The University Of Sheffield.

FACULTY OF ARTS AND HUMANITIES
THE UNIVERSITY OF SHEFFIELD,
Leavygreave Road,
Sheffield,
S3 7RD

PORTFOLIO OF COMPOSITIONS

SUPPORTING DOCUMENT

MARK WILLIAM MCCOMBS

Registration number 110220361

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I. Summary

This document is submitted to support my portfolio submission for the degree of Doctor of Philosophy in musical composition. It details my compositional intentions and the methods of notational problem-solving undertaken to realise those intentions. The portfolio explores the use of indeterminacy in musical notation as a device to create textural variety, and ultimately density, as thematic musical discourse in itself and as a means for word-painting when setting text.

There might be some audience-related problems with the perception of indeterminacy, and the compositions at the end of the portfolio aim to mitigate those problems. They also hope to exploit an understanding of concepts of foreground and background, or prominence, in textural perception when creating polyphonic structures.

It concludes that indeterminacy is a pragmatic and expedient notational device, as well as a creative one, in achieving various levels of musical texture. Indeterminacy should not be seen as a lack of composer input, but as a harnessing of the imaginative powers of that music's performers.

II. Summary of Works

1. Address to the Woodlark (2012), 12’
for SATB choir, string quartet and piano

2. The Darkling Thrush (2013), 14’
for baritone, SSATB choir and string quartet

3. The Raven, (2018), 37’
for baritone, SSATB choir and string ensemble

4. In Nomine (2019), 12’
for wind orchestra

5. Darkness (2020), 10’20
for three sopranos and mixed ensemble

III. Acknowledgements

I am honoured to thank my supervisor Prof George Nicholson for his unreserved help, expertise, and patience during the long process of these studies. I am also indebted to Dr Dorothy Ker and Dr Gareth Widdowson, for their guidance, as well as Dr Robyn Lotto for her reassurance and motivating pep-talks.

Further gratitude must be expressed to my parents John and Jeanette McCombs for their constant support of my often-unusual life choices, and to my siblings Matthew and Jennifer for their never-ending goading. And finally, my thanks to Christopher Hughes and Dr Naomi Prado for their proof-reading skills.

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VI. Author's Declaration

I declare that, except where explicit reference is made to the contribution of others, this dissertation is the result of my own work and has not been submitted for any other degree at The University of Sheffield, or any other institution.

Mark McCombs
April 2020

1. Introduction

When considering musical texture, our musical education teaches us to think in four categories: monophony, homophony, heterophony, and polyphony. We principally associate the latter of these terms with music of the sixteenth century, with motets and madrigals of an ancient time before most of our modern musical forms were born. But the term texture in regard to music is actually a modern descriptive tool - it does not even appear as an individual entry in the first edition of Grove's *Dictionary of Music* (1954). Some have even postulated that the term arose in the language of twentieth century music critics because it was the only means by which they could describe or understand new and post-tonal music, which rendered many of the more familiar descriptive terms like harmony and melody irrelevant (Dunsby 1989). We are taught to think of texture on a scale of thin to thick.

> Texture results from a combination of pitch, timbre, and duration and is generally measured in terms of density. […] It makes sense to conclude that the greatest number of notes with different timbres occurring as fast as possible represents the thickest texture.
>
> (Cope 1997, p. 91)

I have always been fascinated by textual density in music. From the increase in instruments from intro to coda in the music of ABBA, to the immersive dimensions of multi-part choral music like *Spem in Alium*: Deployed in the right system, development towards textural density can be climactic and absorbing. In a world where most of the music we digest is recorded, and thus its dynamic levels are 'normalised' and reduced – or manually increased with the volume control – textural development has become a chief compositional tool in both the classical and popular compositional spheres.

In my own early compositions I struggled to achieve my desired levels of textural density with conventional notation. If texture results from the combinations of pitch, timbre and duration, then density is achieved through the total simultaneous variety of those elements. I thought that the score of music that is texturally dense must be detailed, particularly with regard to the number of pitches and rhythms presented.

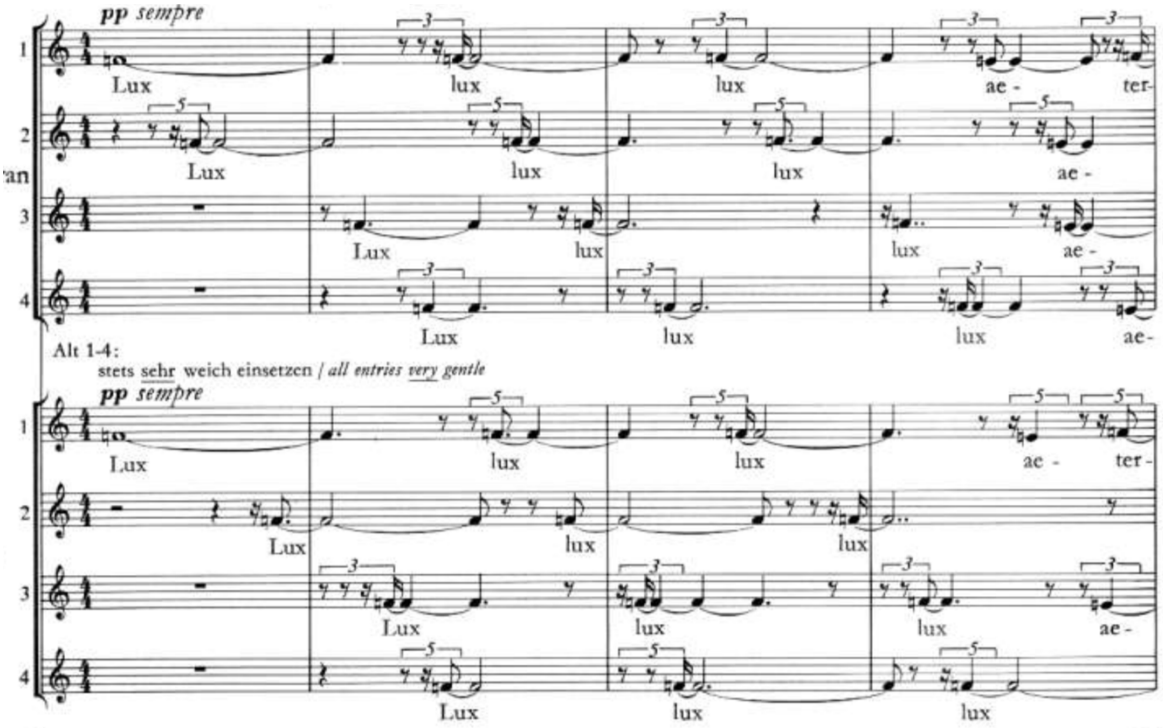
1.1 Micropolyphony

Richard Steinitz, in his tour of the music of György Ligeti, defines Micropolyphony as 'a microscopic counterpoint: an internally animated yet dense texture in which large numbers of instruments play slightly different versions of the same line' (Steiniz 2003, 103). The technique pervades most of Ligeti's compositions in the 1960s and 1970s, from *Atmosphères* (1961) to *San Francisco Symphony* (1973-4), and results from

> 'a simultaneity of different lines, rhythms (especially triplets, quintuplets and the like) and timbres. None of these polyphonic lines is particularly important except as it contributes to the creation of a thick, active composite'
>
> (Cope 1997, 101).

I remember performing Ligeti's *Lux Aeterna* (1966), with its interwoven lines of micropolyphony, as an undergraduate singer. I was simultaneously astounded at the sound that his notation was aiming to create, yet baffled by the level of its complication with seemingly uncalculatable rhythmic divisions. As my fellow singers and I struggled to realise the composers' counterpoint, our conductor tried to pacify us: it did not matter if our rhythms were not entirely accurate, as it was an overall effect that Ligeti was trying to describe. It felt futile, then, to even try to read those rhythms. This frustration was later reinforced when I later read Ligeti's own words on performances of his micropolyphony:

> I like pushing things to the limit of the possible. Performers have often said 'you cannot play this piece', or 'it is impossible to sing it' – My answer always was 'it is almost possible, but just try and you'll almost make it'. […] I explained to the choir that it was alright if they did not sing all of the notes exactly: All they had to do was approximate to what they saw in the score both rhythmically and melodically and it did not matter if the made little mistakes – the mistakes had already been reckoned with.
>
> (quoted in Várnai 1978, p. 49-53).



[Fig. 1.1 - Prescriptive subdivisions in Ligeti's *Lux Aeterna, 1966*]

1.2 Indeterminate notation as a solution

To me this presented something of an aesthetic problem: What is the point of being so prescriptive, only to acknowledge that the notation on the page will not be achieved? There seemed to be a paradox between the composer trying to exert such control with the notation yet conceding that the end product was not entirely within his control. The 'little mistakes' that Ligeti refers to would be different with every rendition of the work, so why not acknowledge that lack of control with the notation in the first instance? To me, there had to be another way of creating these textural effects with a less demanding, open, or aleatoric notation.

> A process is said to be aleatoric if its course is determined in general but depends on chance in detail.
>
> (Werner Meyer-Eppler, quoted in Stucky 1981, p.110).

Since the notation of the music is not readily apparent to the listening audience, complex music is often wrongly perceived as having complicated notation to the performers. Notation is the result of compositional problem solving that successfully communicated the ideas to the page, and then ultimately to those performing it. The clarity of notation is directly consequential to the success of its

performance. Scott McIntyre differentiates between complex music and complicated music:

> No one would argue that Beethoven's Grosse Fugue is complex, but it could not be said that it contains complicated notation.
>
> (2013, p.31)

Complex music need not have complicated notation – clear or simplified notation can beget complex music.

1.3 The role of the score

I must here acknowledge some elasticity in the extent to which the score is, or is not, a verbatim representation of the composer's intentions. Often a performer may need to interpret or adapt a written notation to make the work possible – consider a singer's need to breathe in long melismas of Bach arias, or a pianist's use of rubato in the elaborate works of Liszt. The score is not *the music*, it is the means to the music and needs some creative input from the performer. The very existence of urtext editions of compositions suggests that there is a long history of deviation, not to mention elaboration through ornamentation or cadenza, from the score that an urtext would aim to purify.

In these cases, deviation from the score is both valid and expected, and one might argue that a predictable development of this tradition is the approximation, or 'little mistakes', in the exacting notations of Ligeti. Yet, I would counter that the logical development of this tradition is indeterminacy and flexibility in notation, rather than deliberate inaccuracy, whether the composer acknowledges the mistakes or not.

That having been said, I must issue a disclaimer. I am a great admirer of the compositional artistry in Ligeti's micropolyphony - it demonstrates an extraordinary level of intricacy beyond the abilities of most other composers. He himself acknowledges the particularity of his prescriptive approach – describing himself as an 'obsessional neurotic' (Várnai 1978, p. 53). My position is simply that I believe the same level of density, or 'dirtiness' (ibid, p.54), can be achieved using indeterminate processes in notation. Notation that acknowledges an amount of chance and variation in its performance, yet, sets up the parameters for that variation in a more accessible and efficient way. Perhaps a notation that can be

described as having a visual or verbal prescriptivism rather than an 'over-composed' (ibid, p.53.) conventional one.

Indeterminate devices, particularly with regard to rhythm and metre, can be effective compositional tools. The technique of applying a limited degree of chance in realising the rhythmic aspect of the music has acquired several names in the literature of the twentieth century. Witold Lutosławski calls it 'limited aleatorism' or 'controlled aleatorism' (Stucky 1981, p.109-110). Indeed, it is Lutosławski who produced the most notable successes with this device, demonstrating that perceived complexity does not necessitate the use of complicated notation. Lutosławski is able to realise enormously complex and varied micro-rhythmic textures with controlled-aleatory procedures as a compositional tool.

1.4 Texture as thematic discourse

I am so regularly drawn to music of textural significance. To the purest polyphonies of William Byrd and Thomas Luis de Vittoria, and their enchanting musical lines. What separates this polyphony from modern structures is that it is directed by vertical harmony and follow 'the principle of polyphonic consonance' (Cozma 2013, p.78). Take cantus firmus compositions for example, a method of composing that relied on harmonisations of simultaneous movement in the accompanying voices against the plainchant. As a composer I have latterly been drawn to the same textural frameworks but without the need for strict harmonic consonance. Both Ligeti and Lutosławski have created polyphony in a twentieth century sense – bundles of instruments deployed as one voice, that retains a kind of traceable musical line in the way the individual voices in a Palestrina mass setting would.

If texture is a way of describing the sounds in which they lose their heterogenous identity, and are perceived as a unitary structure, *Texturalism* can be described as a way of composing specifically textural sound organisations in which other elements such as melody and harmony are imperceptible or less prevalent (Cozma 2013, p.74-75). Polyphony's melodic lines can be replaced with blocked out bands of sound, an aggregate of pitches and techniques (ibid, p.89). Texuralism can be used to describe these works where the prominent musical stuff is texture, a feature common to both Ligeti and Lutosławski, without regard to

whether the material is notated comprehensively or with an element of controlled aleatory in the notation.

Both also achieve a discourse in which texture is the main thematic musical material, and texture takes on a narrative in their 'pure'[1] music. To Lutosławski, music of "narrative" character is the most important and forms the basis of musical discourse, dominating the attention of the listener (McIntyre 2013, p.24). Most of the compositions in my portfolio have an existing narrative to convey, in the form of a poem. In these cases, I will seek to use variations in textural density as a compositional device to amplify these narratives.

1.5 Indeterminate notation in the portfolio

Paul Griffiths, in his Grove Online definition of aleatory music, distinguishes between large scale and small-scale aleatory procedures (Griffiths 2001). Large-scale aleatoric procedures can be considered to be when music may be played in any of several permutations, such as music containing sections which may be variously ordered - Pierre Boulez's third piano sonata, for example. Small-scale aleatoric procedure describes when smaller details of the work are subject to chance, such as a melodic or rhythmic variation of a line. It is this small-scale kind of aleatoric notation that Lutosławski mastered, the rhythmic possibilities of chance music enabling him to create intricate combinations of texture in musical structures that he himself determined.

The works in my portfolio deploy this small-scale aleatoric notation - where I as the composer am very much responsible for the design and progression of the music, but indeterminate notation is used a device within that to achieve this textural variation. As Lutosławski himself conveyed:

> I am not interested in regarding the chance factor as the leading one to determine the form of a composition, or the element of surprise in regard to the listener. In my composition the composer still remains the leading factor, and the introduction of the chance

[1] McIntyre describes pure music as *music that is devoid of any extra-musical content that may describe an emotion* (McIntyre, 2013. 67). Extra-musical content would be a text such as a poem, or an attempt to convey a storyline.

> element in a strictly fixed range is merely a way of proceeding and not an end to itself.
>
> (Quoted in Klein 1995, p.98).

When it comes to rhythm and metre, the choice of whether to notate a passage metrically or not is a matter of most efficiently achieving the intended sound result. It depends on the prevailing harmonic rhythm of the music – the faster the rate of harmonic change, the more precisely the performers must be coordinated. Metre, more or less, equates to rhythmic control. Yet in the hands of masters like Lutosławski, whose technique is such that he can control 'ad libitum' passages very precisely, metre and aleatoric notations as concepts are not diametrically opposed but regions of the same continuum.

My own compositional experiments in the portfolio takes this discussion as its starting point. I want to use both metrical notations and controlled aleatory procedures to create a variety of densities, on a spectrum from a single note as its starting point and a saturate of simultaneous variation in lines, rhythms and timbres. I want to experiment with each approach, both in turn and simultaneously, and try to achieve a descriptive textural journey that is the prominent musical thematic content - either purely or as word painting - in the way that melodic or rhythmic development has been for masters of the past.

The notations I deploy aim to convey my own deliberate compositional intentions, removing as much ambiguity as possible yet to allowing the performers a small element of freedom in realising the components of my textural devices. I aim to project as much information as required, but in an accessible framework, and to achieve the same ends of sonic complexity perceived in micropolyphony.

In terms of instrumentation, my preoccupation thus far has been writing for singers and choirs in various capacities. My work as a choral conductor and a singing teacher gives this medium has an element of comfort as a known quantity. My portfolio seeks to further develop my understanding and deployment of extended compositional techniques for voice, but also to write idiomatically for many other musical media, which I had hitherto only explored in small-scale projects.

1.6 A note on texts:

When composing for voices we more often than not need a textural or narrative stimulus, rather than a purely musical or formal one: in a physical sense, the voice as an instrument needs words or at least symbols to describe the sound to be articulated. We composers then have a commitment to text setting – to further describe the words our singers are singing with other compositional means. Thus, to experiment fully with a broad variety of textures - at the extreme end, with simultaneous variation in articulations, melodies, etc to great textural density - I have chosen to set poems with dramatic and vivid imagery. As such I am regularly drawn to the works of 'romantic' poets – Browning, Hardy, Burns, and Edgar Allan Poe – to their emotional and descriptive reactions to the landscape, to characters, and in some sense, to their tendency towards the macabre.

I have often found that these poets find great inducement when writing about birds – about the birds themselves, or as analogies to other things – particularly when making deeper analyses or commentaries about the human condition. So, to qualify some of the work in this portfolio, my intention is not to replicate or notate literal birdsong - in the way that composers like Messiaen have found themselves preoccupied – but to present the birds that these poets characterise and to further describe them aurally.

2. Literature Review – The Context of Indeterminacy in the 21st Century

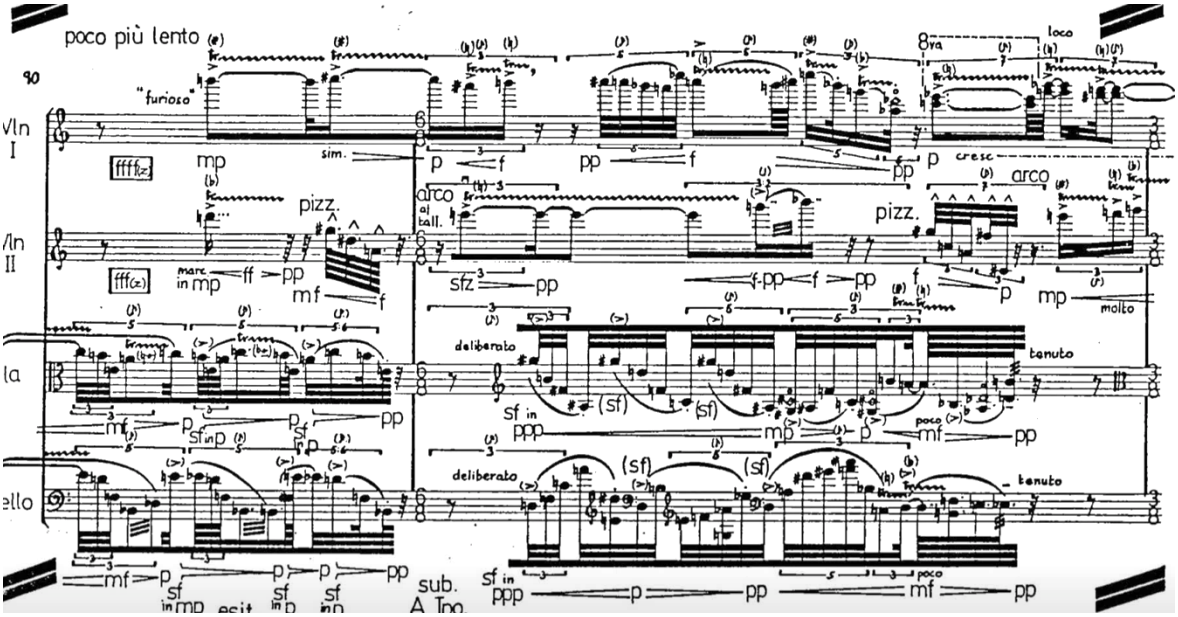
This chapter summarises some contemporary approaches to both texture and/or indeterminacy, and its roots in improvisation and graphic notation. Whilst not an exhaustive catalogue, it should provide a broad context for the works submitted in the portfolio and a justification for my compositional procedures.

2.1 Textural density with conventional means

'New Complexity Music' is most readily characterized by the use of techniques which require complicated musical notation. This includes extended techniques, multifarious and often unstable textures, microtonality, highly disjunct melodic contour, intricate layers of rhythms, and so on.

Brian Ferneyhough is often considered the principal exponent of New Complexity Music. His scores make huge technical demands on performers, in the sense of notational overload and of performing difficulty. Yet according to the journalist Tom Service, the musicians who are able to play such works indicate that performing them perfectly - according to the precise letter, rhythm, expressive marking - is not Ferneyhough's main objective (Service 2012). Like Ligeti, Ferneyhough describes the score as the start of a dialogue between the composer and performer.

> "What can a specific notation, under favourable conditions, hope to achieve? Perhaps simply this: a dialogue with the composition of which it is a token such that realm of non-equivalence separating the two (where, perhaps, the 'work' might be said to be ultimately located?) be sounded out, articulating the inchoate, outlining the way from the conceptual to the experiential and back."
>
> (Ferneyhough 1995, p.47)



[Fig. 2.1 - from Ferneyhough's *String Quartet No.2* (1980)]

Could the same music be created with indeterminate processes? The violin I and II parts might be represented with a notehead, extenders and some verbal instruction to vary the pitch or to embellish it (see Wiegold in fig. 2.14), and the viola and cello could perhaps be indicated with the pitches grouped in a box and headless note stems. But in this debate we are forced to consider how important it is that each pitch appears at *exactly* which moment, and *exactly* how long it lasts for.

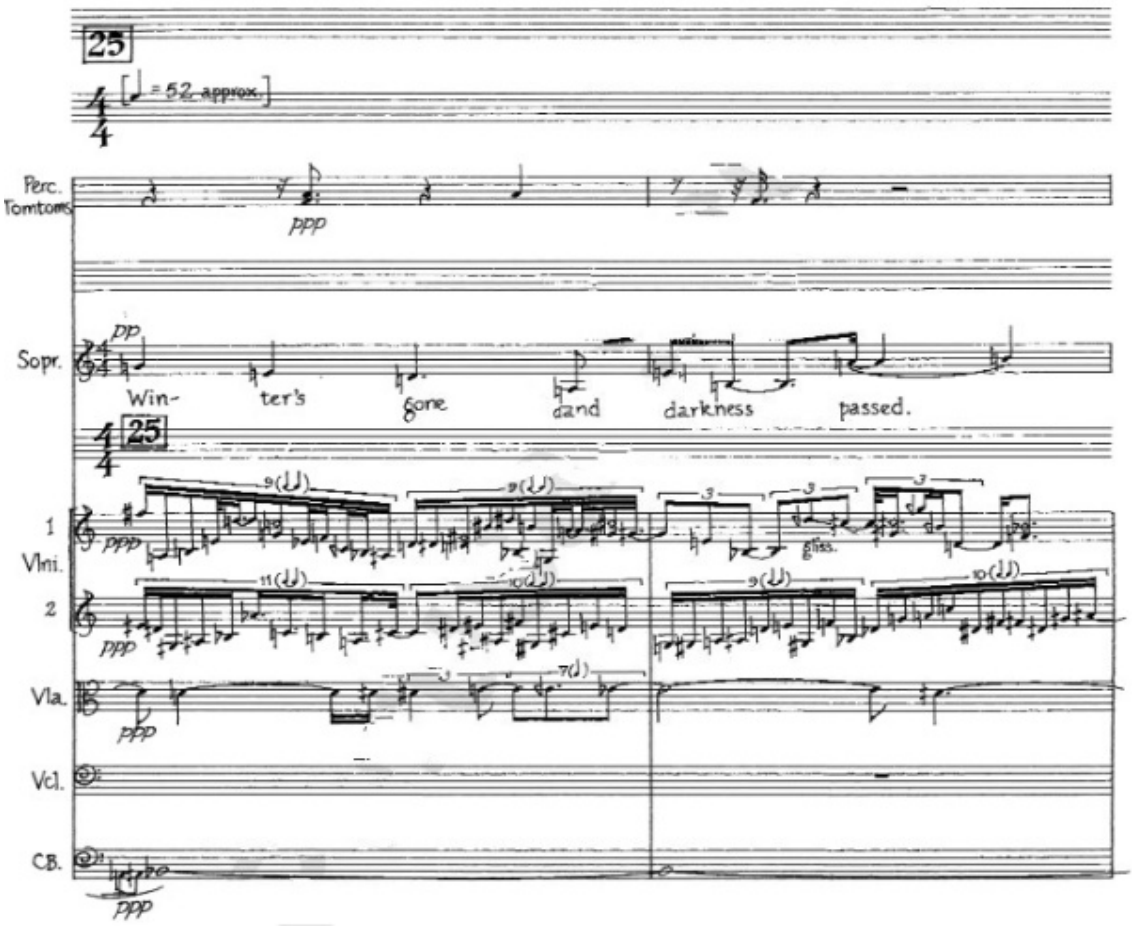
It is hard not to apply the same aesthetic problem with 'mistakes' in renditions of Ligeti's micropolyphony to these New Complexity works, especially when composers themselves concede that the complexity in their notation might not be achievable.

My own considerations of whether to notate a passage precisely or indeterminately have always been to consider compositional expedience - most effectively achieving the sound result - but with Ferneyhough we might consider that the notational complexity is in itself a means of achieving a particular result. Ferneyhough might not expect the performers to be able to achieve a perfect rendition of the score, but he does expect the performer to try to achieve it. The resultant sound is that of extremity, of the world's most virtuosic musicians trying to accomplish some of the most difficult music ever conceived - and as such an indeterminate approach to these passages would not result in the same kind of

sound, and if we were to remove the notion of correctness we remove those mental exertions. The result of such writing might be textural, but the exertions make music that would more likely be described as gestural – as aggressive or frenetic.

Michael Finnissy is another composer whose music has become somewhat synonymous with complexity. Through fully notated scores, which often seem impenetrable even for experienced musicians, Finnissy achieves the levels of textural variation that this portfolio seeks to explore. I would consider much of his music to be texturalist, with texture being the chief musical substance of the work or the primary means of text setting.

Looking at the bars below through a texturalist lens it seems that Finnissy is trying to saturate a band of sound roughly between G♯3 and D5, though some higher pitches do break those boundaries. For a performer versed in such complicated rhythmic writing the notated sound result might prevail, but for all others an indeterminate approach would likely be favourable. Considering the *pp* dynamic, it would be harder to conclude that the exertion in this writing is completely essential to the sound result.

