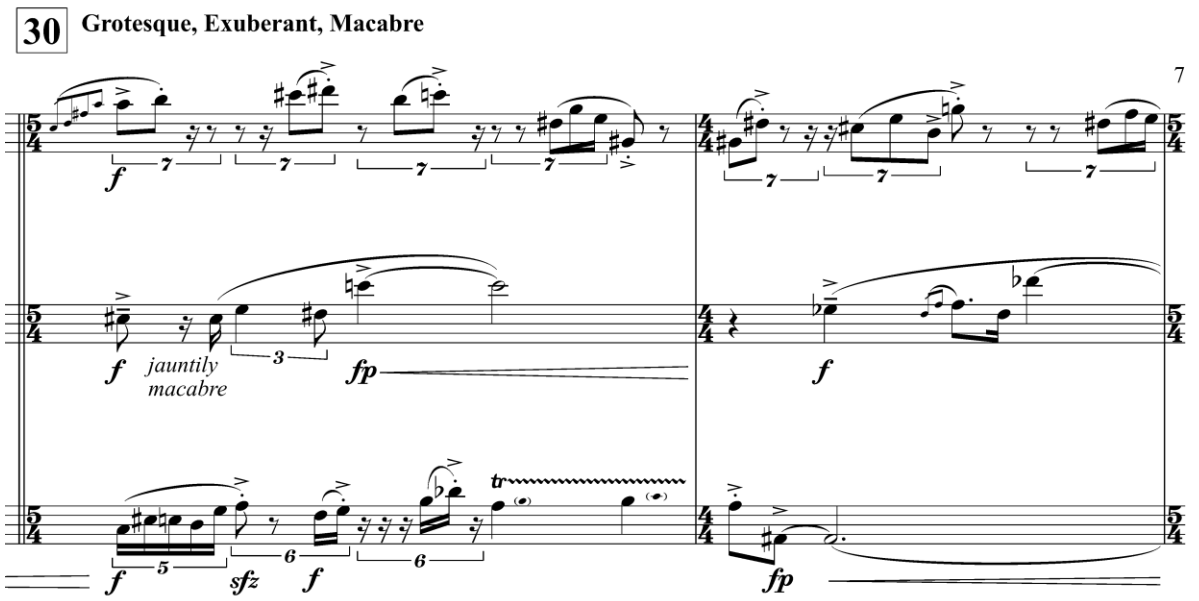

Figure 57 - Winter Myths bar 30 & 31 (woodwind)

More regular, dance-like triplet rhythms are introduced, the regular triplet patterns in the strings being offset by a regular but rhythmically displaced semiquaver pattern with the tambourine.

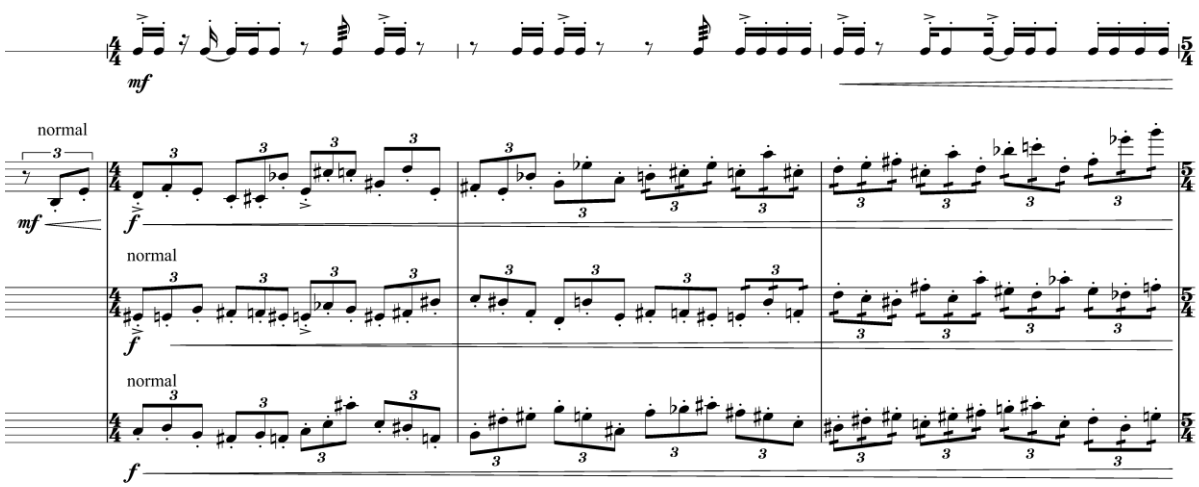

Figure 58 - Winter Myths bar 43 - 45 (strings and percussion)

Phase 4: Tragedy from below – bar 62 - 68

This phase looks at tragedy ironically, satire begins to recede – there is a definite shift away from the exuberance of the previous phase, and humanity is centered on:

> Such tragic irony differs from satire in that there is no attempt to make fun of the character, but only to bring out clearly the 'all too human,' as distinct from the heroic, aspects of the tragedy.[41]

[41] Frye, *Anatomy of Criticism*, 237.

While there is irony here, there is also a definite shift to the more dignified element of human suffering.

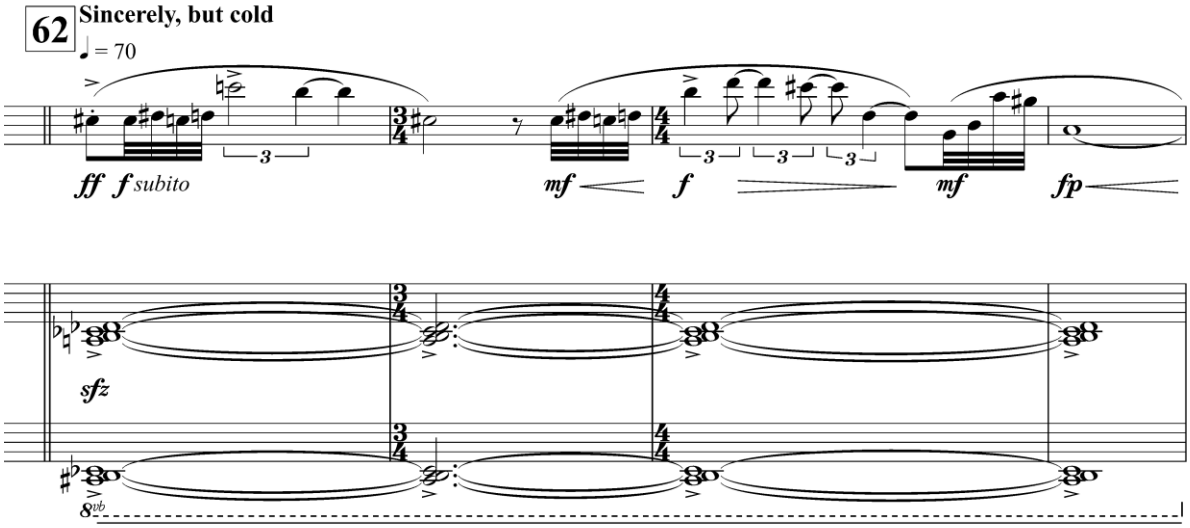

Figure 59 - Winter Myths bars 62 - 65 (oboe and piano)

This section is a simple, short and melodic oboe solo, clearly derived from [P], placed against completely static and unobtrusive chords in the piano and strings. The contrast with the grotesquery of the preceding *danse macabre* is accentuated by having no transition section – bar 62 (Figure 59) is juxtaposed directly and intensifies the sincerity of the material at bar 62.