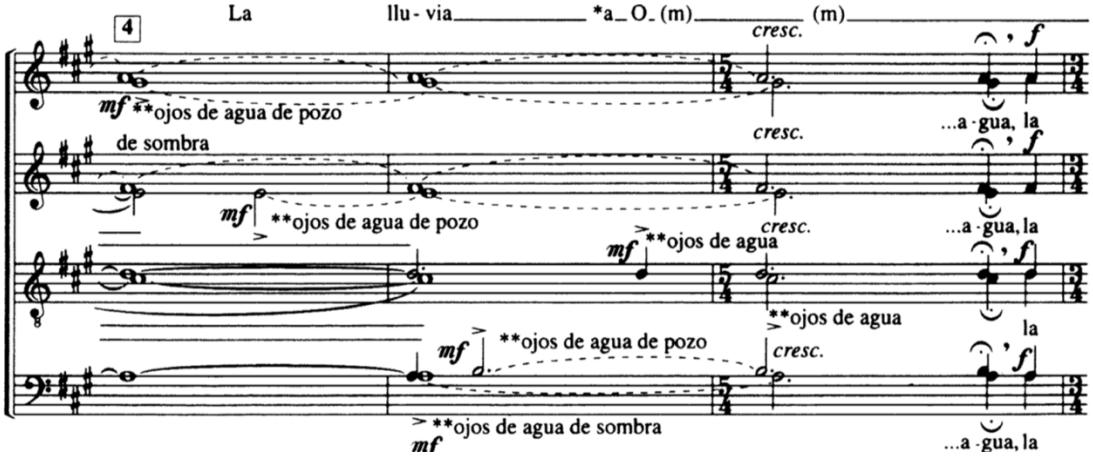


[Fig. 2.2 - Finnissy Folk Song Set (1976)]

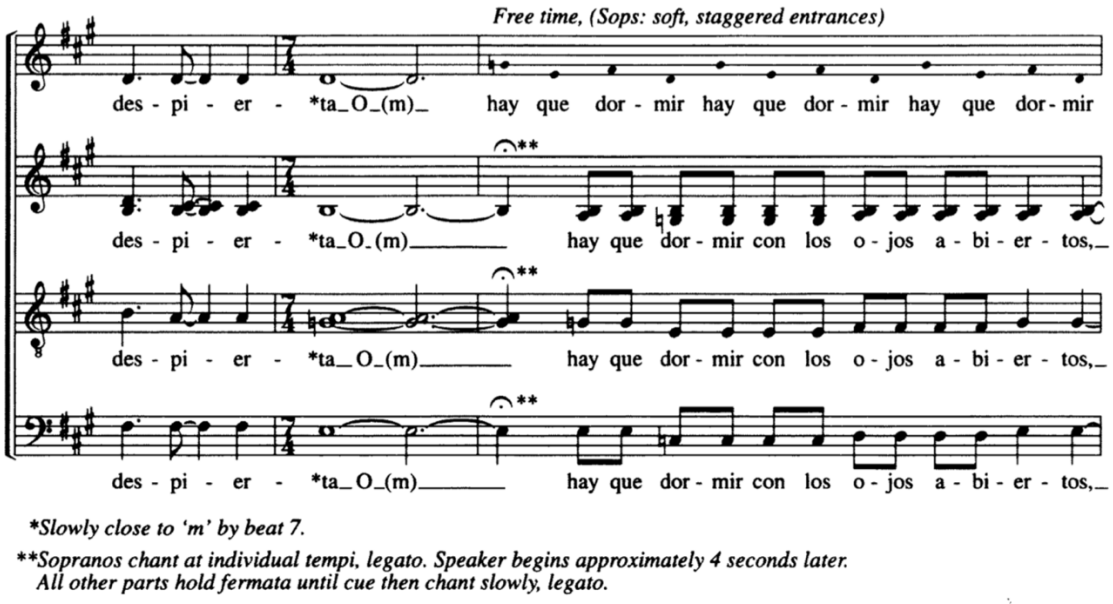
2.2 Indeterminate trends in current choral works

If composers in the field of indeterminacy seem reluctant to write for choir it is because they have found singers generally to be somewhat conservative. Yet it is my experience that a choir's reactions to many pieces often reflect the manner in which they are presented, and that it is ultimately worthwhile to persuade choirs to be open to chance operations since they are one of several compositional techniques from which a 20th century composer will draw.

The work of the much-lauded American composer Eric Whitacre is probably the most representative of trends in mainstream choral writing. *Cloudburst* (1995) contains notations that are indeterminate in their rhythmic aspect, which form a key part of his compositional lexicon.



[Fig. 2.3 - *Cloudburst,* bars 4-6]



[Fig. 2.4 - Cloudburst, bars 30-32]

The measured writing of bars 4-6 creates an effective horizontal texture, the metre moving the music forwards. Bars 30-32 on the other hand create a texture that is static whilst the sopranos establish their canon and before the lower voices enter, and so this notation falls victim to some of the limitations of some indeterminate techniques discussed in Chapter 5. The resulting effect is unmistakably textural but also faces the problem that chance music often sounds like chance music (Cope 1997, p.161). The later works in this portfolio try to avoid these limitations.

Whitacre deploys lengthy performance instructions to convey the desired sound result. Roderick Williams' *O Adonai, et Dux domus Israel* (2012) is a brilliant piece which exploits some of the foreground/background considerations discussed in

Chapter 4. *O Adonai* might appear to be structurally aleatoric - there are distinctly separate components to be assembled by the conductor - but a set of instructions from the composer to prescribe the method this assembly more like Ikea furniture than Lego blocks (fig. 2.5).

Performance directions

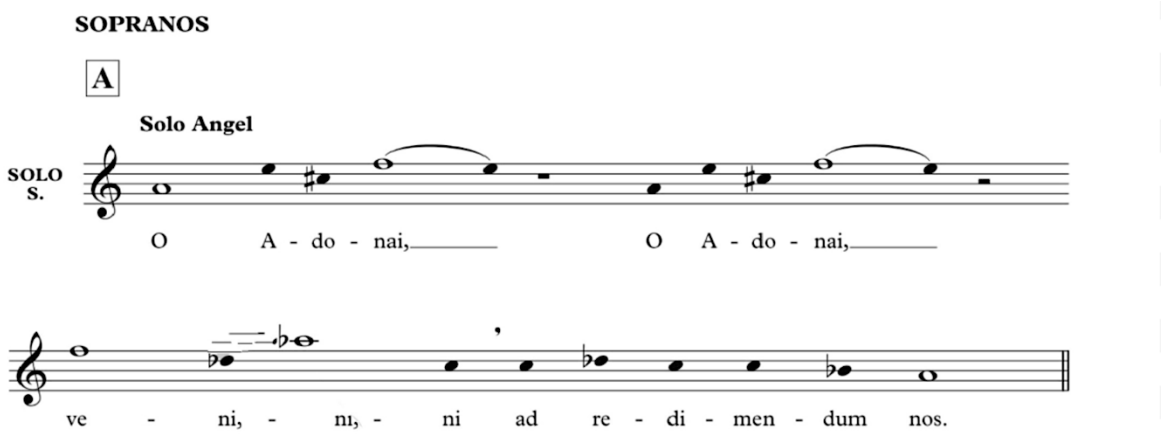
Structure

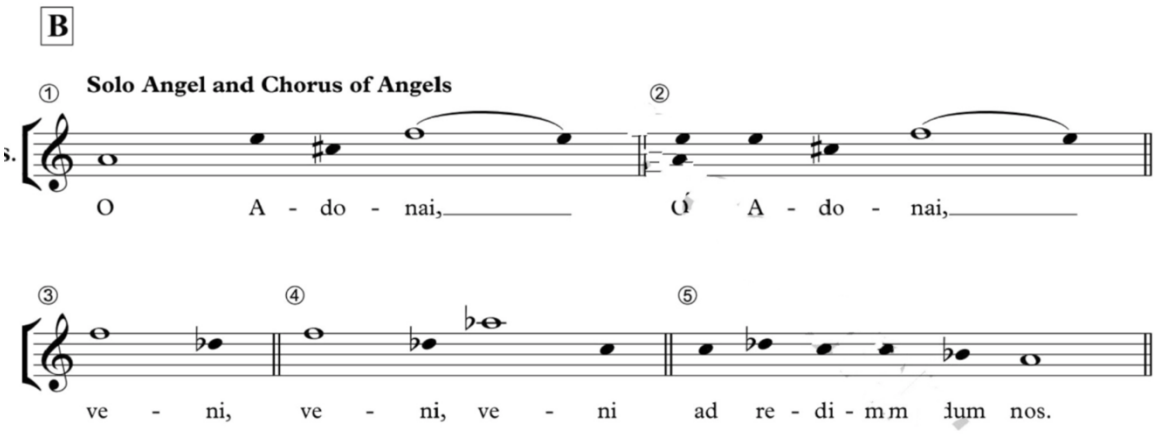
The motet is performed as follows:

- Solo Soprano opening phrase **A** sung once.
- Solo and chorus Sopranos sing **B** and continue improvising until the solo Soprano cues the Coda.
- Once **B** is established in upper voices, lower voices begin at **C** and sing through to the end of their music.
- The Celebrant joins at **E**.
- During the last line of the Celebrant's music, the solo Soprano begins the Coda by singing the initial phrase, overlapping with the singing of the Celebrant and lower voices.
- The chorus Sopranos (with the soloist *ad lib.*) respond with the exit phrase, repeating as many times as necessary to cover their exit (see below).
- The upper and lower voices are not necessarily meant to synchronize the end of the motet; either part may end first.

[Fig. 2.5 - O Adonai performance instructions]

The sopranos establish an edifice of repeated melodic lines, again indeterminate in regard to the tempo and with a rhythm only implied in the notation, and in regard to the spontaneous entries of each soprano (fig. 2.6). This is broken by the metered, homophonic writing on the alto, tenor and bass voices (fig. 2.7), which becomes the new foreground.



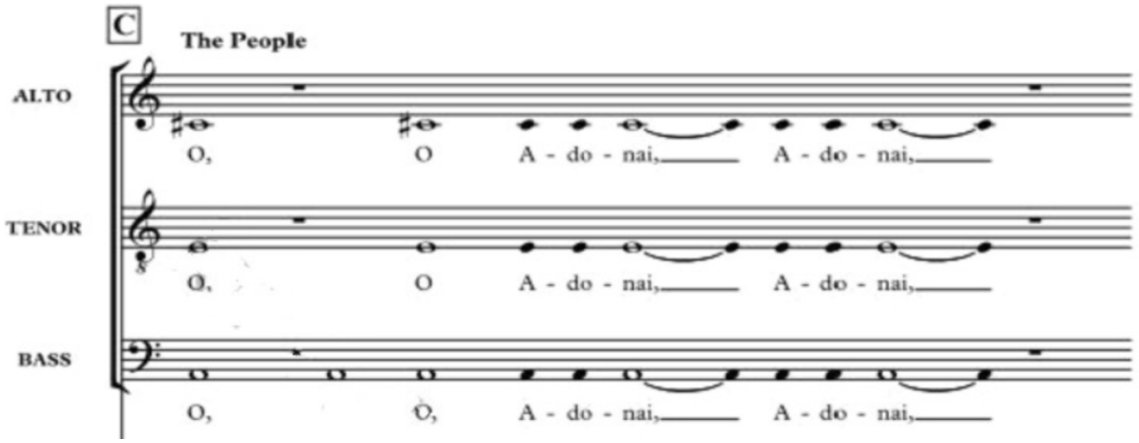


The Sopranos sing from pp. 4–5 only.

At B, the soloist improvises using the cells 1-5, in any order, repeating at will. Most important is that the soloist uses frequent gaps or rests between entries – these are as much a part of the improvisation as the notes. One by one the chorus Sopranos begin improvising, using the same cells while imitating what they hear around them. Again, the use of rests is important so that the resulting texture is not too dense. Rather, it should be made up of unpredictable entries led in part by the solo Soprano.

The Sopranos should continue this improvisation until the start of the Coda.

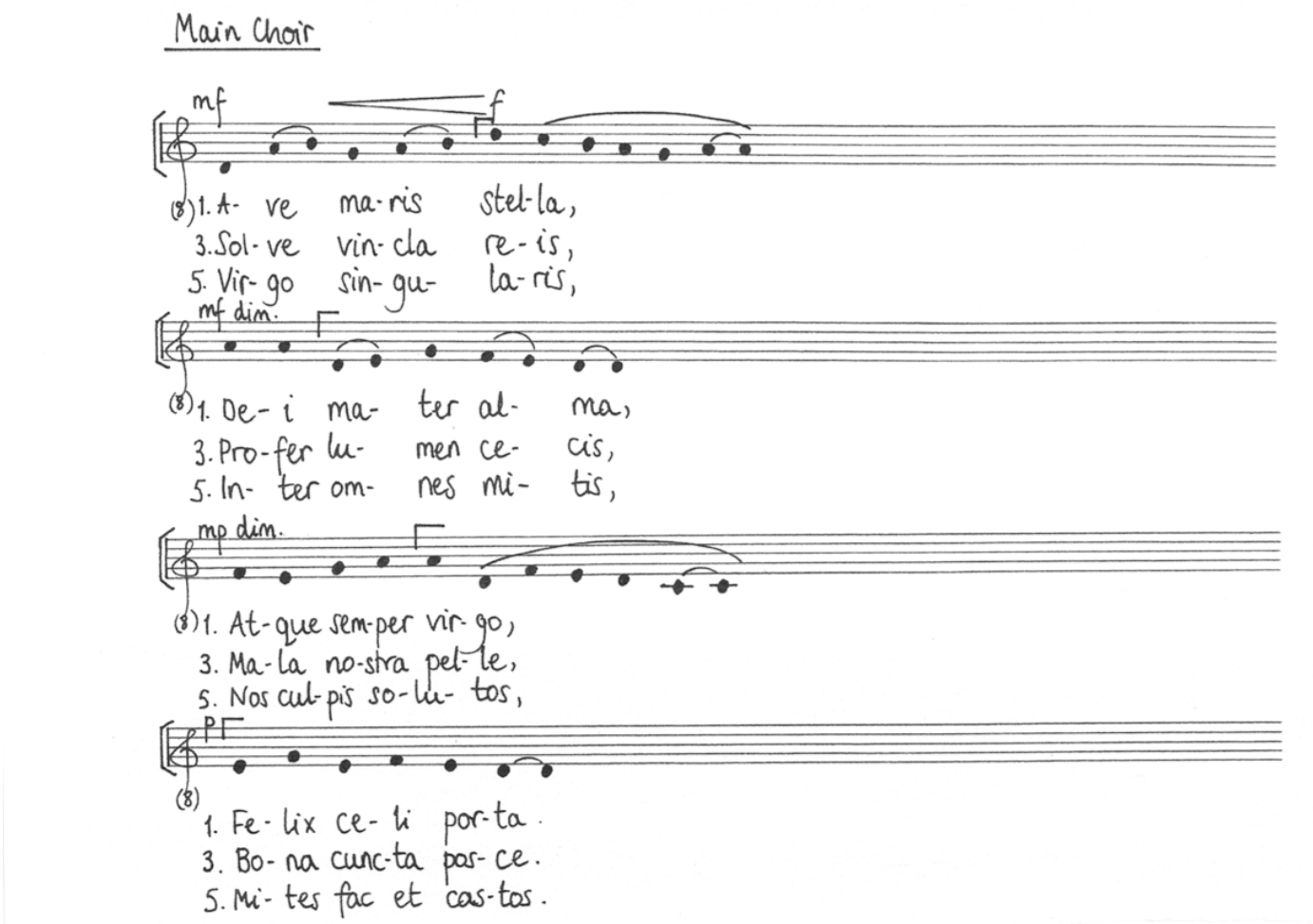
[Fig. 2.6 - O Adonai, page 4]

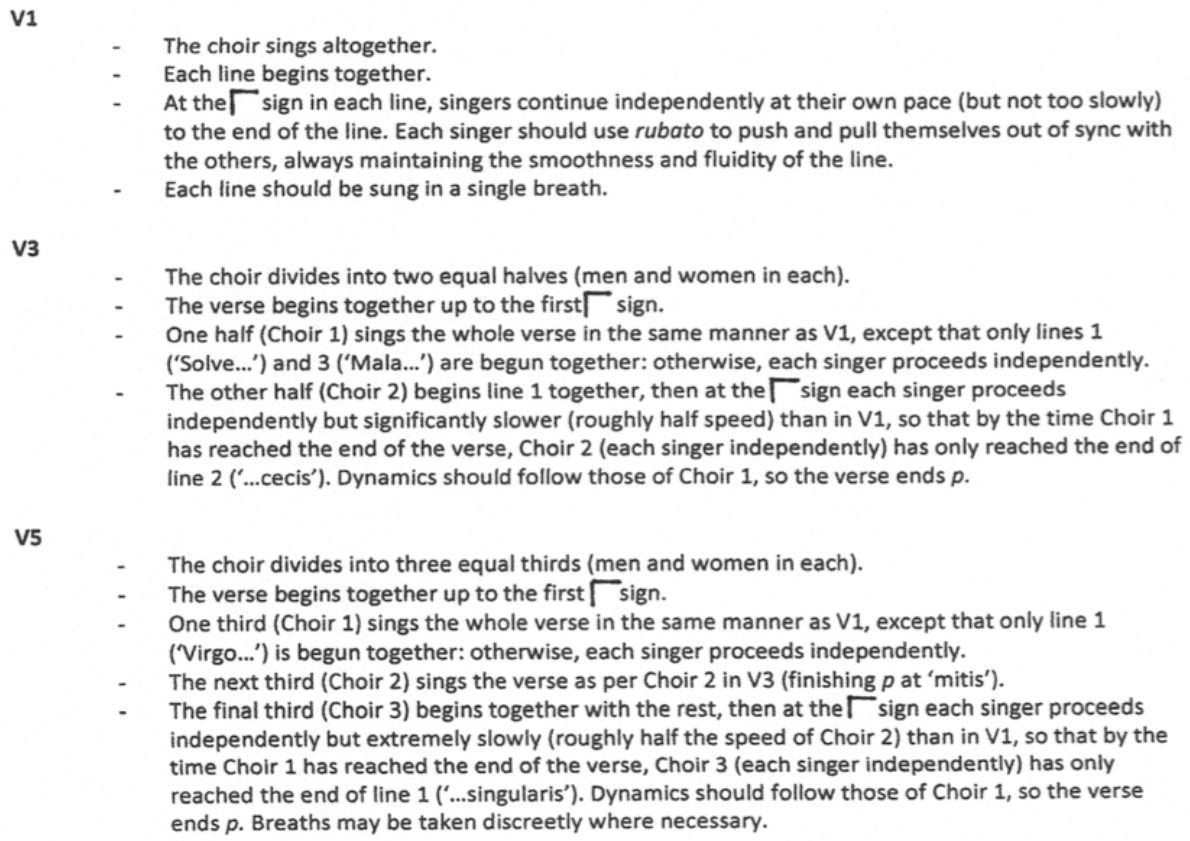


[Fig. 2.7 - O Adonai, page 6]

This writing demonstrates an understanding that the repeated soprano cells will become predictable and so backgrounded. It also acknowledges that the written instruction for the sopranos is more practical than a fully notated attempt to describe the desired effect might be, and so reinforces my belief in the use of indeterminacy as a compositional expedient.

The use of performance instructions has furthered the freedom of indeterminate techniques by contemporary choral composers. British composer James Weekes reserves the most experimental of his aleatoric techniques for instrumental writing, but regularly uses performance instructions to create isomelody in his choral music. Below is an example from his *Ave Maris Stella* (2003) The notation develops a purely heterophonic texture. Again, this texture is static, and the result 'sounds like chance music'.





V1

- The choir sings altogether.
- Each line begins together.
- At the ⌐ sign in each line, singers continue independently at their own pace (but not too slowly) to the end of the line. Each singer should use *rubato* to push and pull themselves out of sync with the others, always maintaining the smoothness and fluidity of the line.
- Each line should be sung in a single breath.

V3

- The choir divides into two equal halves (men and women in each).
- The verse begins together up to the first ⌐ sign.
- One half (Choir 1) sings the whole verse in the same manner as V1, except that only lines 1 ('Solve...') and 3 ('Mala...') are begun together: otherwise, each singer proceeds independently.
- The other half (Choir 2) begins line 1 together, then at the ⌐ sign each singer proceeds independently but significantly slower (roughly half speed) than in V1, so that by the time Choir 1 has reached the end of the verse, Choir 2 (each singer independently) has only reached the end of line 2 ('...cecis'). Dynamics should follow those of Choir 1, so the verse ends *p*.

V5

- The choir divides into three equal thirds (men and women in each).
- The verse begins together up to the first ⌐ sign.
- One third (Choir 1) sings the whole verse in the same manner as V1, except that only line 1 ('Virgo...') is begun together: otherwise, each singer proceeds independently.
- The next third (Choir 2) sings the verse as per Choir 2 in V3 (finishing *p* at 'mitis').
- The final third (Choir 3) begins together with the rest, then at the ⌐ sign each singer proceeds independently but extremely slowly (roughly half the speed of Choir 2) than in V1, so that by the time Choir 1 has reached the end of the verse, Choir 3 (each singer independently) has only reached the end of line 1 ('...singularis'). Dynamics should follow those of Choir 1, so the verse ends *p*. Breaths may be taken discreetly where necessary.

[Fig. 2.8 - Weekes Ave Maris Stella (2003), page 1]

The variety that the indeterminacy achieves would almost certainly not have been achievable by conventional notation. A difference here between Weekes' notation and my own is that this example clearly seeks to create that single textural effect, nothing more nothing less, rather than exploiting textural discourse within a measured framework. A friend once referred to these effects, which are a regular trend in contemporary choral writing, as 'floaty music' – which I believe appropriately indicates the frequently slow passage of time, and the slow development of every musical aspect of its deployment.

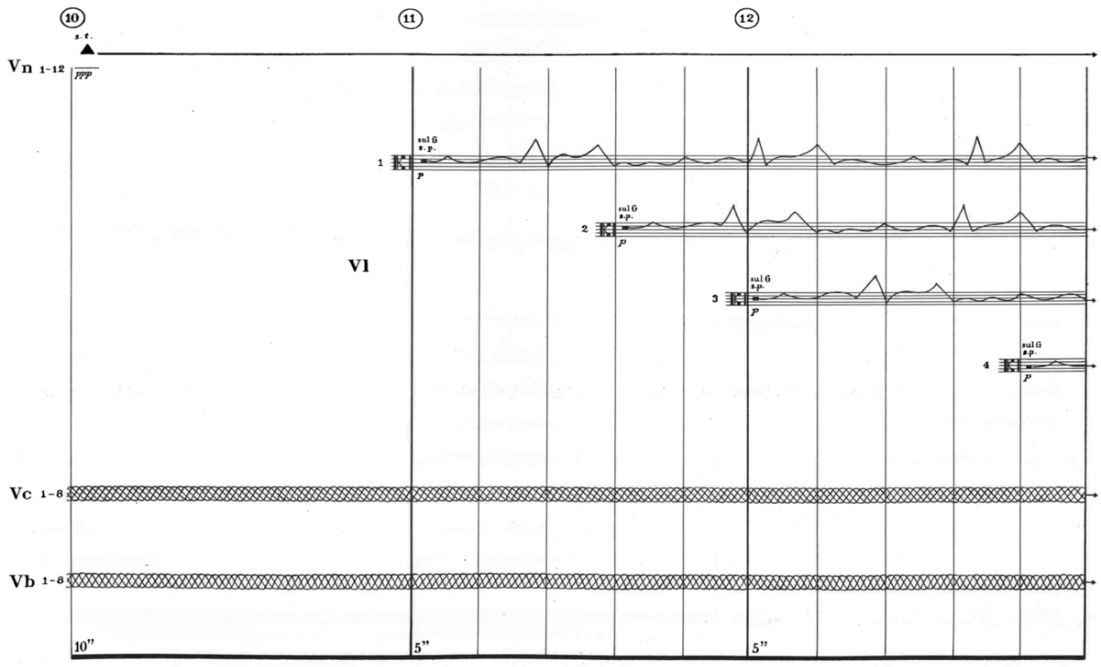
2.3 Use of graphic notation

To a certain extent the use of graphic notation is an indeterminate process – a particular symbol or image will produce a different response from different performers. Types of graphic notation vary from lines showing approximate pitch to time-based abstract representation, where a score might look more like a piece of visual art. Graphic scores allow wider scope for a performer's creative

participation and as such, like other kinds of indeterminacy, have the advantage of affording several possibilities within a composed range and allowing a performer to express themselves within the limits of their experience and technique.

Composers such as Krzysztof Penderecki, Morton Feldman and Cornelius Cardew were amongst the earliest to develop techniques using graphic notation. If graphic notation is the representation of music through the use of visual symbols outside the realm of traditional music notation, then to a certain extent many indeterminate notations require a graphical element. The extender lines on a repeated cell of indeterminate rhythm or tempo, for example, or the melodic indeterminate elements which provide shapes and patterns without noteheads indicating specific pitches.

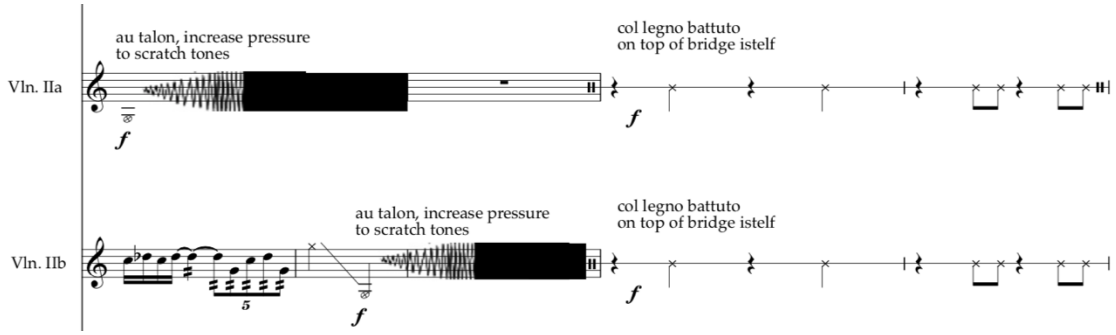
Krzysztof Penderecki employs graphic notation techniques such as black horizontal bars that vary in thickness and in frequency, or pitch contour lines which let the performer choose pitch within a certain range or scale. The rhythm too is often undetermined, and the material all employed within senza misura writing.



[Fig. 2.9 - Graphic notation in Polymorphia, 1961]

Whilst interesting, these common features of Penderecki's notations exert far less control than the processes in this portfolio and are more like an improvisation technique. Other graphic symbols are employed for extended techniques, which seems to be a common trait of their deployment – a movement towards graphic notation being directly correlated with a movement away from conventional playing techniques.

The notation below is from *The Raven* (2018) and instructs the string players to increase bow pressure until a scratch tone is achieved. Scratch tones are an extended technique, on undetermined pitch, and this notation clearly has a visual or graphic element.



[Fig. 2.10 - Graphic notation in The Raven]

Whilst they might be deemed as unconventional within many spheres, these small graphical notations are becoming increasingly part of current compositional techniques - so we might reconsider definitions of 'outside the realm of traditional notation' depending on the performers' context, but this is a philosophical discussion for another time.

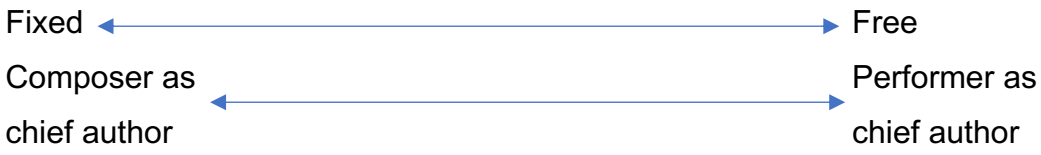
2.4 Indeterminacy and improvisation

The following conventional distinctions are important to this discussion: Improvisation is making music instantly, usually without planning, but composition is the deliberate construction of music prior to its performance.