Phase 5: The natural cycle – bar 68 - 90

There is a stoicism and resigned character to this phase of the mythos. It is less melioristic, and perhaps more ambivalent about both [E] and [P].

> …the main emphasis is on the natural cycle, the steady unbroken turning of the wheel of fate or fortune. It sees experience, in our terms, with the point of epiphany closed up, and its motto is Browning's 'there may be heaven; there must be hell.[42]

It is interesting to note that no change of the state of [E] happens at any point here – for all the stoicism adopted by [P], it has little effect on the machinations of [E]. The duality is presented at this point by the interweaving of the two materials, [P] and [E], but a resigned, almost tranquil character pervades this section.

Phase 6: Visio malefica – bars 113 - 125

The final phase presents human life as unremitting suffering. This phase often involves scenes such as madhouses or prisons – however, where tragedy is unremitting, satire begins again. We pass out the

[42] Frye, *Anatomy of Criticism*, 237.

other side of Dante's inferno and see the devil from the other side, almost reversed.

> We often find, on this boundary of the *visio malefica,* the use of parody religious symbols suggesting some form of Satan or Antichrist worship. In Kafka's *In the Penal Colony* a parody of original sin appears in the officer's remark, 'Guilt is never to be doubted.' In *1984* the parody of religion in the final scenes is more elaborate: there is a parody of the atonement, for instance, when the hero is tortured into urging that the torments be inflicted on the heroine instead. The assumption is made in this story that the lust for sadistic power on the part of the ruling class is strong enough to last indefinitely, which is precisely the assumption one has to make about devils in order to accept the orthodox picture of hell. The 'telescreen' device brings into irony the tragic theme of *derkou theama,* the humiliation of being constantly watched by a hostile or derisive eye.[43]

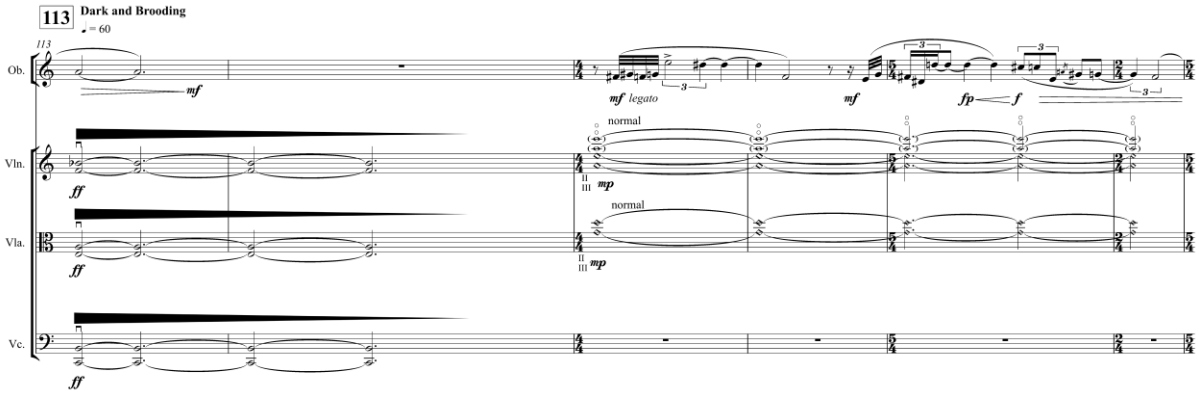

Figure 60 - Winter Myths bars 113 - 118 (oboe and strings)

The dark and brooding material of the opening [E] is re-stated, largely unaltered in terms of timbre. The [P] material is interspersed - the 'hostile eye' is constantly watching, re-asserting itself over and over.

I've included this lengthy summation of each of the phases, and deliberately included many excerpts from the source text. The use of language is almost overwrought - the ideas are far from precise or precisely expressed. These are sprawling, vague concepts that lack any objective basis in anything that could be measured. But I was interested in whether concepts this nebulous could be translated into music through my own creative processes. Nebulous, sprawling ideas like meta-narratives persuaded me that a musical structure could be derived from almost anything - despite me settling on simpler, more straightforward concepts as my portfolio progressed, Winter Myths was the first time I used an extra-musical concept to directly structure a piece.

A subjective response to colour in *Prism*

[43] Frye, *Anatomy of Criticism*, 238.

Each colour in the visible spectrum has a specific frequency and wavelength, and I initially thought these numbers might be of some use to me in composing the piece. However, after some deliberation I rejected the direct or manipulated use of these numbers. My subjective response to each colour seemed just as valid a way of setting out the piece, and organising the piece through changes in timbral character allowed more compositional freedom.

From bar 31 to the end of *Prism*, each sections' character is determined by my own subjective association with a colour. While I also use transition sections, the sections start roughly at the following points:

1. Bar 31 - Red
2. Bar 55 – Orange
3. Bar 78 – Yellow
4. Bar 99 – Green
5. Bar 170 – Blue
6. Bar 220 – Violet

I do not have synaesthesia[44], but I've always been fascinated by its existence. I have always found the association of colour and sound an extremely persuasive one, and connections between certain colours and timbral character seemed obvious. The strident, bold 'red' timbre (bar 31) is blended into orange between bars 55 and 62 in a transition section – constant semiquaver movement is the primary blending device.

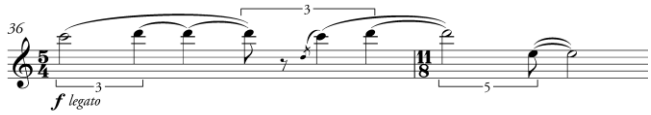

Figure 61 – Prism bars 36 & 37 (violin I)

The strident melodic figure (Figure 61) is modified in various ways throughout the piece. From bar 55, the orange transition section, the theme is fractured; inverted and elongated, but the semiquaver movement acts as a blending element. The intention was to show a commonality between the colours of red and orange, as I consider this to be the case. However, when considering the differences between orange and yellow, I determined that my responses to them were very different. Yellow is an energetic colour, as is orange, but also lighter and vivacious. The timbral change here is quite significant; I introduce much greater use of sul ponticello, jeté and pizzicato (Figure 63). The texture is considerably thinner and lighter, dynamics are predominantly quieter and harmonics are used frequently. The remainder of the piece takes this form, each new section is delineated by a change in timbre, either rapidly altering (as in the change between the orange and yellow sections) or more

[44] A neurological or psychological phenomenon whereby a particular sensory stimulus triggers a second kind of sensation. Olivier Messiaen famously claimed that colour and sound were inextricably linked in his mind and music.

gradually shaded with a transition section, as in the transition between red and yellow. When I decided on this type of gradual transition, I tried to maintain some motivic, rhythmic or harmonic link. As an example, both the motive and semiquaver movement are retained between the red and orange sections.