The details of an improvisation are indeed undetermined, but more nuanced distinctions of authorship can be made between improvisors and musicians who are performing an indeterminate notation. The connotation of improvisation is that

the performer has more authorship compared to performers of indeterminate notations.

It is important here to consider the parameters that indeterminate notation provides, particularly the small-scale indeterminacy procedures used in this portfolio. By prescribing some of the musical elements and asking the performers to work within these boundaries, and by trying to broadly predict the sound result, the composer using these processes retains chief authorship of the work. Thus, the scale of fixed elements to free elements is accompanied by an corresponding scale of composer authorship.



[Fig. 2.11 - Authorship scale, free and fixed elements]

Free improvisation has its roots in the developments of jazz as well as experimental classical music. Consider the free improvisations of John Coltrane, which questioned the conventions of jazz's harmonic and metrical patterns in contrast to, for example, the stylistic bebop improvisations of Dizzy Gillespie. Freedom from functional harmony or style results in a more direct engagement with sound itself and the processes of creating. This is not to deny the artistry of fixed form improvisations, which some might consider require more skill than free improvisation.

Peter Wiegold is a composer almost entirely dedicated to studying the collaboration between composer and performer, and co-creates experimental music with his ensemble *Notes Inegales.* When interviewed by filmmaker Chris Jinks about his creating techniques, he outlines three kinds of instruction:

1. Do this…
2. Do something like this…
3. Do whatever you like.

(Wiegold, 2012)

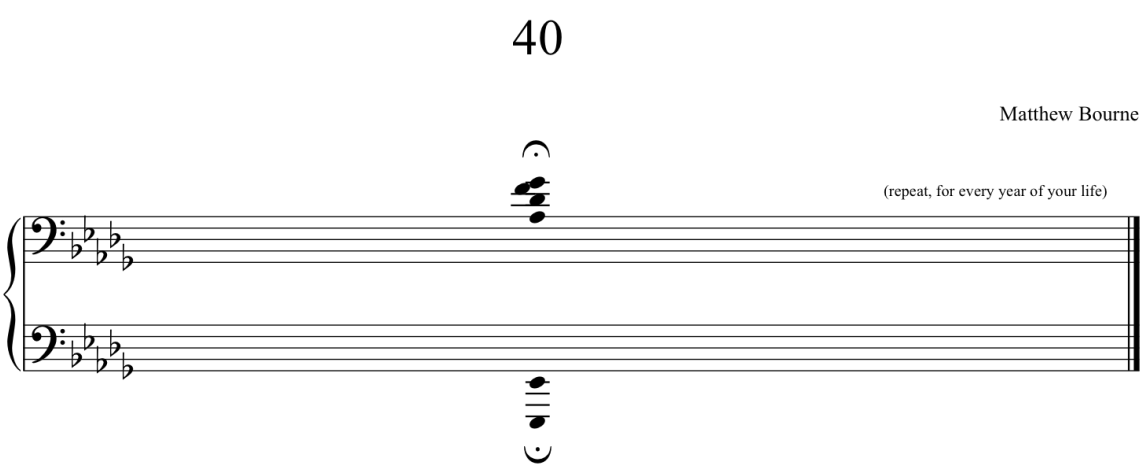
The majority of notations used in the classical tradition will clearly be categorised as the first kind of instruction, but the second describes a creative exchange where the composer provides instruction of dramatic or technical means. Categories 2 and 3 are related to that scale of fixed to free notation.

Notes Inegales perform new music that is fully formed only in the instant that it is being performed. Through a pre-defined system of conductor gestures, Wiegold is able to manipulate the sounds of his live performers relatively precisely – but the spontaneous and live elements of these creations place them firmly in the realms of improvisation rather than a traditional performance of a score. In terms of texture the conductor gestures might be limited to ‘copy’ or ‘harmonise’ (Wiegold 2020), with instruction coming visually and impulsively rather than from a prescribed notational stimulus.

It is interesting that Wiegold often uses the term ‘realisation’ when discussing his music to describe the idea of bringing basic ingredients to life. My own understanding of the term and its use with baroque music would place realisation very close to the left-hand side of the scale above, with the composer still as the chief author and the performer using informed performance practice to achieve their designs. On the other hand, the experimental music of *Notes Inegales*, by Wiegold’s own description, seems to be much further to the right of that scale – in the realms of free improvisation rather than a traditional realisation.

> …it is an interesting question as when I stand in front and direct others how much it does still feel like my sound.
>
> (ibid)

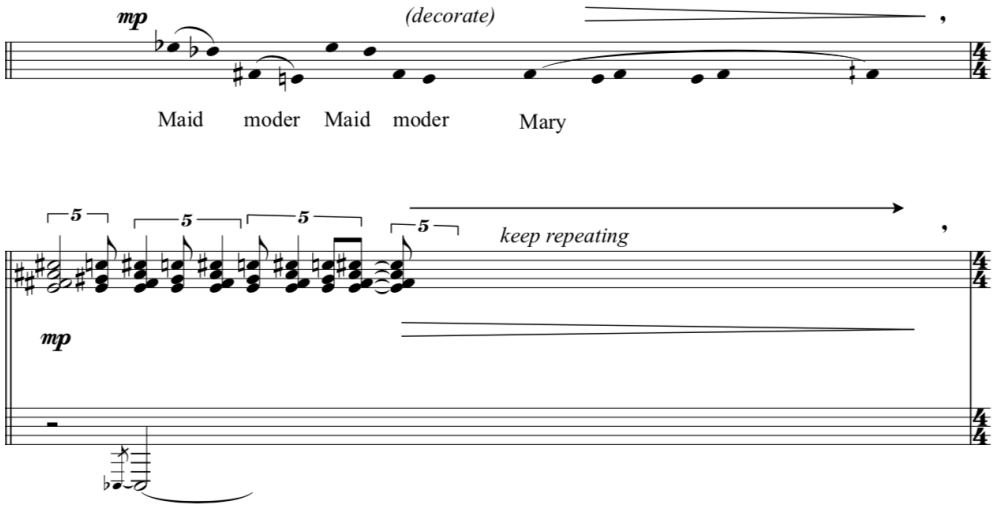
Below is a one-page score for *40* (2017) by Matthew Bourne, a jazz pianist and Wiegold’s frequent collaborator, written for *Notes Inegales.* It exemplifies the kinds of written and notational instruction the ensemble tends to work with.



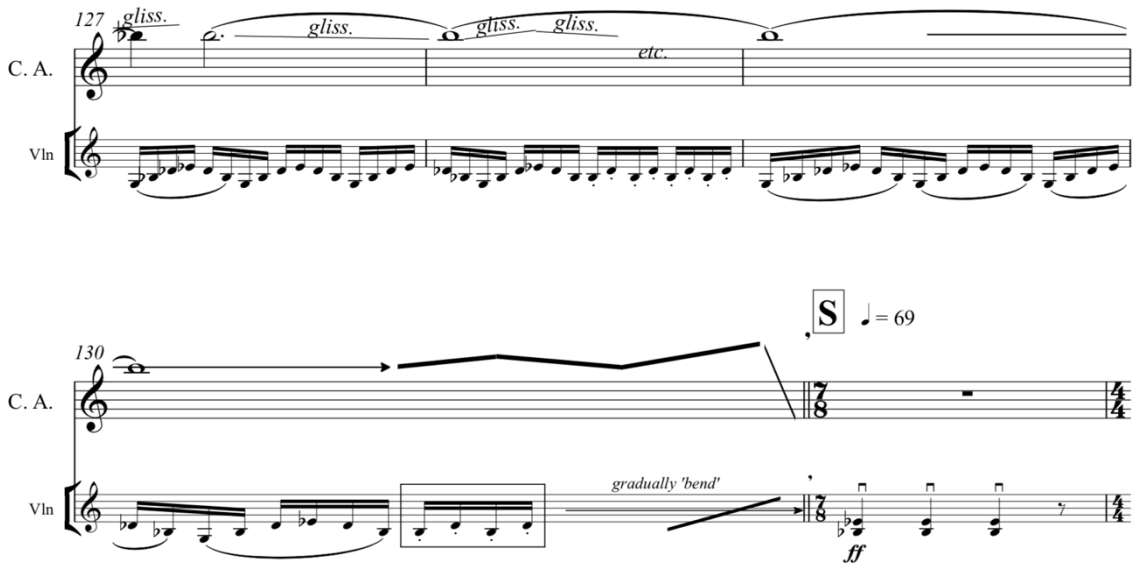
[Fig. 2.12 - 40 (2017) by Matthew Bourne]

This single chord is ‘realised’ into an 11-minute performance with some interesting, but spontaneous, textures. It is rendered in a variety of ways, but the incidental music that this creates is of limited horizontal textural progression. This music is clearly to the right-hand side of the authorship scale in fig 2.11. Such realisations of Wiegold’s music also benefit greatly from his involvement as conductor/keyboardist, so any ambiguity in the limited notations they do use could easily be ironed-out in rehearsal and indeed performance.

When studying the scores of Wiegold’s earlier notated works it seems that indeterminacy is generally limited to melodic and rhythmic freedom within static texture two-part textures.



[Fig. 2.13 - Rhythmic Indeterminacy in A Cause of Wonder (2010)]



[Fig. 2.14 - Melodic Indeterminacy in *Earth, receive an honoured guest* (2008)]

A Cause of Wonder (2010) is a work for piano and countertenor, a medium with a generally predetermined 'melody and accompaniment' texture – but this texture also prevails in *Earth, receive an honoured guest* (2010) with a string trio as the accompaniment to a solo cor anglais. It is a sonorous arabesque, but some way from even the smaller formats instrumental groups that are common within texturalism. In both instances, indeterminacy is a compositional expedient – a way to achieve a desired and generally-predictable sound result without being restricted to conventional notation – but without any great repercussion on the texture of the music.

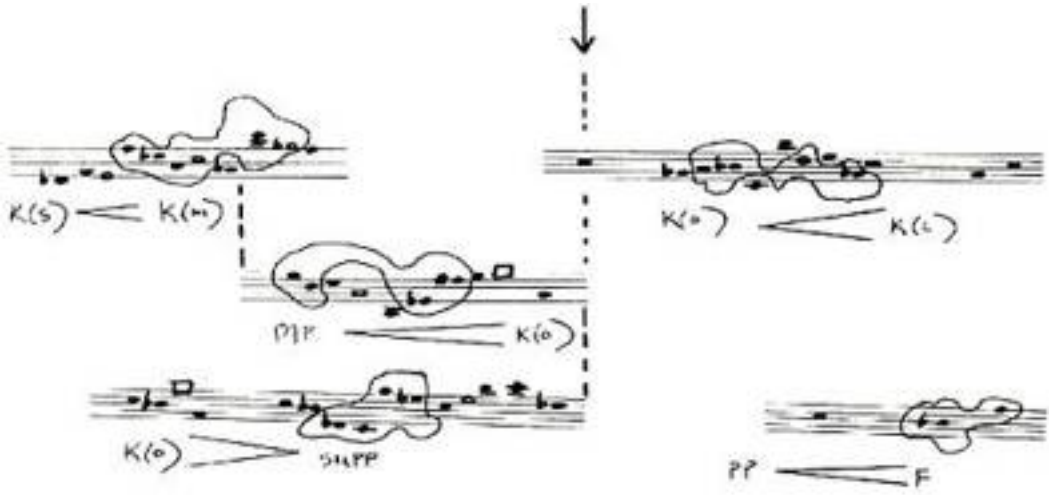
2.5 Improvisation and graphic notation

Anthony Braxton is an American composer who is known in the genre of free jazz, though he rejects that label himself. Braxton's expansion of graphic notational means has enabled him to assimilate composition and improvisation and disrupt that conventional composer-performer creative process.

Composition No. 1 (1968) is Braxton's first fully notated piece, and he describes it as 'a notated improvisation' (Braxton A, p.38). Even in this early work, he is stretching the bounds of conventional notation - visual symbols like asterisks, thick black lines, and arrows allow stimulate a personal improvisation from the

performer. The notations do not prescribe starting pitches or rhythms, and so are described as less determined than the indeterminate processes in this portfolio. *Composition No. 46* (1975) has four different components based on texture: light texture, dense complex active texture, and isolated sound points. Like much of Braxton's music this work is senza misura, the score indicating 192 individual events cued by the conductor – the exactness of these textures is spontaneous, as the instruments perform in their own tempo with very little instruction from the composer. Again, these improvisations are very much less determined than the indeterminate processes in this portfolio.

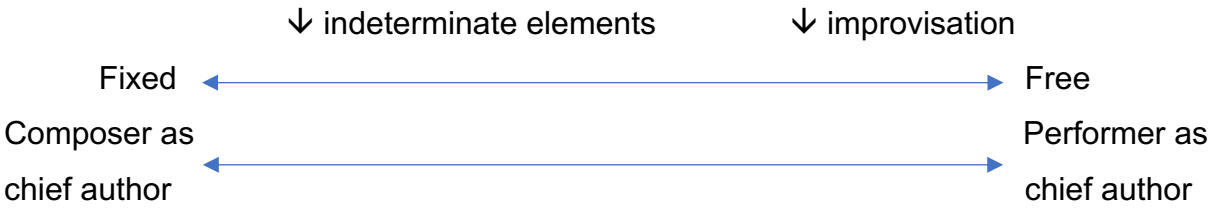
Composition No. 17 (1971) on the other hand would conform to a definition of large-scale, or formal, aleatoric construction. It is a string work consisting of four sets of written parts, and any part can be played by any instrument. Each part has three sections in contrasting tempos that can be played in any order for any length of time. *Composition No. 18* (1971) is similar in its aleatoric construction, but none of it is conventionally notated. The score is predominately graphic, with a single horizontal lines substitute for a full stave and the pitch notation consists of various curves drawn above, below, and through it.



[Fig. 2.15 - Braxton's shape formations in Composition No.94]

Traditional Western classical music tends to be closed to improvisation, and traditional jazz form open chiefly to what Braxton calls “the separate brilliance” of the extended improvised solo (Braxton, A, p.83) – yet he is using such graphic notations to combine composition and improvisation, and improvisational space permeates the musical structure.

It is interesting to consider where this music lies on that authorship scale, particularly compared to the small-scale indeterminate processes in this portfolio. We could, perhaps even should, place indeterminate elements and elements of improvisation at different points on the scale from fixed to free compositional devices.



[Fig. 2.16 - Authorship scale, free and fixed elements 2]

Like Wiegold and Notes Inegales, the fact that Braxton’s compositions were often played or conducted by him mean that performances of his compositions were not limited to the interpretation of notation. Regardless of the control he seems to have been able to exert in many of these performance situations, it still appears that the use of indeterminate elements - particularly in my work - is a more fixed means of notation which leans firmly towards the composer as the chief author.

2.6 Summary

Improvisation, and realisation of time-based abstract realisation graphic notations, are intended to encourage the complete creative participation of the performer. The use of indeterminate notations on the other hand is generally intended to be a compositional expedient to encourage imagination in the realisation of specific parameters. The compositions in this portfolio are concerned with the latter.

I use techniques that allow for some freedom of choice but within my pre-composed framework, and the degree of *authorship* in collaboration between composer and performer is firmly loaded in my favour. My work is never aleatoric

with regard to its structure, and it always provides tight parameters for performance of indeterminate elements.

Some indeterminate notations have a small graphical element, particularly when conveying extended techniques, but again this work is firmly to the left of the authorship scale when compared with the improvisatory nature of works by Wiegold and Braxton. Some of these composers works may well aim to feature texture as the predominate musical discourse, and so might perhaps be described as texturalist, but again the level of freedom that their notations allow is distant to that explored in this portfolio.

3. Indeterminacy on an Individual Level

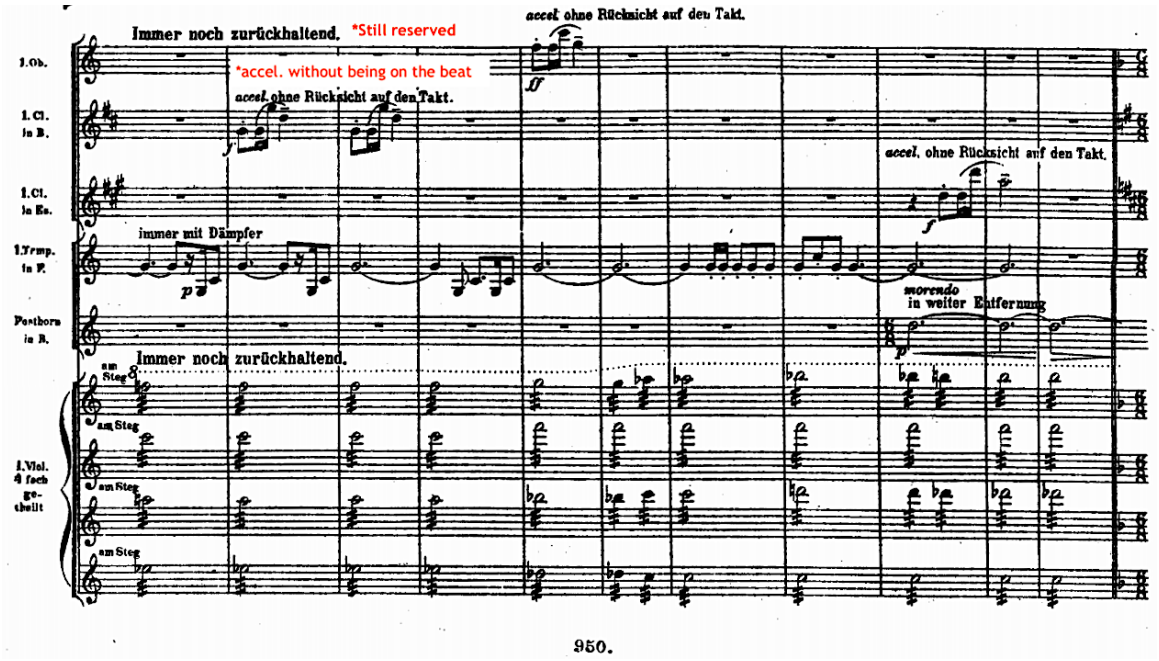
Indeterminacy in music was not an entirely new concept in the twentieth century. Mozart explored the concept of a musical dice game in sketches for the Adagio from his string quintet K.516 (mentioned in McIntyre 2013, p.9). Mahler too experiments with an amount of indeterminacy on an individual level, with such instruction as ‘ohne rücksicht auf die andern’ – instructing the clarinets to play ‘without regard to the others’ in his third symphony (1893-96) – creating an intricate rhythmic variety with a simple written instruction that might not have been obtained through more conventional notation alone.

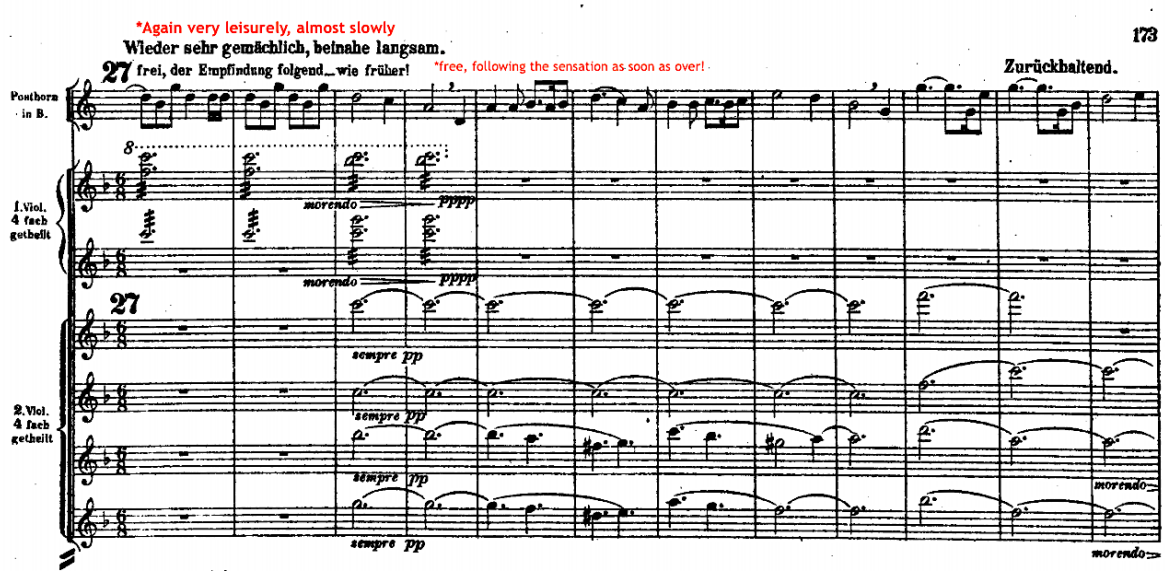
Yet there is a perennial preoccupation in contemporary music with balancing the accessibility of a new or unconventional notation and its role in projecting enough information. Departures from conventional notation regularly endeavour to remove as much ambiguity as possible whilst sufficiently communicating the composer’s intent. Composers seek to exercise a certain amount of control, as the designers of the work, but they may wish to allow a certain amount of freedom to the performer when the primary concern is, for example, gesture, texture, or articulation. Individual indeterminacy can also be deemed as expedient in the rehearsal process, saving time that might be spent trying to achieve intricacy when the exactitudes of that intricacy are not important to the structure as a whole.

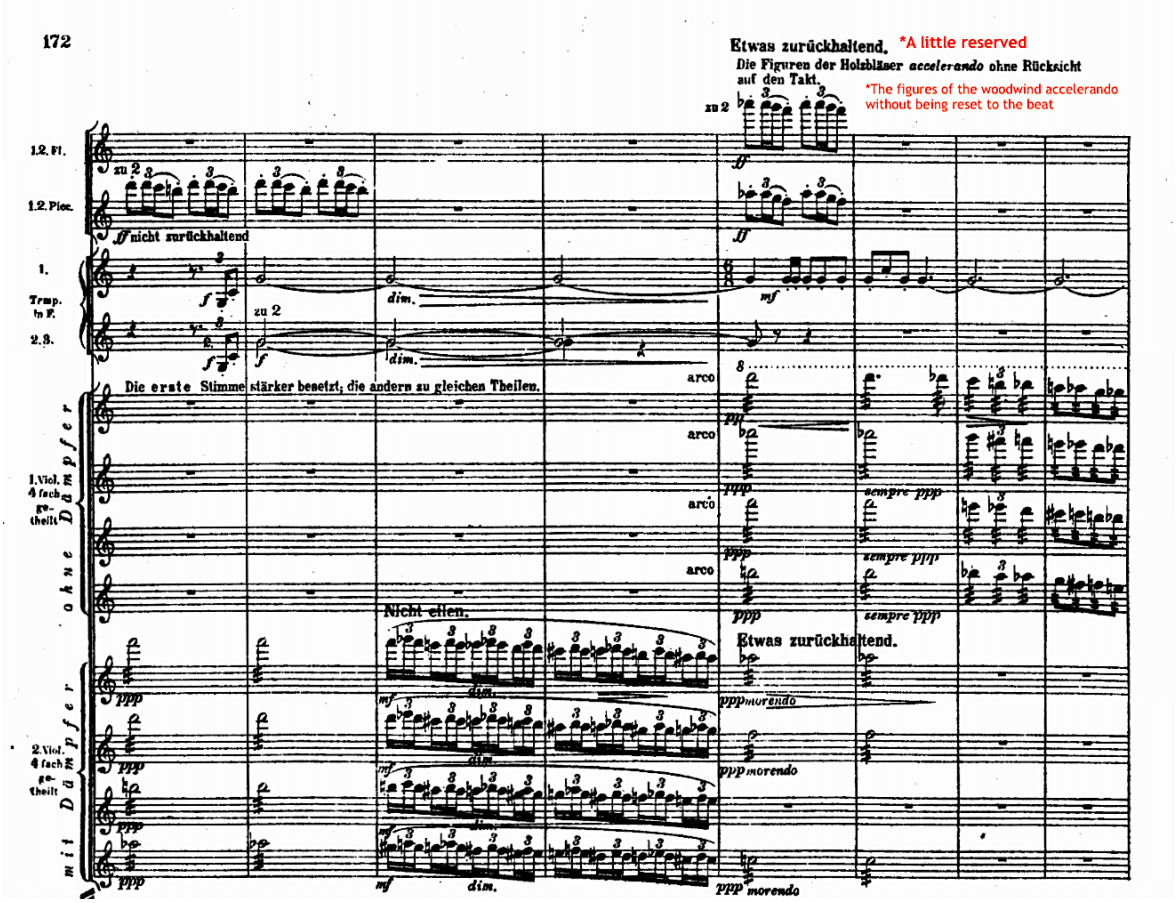
If texture is a phenomenon that is determined by its constituents, controlled indeterminate procedures on an individual level can allow for such variety that they should be an essential part of an efficient notation that aims to create textural density. By not specifying pitch or rhythm to one of the composite layers of the texture, a composer can channel the imagination of the performers to make them agents in its creation. Perhaps it could be suggested that by allowing a greater number of imaginations to be involved, a greater number of variations in those ingredients that create texture are afforded. And variety is certainly the aim of the game when it comes to density, whether explicit in the score or implied. The instructions help achieve the composer’s designs, rather than be a result of performer authorship as an improvisation might.

3.1 Indeterminacy in tempo

Perhaps the easiest to deploy, it is no surprise that an element of indeterminacy regard tempo can be found as early as the works of late-romantic composer Gustav Mahler. As mentioned at the start of this chapter, these subtle individual variations in tempo are used prolifically throughout the third movement – *Comodo (Scherzando)* – of his third symphony (figure 3-1). These tempo instructions are here listed with translations.







[Fig. 3.1 - Mahler's tempo indeterminacy]

3.2 Indeterminacy in rhythm

Small-scale aleatoric procedures, deployed on an individual level, enable a level of rhythmic complexity whilst exploiting a simpler rhythmic language. As Lutosławski himself argues, the rhythmic aspect of music with controlled indeterminate notations can be far more complicated than 'any polyrhythmic structure to be found in traditional music.'