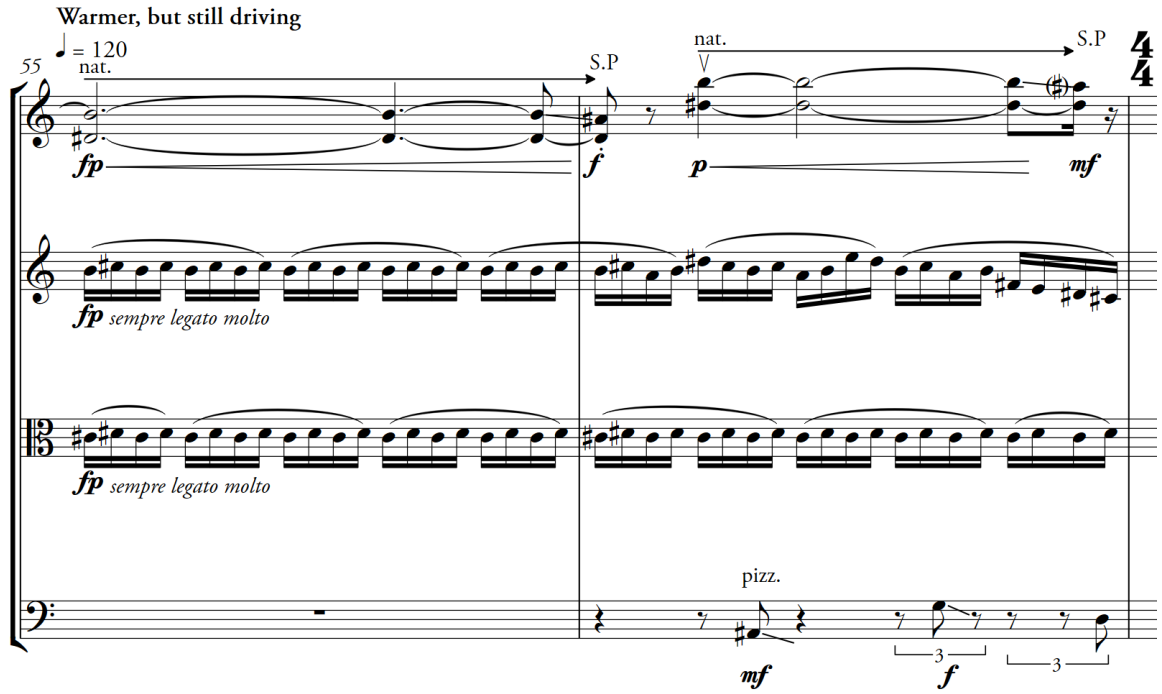

Figure 62 – Prism bars 55 & 56

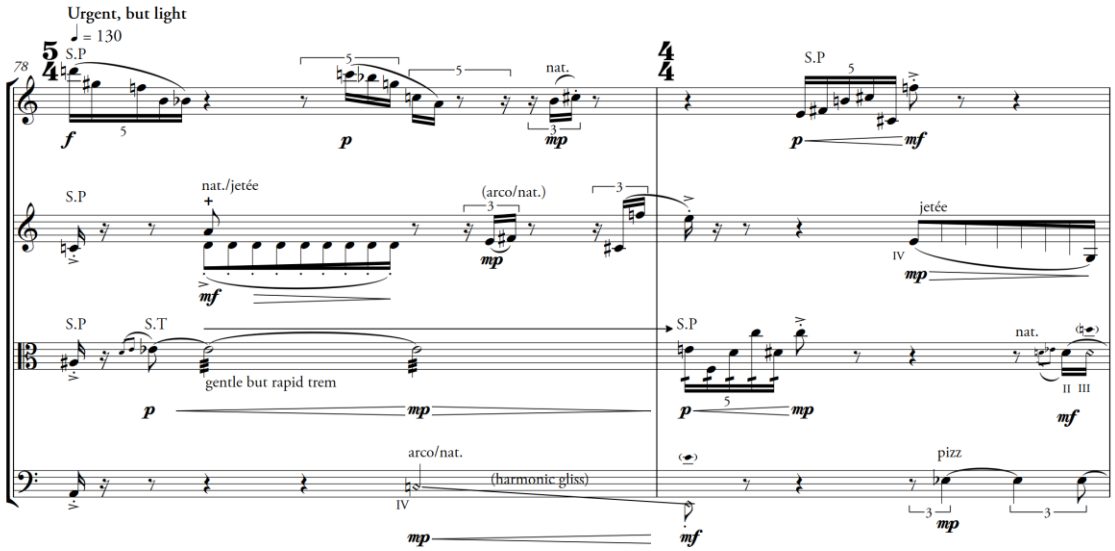

Figure 63 – Prism bars 78 & 79

Fire Whirls

A fire whirl, also known as a fire tornado is a spectacular and destructive whirlwind of flame. A naturally occurring phenomenon, intense heat and rising wind combine to form rotating vortices of fire, which suck in debris and combustible gases. Rotating columns of hot air move at different speeds (as in the formation of a normal tornado) – they are then tilted on their axis by updrafts, which creates a vertical spinning column of fire.[45]

Having looked at the physics of fire whirls, I identified several features that were of interest, and had a musical application:

i. Updrafts.
ii. Vortices/Spirals.
iii. Titling of axis, from horizontal to vertical.
iv. The fire whirl itself – the updrafts have caused the spinning air to rotate on its axis and become the recognisable fire whirl.

The structure I created presents several spiralling vortices, continually interrupted by updrafts. After one larger, louder updraft, the material is rotated on its axis and becomes the fire whirl.

Updrafts

Each of the updrafts is defined by a common rising motif. While this figure is decorated and becomes increasingly heterophonic throughout the piece, the nucleus of the idea is this rising 5 bar phrase:

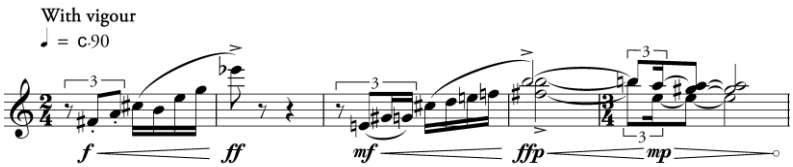

Figure 64 - Fire Whirls 'Updraft' motif

Vortices/spirals

These updrafts punctuate and interrupt the spiral sections, in which rapidly rising and ascending figures create a rotating, swirling effect. I created this effect by rapidly shifting the pitch range, throughout the low/medium/high registers of the orchestral tessitura. (*Figure 65*)

[45] Christopher Church, John T. Snow and Jean Dessens, *'Intense Atmospheric Vortices Associated with a 1000 MW Fire.'* In the *Bulletin of the American Meteorological Society, Issue 61*) 682-694 (1980).

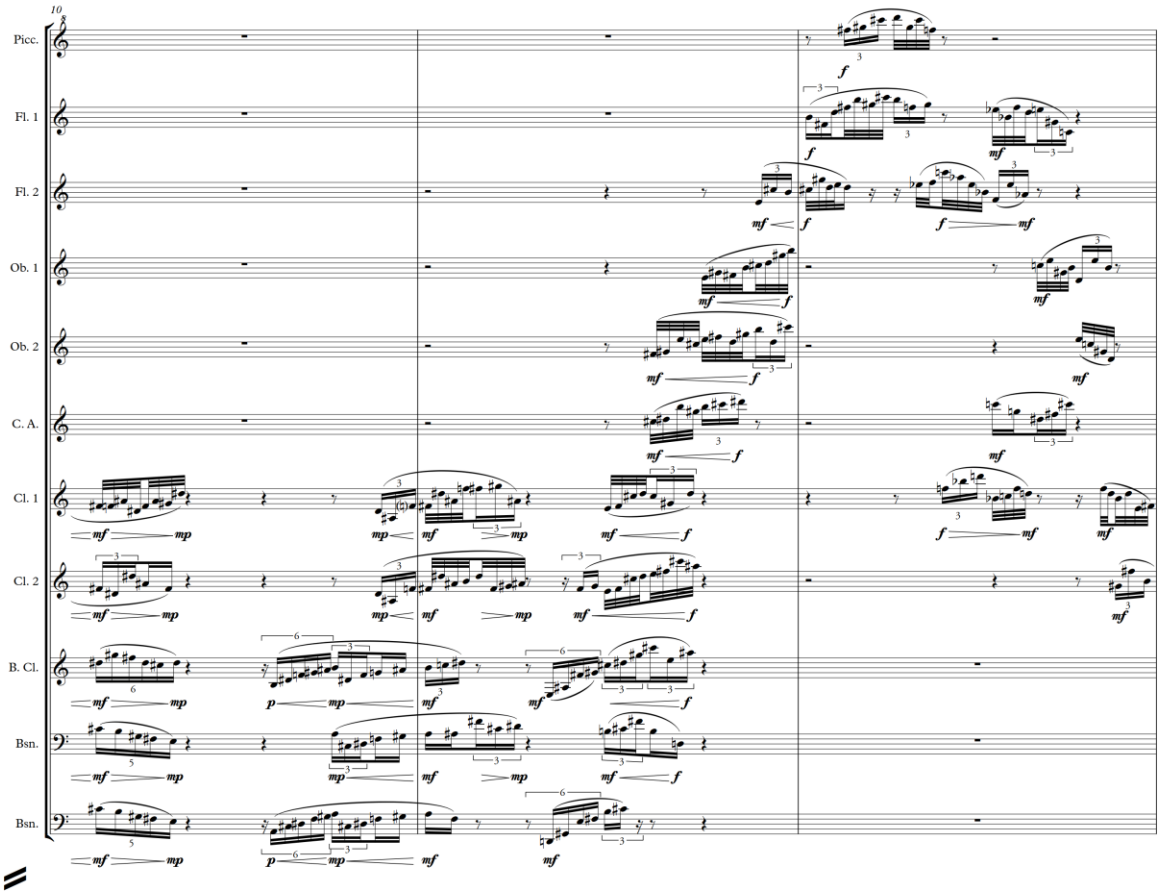

Figure 65 - Fire Whirls bars 10-12

Vortices and updrafts - interplay

From Bar 1 to the end of rehearsal mark E, the structure is as follows:

i. Updraft
ii. A – Vortices 1
iii. B – Updraft 2
iv. C – Vortices 2
v. D – Updraft 3
vi. E – Vortices 3

I arranged the instruments into three main groups, with the percussion section (including the harp and celesta) able to move groups depending on which material I wanted to support or highlight. Broadly, the groups are as follows:

Group 1 – contra-bassoon, bass trombone, tuba and double basses
Group 2 – bass clarinet, bassoons, horns, trumpets, trombones, violas and cellos
Group 3 – flutes, oboes, cor-anglais, clarinets and violins

These classifications change slightly as the demands of orchestrating the material dictate, but they served well as starting points for arranging the musical material. As I outlined earlier, in the formation

of a fire whirl, the vortices are created by hot air moving at different speeds. Each group has its own harmonic pacing, from the relatively static pacing of group 1 to the quicker harmonic rhythm of group 3.

Figure 66 shows the bass line from rehearsal mark A (the full score will show this line is broken up, ornamented and distributed between bass instruments, the following diagram gives the harmonic outline).

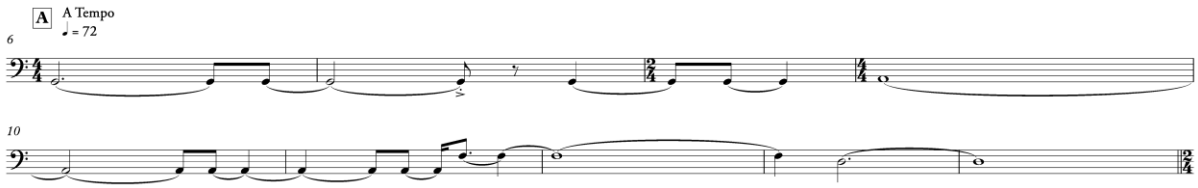

Figure 66 – Fire Whirls bass line from A

Each vortice section increases the harmonic pacing (how quickly the chordal changes occur), by a proportion of roughly a third each time. Figure 67 shows the harmonic outline of the bass parts from rehearsal mark C:

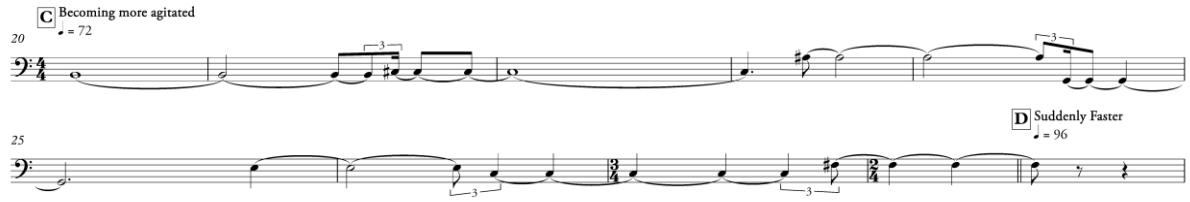

Figure 67 – Fire Whirls bass line from C

Figure 68 shows the outline of the bass parts from rehearsal mark E:

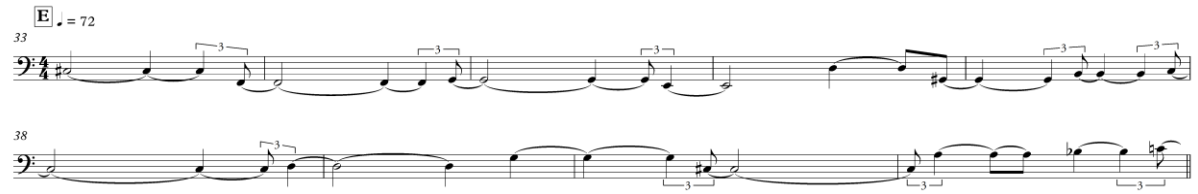

Figure 68 – Fire Whirls bass line from E

Each group has its own musical material, and each group has its own harmonic pacing. This creates three distinct, yet interwoven layers, effectively operating as free counterpoint.

Tilting of the axis – making the Fire Whirl

In this section, the vortices are tilted on their axis, and the fire whirl proper is formed. In order to signal to the listener that something different is about to occur, I quickly reduce both the tempo and dynamics at rehearsal mark F. The updraft material is introduced, beginning at a lower tessitura over 10 bars this time, building to a climax at rehearsal mark H.

The rotational figure is simplified (to provide rhythmic clarity) and distributed through the orchestral tessitura. Bars 76 – 81 in the strings show an example of the distribution throughout the pitch range.

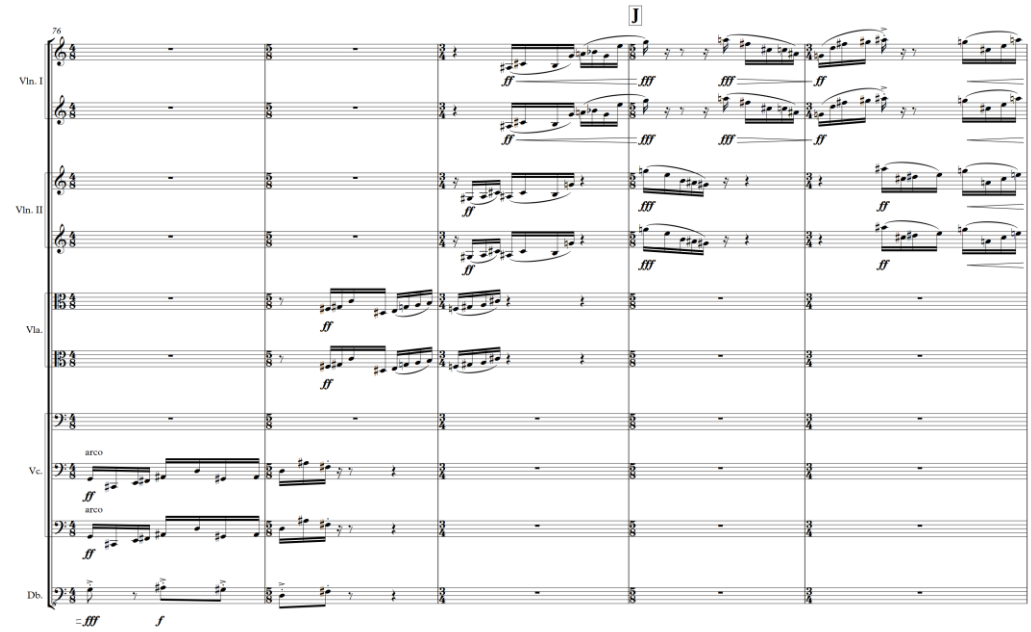

Figure 69 - Fire Whirls bars 76 - 81

This spiralling material is related to the rotational material that came before. However, the rhythmic uniformity provides a change of character – this material is much more strident and (intentionally) lacks the more ephemeral quality of the preceding rotational material.