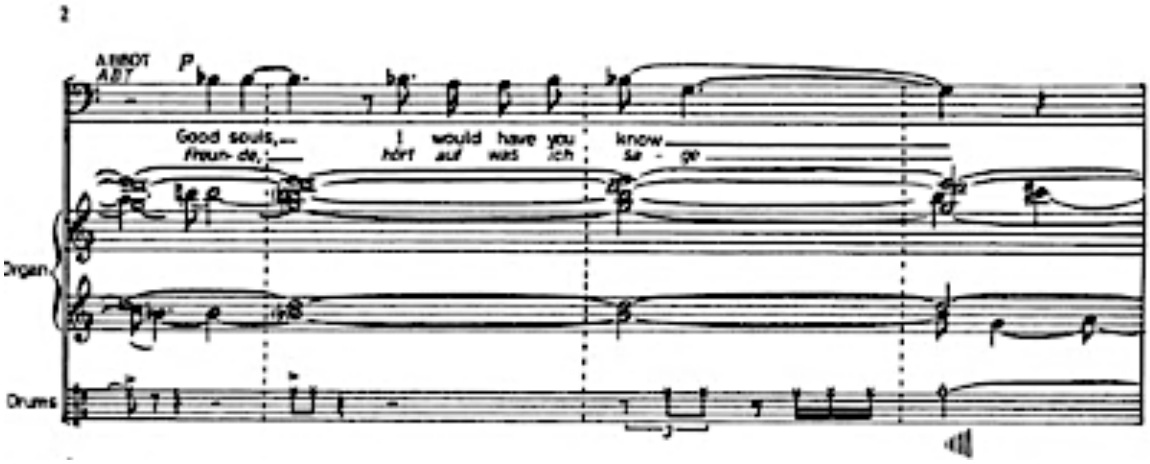
> One of the reasons for this is that there may be… accelerandos and rallentandos within each part. There are many other similar possibilities. All of them spring from the composer's assumption that each of the performers will play as though they were on their own… In this way the rhythmic structure acquires a distinctive suppleness not attainable otherwise.

(Quoted in Bodman Rae 1994, p.77.)

This indeterminacy with regard to rhythmic pacing and unsynchronised imposition of layers contributes to the overall homogenization of the sound – with texture, then, as the chief musical discourse.

The rhythms of micropolyphony should be quick and varied to prevent any accidental harmonic inconsistencies – the emergence of an obvious harmonic consonance from a texture that is primarily linear will draw attention away from the horizontal trajectory and towards the vertical. Replacing the exacting rhythmic complexity with indeterminate subdivisions can achieve the perceived complexity prescribed with the intense subdivisions in micropolyphony.

Another effective approach to indeterminacy in rhythm was first adopted by Benjamin Britten in his church parable Curlew River (1964). The symbol in the last bar of the drum part below indicates a gradual increase in tremolo. Conversely, a retrograded version of the symbol represents a tremolando with a gradual, unmeasured rallentando.



[Fig. 3.2 - Gradual tremolo in *Curlew River*]

3.3 Indeterminacy in pitch

Conventional western notation demands pitch information; indeed, it is the first consideration of the graphical way in which we write music on staves. Opting not to stipulate pitch allows performers to place greater emphasis on the attack, or the articulation, or its dynamic content, and potentially allows that rich possibility of microtonality – intentionally or not – to come in. When a composition is lacking pitch specificity in any way, but features greater information with regard to these other elements, this should not be seen as a lack of composer input but an

instruction for the performer to be imaginative with regard to pitch and to focus on those other elements.

Traditional polyphony is the combination of strands of sound – not necessarily melodies, but pitch formations that align vertically with the other parts to create harmonic consonance. Heterophony retains those strands of sound, but the strands should be perceivably elaborating from the same musical material (Dunsby 1989, p.49). If we return to Richard Steinitz's definition of Ligeti's Micropolyphony in which *'numbers of instruments play slightly different versions of the same line'* (Steiniz 2003, p.103), heterophony must be an internal result of that process. The bands of sound that contain heterophonic variations of the material replace the formations in a polyphonic structure. Pitch is perceived not as an individual characteristic of each sound but as a frequency band in large conglomerates of thick textures. Specificity of exact pitch becomes meaningless, and only a pitch band indication is required to create that effect.

Heterophony is an intrinsic part of my compositional method. In truth, it is the term I first applied to results of the combined indeterminate devices discussed in the chapter 5.

3.4 Indeterminacy on an individual level in the portfolio

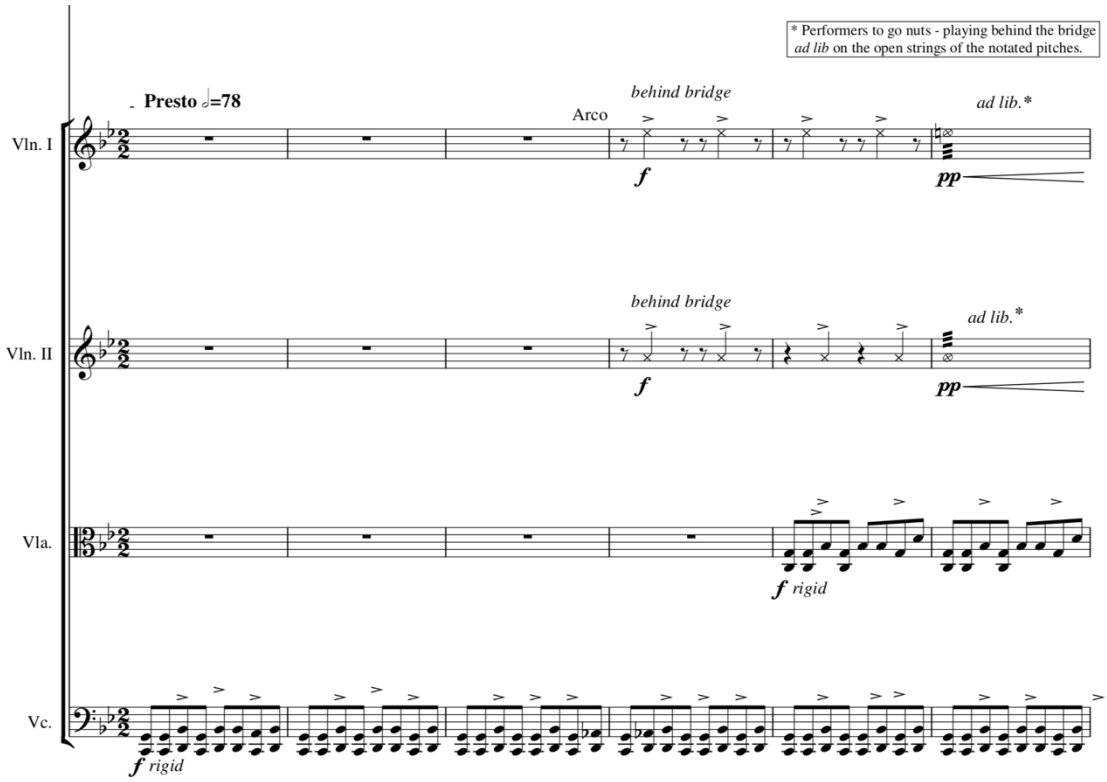
Since my compositional approach has so regularly combined several elements of indeterminacy - whether that be pitch and rhythm, pitch and tempo, etc – it seems pertinent to discuss the indeterminacy of individual elements in my work as a whole.

In *The Darkling Thrush* I began to introduce an element of indeterminacy on an individual level in the string quartet writing at bar 49. The first and second violins are instructed to 'go nuts' – 'playing behind the bridge *ad lib* on the open strings of the notated pitches' (fig. 3.3). In doing so, an amount of rhythmic freedom is allowed - with the emphasis being placed on the creation of an effect.

This early attempt at integrating individual indeterminacy sought both a gestural and a textural result. From a gestural perspective the aggressive implications of the instruction 'go nuts', combined with the written tremolo, should create repeated

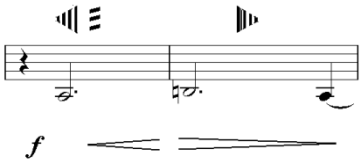
fast rhythms with a strong attack. In doing this the two violins occupy a band of sound in a busy binary accompaniment texture, against the repeated quavers of the viola and cello.

The stimulus for this effect is quite clear in the text, which is an attempt at conveying ‘The land’s sharp features’. ‘Go nuts’ might not be the most sophisticated instruction, but again I feel I must repeat the mantra that ‘clear or simplified notation can beget complex music’.



[Fig. 3.3 - Rhythmic indeterminacy in *The Raven*]

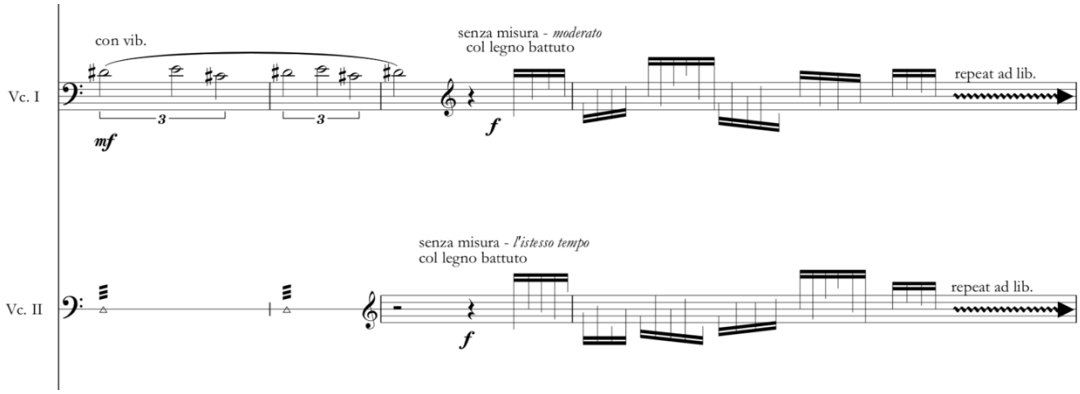
One further way this passage relinquished rhythmic control is by using the aforementioned Britten symbols for indicating a gradual increase or decrease in tremolo.



[Fig. 3.4 - Britten tremolo Symbols]

Sometimes, as in this example, the maximum rate of tremolando is prescribed after the symbol. The performer should gradually increase the tremolando to/from the given rate.

In *The Raven* I also deployed devices without specific pitch in the opening passage. At bar 17 the cellos have a succession of stemless beams, indicating only approximate pitches, which leaver the players to improvise and focus on the technical direction - *col legno battuto* - and its associated articulations.



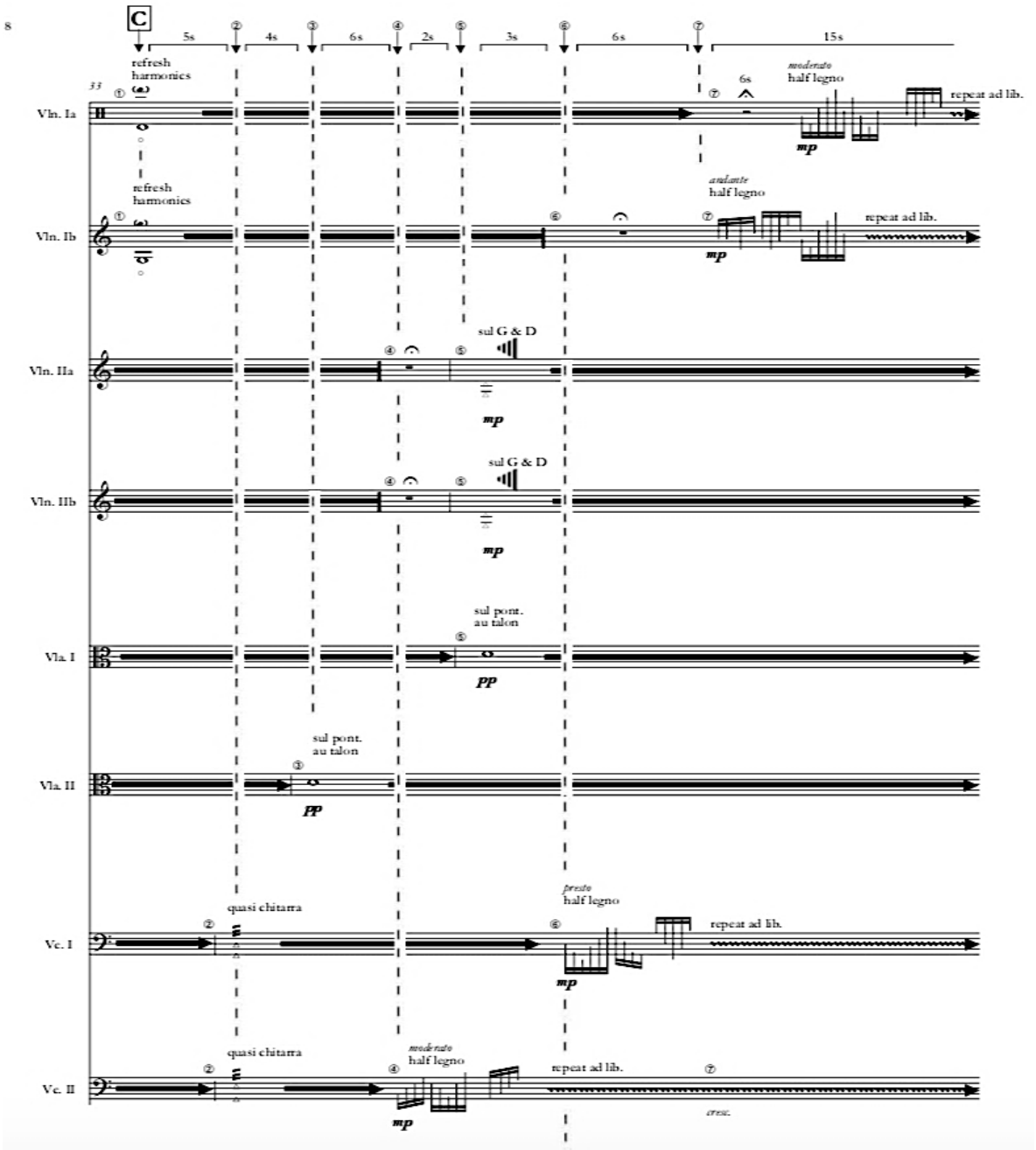
[Fig. 3.5 - Pitch indeterminacy in *The Raven*]

The strings begin the work with material in 4/4, marked poco adagio, and by bar 9 a variety of fully notated pitches create a small amount of textural density. Rhythm is vaguely suggested in this passage, with semiquaver, quintuplet and sextuplet beams, but the numbered labels for those subdivisions are omitted to reduce the complication of the notation, and also to give further ambiguity. This allows the player to focus more on the gesture of the effect, which is desired on an individual level.

At bar 17 the cellos are instructed to play at different tempi from each other, an extension of the technique described in section 3.1. One cello retains the *poco adagio* tempo of the rest of the ensemble, but the other moves faster to further increase the ‘number of notes with different timbres occurring as fast as possible’ (Cope 1997, p.91). This is an early example of my use of heterophonic shifting, discussed as a combined indeterminate device in the Chapter 5.

This technique is repeated at Figure **C**, and then varied further with the violin Ia and Ib parts. The suggestion of faster rhythmic subdivisions, combined with the

indeterminacy in pitch, allows the pairs of instruments to create a sound band between them – the cellos in the tenor register and the violin Is in the treble. When added to the fixed line of the D presented by both violas, and the tapping line of the Violin IIs, the texture is that of four bands of sound with a basic heterophonic element in each, achieving density.

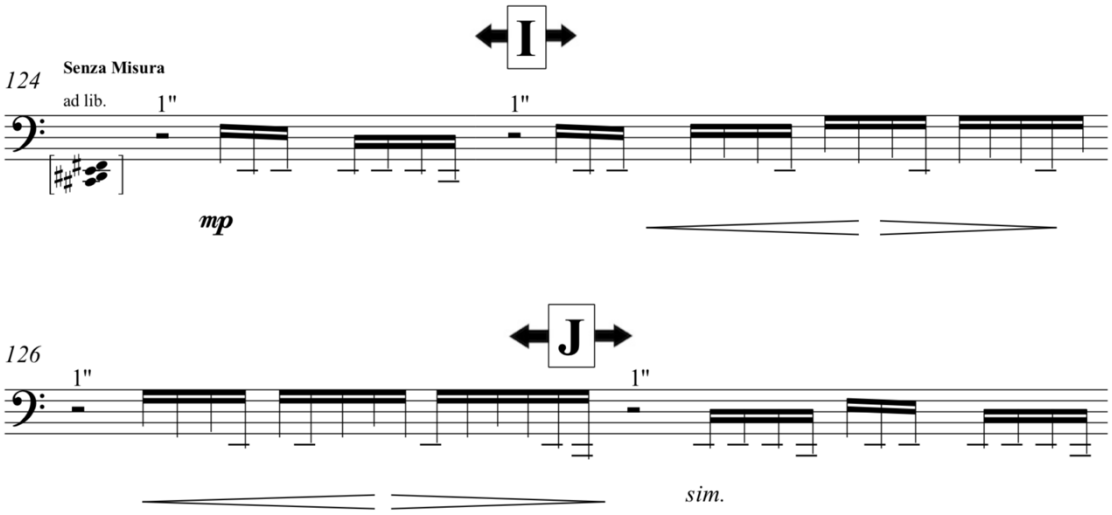


[Fig. 3.6 - Tempo indeterminacy in *The Raven*]

In both of these examples, gesture and articulation are the chief ingredients of the effect and rhythm is of secondary importance. Pitch is less important still, and so none is specified. Density is achieved through the number of attacks that the

rhythmic indication suggests, rather than exclusively through pitch range parameters, which are limited with this device.

In Nomine (2019) required a different approach. Since this work is a modernisation of a 16th Century polyphonic instrumental phenomenon whose pitches were largely determined by a vocal original (from John Tavener's *Missa Gloria Tibi Trinitas*), some resemblance to that original pitch is required. My work is for a wind orchestra, who size allowed for much greater pitch density than the ensemble of *The Raven.* So, an evolution of the two indeterminate devices above involved unspecific rhythmic writing combined with a system specifying the pitches to be played.

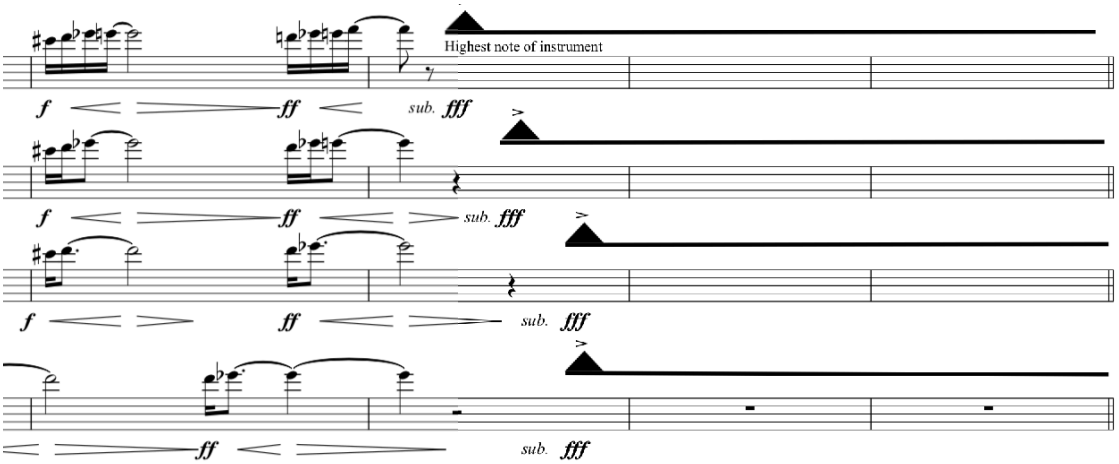


[Fig. 3.7 - Pitch specific rhythmic indeterminacy, *In Nomine* Tuba part]

Since *In Nomine* is a texturalist composition, primarily concerned with manipulation of macro structure, pitch is of greater importance here than in *The Raven* because the tuba needs to occupy some of the lowest pitches of the sound mass. Yet in such density it is not important exactly which pitches the tuba sounds at any single moment in the vertical structure, so long as it occupies that area of the vertical space for a period of time in the horizontal space.

Indeed, in such large textural manipulations it is quite simply the extremes of the pitch range that are required. Melodic lines that fall within a previously exposed range are more predictable and are backgrounded, whereas a line which extends beyond the previously deployed ranges will be foregrounded (notions of prominence, foreground and background are discussed further in Chapter 4). An

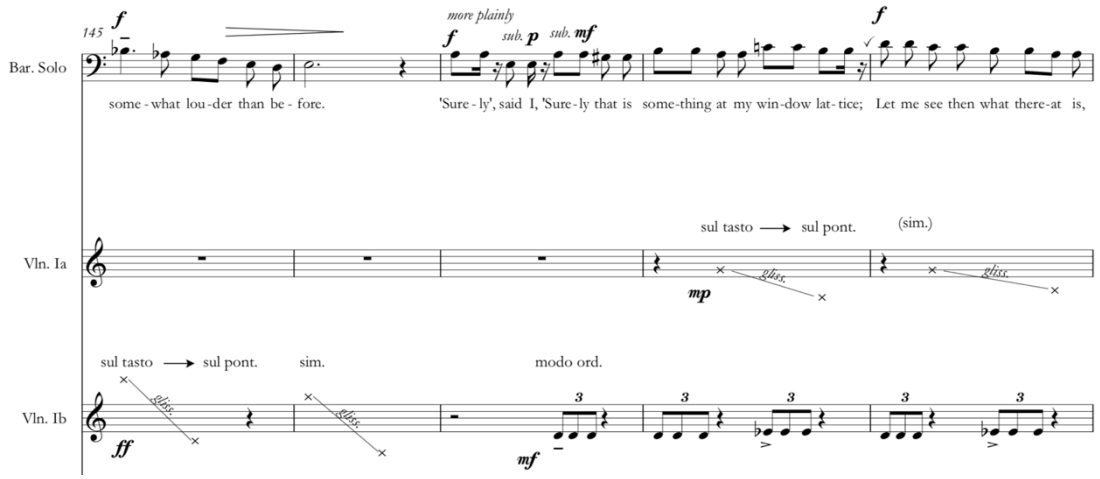
effective indeterminate approach in these instances is to simply instruct the performer to do exactly that (figure 3.8).



[Fig. 3.8 - Registral extremes in *In Nomine*]

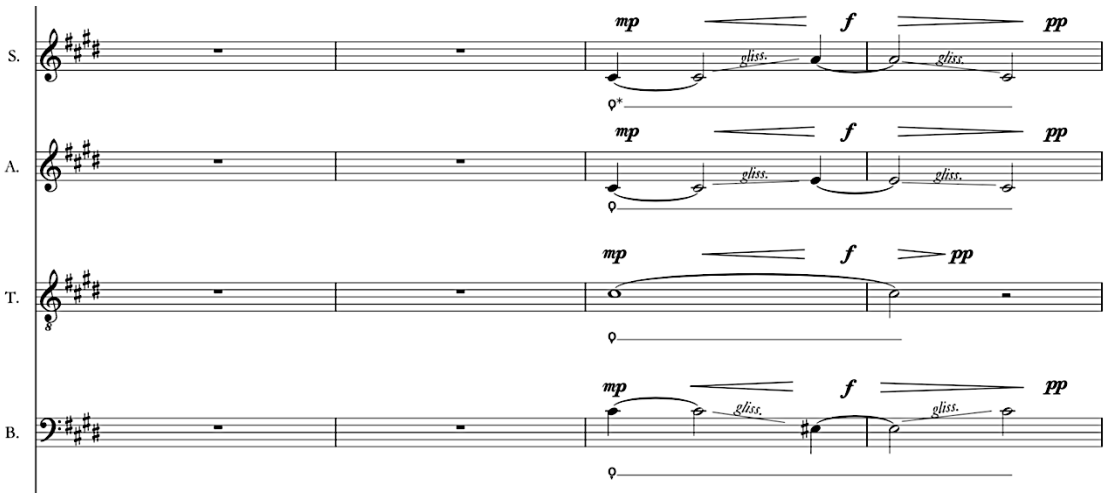
It also a practical notation, since exact playing ranges will vary depending on the abilities of the performer exact pitch is not specified - and emphasis can be placed on the dynamic and articulation.

The use of glissandi is a more commonly deployed method of pitch variation. Whilst duration is regularly prescribed, as are starting and finishing pitches, the composer can never fully predict the rate of pitch change and so it can be described as indeterminate in that regard. Across an ensemble of players, each with their own rate of glissandi, vertical harmonic consonance is unlikely and so the use of glissandi is a pitch-indeterminate device.



[Fig. 3.9 - Glissandi in *The Raven*]

As such I deploy glissandi regularly in the portfolio. In *The Raven* (figure 3.9) a further level of indeterminacy is added with the cross noteheads, indicating inexact starting and ending pitches. Granted, when the notehead appears on the stave the performer is likely to take its location as the pitch starting point (Violin 1a, bar 148), but when the starting and ending points are above and below the stave the pitch indeterminacy is further increased. Glissandi are also effective in the choral parts of The Raven, when more than one voice slides to create very small melodic heterophonies.

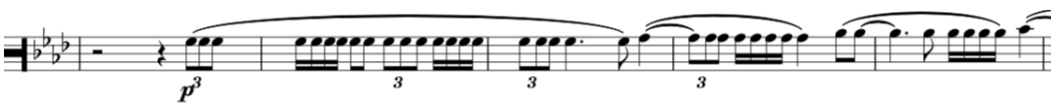


[Fig. 3.10 - Choral Glissandi in *The Raven*]

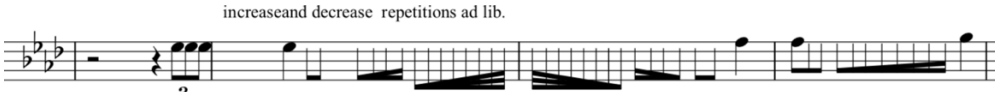
Since the rate of slide will vary slightly between the singers on the same part, simultaneous pitch variations occur even over a small timescale.

3.5 Composing-out complexity

There were two instances during the composition of *In Nomine* where I replaced a section of 'fully notated' music with an indeterminate alternative. The aim in both cases was to reduce complexity for the performers by focusing on the elements of the passage that were most important.



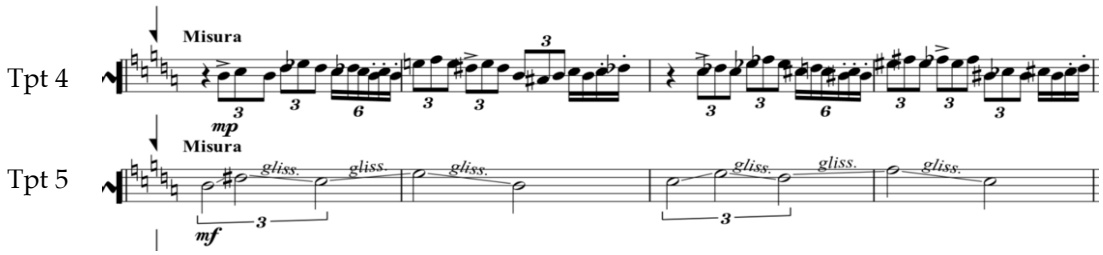
[Fig. 3.11 - Trumpet 4 at **F**, original]



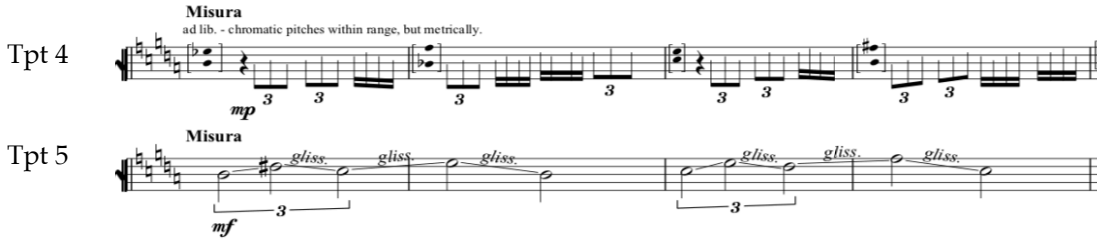
[Fig. 3.12 - Trumpet 4 at **F**, complexity composed-out]

The trumpet 4 part at rehearsal mark **F** was designed to provide a regular reiteration of the pitches held with longer note values in trumpets 1-3, 5-6. Repeated attacks of the note were required but the exact frequency and duration of the subdivisions less important, so a less specific notation was provided.