The updraft material is fragmented, and re-introduced as a second layer on top of the semiquaver movement, interspersed at several points.

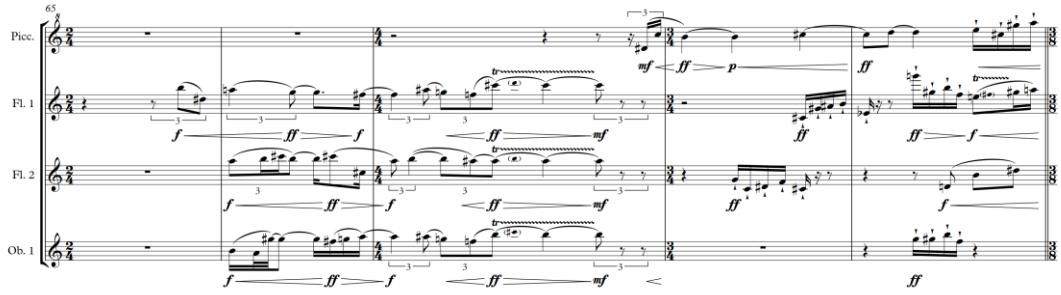

Figure 70 - Fire Whirls bars 65 - 69 (high woodwind instruments)

The relationship between the two musical elements of updraft and rotation has changed, rather than being presented sequentially, and in opposition, they are instead presented simultaneously and complementarily.

The connection between extra-musical content and musical structure in *Fire Whirls* is very literal. I've analysed and selected certain constituent elements of a naturally occurring phenomenon, and created a macro-level musical structure from this.

Aesthetic impulses – *Energeia* and *Hearing Voices*

The previous discussion of *Fire Whirls*, *Prism* and *Winter Myths* has illustrated how my extra-musical stimulus can provide a structural framework for a piece. However, I also deploy my 'title first' approach in other ways, allowing the extra-musical content to shape and determine other musical parameters than structure alone. I'll discuss three pieces, *Hearing Voices*, *Energeia* and *Slipstream*, and the different ways in which the extra-musical content has shaped one or more non-structural musical element.

Energeia

Energeia is a collection of four pieces for solo piano, written in 2011. They were written for pianist Zubin Kanga, and premiered at the second Athens Composer/Performer Conference for PhD students in co-operation with Goldsmiths, University of London and St. Catherine's British Embassy School. While I won't discuss these works in as much detail as the previous examples, they are important to the portfolio as they were the first pieces I composed which had their aesthetic direction (although not structure) determined by extra-musical content.

Energeia is an Aristotelean term, which can be found in the Physics[46]. The root of energeia is ergonó - deed, work, or actó from which the adjective energon is derived and used today to mean energy or power. Each movement is inspired by a natural force, or mechanism:

1. Zephyr – a calm, meditative piece inspired by a gentle breeze.
2. Broken Clockwork – based on the mechanism of a broken watch.
3. Kinesis – a short and relentless piece, shifting accents add rhythmic interest to a constant semi-quaver pulse
4. Surface Tension – Gentle chords in the upper register are disturbed and shifted, but never broken by an undercurrent of movement in the lower register.

Rather than using these forces and mechanisms to determine structure, I instead allowed the overall aesthetic impulse to be shaped by the extra-musical content. Textural, timbral, harmonic and rhythmic choices were informed by these extra-musical impulses. I will discuss two examples.

Surface Tension – conflicting and contrasting materials

The Oxford English Dictionary defines surface tension as 'the tension of the surface film of a liquid caused by the attraction of the particles in the surface layer by the bulk of the liquid, which tends to minimize surface area.'

[46] Aristotle, *Physics*: *Oxford World's Classics* (Oxford Paperbacks, 2008).

I created two contrasting types of material, set in opposition to each other, the first being sparse, gentle chords with a high tessitura (the 'surface' – Figure 71) and a rippling, bubbling texture further down the piano (Figure 72).

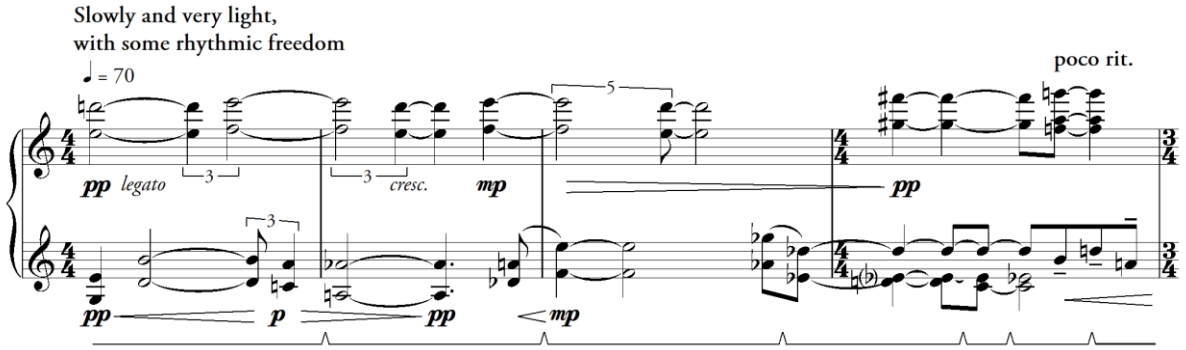

Figure 71 - Surface Tension bars 1-4

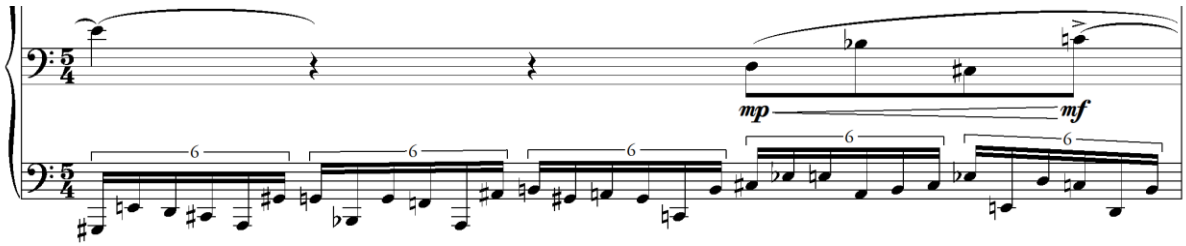

Figure 72 - Surface Tension bar 18 (left hand pattern)

The two materials interact throughout the piece, the chordal pattern being pushed higher and being allowed to settle lower (in pitch terms) by the peaks and troughs of the bubbling material. The rippling texture often threatens to break the surface, but never does – the ripples are always constrained by the overlaying of the surface chords.

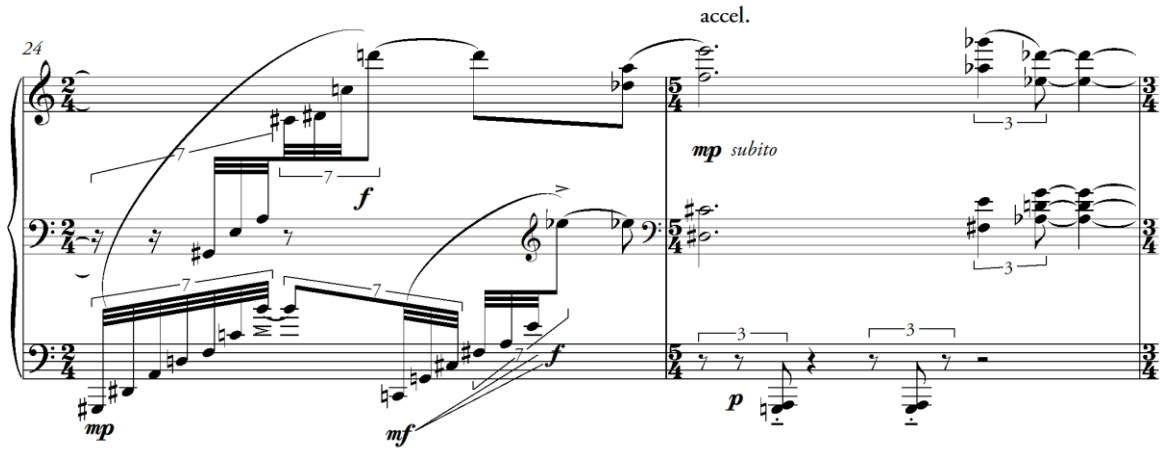

Figure 73 - Surface Tension bars 24 & 25

Figure 73 shows this interaction between the two materials. The bubbling, rippling material reaches a climactic point towards the second crotchet beat in the bar, and is met by the surface material, quickly

subsiding. While the juxtaposing or interweaving of two types of differing material is a fairly common musical device, it was the extra-musical stimulus that provided the framework for this type of interaction. I define this as the *aesthetic impulse*; the non-musical thing-in-the-world has influenced and shaped the process of composition at a macro-level.

Broken Clockwork – rhythmic games

In a similar way, the aesthetic impulse behind *Broken Clockwork* is equally simple, and functioning at the same type of macro-level. I dropped a watch, which shattered, and the second hand began to move irregularly, from a regular pulse, to becoming 'stuck' and arrhythmic.

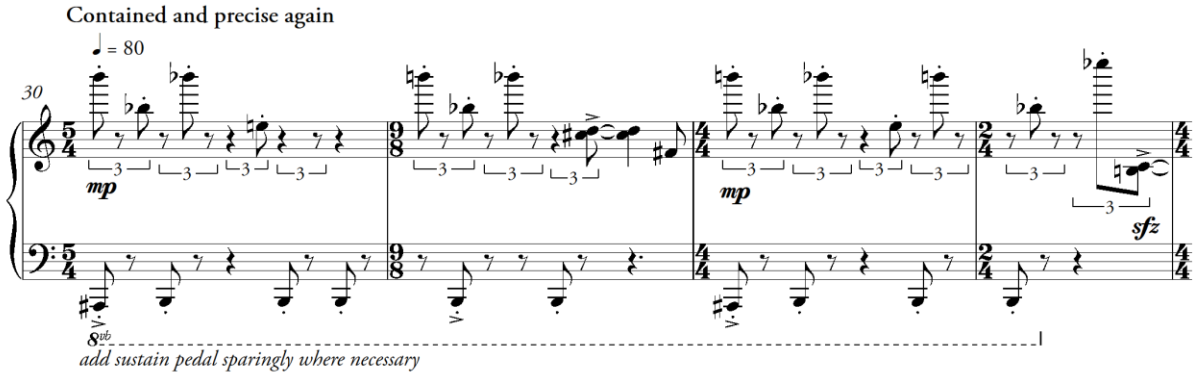

Figure 74 - Broken Clockwork bars 30-33

The left hand in Figure 74 shows this clearly. An irregular quaver pulse is set up, almost rhythmically enough to indicate pulse, but not quite. The effect of a pulse never settling permeates the entire piece. Again, the extra-musical stimulus had a powerful effect on creating the work. I initially created an isorhythmic pattern of colour and talea, which produced perfectly satisfactory results, but eventually threw it out. Having looked at the broken watch for an extremely long time, it followed no regular pattern, some shift within the mechanism had obviously caused a high level of unpredictability in the mechanism of the watch. The choice I made was to allow compositional intuition to replicate the unpredictability of the pattern. While the end results were actually quite similar, it was allowing the extra-musical stimulus to shape and determine this aspect of the compositional process that has informed much of my working methods over the course of putting together the presented portfolio of work.

Chapter 3 - Aesthetic concerns

Crafting a language

In the previous two chapters I discussed the various means and methods of my compositional process. I discussed the micro and macro level processes and techniques behind my work, and discussed the nuts and bolts of how I put the works in the portfolio together. However, I've left several significant issues undiscussed: the issues around why I compose, and what motivates me to do so. Where I've come from musically and where I think I'm going are just as important to the works in the portfolio as any individual chord choice, choice of instrumentation or decision about structure. Every composer, no matter how much they acknowledge it, makes a set of assumptions and decisions when creating a piece; my intention here is to try to set out and unpick some of these decisions.

Simplicity vs sophistication

Western Art music is an art of sophistication. Highly technically and expressively evolved, with hundreds of years of performance history, tradition and scholarship informing modern musical practice. As the philosopher Arthur Schopenhauer said:

> [music]. . . stands quite apart from all the others…Yet it is such a great and exceedingly fine art, its effect on man's innermost nature is so powerful, and it is so completely and profoundly understood by him in his innermost being as an entirely universal language.[47]

As the art and technique of composing has become more sophisticated, the importance of texture and timbre have risen, to some extent, at the expense of melody, rhythm and harmony. As Kyle Gann says:

> It has always seemed to me that melody, rhythm, and harmony are primary aspects of music, and texture and timbre (this latter rarely dwelt on much in postminimalist music, but quite prominent in spectral music) are secondary. I think this is just the natural order of things; you may argue that experience and training could alter our perceptions in this respect, and I'll agree that could be possible temporarily and in limited circumstances, but I think the natural order will quickly reassert itself with each new listener or generation of listeners.[48]

I'm hesitant to make these kind of pronouncements as strongly as Gann does. I certainly wouldn't go as far as to categorise the various elements of music into primary and secondary qualities. Nevertheless, melody, rhythm and vertical harmony have gradually assumed an increasing level of importance to me as a composer, and this is reflected through the development of the works in the portfolio. As a beginning composition student I was firmly steered in the direction of 'academic'

[47] Arthur Schopenhauer, *The World as Will and Representation. (*Dover Publications 2000), 256.
[48] http://www.kylegann.com/Melody.html.

serialism. I immersed myself in note-rows, pitch classes, chord rotation and the plethora of processes that serial and post-serial composers had employed to structure their music and make musical decisions. Much of this serial (and post-serial) thinking has remained with me and I still use many of the techniques I learned. However I was and, to some extent, remain bewildered when listening to the serial compositions of Babbit and Boulez (for example). I simply couldn't follow the various permutations and transformations of the row aurally – everything happened much too quickly for me to be able to follow, and the various tempo games I was introduced to never seemed to present themselves in the listened experience. I could (with much study) successfully analyse what was going on in a piece, but this is a process greatly removed from the listened experience, and this disconnect greatly troubled me, and continues to do so.