A further example of composing-out such complexity also concerts trumpet 4 and its relationship to trumpet 5.



[Fig. 3.13 - Trumpets 4 and 5 at **J**, original]



[Fig. 3.14 - Trumpets 4 and 5 at **J**, complexity composed-out]

The two trumpet parts together aimed to create a heterophonic pedal, with trumpet 5 both suspending and pre-empting the pitches that appear chromatically in trumpet 4. Both occupy one element in a conglomerate sound band, with the other trumpets and euphoniums. The original notation of trumpet 4 was incredibly detailed, perhaps even too prescriptive, and certainly prohibitively complicated. Whilst the indeterminate version of this passage might not have the same level of heterophonic interplay between the two instruments, I made the decision that the simpler notation was preferable.

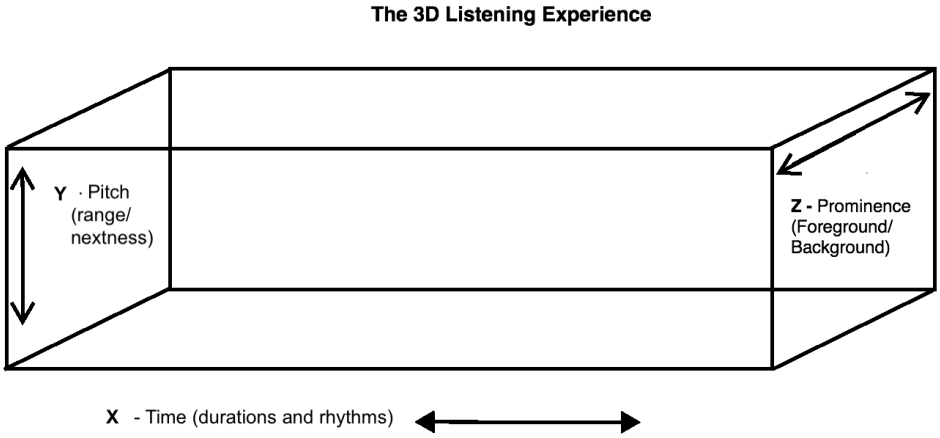
In these instances, the decision of whether or not to use indeterminate devices in the notation should balance what might be conceptually more difficult with something that might be technically more demanding. Since the aim on the music here is textural, and the trumpet 4 part comprises just one of a huge number of constituents to the overall effect, the exact measuring of its pace against trumpet 5 is of less importance.

4. Musical Space: Foreground/Background

In all of my considerations so far I have spoken of texture as a perceptual phenomenon - how the listener groups the sounds they are hearing and the importance they assign to each. From this categorisation concepts of space and dimension in musical perception begin to emerge – concepts of foreground and background, of prominence. An understanding of how audiences make such classifications should be of benefit to texturalist composers.

Traditional western music notation is two-dimensional. It contains a time dimension, from left to right, presenting the sequence of musical events as they unfold, and their duration. Horizontal space. The other dimension is that of pitch range, describing the scope of the sounds in temporal coincidence and the internal nextness of them. Vertical space. These two notational dimensions reflect our primary experience when listening to music. In physical sciences, space is an ordering of individual objects in relation to one another. We can apply a spatial model to aural perception by ordering sound events in relation to one another. The manipulation and consequential unrolling of these events through time - how expectation is cultivated by a composer and either fulfilled or disobeyed - is perhaps what expresses the difference between what is ‘music’ and what is ‘sound’.

When hearing music the listener is expected to designate importance to the events they hear, and the trajectory of these important events is what creates musical narrative. What is deemed as important is foregrounded, and what is deemed inconsequential is backgrounded. Thus, the listener is responsible for creating a third, psychological dimension to complete the listening experience – that of determining prominence. That which is foregrounded is of greatest importance for any particular musical moment, and the foregrounded events that remain in the listeners memory is of greatest importance for the musical structure as a whole (Cooper 1953).



[Fig. 4.1 - The 3D listening experience]

Events, or series of events, which become predictable - those which are regular, and which can be taken for granted - are backgrounded. Attention is attracted to that which is vivid or different. So, this process is not simply one of hearing, but it is also one of understanding – of knowledge of what is possible or expected within the particular work being heard.

Events which conflict with precedents create tension and are vivid. From a rhythmic point of view, if music has hitherto been comprised of crotchet and quaver subdivisions then the appearance of semiquavers will be foregrounded. Conversely, if a complex rhythmic texture is established, a part with simple divisions might well be foregrounded when introduced. Melodically, lines that fall within a previously exposed range are more predictable and are backgrounded, whereas an ascending phrase which extends beyond the previously deployed ranges will be foregrounded. From a timbral perspective, events that threaten to exhaust the range of a particular instrument are also vivid, as are those whose articulation is so contrasted from the sound mass thus far.

Since perception of texture is perception of a musical composite, comprised of pitch, rhythm, articulation etc, the perception of texture is by default the inference of this third dimension. It is both the perception of the simultaneous at any instant and the development of these instances over time. It is a variable sound-plane, determined by the forward motion of the linear elements and the quality of their combination (Cooper 1953).

Variations in texture constitute one of the most important and readily observable features of musical development, and they produce an effect that is unmistakably spatial.

In traditional polyphony, the constituent voice parts are not always heard with equal prominence. The bass and treble parts define a vertical space which expands and contracts, the pitch-range boundaries of the composition – dimension Y. The journey of the voices over time towards their conclusion define the X dimension. The fact that we deem the voice parts to be equally important (indeed a defining characteristic of polyphony as a texture) is a result of dimension Z.

Whilst we have learnt to identify this music as polyphony, the superimposition of more than two polyphony voices is often reduced to a homophonic structure in our perception. The listener combines the voices to hear the composite of a single texture. Though a listener may remember specific moments in *Spem in Alium*, the overall effect is distinctly spatial. This is not only true of the perception of polyphony but also of its composition, as a technical aspect of the counterpoint. Polyphonic creations in tonal music are determined by vertical harmony as well as linear direction, and the succession of the part entries is often so predictable that the linear development is of one ‘voice’ and not of four.

Since we thus rely on the categorisation of prominence it seems pertinent to this portfolio to explore certain listener-related problems caused by indeterminate musical processes. Listeners who are aware of such processes often have predefined ideas about compositional value. Aleatory techniques are sometimes deemed to be an absence of composer input, or to be less complex, and as such are deemed to be of lesser value. David Cope professes that:

> Listeners who are unaware of the composer’s use of indeterminate processes tend to judge such compositions more or less as any other, while listeners who are aware of the process may take offence before they have heard the first note.
>
> (1997, p.161).

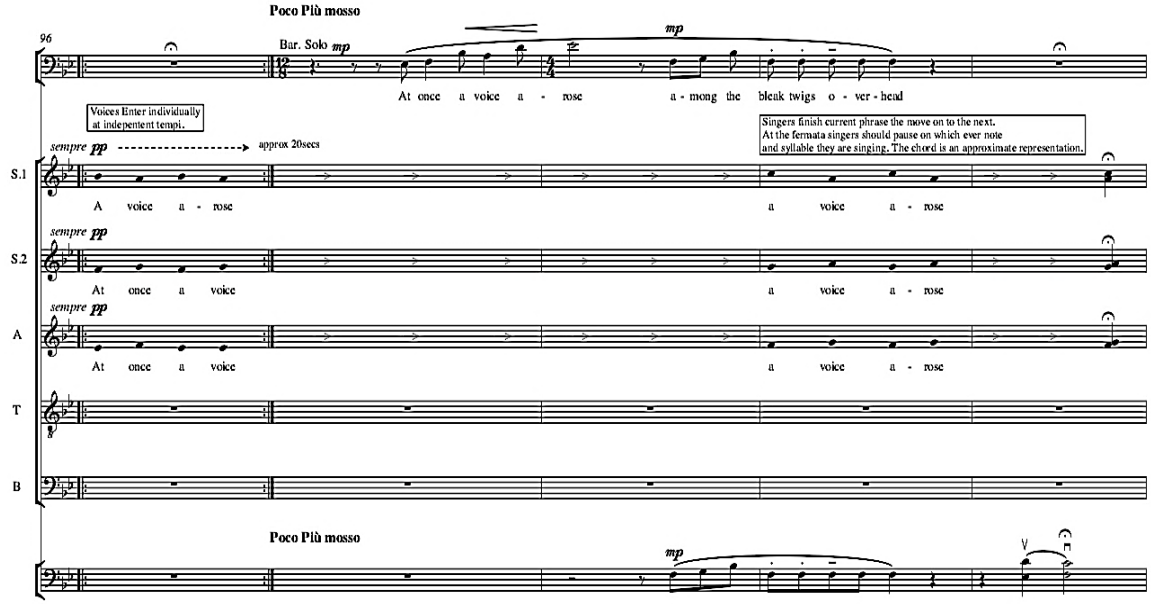
It is hard to deny the stigma that is associated with indeterminate techniques, but I must once again repeat that *complex* and *complicated* are not one and the same, and that perceived complexity by the listener does not necessarily facilitate the use of complicated notation. As discussed, techniques of limited aleatory, particularly with regard to the rhythmic aspect of a composition, have the flexibility to produce music that is complex to the listener with degree of practicality in the notation.

Is the texturalist music of Ligeti more successful than that of Lutosławski? Both rely on the veiled development of events at a micro-level to obscure the listeners perception of the individual and direct it towards the macro-level dimensions of the music. The variety of small-scale stimuli that are presented actually backgrounds those individual elements, but the effect of their accumulation is that their trajectory becomes the foregrounded. This is true of both Ligeti and Lutosławski. Both create music of primarily textural discourse. Neither is more valid than the other since the respective achievements of their compositions justify their own means.

4.1 Space perception manipulation in the portfolio

The predefined sense of value or validity in music being either written out or indeterminate relies on a priori knowledge or assumptions. In this portfolio I have often established edifices of measured music, with prescribed rhythms, only for that to be disrupted by events which deploy some aspect of indeterminate techniques. These is discussed in more detail in chapter 5.

Conversely, when an internal heterophony is established in one or some of the parts of a piece and this is then superseded by measured events this has the effect of backgrounding the indeterminate. In the example below from *The Darkling Thrush,* an early use of combined indeterminacy in the portfolio, the conductors' downbeat at bar 96 signals the start of a repeated melody cell – the rhythmic element of which is undetermined. The voices enter individually, so the effect is gradually introduced, but the rhythmic variation of the effect will quickly become predictable and so is backgrounded (and this is reinforced by its pp dynamic). The metred music of the baritone solo becomes the new foreground – afforded additional prominence through its nature as a solo and its relative pitch in relation to the indeterminate mechanism.



[Fig. 4.2 - Background indeterminacy in *The Darkling Thrush*]

Here the distinction between indeterminate and aleatoric devices is important. A process which leaves some element of its construction up to the performer may be indeterminate, but if the sound results are broadly predictable then the adjective aleatoric becomes less applicable – the notation is open, but not strictly left to chance. And as described above, predictability is a vital element in determining prominence on the Z dimension of listening.

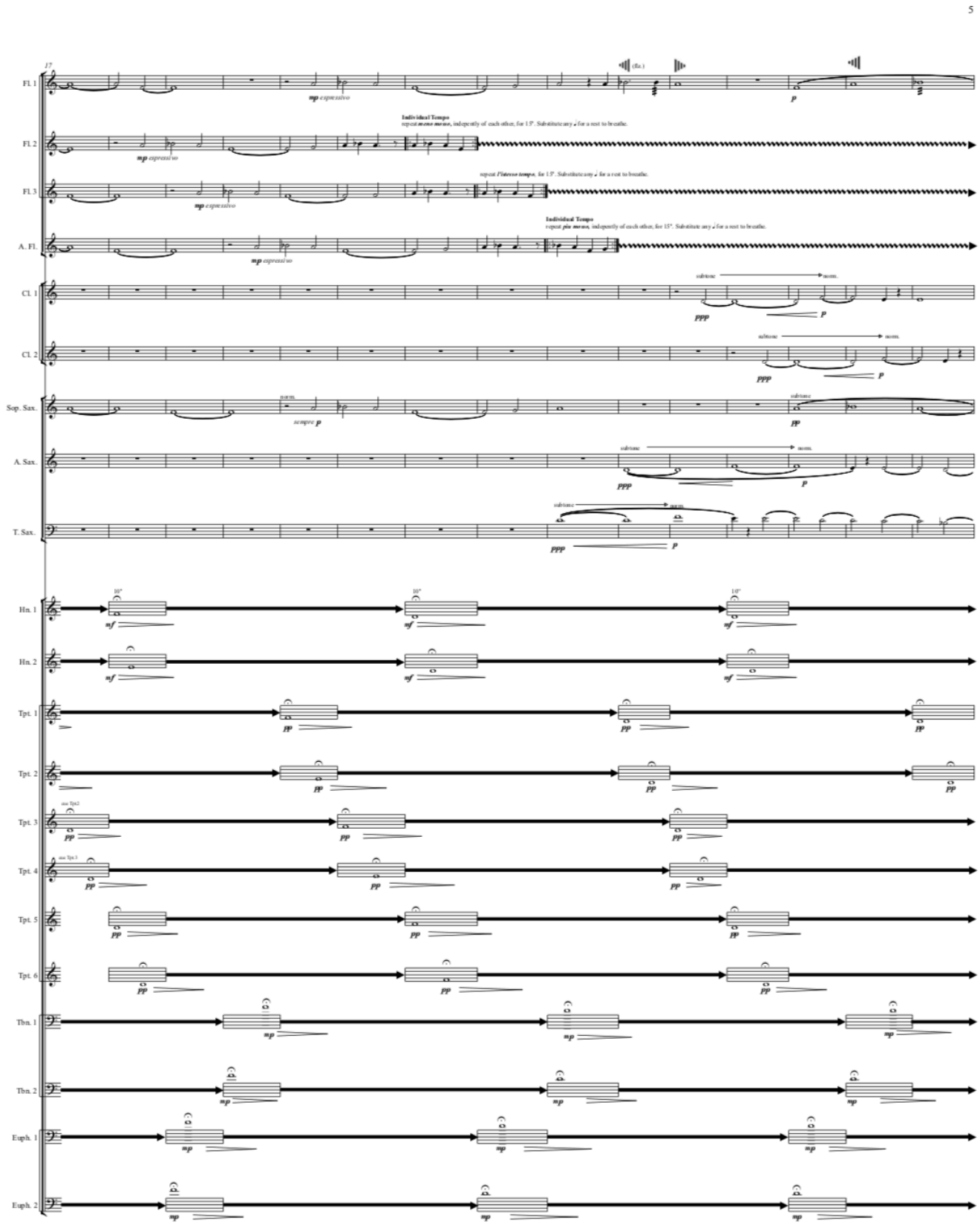
In Nomine (2019) is the first piece in the portfolio that I can describe as specifically, or at least intentionally, texturalist – its thematic discourse is the texture of the music, rather than the narrative of a text. The In Nomine were a polyphonic instrumental phenomenon derived from a vocal original, whose intention was not to produce sensuous emotional music through sound intensity and harmonic effects, but to enchant the listener with traceable musical lines. Continuing the above discussion on perceptions of polyphony, my suggestion is that in such pieces we might perceive the initial entries of the voices because of their register, but that ultimately listener combines the voices to hear the composite of a single texture. Subsequently, events which push the boundaries of the pitch range (Y in figure 4.1) are foregrounded within that composite, as are events with smaller rhythmic subdivisions than those heard previously.

These considerations are apparent in the opening sections of this In Nomine, which replaces the original four ‘voices’ with four instrument groups that form

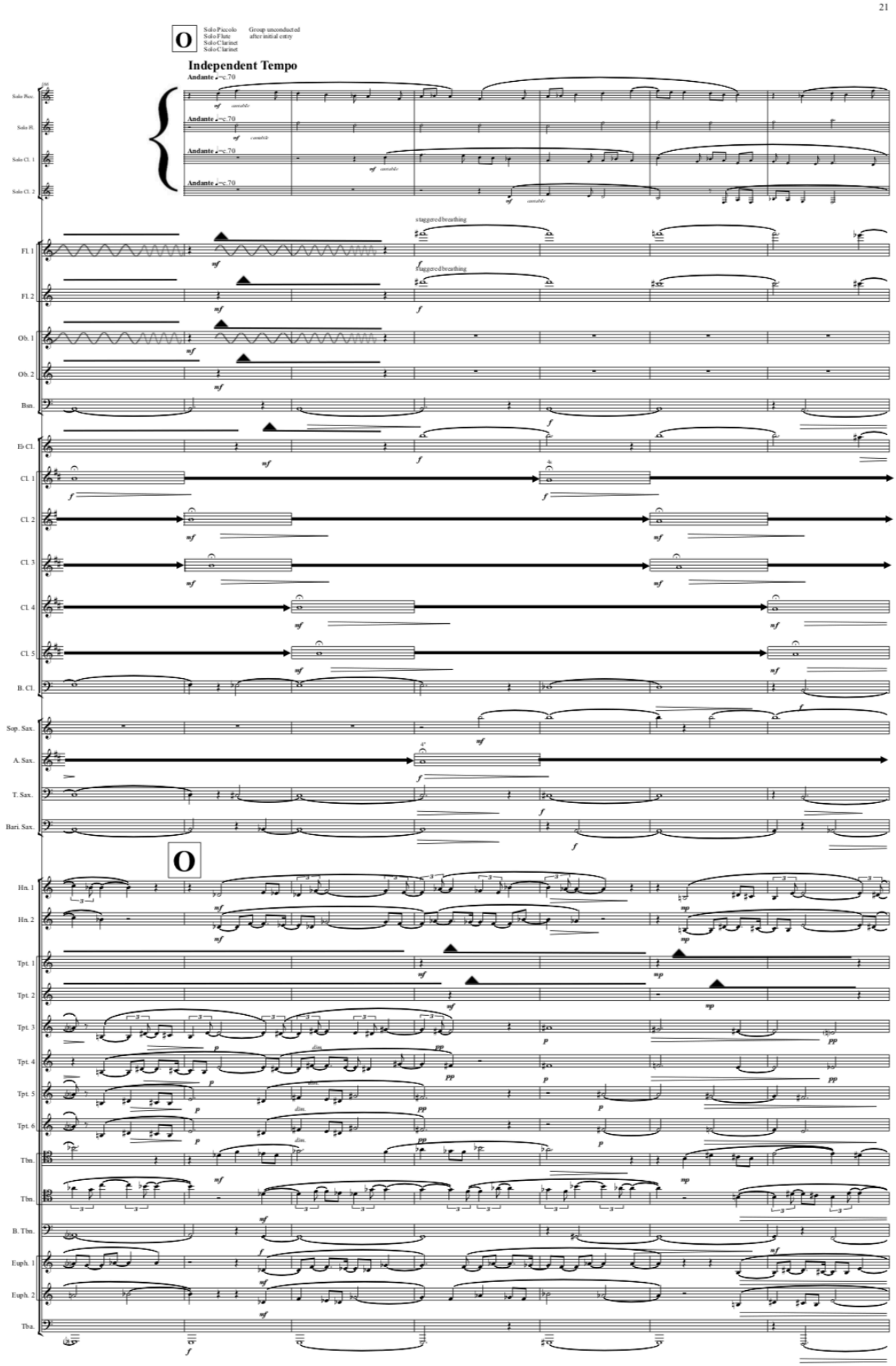
conglomerates in a pitch area, or a ‘sound band’. The upper three (unfixed) groups of instruments change voice regularly, but for the bass instruments remain as the bass voice for practical reasons. The pitch range guides the listener to identify the bands homogenous and as one of the four voices, but the rhythmic aspect of the music does too. The slow semi-breves of the flutes, the soprano voice, is followed by the closely successive entries of the upper brass – the alto voice, with the cantus firmus. By the time the tenor voice begins at bar 25, the alto group have become predictable. So too has the also soprano group, whose stretto of crotchet cells quickly become homogenised and are backgrounded (figure 4.3).

The coda of *In Nomine* puts some of my audience classifications to the test. Certain expectations have been established, and the listener has been led to group instruments together as one voice or sound band. Polyphony, or more precisely heterophony, between the instruments has given the parts homogeneity, and the prominences of these bands has been manipulated over the duration of the piece so far. Yet at **O** four solo instruments, hitherto not participating in the sound mass, begin to play the four-part music of Taverner’s original. This music enters midst a dense structure which then dissolves to uncover the original. My intention is that the audience will hardly perceive these soli at their initial entry, but as the other music dissipates it will be becoming increasingly perceptive – but as one of the sound bands. Gradually the soli will be revealed as having the source material, and the audience will go from hearing a homogenised component of the marco-structure to hearing four individual ‘voices’.

I expect that this will be achieved by pitch band manipulation – the instruments that share the pitch of this original dissolve before those that do not. It should also be achieved by manipulation of tempo – the soli appear in a slower tempo than the mass, but the mass is made to conform with the tempo of the soli as it expires, giving that original prominence (figure 4.4).



[Fig. 4.3 - Pitch bands in *In Nomine*]



[Fig. 4.4 - the coda of *In Nomine*]

5. Combined Indeterminate Textual Devices

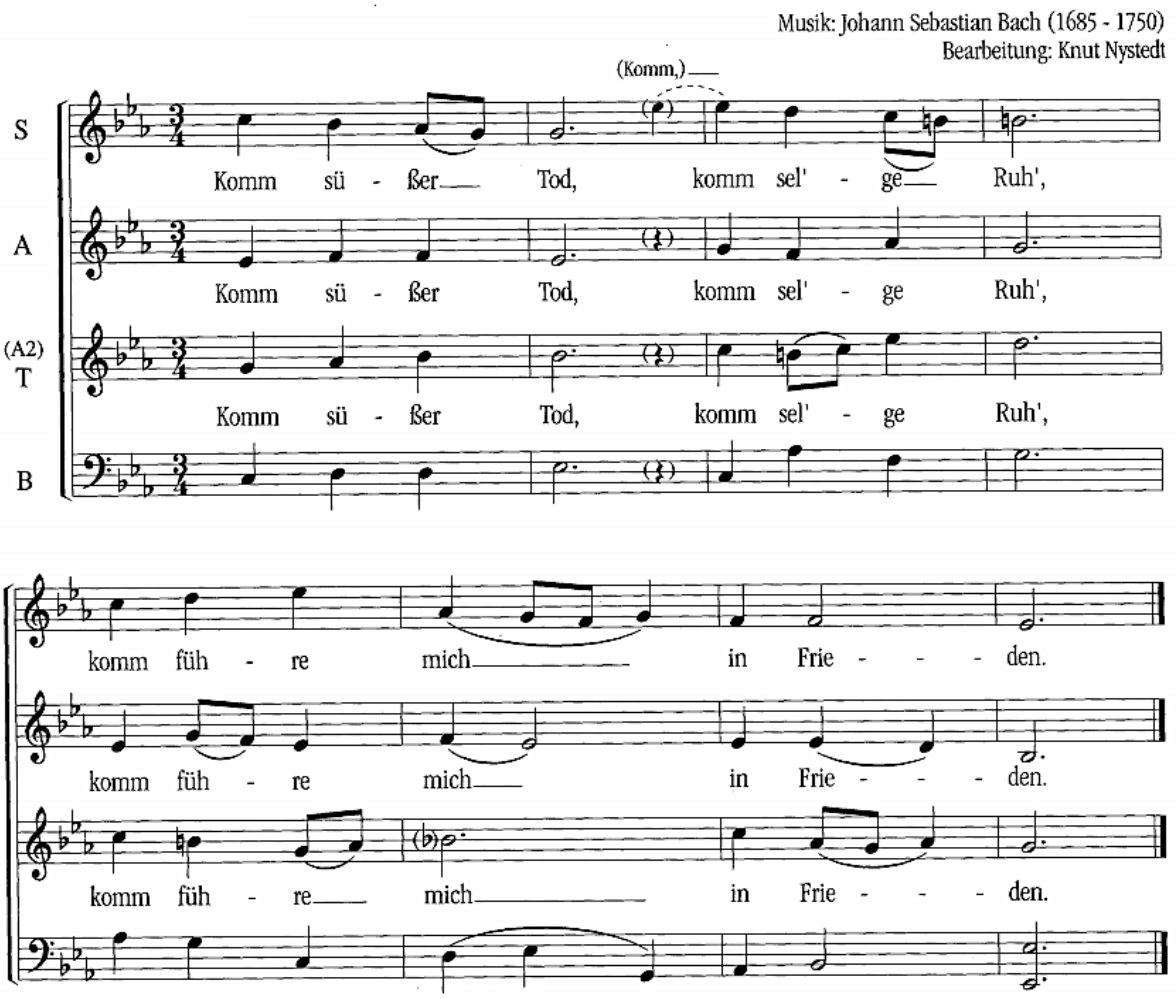
Texture concerns how the mind groups simultaneous sounds in to blocks or groupings. Whilst Chapter 3 discussed how indeterminate processes on an individual level could contribute to the overall texture as one of its components, this chapter considers the wider schemes in which those devices are deployed in the portfolio.

For my purposes, *combined indeterminate devices* are defined as mechanisms that govern the deployment of many of the instruments simultaneously, an indeterminate conglomerate where parameters are prescribed to a number of the parts of the ensemble as a large structure, rather than on an individual level. The parts may also feature aleatory techniques on an individual level, as density is achieved through a combination of constituent components, but combined indeterminate devices are concerned with their employment on an organisational level.

5.1 Intrinsic heterophony

Heterophony is defined as a texture 'characterised by the simultaneous variation of a single melodic line' (Cooke 2001), though this is somewhat misleading since more than one 'line' or voice is required to create heterophony. It is the simultaneous variation of one single melody by a number of voices or lines. Referring back to Richard Steinitz' definition of micropolyphony as 'an internally animated dense texture in which large numbers of instruments play slightly different versions of the same line' (Steinitz 2003, p.103), it would appear that heterophony is at the heart of each sound-band in a contemporary polyphonic texture. Many of Ligeti's works could be described as both canonic and heterophonic - deploying the capricious variation of a relatively austere melody. Practically, heterophony is easy to achieve with simple rhythmic augmentation and diminution. Knut Nystedt has used such an approach to rhythmic/metrical expansion to create an interesting broad texture. *Immortal Bach* is essentially a derivative work based upon temporally prolonging and overlapping the successive chords of Bach's chorale 'Komm, süsser Tod' (figure 5.1). The notation itself is conventional, but the verbal instructions prescribe a kind of controlled aleatoric notation.