Over the five-year period of the composition of the works in the portfolio, I have gradually shifted the balance towards a much tighter construction around melodic shapes and motifs. Compare *Winter Myths* (the first piece in the portfolio) with *Slipstream*. There is little to no motivic development or recurrence in *Winter Myths*, the piece is mainly structured around juxtaposed textural contrasts (see the section on linear counterpoint in chapter 1). *Slipstream,* however, is almost entirely constructed around the melodic phrase which occurs at the start of the piece (see Figure 41). The various cells which are derived from this phrase and then manipulated are (I contend) always aurally identifiable as being derived from the initial melodic cell. The various permutations and manipulations the happen in *Slipstream* are rooted in post-serial practice, and yet simultaneously owe much to Reich (a high degree of repetition) and indeed Beethoven (motivic development).

In a similar fashion, I have also simplified my approach to extra-musical content. *Winter Myths* used a highly complex narrative backbone as a musical structure. While this was an interesting approach, it proved to be somewhat musically constricting. Using simpler ideas to structure pieces has proved to allow me to follow the demands of the material according to my musical judgement. Again comparing *Slipstream* to *Winter Myths,* the extra-musical stimulus was used in a far simpler way – the sculpture provided a general aesthetic impulse for the piece, rather than determining structure. In the later works in the portfolio, such as *Fire Whirls*, where an extra-musical stimulus provided a structural backbone, this tends to be a simple structure, more suggestive of a musical shape. The A B A C A D form of the first half of *Fire Whirls* is a well-established musical structure (Rondo form), and yet the 'tilting of the axis' section (see the section on *Fire Whirls* in chapter 2) adds an extra dimension to this form that I wouldn't necessarily have considered if I were simply re-cycling this already-extant musical structure.

History and Tradition

> If twenty-first-century composition appears to have a split personality— sometimes intent on embracing everything, sometimes longing to be lost to the world— its ambivalence is nothing new. The debate over the merits of engagement and withdrawal has gone on for centuries. In the fifteenth century, composers invited controversy by inserting secular tunes into the Mass Ordinary. Around 1600, Monteverdi's forcefully melodic style sounded crude and libertine to adherents of rule-bound Renaissance polyphony. In nineteenth-century Vienna, the extroverted brilliance of Rossini's comic operas was judged against the inward enigmas of Beethoven's late quartets. Composition only gains power from failing to decide the eternal dispute. In a decentered culture, it has a chance to play a kind of godfather role, able to assimilate anything new because it has assimilated everything in the past.[49]

As a composer, arriving at a personal style and aesthetic is the most significant challenge I have faced. In our postmodern age, the notion of a single, linear tradition has been stretched to breaking point. As Ross argues above, this is nothing new – composition has always been motivated by aesthetic and ideological differences and tensions. A huge part of determining what sort of music one wants to write is for the composer to orient themselves to musical tradition. As composer and musicologist Steven Stucky says:

> "One kind of artist is always striving to anhiliate the past, to make the world anew in each new work, and so to triumph over the dead weight of routine. I am the other kind. I am the kind who only sees his way forward by standing on the shoulders of those who have cleared the path ahead…Debussy, Stravinsky, Bartok, Sibelius, Ravel, Berg and many others. Their DNA is in my musical genes, as it is in the genes of so many of the composer colleagues and friends of my own day to whom I feel closest musically."[50]

I would very much place myself in this second camp, although Stucky does go on to mention several of the friends he's talking about (Oliver Knussen, George Benjamin and Magnus Lindberg). To take the example of Knussen, in much of his music since the late 1980s he has employed many post-serial techniques, including a development of Stravinsky's 'rotation' technique to generate harmonies and many row-based manipulations.[51] I also cited Esa-Pekka Salonen (see chapter 1) who decried the prohibitions of modernism, and yet opens his 'breakthrough' piece *L.A. Variations* with a free atonal canonic treatment of two non-pitch-centred hexachords. Only after that point does he introduce his 'quasi-folk-like' melody. As the post-modernists have sought to re-connect with the longer arc of

[49] Alex Ross, *The Rest is Noise: Listening to the Twentieth Century* (HarperCollins, 2009), 542.
[50] This excerpt is taken from "Coming home: On writing a Second concerto for Orchestra", at stevenstucky.com
[51] The composer Julian Anderson has written an analysis of Knussen's Harmonic practices, with the aid of Knussen himself, published in *Tempo.* Entitled *Harmonic Practices in Oliver Knussen's music since 1988, part 2*. Tempo, p57, pp16-41.

musical tradition, they have also incorporated much of modernist thinking into this re-connection. My own music makes extensive use of serial and post-serial techniques, and especially in the second half of the works in the portfolio re-incorporates an almost classical method of motivic development. I have outlined how an increasing sense of desire to have control of the vertical dimension comes from a desire for a greater sense of aural coherence, which perhaps could be viewed as post-modern – while I employ much of the harmonic language of the modernists, I also (like Salonen) balk at some of the restrictions, although these restrictions were being challenged almost from the very point of their conception.

> "There may also be, more in the music of younger composers…a stronger wish for continuity and connectedness with the music of the past. As several composers found in earlier decades, the Middle Ages and Renaissance seem, through a loop in time, only a step away."[52]

Paul Griffiths puts it well. As I've set out, my music takes as much from the tradition of Renaissance polyphony as it does from 20th century harmonic thinking. My approach to extra-musical material also reflects this. Extra-musical stimulus fell out of fashion somewhat during the period of high modernism, but composers throughout history have used extra-musical stimuli to assist one or more elements of the composition process, from the programmatic tone poems of Strauss to the imitation of hunting horns in Purcell. Like the more direct re-connection with musical techniques of the past, composers are also allowing extra-musical stimulus to shape their music in much more direct ways. James McMillan often discusses with eloquence his approach to extra-musical stimuli and the resistance he encounters, and he clearly still feels some sensitivity about it:

> "Nearly every piece I write has an extra-musical starting-point. That can be a point of controversy - you get cantankerous articles asking why no one is writing abstract music any more."[53]

Like McMillan, almost all of my music has this extra-musical starting point. I have outlined in chapter 2 the various ways I use this stimulus and the evolution of my approach. Again, in my earlier attempts to fit a modernist paradigm, I found much of the language prohibitive, as though purely abstract music were somehow more 'pure'. Like Salonen's embrace of melody, I have embraced extra-musical content in my music, and am explicit about the effect it has on structure and other musical choices.

[52] Paul Griffiths, *Modern Music and After* (Oxford University Press, 2011)
[53] Taken from an interview in the *Independent,* published in September 1997.

Freedom and generative constraint

The tension between freedom and constraint is a well-documented part of the compositional process, and every composer must find his or her own way to navigate the dichotomy. My own approach has developed as the compositional portfolio has taken shape – I've increasingly found it necessary to define the overall form before beginning a piece. I discussed this process at length in chapter 2, along with my relationship to extra-musical material. This approach enables me to feel extremely free to make individual musical choices.

Any process which subjugates the workings of the aural imagination to any given process or system is anathema to me as a composer. The moment I feel myself unable to allow the music to flow freely is the point at which I usually become stuck. However, I also find simply meandering from one musical gesture to another unsatisfactory – *Winter Myths* is a good example of a piece full (perhaps overfull) of ideas, and yet suffers formally a little from the disconnection between each gesture. As George Benjamin says:

> If you invent material solely by intuition, starting at bar one without reflection, you're likely to get into…formal difficulties. Things will follow by superimposition or by juxtaposition. Because there are no really deep points of contact, the formal continuity will be mono-dimensional and weak[54]

What has become most helpful in allying these two impulses is to first define some over-arching structure as way to place intuitive, ear-led gestures in a coherent framework. In most of the works in the portfolio, this usually takes the form of some extra-musical stimulus, although not always. Once I have this macro-scaffolding of form determined, making musical choices becomes much freer.

> The creator's function is to sift the elements he receives from the imagination, for human activity must impose limits upon itself. The more art is controlled, limited, worked over, the more it is free . . . My freedom consists in my moving about within the narrow frame that I have assigned myself for each one of my undertakings…whatever diminishes constraint, diminishes strength. The more constraints one imposes, the more one frees one's self of the chains that shackle the human spirit[55]
> (Igor Stravinsky)

This quote has resounded through my compositional studies – while I try to achieve something of a free flow of compositional instinct, I do feel a simultaneous need for order and coherence. I have spoken about my admiration for the clarity of Steve Reich's music, its coherence and transparency in particular. However, when simply allowing a pre-determined pattern to unfold, as in C*lapping Music*

[54] Risto Nieminen, *George Benjamin* (Faber & Faber, 1998), 32.
[55] Jonathan Cross, *The Cambridge Companion to Stravinsky* (Cambridge University Press, 2003), 152.

(1972), I felt a limiting sensation, as though the only significant choices were made at the pre-composition stage. Constructing a formal outline that allows freedom of gesture alongside a coherent and determined structure allows the balance that fits my creative impulse. This allows an organic development of the musical material. This doesn't rule out planning or pre-composition entirely – most of *Fire Whirls* was entirely harmonically planned before composition, and the first two movements of *Jo-Ha-Kyū* were extremely carefully planned out in terms of how the material was fragmented and allowed to develop. But the bulk of the pieces in the portfolio follow a highly organic process of responding to the demands and possibilities inherent in the material – usually one or two melodic phrases, which are broken down into cells and manipulated very freely, forming both connected motivic material, vertical harmonic fields and rhythmic material. The constraint, usually imposed at a formal level by an extra-musical stimulus, allows a substantial degree of compositional freedom while simultaneously retaining (in most circumstances) formal clarity.

Conclusions

All composers must in some way restrict their musical palette in order to create a personal style and to express their ideas clearly. Likewise, with the accompanying commentary, it has been necessary for the sake of brevity to focus on certain aspects of my own compositional process.

Likewise, I have similarly restricted my discussions of other composers – I refer to and quote Esa-Pekka Salonen, Steve Reich, George Benjamin and Kaija Saariaho in particular, but there are quite literally hundreds of composers, songwriters and producers who have in some way, whether consciously or unconsciously influenced my music. It would be simply impossible to mention them all here.

At the heart of my compositional process is providing a coherent framework and structure for my musical imagination to be able to flow freely. I delight in the chance occurrences; for a chord to simply flow from one to the next as intuition dictates. My early encounters with more process-driven compositional approaches denied me much of this pleasure, and I have subsequently moved away from this approach, although much of the harmonic vocabulary I assimilated during that period is still very much a feature of my work. Harmony and counterpoint continue to fascinate me; even without strictly defined functionality, the ability to let the ear settle on such and such a choice of chord is of fundamental importance to my identity as a composer. My nascent interest in the vertical dimension in music has been one of the most important elements for me in defining and refining my compositional voice.

However, I am also aware of the tension that exists between completely free, uninhibited expression and a shapeless, meandering unstructured result. One of my central pre-occupations as a composer is to provide the listener with a coherent experience. I have thought, and continue to think deeply about the listened experience of my music, and aim unify the listened experience and compositional process as much as possible, while at the same time allowing my musical instinct to make free and instinctive choices. There's a tension here, if not an outright dichotomy, and my music (like many others) seeks to balance these competing demands. As a result, I've increasingly found it necessary to define, albeit loosely, the overall structure of a piece before beginning. Extra-musical material often assists and informs this process. In chapter 2 I discussed extensively how an extra-musical stimulus shapes several aspects of my compositions, through acting as a formal backbone in the case of *Fire Whirls* to imposing a constraint that all electronic sounds should be generated from the sound of the cello in real time, as in the case of *Hearing Voices.*

The expansion of the timbral palette which I discussed in chapter 1 also posed challenges for my desire to create aurally coherent work. As composers, we're always seeking for novel ways to expand the

soundworld, through extended techniques to electronics and even instrument re-design. The risks with extending the timbral palette are similar to those posed by the breakdown of tonality – towards the noise-like end of the timbral spectrum, the listener will quickly become fatigued and lost. My use of repetition, extensive usage of melodic and rhythmic cells, which I discussed in chapter 1, allows me the freedom to use a wide timbral palette while at the same time maintaining musical coherence. In my music for more traditional instrumental ensembles, construction around melodic and rhythmic cells forms a huge part of my musical language, providing points of reference to help orient the listener. Alongside my use of extra-musical stimulus to help determine structure, I consider this construction using construction around melodic and rhythmic cells to be one of my most powerful tools in crafting a satisfying and coherent listened experience.

Stravinsky famously said that 'music is powerless to express anything at all', but, as I have hopefully demonstrated, I don't agree. For me, music is both in and of the world – it can look inward towards itself, and some of the most wonderful and beguiling music has been created with this outlook. However, as I discussed extensively in chapter 2, the title and extra-musical stimulus goes far beyond a mere label for the piece, but informs the work on several levels, whether this be formal/structural, textural or harmonic/timbral.

The various aspects of compositional practice that I have discussed in this commentary – harmony, timbre, form and extra-musical stimulus are all areas of research that have allowed my musical instinct enough freedom to fit my own definition of composing intuitively. I have given countless hours of thought to considerations of style and the crafting of a personal soundworld. It is entirely likely that this will be a lifetime's work. But the works contained within this portfolio demonstrate first and foremost my current interest in trusting my own musical instinct, and allowing it as much freedom as possible.

Appendix 1 – Scores in the portfolio

1. *Winter Myths* for small chamber ensemble, 2011 (9 minutes)
2. *Energeia* for piano solo, 2011 (17 minutes)
3. *Listen to the singing wind* for solo soprano saxophone, 2012 (c.8 minutes)
4. *Prism* for string quartet, 2012 (c.12 minutes)
5. *Hearing Voices* for solo cello and electronics, 2012 (c.15 minutes)
6. *Jo-Ha-Kyū* for large chamber ensemble, 2013 (c.18 minutes)
7. *Tendrils* for saxophone quartet, 2013 (c.10 minutes)
8. *Slipstream* for string orchestra, 2014 (3 minutes)
9. *Fire Whirls* for orchestra, 2015 (4 minutes)

Appendix 2 – Recordings in the portfolio

CD1

1. *Winter Myths*
   for small ensemble
   Ensemble Exposé
   Rodger Redgate (cond.)

2. *Energeia*
   for solo piano
   Michael Cryne (sampled piano)

3. *Listen to the singing wind*
   for soprano saxophone solo
   Ian Dingle (soprano saxophone)

4. *Prism*
   for string quartet
   The Molinari String Quartet

5. *Hearing Voices*
   for cello solo and electronics
   Laura Moody (cello) Michael Cryne (electronics)

CD2

6. *Jo-Ha-Kyū*
   for large ensemble
   Christopher Austin (cond.)

7. *Fire Whirls*
   for orchestra
   London Symphony Orchestra and François-Xavier Roth (cond.)

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