Immortal Bach



1. Zu Beginn wird das Stück im Choraltempo wie in den Noten dargestellt gesungen!
2. Bei der Wiederholung beginnen alle mit dem Wort „Komm" im *forte*.
   Jeder Sänger wählt nun für die beiden folgenden Takte bis zum Wort „Tod" sein eigenes Tempo, ohne dabei jedoch von der angegebenen Tonhöhe abzuweichen und hält die Töne unterschiedlich lang aus (z. B.: 4, 6, 8, 10 oder auch 12 Sekunden für jede Note).
3. Beim Wort „Tod" treffen sich alle und halten den Akkord so lange, bis er rein in Es-Dur klingt.
4. Bei Takt 3 beginnt der Sopran zuerst, Alt, Tenor und Bass setzen 4 Sekunden später ein. Wiederum wählt jeder Sänger sein individuelles Tempo. Treffpunkt ist das Wort „Ruh". Von Takt 3 bis Takt 4 *decrescendo* von ***f*** bis ***pp***.
5. Bei Takt 5 beginnen wieder alle gemeinsam ***mp*** und crescendieren zuerst, im vorletzten Takt wieder leiser werden und bei „Friede" ins ***ppp***.

   Dieses Wort vereint den gesamten Chor wieder und wird sehr lang ausgehalten.
   Das Stück muss sehr selbstbewusst musiziert werden, damit seine Wirkung zum Tragen kommt.

   Aufführungsdauer: ca. 5 Minuten.

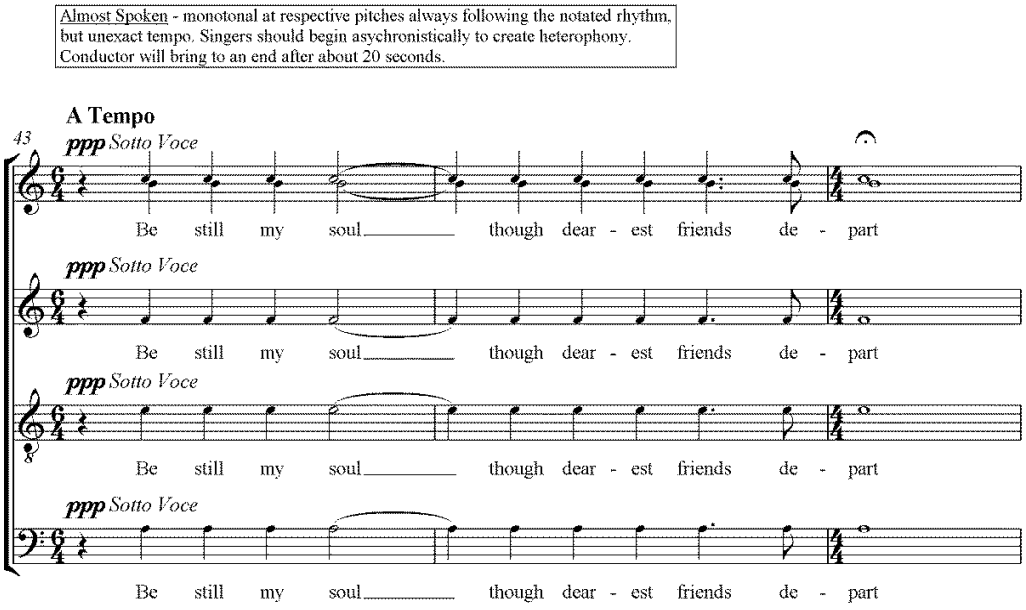
HI - C4967 4 voices, hrsg. v. L. Maierhofer, Edition Helbling, Innsbruck

[Fig. 5.1 - The complete score of *Immortal Bach*]

The choir are instructed to sing the chorale through once in tempo. Subsequently different groupings of singers will augment each note of the melody to either 4, 6, 8 or 10 crotchets of that original tempo, waiting at the end of each phrase for the groups sing a longer augmentation to finish. The heterophony lies in the varied metrical augmentation of each voice part, and whilst the effect is sonorous, the device is something of a gimmick. Once the listener understands the scores' instructions the trick is revealed, and the different levels of augmentation are clearly perceptible.

5.2 Early combined indeterminate devices in the portfolio

My own textural compositional journey began as an undergraduate. I considered whether - when free of the fixed metre used by Nystedt - we might be able to obtain a heterophonic result with greater rhythmic variation than that of simple augmentation and diminution. It was at this time too that I began my consideration of the aforementioned aesthetic problem with Ligeti's prescriptive micropolyphonic notation, so any experiment would have to deploy some kind of combined indeterminate process. I wanted to create a similar effect without using such a detailed a prescriptive notation, so I presented singers with the following instruction in hope that, for a brief moment, it would create such a texture organically.



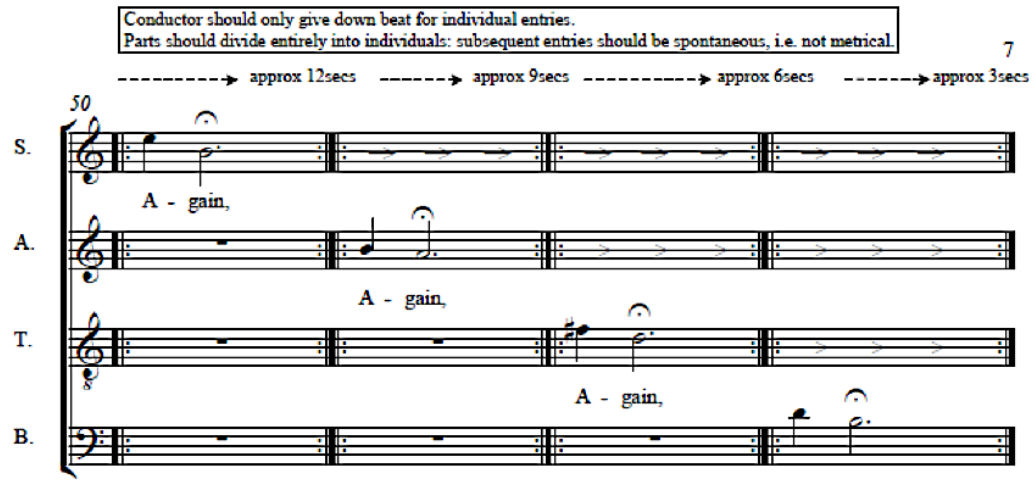
[Fig. 5.2 - Indeterminate device in *Be Still My Soul* (2010)]

I wanted a kind of autonomous heterophony: a texture with melodic variation, using the just one harmonic stimulus, and allowing some metric autonomy that left a large part of the effect undetermined. As in *Immortal Bach,* the variation lies within the metre of the individual voice parts – not a pure heterophony (which might use only one melodic strand) by any stretch, the heterophony lying within the variation of each note in the chord rather than one melody, but a first experiment.

Ultimately the effect with this notation was not satisfactory as the parameters for the heterophony were not sufficiently specific. The degree of rhythmic variety that the verbal instructions allowed resulted in some of the choir singing the line very quickly to avoid embarrassment at prolonging their ‘solo’, whilst some more indulgent singers decided to sing the phrase rather more slowly than was desired. In hindsight, the instruction ‘A tempo’ is redundant, because the singers are each invited to sing the prescribed rhythmic ratios at a new, independent tempo. The role of the conductor in this notation is also unclear.

The notation did not create the desired texture, and the consequence in this case was a series of lines so different from each other in duration they could hardly be recognised as related. Conceptually it seemed strange to plan autonomy (or set parameters to confine it) and perhaps paradoxical: - ultimately, my intention was to create an efficient notation that prescribes parameters for a free heterophonic texture.

In the next permutation of this experiment, and first as a postgraduate composer, I decided to reduce the parameters of the metric autonomy and to try to give some control to the conductor. Bars 50-54 of *Address to the Woodlark* (figure 5.3) prescribe cells specific to each voice part and a rough indication of duration between the additions of those parts. It gives the conductor the chance to gauge how the heterophony is working and adjust to create the desired effect.

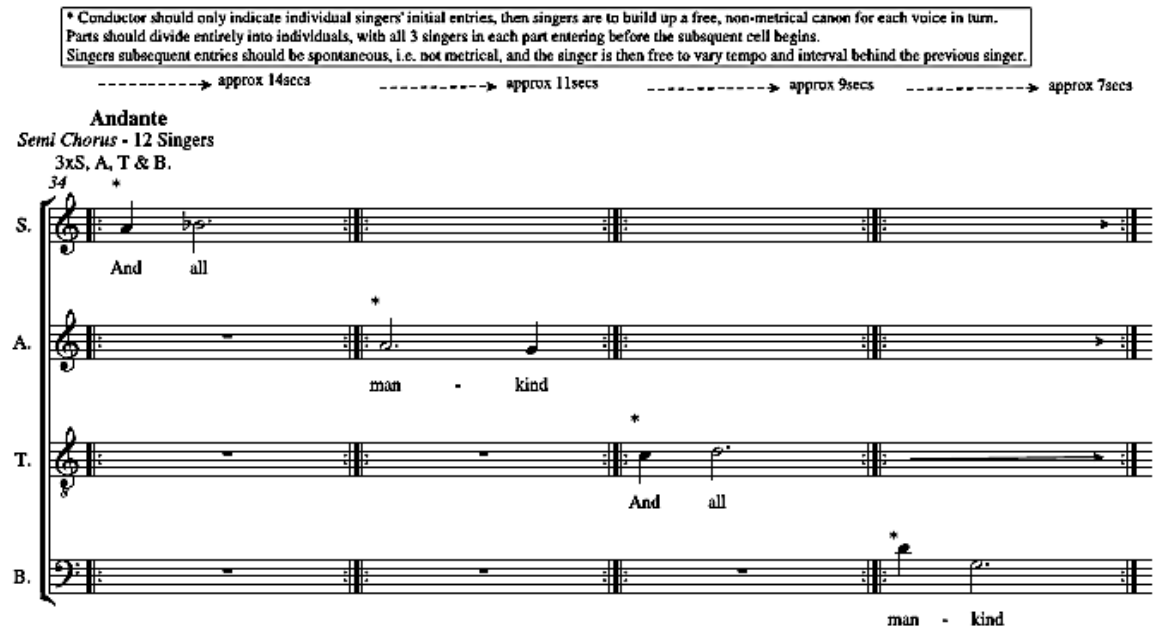


[Fig. 5.3 - Mobile in *Address to the Woodlark*]

This I found to be a lot more satisfying. Entries were sufficiently well spaced on a horizontal level, as the conductor could prescribe their pacing. The staggering of the entries of each voice part, each band of sound, using the time durations above the stave created something of a diagonal device, as well as horizontal one. The cumulative texture at the end of bar 54 was as intended, but frankly it is hard to determine the success of the notation itself as I myself conducted the premiere. This allowed me to explain the desired result more extensively in rehearsals (a tougher test came with a similar notation in the next instalment of this experiment, a setting of the *The Darkling Thrush).*

This iteration of the device was not without limitation either. It became apparent that the notation works best with 10-20 singers and would not be practical with large groups, as the individual cells and strands may become completely indiscernible, creating cacophony rather than heterophony (and whilst that is an effect in itself, it is not the effect desired here). If this notation were to be successful with larger groups the individual cells should be of limited complexity: the notation depends on the singer being able to place their cell or line within the texture by hearing the other singers, and then varying the rhythm from that which they can hear. If the singer cannot determine other singers' lines because of the overall complexity of the texture it becomes increasingly hard to enter in a way that creates variation, and if they are not comfortable with their own cell because of its own complexity, then the effect is likely to fail.

Another conceptual problem became apparent with this device: relying on the singers to create variation by placing their entries that are subsequent to the conductor's original cue relies on them having some idea of the *desired* effect. I wanted the singers to avoid singing their cell at the same time as another singer on the same voice part, but this was not clear enough from the verbal instruction on the score. It became apparent that the singers, and conductors other than the composer, would need more information to create the intended kind of heterophony. The next incarnation of this notation (figure 5.4) went some way to providing that information – instructing the conductor to 'build up a free, non-metrical canon' when gesturing voice entries, and the singers to 'vary tempo and interval' (temporal, not melodic) behind the previous singer. This version also instructs the conductor to deploy a semi-chorus, as *The Darkling Thrush* was commissioned by a choral society of c.60 singers, to avoid the previously mentioned practical limits of the notation.



[Fig. 5.4 - Mobile in *The Darkling Thrush*]

The instructions above went some way to depicting the intended texture for the conductor and the choir, with minimal other instruction from the composer during their rehearsal process – so in that sense the verbal instruction was more successful. What the device did not accommodate, in the instance of the work's premiere, was the extent to which singing a solo line – no matter how simple the cells are – would be daunting for the amateur singers who commissioned the work

and how their apprehension might affect their ability to pitch their entries. Still, this seemed to be a step in the right direction.

The development of these schemes mainly concerned prescription with verbal instruction. Elaine Gould's seminal book *Behind Bars* provides advice towards a comprehensive set of instructions for repetition that might make such instructions more specific. She expressed that composers should indicate:

- Whether the individuals of an instrumental section (e.g. 1st violins) or choir voice part starts the repetition together, or independently.
- Whether the material is to be repeated independently of the conductor or the ensemble, or together with other (specified) performers.
- Whether material is to be repeated in the prevailing tempo or at a different tempo or should vary in speed.
- Whether sections (or bars) of the repetition should be performed with progressively longer, shorter or variable-length breaks in between.

(2011, p.624)

It seems that on the first three counts, my notation as it appears in *The Darkling Thrush* is adequate: Whilst the instruction perhaps ought to be more concise, it details that the entries are to be independent, and that the cells are to be repeated independently of both their section and of the residual tempo. The last point those is one that the verbal instruction should consider in its next permutation, as there had hitherto been no direction on the break performers might take between utterances. Below are the instructions I presented in *The Raven (2018)* at rehearsal mark **S**.

Parts should divide entirely into individual performers.
Individuals should repeat each cell independently of other performers, and of the residual tempo, to build up a free, non metrical canon.
The conductor should only indicate performers' initial entries. Performers' subsequent entries should be spontaneous, and their cell should vary in the tempo from the previous performer.
The break between each repetition should be proportionate to their chosen tempo - i.e. faster tempo, shorter breaks.

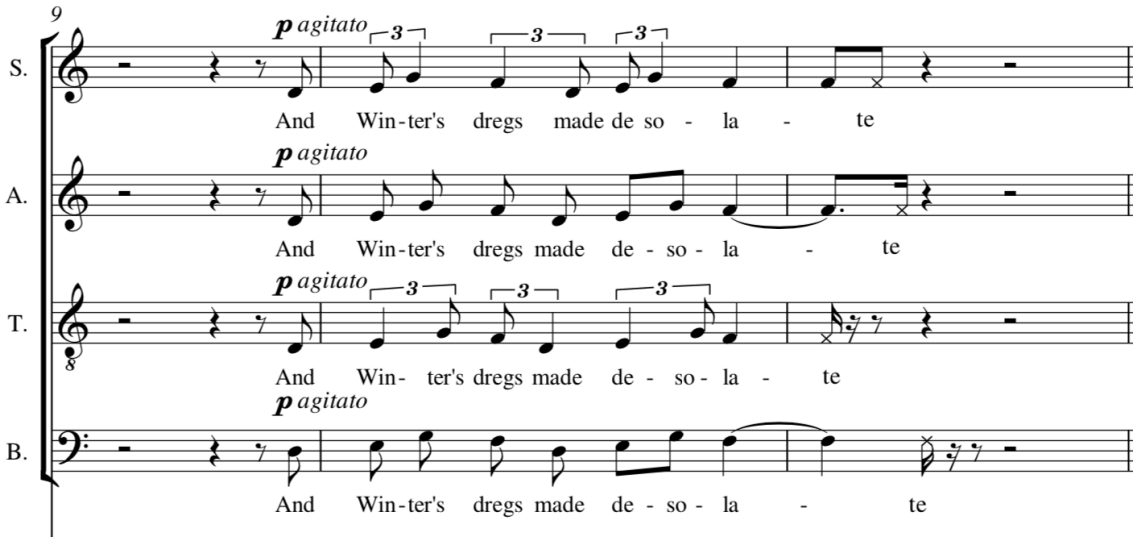
[Fig. 5.5 - Performer instructions in *The Raven*]

These instructions consider both the failures of previous permutations and the criteria outlined by Gould and should be specific enough to create the desired effect. One variable not accounted for is the gesture by which the conductor cues these entries. If using a conventional upbeat, the speed of that upbeat might go some way to prescribe the performer's tempo – since each performer's rendition should be at a different tempo of their predecessor, some other means of cueing (such as pointing) should be deployed. But perhaps it would be pedantic to refer to this in the instruction.

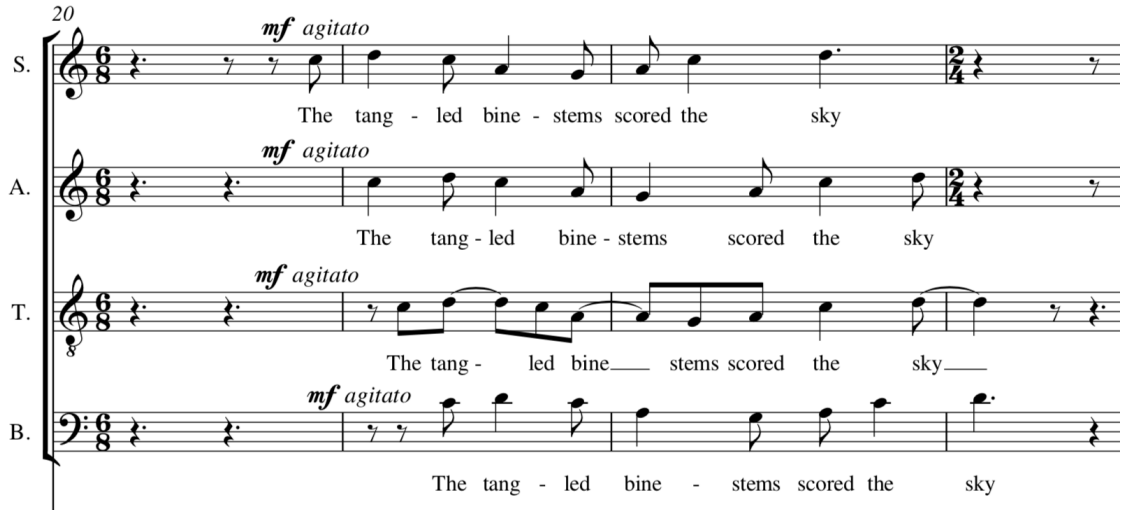
One final, but considerable limitation of the device in each of its incarnations so far is its horizontal function. It is a vertical, perhaps diagonal device that is yet to demonstrate an ability to be used in conjunction with other metrical devices or textures. Before The Raven it had only been used acapella, an isolated effect exclusively for the vocal parts, and even then it had been limited to a small ensemble.

5.3 Categories of heterophony

Heterophony is inherent in the combined indeterminate devices discussed so far. I created those devices out of a desire to create a particular texture, and from the devices I have developed something of a fixation on heterophony itself as a way of manipulating texture.



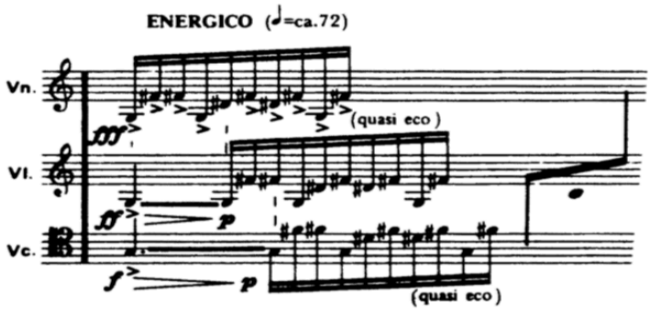
[Fig. 5.6 - Metred heterophony in *The Darkling Thrush*]



[Fig. 5.7 - Metred isomelody in *The Darkling Thrush*]

In her study of the music of Mark Kopytman, whose individual style is characterized by a strong accent on melodic lines in the web of heterophonic splitting of textures, Nancy Usher describes five labels for heterophonic devices which I found useful for categorizing those deployed in my own compositions.

- Heterophonic Shifting - consecutive entries of identical structures played in slightly different tempi.
- Echo Canon – a short mono-rhythmic idea that gives a stereo effect by the dynamic pacing of the different parts.



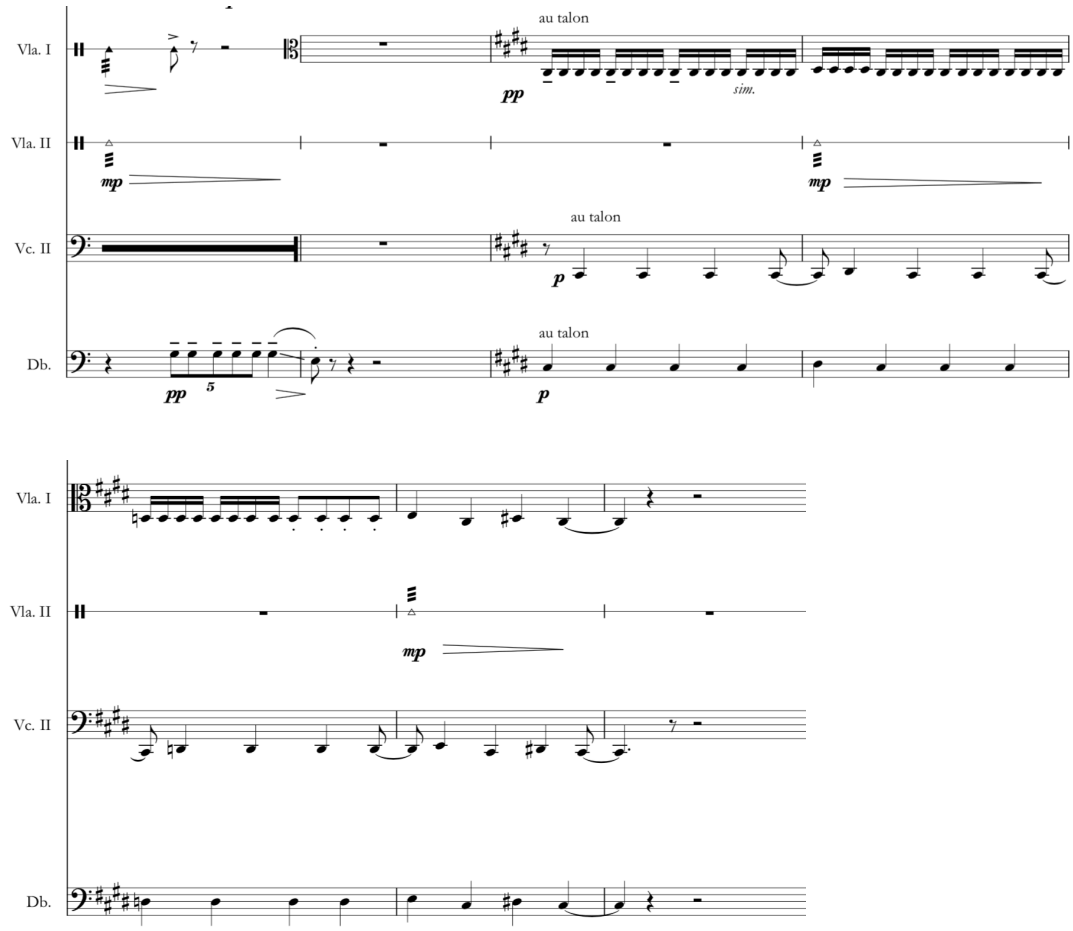
[Fig. 5.8 - Echo canon in Mark Kopytman's *Cantus II*]

- Heterophonic Oscillation – where to instruments play the same material but with different 'sound variants', e.g. straight sounds against vibrato or trill, creating a pitch aggregate.
- Isomelody – a succession of notes that is consecutively repeated. In heterophonic texture the same group of sounds is distributed in space at different rhythms in each one of the lines, leaving the listener with the impression of fluctuation.

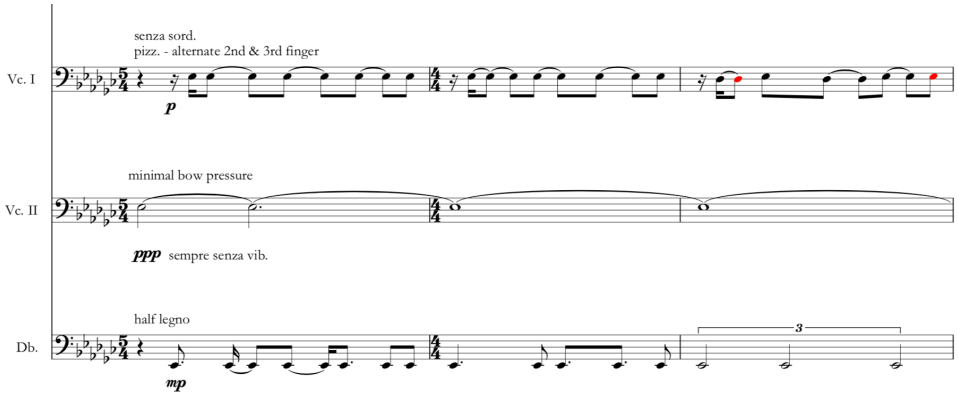
- Heterophonic pedal – the suspension of sounds from the melodic line, presented at the same pitch to accompany that line.

(1986, p.20-21)

I have utilised some of these categories of heterophony within the metrical passages of my compositions. Particularly in *The Raven,* when the narrative of the protagonists' descent into madness is conveyed through a progression towards textural density over the work's duration. In doing so, the texturally dense combined-indeterminate effects that appear at the work's climax no longer feels to be an isolated, vertical occurrence. There is a precedence of metered heterophony, so the devices instead they appear within the horizontal textural narrative, a progression from a single sound to a dense textural conglomerate.



[Fig. 5.9 - Isomelody in *The Raven*]



[Fig. 5.10 - Heterophonic oscillation in *The Raven,* bars 169-171]

Isomelody at figure 5.9 features perhaps the most accessible kind of metered heterophony, whereby the same melodic figure is presented at three levels of rhythmic subdivision. A similar approach is also taken in the choral parts, from bar 132. Figure 5.10 on the other hand also represents heterophonic oscillation – the same pitch is presented, but the timbre of each instrument will be very different due to the extended techniques deployed.

5.4 Monophony to density, metre to senza misura

The textural narrative is occurring simultaneously to the textual one, that the protagonist's descent into madness, as well as a movement towards density. There is also another concurrent journey in my developing musical language which is inextricably linked to my research premise of using controlled indeterminate procedures – that of a progression from metrical to senza misura (or *ad libitum* in Lutosławski's musical language).

The early combined indeterminate devices discussed in 5.2 reach their apotheosis at rehearsal mark S in *The Raven.* Just as the heterophonic procedures within metred material create the progression towards the dense senza misura passages, a blurring of the metrical conveys the movement towards senza misura.

[Fig. 5.11 - Metrical eschewing in *The Raven*]

There is a psychological audience problem that often appears when composers use indeterminate processes discussed, that listeners may 'switch off before they have heard the first note' when perceiving open mechanisms (Cope 1997) [discussed at length in Chapter 4]. The sound blocks in figure 5.11 are born out of my desire for those combined notations discussed in 5.2 not to seem separate, isolated, or for the listener to switch off. They have roots in the techniques deployed by Edgard Varèse in pieces like *Amériques (1918-21).* They eschew the metre provided by material in the foreground by appearing quietly, backgrounded, before taking prominence. It is also easy to see the diagonal similarity between that effect and those early combined notations.

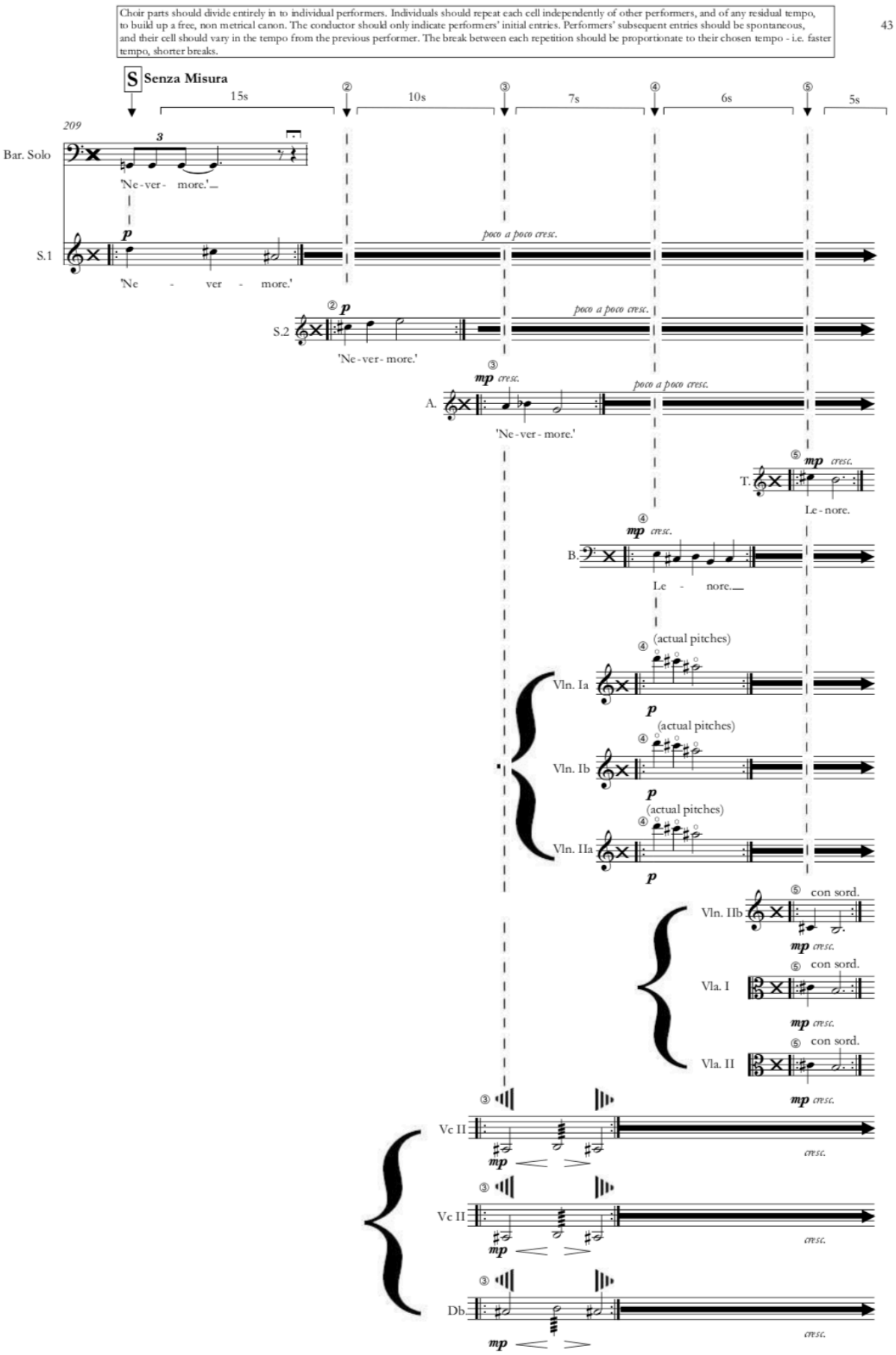
Whether the aforementioned audience problems with indeterminacy are really problems at all is up for discussion - since the notation of the music is not readily apparent to the listening audience. Yet we must admit that there is a certain sound result that comes from these processes.

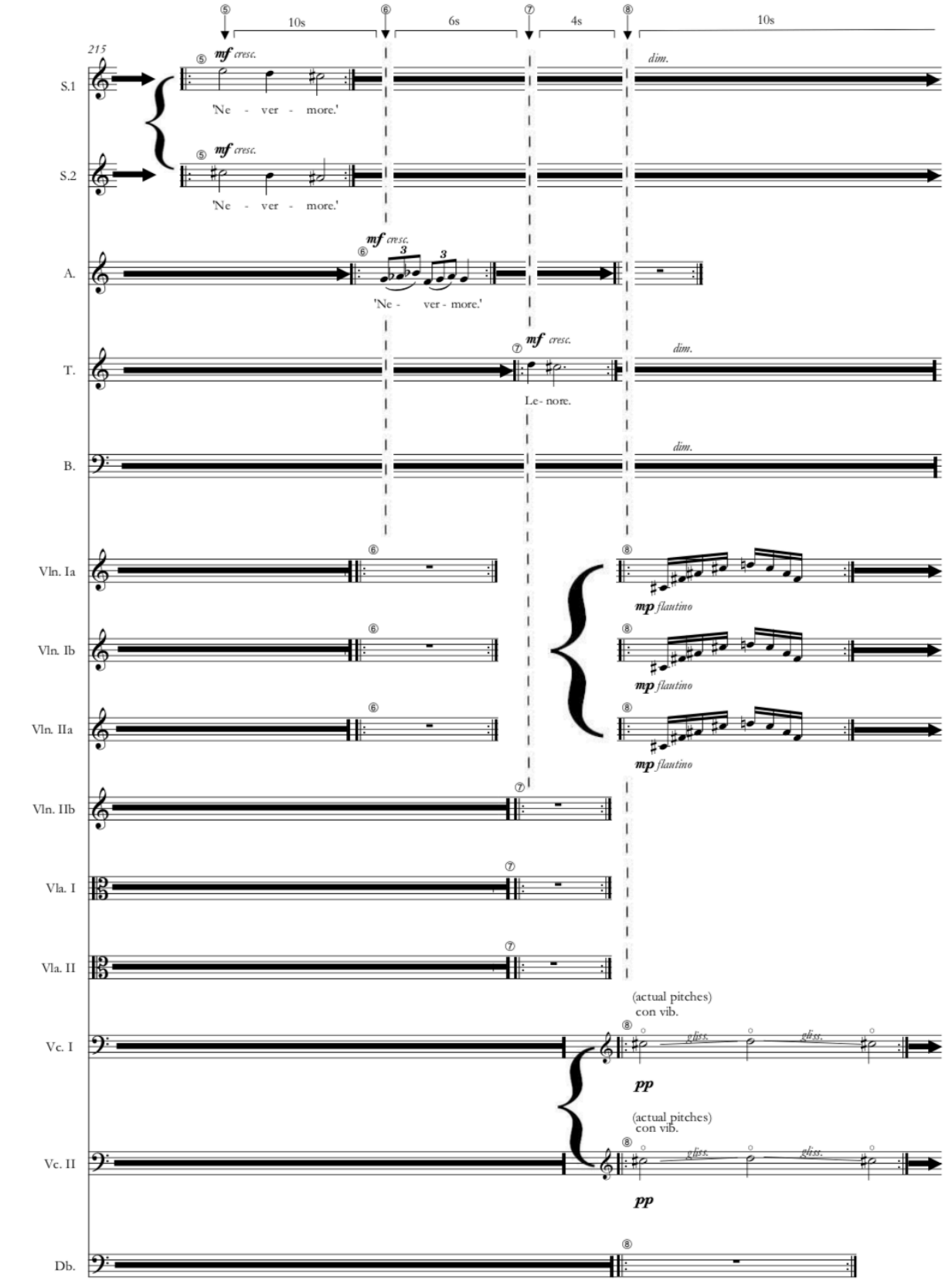
> Unfortunately, more often than not composers, performers, and audiences find that chance music tends to sound like chance music.
>
> (Cope 1997, p.161).

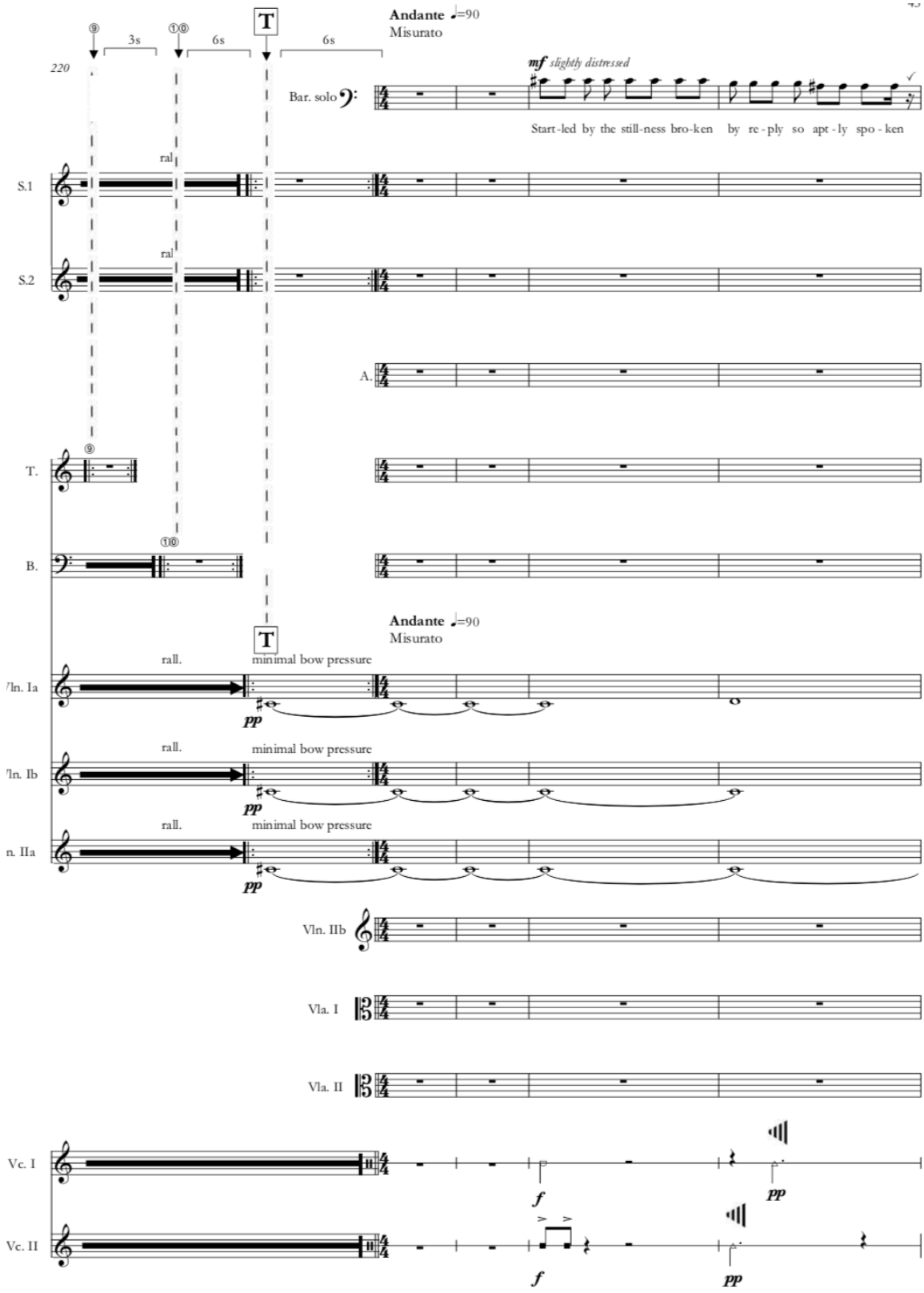
In many ways my texturalist approach, combining determined and indeterminate procedures, aims to remove this problem from the equation. In a sound world

where both kinds of device are used to create textures as vast and as dense as those formations that appear in *In Nomine*, the audiences' perception of which notation is used is further obscured. Furthermore, any predictability that may be inherent in some of the repetitive indeterminate devices has been used as a means by which that material is backgrounded, whilst some measured material is brought to the foreground.

When combined with the indeterminate processes concerning tempo and rhythm, described in sections 2.1 and 2.2, I have presented a movement towards senza misura that not only coincides with *The Raven*'s journey towards textural density but it actually an integral part of that procedure. As such the effect conveyed at rehearsal mark **S** should not seem incongruous, but a natural summation of the progressions.


Choir parts should divide entirely in to individual performers. Individuals should repeat each cell independently of other performers, and of any residual tempo, to build up a free, non metrical canon. The conductor should only indicate performers' initial entries. Performers' subsequent entries should be spontaneous, and their cell should vary in the tempo from the previous performer. The break between each repetition should be proportionate to their chosen tempo - i.e. faster tempo, shorter breaks.
43
S Senza Misura
15s
10s
7s
6s
5s
209
Bar. Solo
'Ne - ver - more.'
S.1
'Ne - ver - more.'
poco a poco cresc.
S.2
'Ne - ver - more.'
A.
'Ne - ver - more.'
T.
Le - nore.
B.
Le - nore.
(actual pitches)
Vln. Ia
Vln. Ib
Vln. IIa
Vln. IIb
con sord.
Vla. I
Vla. II
Vc II
Vc II
Db
mp cresc.
p
cresc.


44
215
10s
6s
4s
10s
S.1
S.2
A.
T.
B.
Vln. Ia
Vln. Ib
Vln. IIa
Vln. IIb
Vla. I
Vla. II
Vc. I
Vc. II
Db.
mf cresc.
'Ne - ver - more.'
'Ne - ver - more.'
'Ne - ver - more.'
Le- nore.
dim.
mp flautino
(actual pitches)
con vib.
gliss.
pp

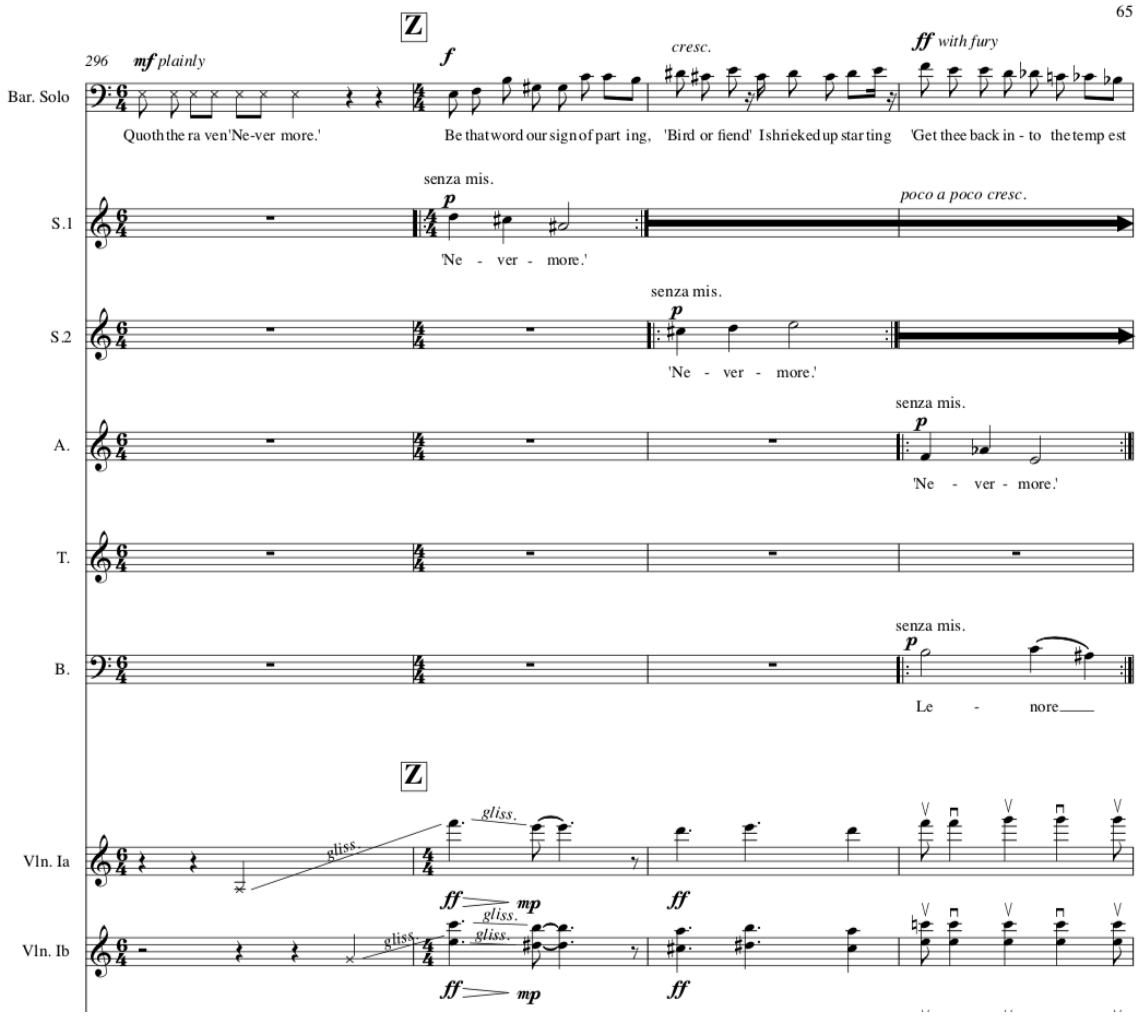


[Fig. 5.12 - Rehearsal marks **S** and **T** in *The Raven*]

5.5 Vertical to horizontal, isolated to concurrent

If my criticism of the devices described in section 5.2 are that they are vertical instances, whereby the overall horizontal direction of the music surceases to accommodate the dense heterophonic effect, I needed to find a way in which they could be incorporated within that direction. If density is a scale from a single note to a vast, dense conglomerate of sounds, progression towards that kind of density could be achieved by deploying heterophonic devices within the metrical, conventional notated musical material. In *The Raven* (2018) I attempted to progress beyond all of these criticisms.

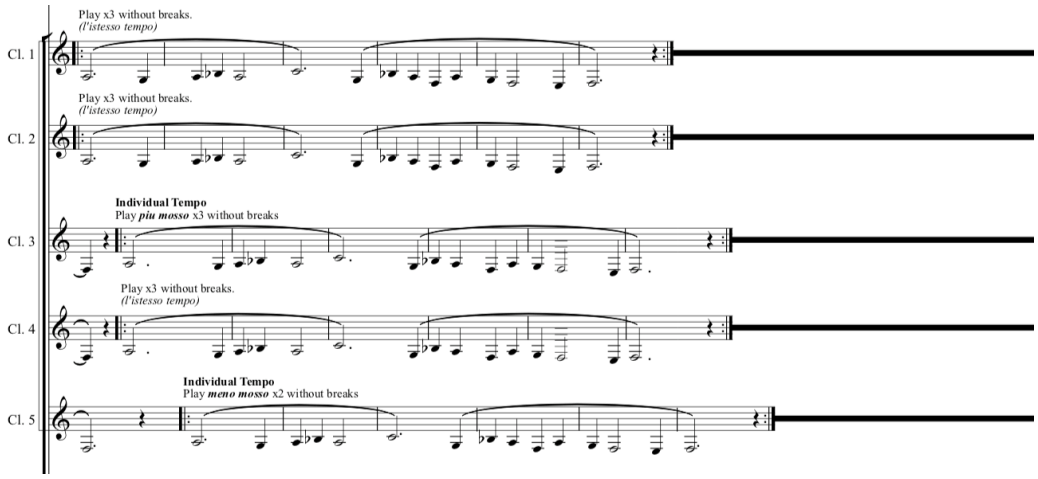
To further incorporate these indeterminate notations into my work, and to level my, I deployed senza misura material within a passage that is otherwise metrical. At **Z**, the baritone and the orchestra both retain the tempo and time signature, but the choir is to once again create a ‘free, non-metrical canon’ in the background.



[Fig. 5.13 - Rehearsal mark **Z** in *The Raven*]

Again, the performers must have some idea of the intended sound result to successfully achieve the effect. Here, however, the role of the conductor must be reduced as they would be pre-occupied with that metrical material - so the singers must also have a vertical awareness of what else is going on in the metrical material, which the through-composed baritone line would provide.

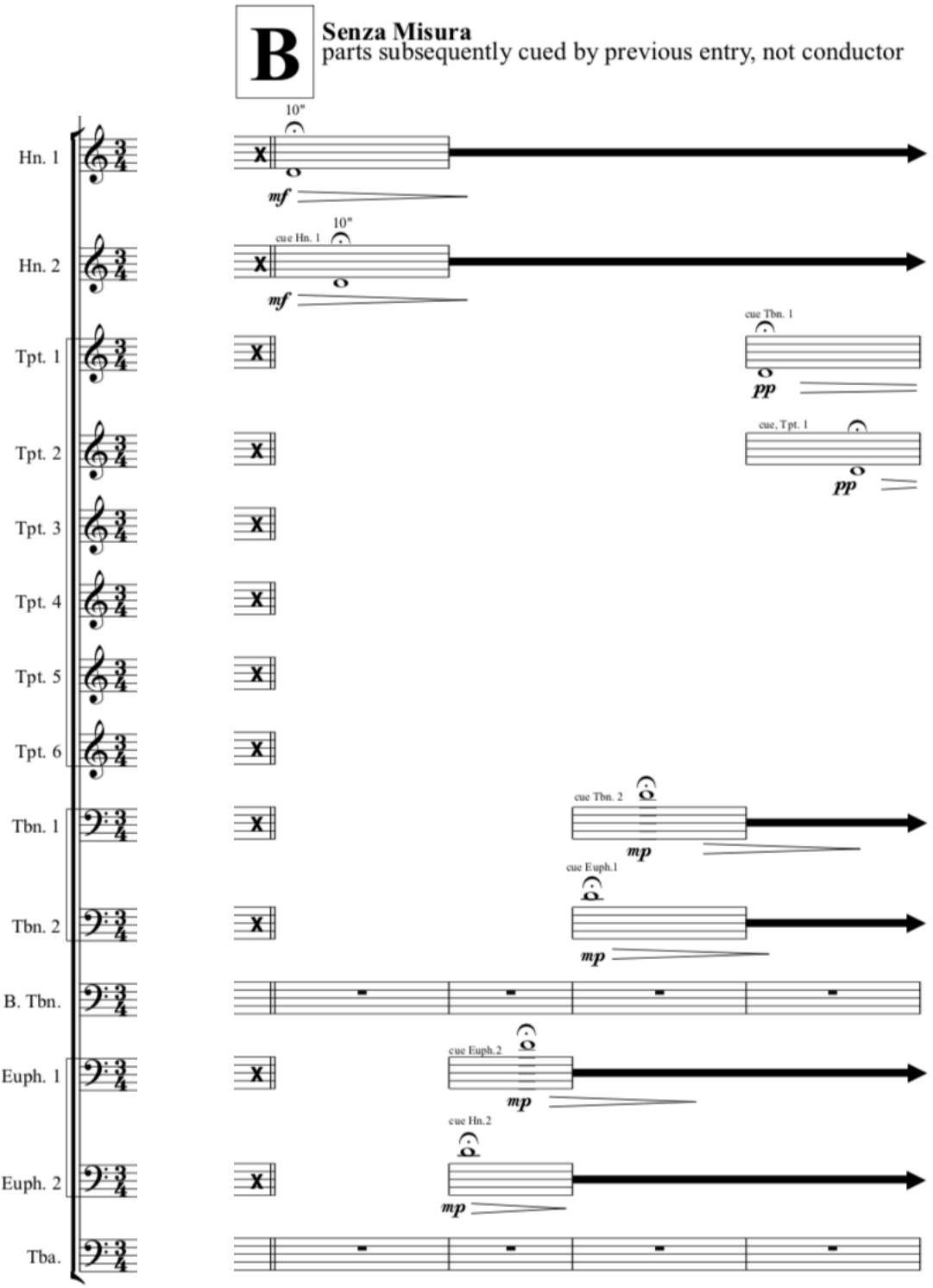
A natural progression from this cellular notation appears in *In Nomine* (2019), the large instrumentation of which opened up the possibility for a much more varied used of combined indeterminate devices. The In Nomine were a polyphonic instrumental phenomenon whose intention was to enchant the listener with traceable musical lines. In my modernisation of the form, the original's four voices (SATB) are replaced with four instrument groups that form conglomerates in a pitch area, or a 'sound band', and so heterophony is an essential part of what allows those instruments to be identified as part of their band.



[Fig. 5.14 - Conglomerate devices, *In Nomine*]

Such devices, making use of isomelody as well as heterophonic shifting, are used regularly throughout *In Nomine.* Like their predecessors, the melodic and rhythmic components of these devices relatively simple (figures 5.3 and 5.4) - but here the duplicated timbre of multiple clarinets add to the homogeneity of the effect. The role of that homogeneity in the perception of the wider texture is discussed in Chapter 4.

Another combined indeterminate device that was born out of these cellar systems was that of the cantus firmus in *In Nomine.*



[Fig. 5.15 - Cantus firmus, *In Nomine*]

The original section of John Tavener's *Missa Gloria Tibi Trinitas* on which the In Nomine instrumental form was based features the plainsong antiphon of the same

name as a fixed cantus firmus in the mean (or alto) part, and many of those instrumental derivations were the same. In such compositions the cantus firmus is the scaffolding on which the polyphony is built. It appears in fixed rhythms, mid texture, and whilst it may swap between the inner voices (alto or tenor) of the texture it seldom appears in the outer extremes of the voices (soprano or bass). In my *In Nomine* the upper three (unfixed) groups of instruments change voice (S, A or T) regularly, but for the bass instruments remain as the bass voice for practical reasons[2].

The cantus firmus is often backgrounded in our perception of the polyphony (the discussions of prominence, foreground and background in the previous chapter elaborate further on why that might be). Harmonically speaking it is the most important voice, but aurally it becomes perhaps the least important. With that in mind, my cantus firmus is a self-moving, austere amalgam of parts moving freely without regard to the conductor.

Each group has an initiator in this device, whose initial entry is cued by the conductor and after which the parts take auditory cues from each other – their cue instrument indicated verbally in their part. The initiator instrument then counts 10 seconds before moving on to the next note of the cantus firmus. The succession of these entries is also ordered in such a way that there will be a physical-spatial modulation of the sequence across the sections of the instruments involved (at least in the seating formation of the wind orchestra for whom the piece is designed).

A metered approach to the cantus firmus might have involved far more counting than I deemed necessary, since the source material is so simple. The quick iterations of the cantus notes will bring demand the listeners' attention, but the novelty will soon become predictable so that the cantus firmus can be

---

[2] In Figure 4.13 the bass trombone and tuba parts belong to that bass group, rather than the cantus firmus, and so are not senza misura and have conventional staves. I considered whether these bass group instruments should have been grouped together vertically on the score but decided against that given that the instruments which constitute the other groups often change.

backgrounded as it might have in the 16th century original. For those works the cantus firmus provided the scaffold for melodic elaboration, but in a vertical alignment that allowed harmonic consonance. In my *In Nomine* the austerity of the cantus provides the scaffold for textural discourse, the background on which those other conglomerate groups of instruments can they vie for prominence.

5.6 The apotheosis of combined elements

The passage between rehearsal marks **K** and **M** of *In Nomine* represent the apotheosis of the individual level indeterminate, heterophonic, and combined indeterminate elements represented in the portfolio of compositions. I have attempted to saturate the pitch dimension with the four bands, using five groups.

Group 1	**Group 4**
Flutes 1-3	Bassoon
Alto Flute	Bass Clarinet
	Tenor Saxophone
Group 2	Baritone Saxophone
Clarinets 1-5	Bass Trombone
Alto Saxophone	Tuba
Group 3	**Group 5**
Trumpets 3-6	Oboes 1-2
Trombones 1-2	Soprano Saxophone
Euphoniums 1-2	Trumpets 1-2
Horns 1-2	

[Fig. 5.16 - Instrument groupings at **K**, *In Nomine*]

At **L** Group 1 is the soprano voice, using chromatic, ascending figures to modulate from Bm to Dm. Each four-bar phrase extends beyond the top of the established vertical pitch range, the Y axis in figure 3.1, before that dimension is exhausted with the indeterminate ‘highest pitch’ device at **M**. Its density is achieved through heterophonic pedal – there are two subgroups of three, the lower two of the three suspend one of the chromatic pitches sounded by the first. This group are metered, allowing for the horizontal (X axis) element of the music to be controlled sufficiently to ensure a fast rate of incidence.

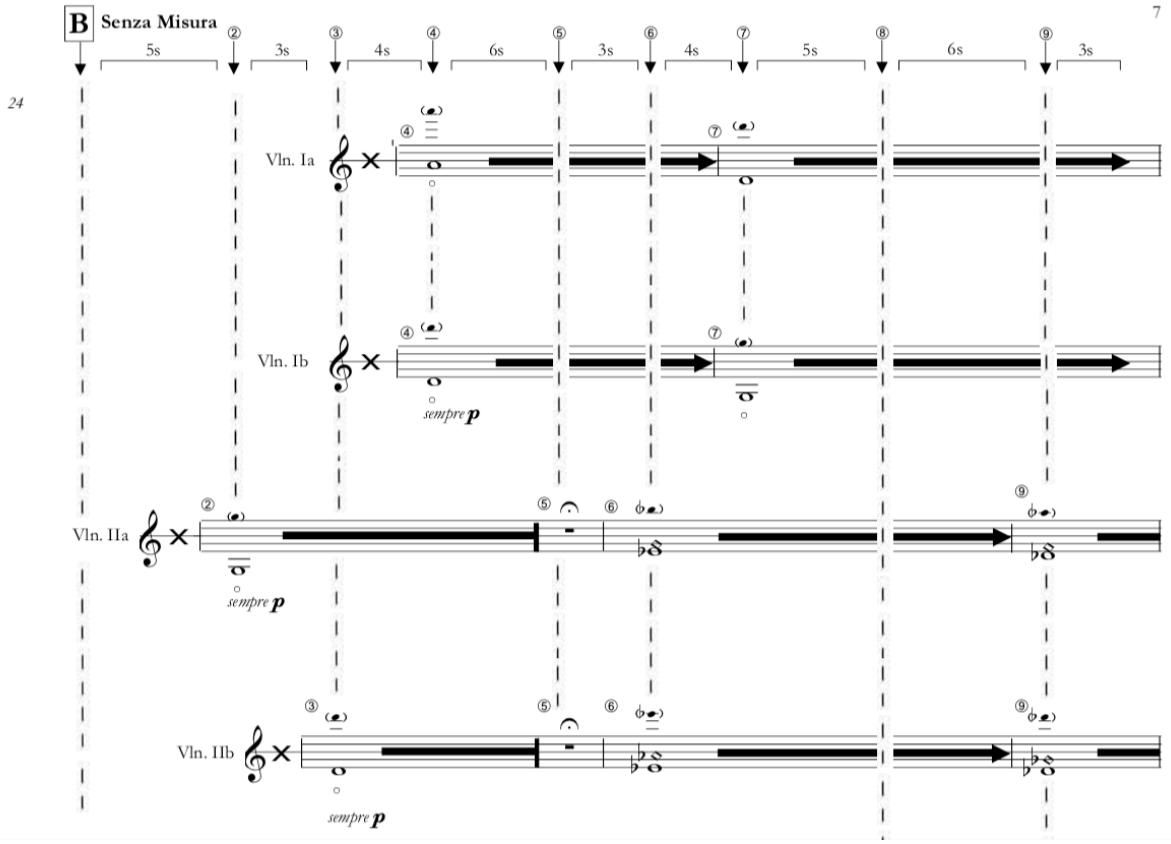
Group 3 are also metered, and they are derived from the tenor section in bar 21 of original In Nomine. There are also several subgroups of paired instruments, distributed two beats after one another, each making extensive use of isomelody as the same melody is presented with different rhythmic subdivisions. It is this writing which is most akin to the web-like micropolyphony of Ligeti discussed in the introduction to this thesis. Conversely, group 2 are still senza misura, continuing the combined-indeterminate device of the cantus firmus they began at rehearsal mark **I**.

At **L**, group 4 are given a large amount of freedom in term of pitch and rhythm. As the bass group their priority is occupying the lowest part of the pitch range dimension. At **M** they are brought back into the metre, but just like group 1 are and encouraged to exhaust the lower part of the mass with the indeterminate 'lowest pitch' notations.

5.6 Conductor symbols

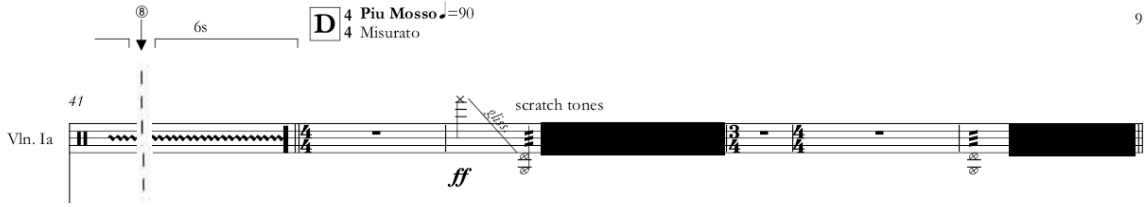
Some of the primary duties of any conductor are to unify performers, set the tempo, and ensure correct entries by ensemble members. Therefore, the conductor can have a specific role in the synchronisation and desynchronization of performers when indeterminacy is involved – particularly with regard to senza misura material, asynchronous tempi and rhythms. Textural indeterminacy often involves performers ignoring the conductor, or deliberately deviating from their tempo (etc). Since communication is non-verbal during a performance, so there must be a clearly established system of notations and gestures to bring such elements into and away from the governing metrical organisation.

In *The Raven,* I used a system whereby rehearsal figures double up as conductor symbols, to denote gestures as well as the start of a new passage of the music. Rehearsal figures with an arrow attached to the base denote the start of a new section, in the way that they might do in more conventional notation, but here the arrow indicates an event that starts a senza misura passage. This is to be signified by some two-handed gesture from the conductor to help identify these transitions. Subsequent events in that senza misura section are numbered from 2 onwards, and a corresponding number is placed in the relevant instrumental part(s).



[Fig. 5.17 - Conductor symbols *The Raven* 1]

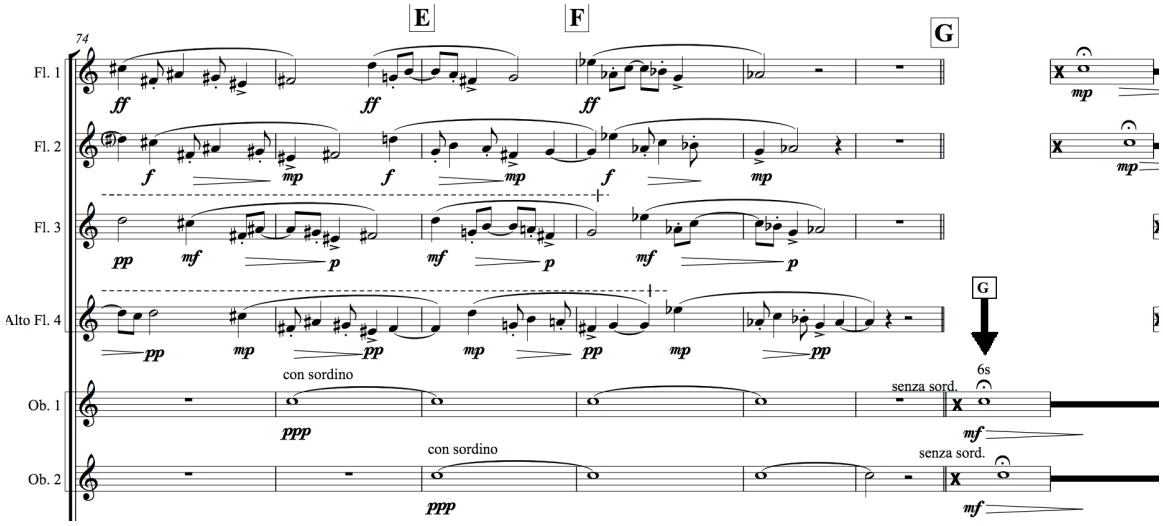
Sometime after I first devised these symbols, I came across a similar system, deployed by Lutosławski in *Jeux Venitiens* (1961). Jeux is essentially a series of movements all of which are senza misura, and events are clearly numbered successively. A dashed vertical line denotes where parts lie in relation to each numbered event (indicating it is at the start of a passage, or appearing during it, or after it). In *The Raven*, these kinds of event described above use such vertical lines to synchronise passages that commence at the same event number. When the piece returns to misura music, another rehearsal mark is given (again indicated by a two-handed gesture from the conductor) and a large time signature above the save to indicate the new metre.



[Fig. 5.18 - Conductor symbols *The Raven* 2]

One limitation with this system can be found at **Z** (figure 5.13), when senza misura choral parts are contrasted against a metered soloist and accompaniment in the strings parts. Whilst the voices could time their initial entries with no additional help from the conductor, by counting rests from the conductor's downbeat, subsequent melodic cells (e.g. bar 301) would require some other cue. Alternatively, this system could rely on the choir having a sense of the prevailing metre and tempo, but that could be an unrealistic expectation, or might influence the rhythmic element of the heterophonic variation within the singers' parts.

When writing *In Nomine* I initially adopted the same system of rehearsal marks to denote new sections as well as to indicate the start of some senza misura passages. This system was once again found wanting, since one of the main intentions for the composition was to juxtapose measured and senza misura material. This meant that the notation *In Nomine* required a greater number of conductor gestures to be specified than *The Raven*. The original system would have required two-handed gestures, and consequently rehearsal marks, in consecutive bars, which could be misleading.



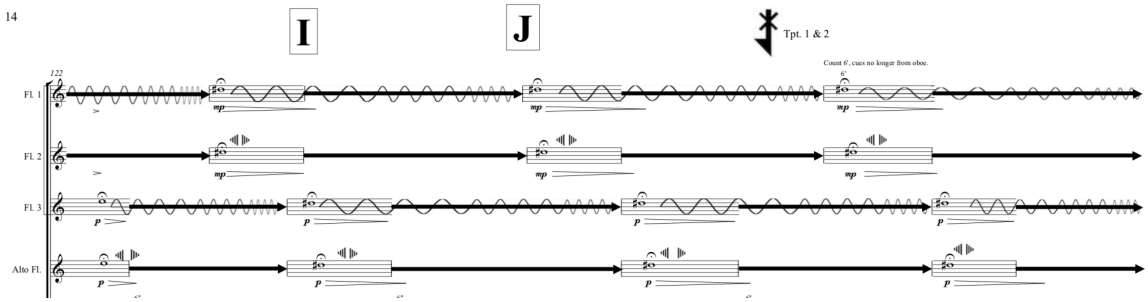
[Fig. 5.19 - Conductor symbols *In Nomine 1*]

Instead I designed a new system that would make cues for both the start and the end of senza misura material rather cleared, as well as use the two-handed gestures that denote the start of a new section.

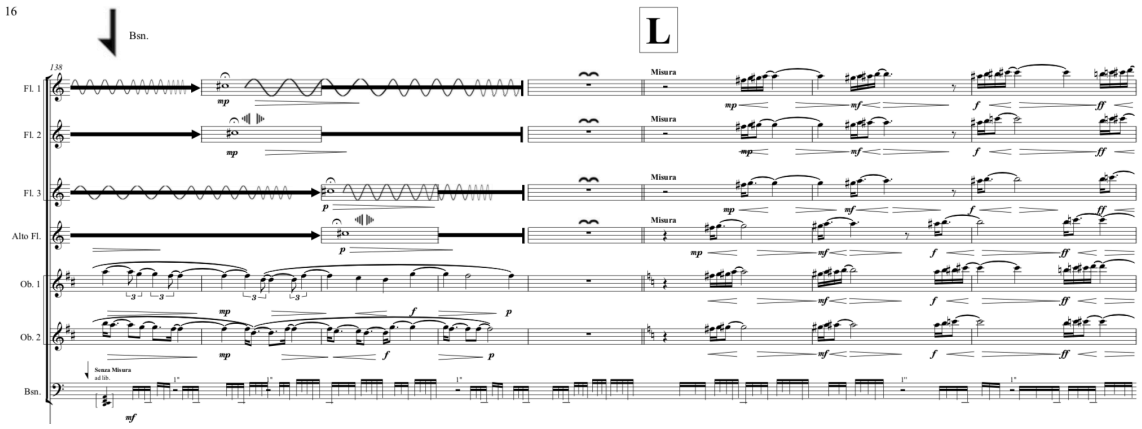
In *Livre (1968),* Lutosławski uses the following symbol to denote cues for individual parts' entries within senza misura material. It indicates a left-handed gesture from the conductor.

[Fig. 5.20 - Lutosławski conductor symbol]

In the combined metered/senza misura passages of my work I use this left-handed individual-part cue, on the basis that a conductor can cue with their left hand whilst continuing to beat time with the right. Thus, the conductor is able to govern the start and ends of senza misura material whilst continuing to control the metered music. I also designed a symbol to indicate an 'abschlag', or cut-off, for the conductor to indicate the end of senza misura passages with absolute clarity. The symbols are written above the system for the conductor and duplicated in the instrumental parts to which they pertain. They are also included in brackets in for the measured parts (the parts who are conducted) to which they do not pertain, to indicate that the player should ignore that gesture from the conductor. This negates the requirement for footnotes detailing which parts should ignore the symbol, a system deployed by Lutosławski in *Preludes and Fugue for 13 Solo Strings* (1972) - a system which I found to be rather cumbersome.



[Fig. 5.21 - New conductor symbols *In Nomine*]



[Fig. 5.22 - New conductor symbols *In Nomine* 2]

As mentioned, the new conductor cue symbols were designed to avoid consecutive rehearsal marks in adjacent bars. For some instances in *In Nomine,* such as the bassoon's left-handed cue in figure 5.22, this was successful. However, after some discussion with the conductor who was to lead the work's premiere, it became apparent that in some cases the geographical layout of the wind orchestra would make some of these left-handed cues impractical. For example, a left-handed gesture could not simultaneously cue the first clarinets and the trumpets as they would be physically positioned too far away from each other for a clear signal to be given to both groups. In these cases, some other gesture would be needed to cue both groups, and so I have written adjacent rehearsal marks to indicate a two-handed conductor gesture (figure 5.21).

6. *Darkness*, and Conclusions

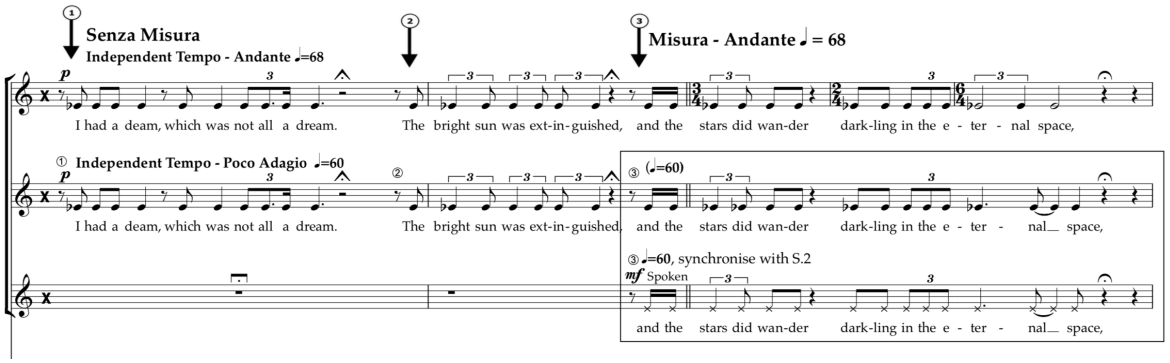
The works in this portfolio show an evolution and refinement of my compositional style*. In Nomine* represents the culmination of the indeterminate and heterophonic techniques explored in the portfolio, and their use in crafting textural density. In the large part this was afforded or at least exaggerated by the size of the ensemble. So, in order to conclude the portfolio, I chose to return to the short form of choral text-setting works that I composed at the start of this process and to try to exploit these techniques.

Darkness, a short poem Byron wrote in 1816, is a dream vision of the end of the universe. This work is my first small-scale setting involving voices since the completion of *The Raven* in 2018 and it aims to be equally as dramatic as that Edgar Allan Poe setting. It became more difficult to create those conglomerate bands of sound of *In Nomine* that used the indeterminate textural procedures - with a much smaller ensemble since there are fewer instruments to make up their constituents, and the mixed nature of the ensemble stipulates that the composer must focus on elements other than the duplication of timbre to give these sound bands their homogeneity. Heterophony would once again be key.

With *In Nomine*, the principal way in which homogeneity between the instruments that constitute a particular sound band was achieved was that of melodic resemblance. The melodic elements were partly fixed, being the direct derivatives of the melodies in the 15th century original. The phrases of the original had progressions and contours that were already traceable in that 4-part texture, and it was always clear that heterophonic treatment would be a key part of how I would modernise their shape into a conglomerate polyphonic formation. Indeed, heterophony is also essential in determining homogeneity with *Darkness,* but unlike *In Nomine,* the texture takes on a dramatic ‘word-painting’ purpose in a direct attempt to amplify Byron’s words - rather than a dramatic purpose derived from linear musical gesture.

6.1 Heterophonic elements of *Darkness*

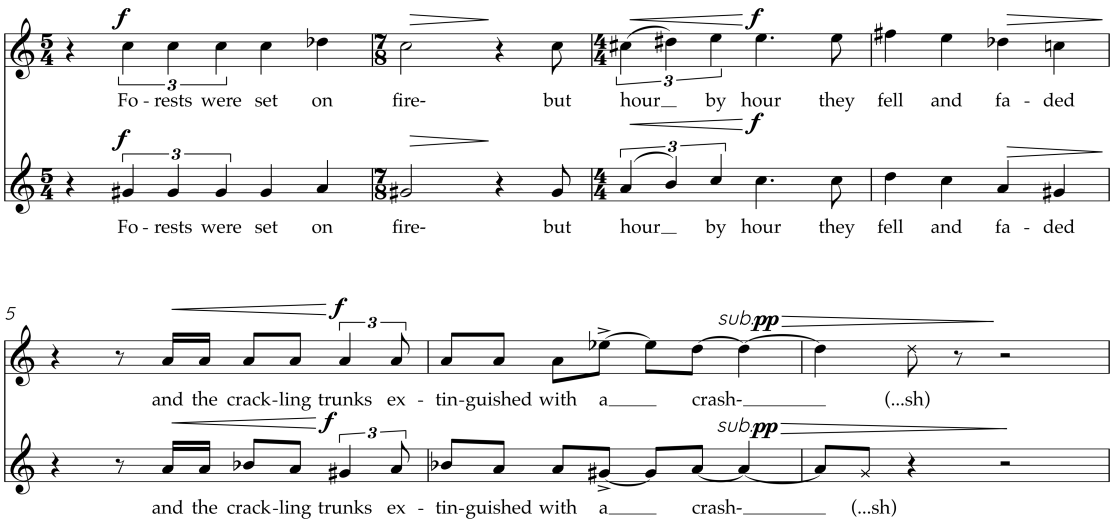
One of the main theatrical devices of *Darkness* was the combination of both heterophonic shifting and heterophonic oscillation, combining the timbral variety of spoken text simultaneous to the same text sung and the same melody employed at a slightly different tempo (figure 6.1).



[Fig. 6.1 - Heterophonic oscillation and shifting in Darkness]

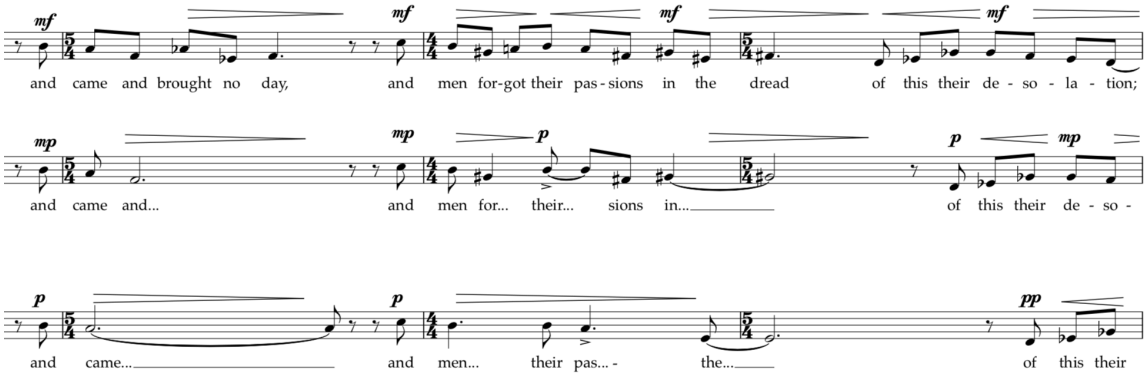
A composer has the choice between setting the words with comprehensibility at the forefront of the music, with the text most likely delivered syllabically and within a narrow melodic range to imitate speech, or to embellish and enhance the text with melisma etc - direct comprehension can be compromised so long as meaning is conveyed or augmented through the musical delivery. My approach has generally been to lean towards the former, setting the text syllabically where possible and with some nod to speech inflection.

This leaves a composer with fewer choices with regard to the textural deployment of the words within the ensemble. Words set homophonically, moving in parallel such as figure 6.2, can easily be understood – but this is of limited textural significance.



[Fig. 6.2 - Homophony in *Darkness*]

Heterophonic pedal, on the other hand, is a far more interesting device that allows for the text to be delivered as one melody but with some of its pitches suspended in other voice parts.

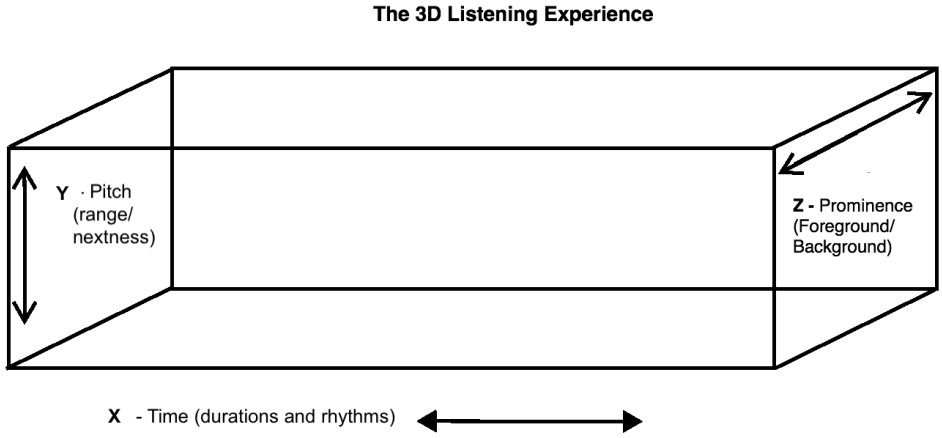


[Fig. 6.3 - Heterophonic pedal in *Darkness*]

The dynamics give prominence to the first soprano, who sings the melody in its original state. The text can easily be understood by the listener, but heterophonic pedal gives the melody substance within a conglomerate polyphonic texture. The pragmatic dynamic staggering also bears some resemblance to the echo-canon technique outlined by in Nancy Usher's categorisations of heterophony (1986). The subtleties of these elements take on far greater significance with the smaller ensemble of *Darkness* than in the large structures of *In Nomine.*

6.2 Pitch bands

One of the other main ways which conglomerate polyphonic textures create homogeneity within the sound bands is that of pitch area. Each band occupies a specific space on the vertical dimension of the music, dimension Y in the 3D - listening experience discussed in Chapter 4.



[Fig. 6.4 - The 3D Listening Experience]

Considering the dense passage containing rehearsal marks **H**, **I** and **J**, the indeterminate elements of *Darkness* serve a similar role to those deployed between L and M of *In Nomine.* The instruments are grouped to create a 4-part conglomerate texture: the crotales and vibraphone occupy the highest pitch band, and viola and cello the lowest. Between them there is a saturate occupied by the vocal parts and the reeds, but those bands are distinguishable from each other by virtue of their significantly different rhythms, with the voices deploying text syllabically and the reeds eschewing any sense of metrical regularity with longer dotted rhythms and ties.

Group	Constituents	Range
Treble	Crotales and Vibraphone	G5 – E7
Text	Sopranos 1 – 3	C4 – G5
Eschewing Group	Clarinet and Alto Saxophone	B3 – F5
Bass	Viola and Cello	B♭2 – A♭3

[Fig. 6.5 - Pitch bands in *Darkness*]

The role of the treble and bass groups is to define the upper and lower pitch dimensions of the mass. Like the passage in *In Nomine,* the exactitude of the which pitch is sounded on which subdivision of the beat are not important, yet their rhythmic busyness contributes to the overall density.

The specificity of pitch, however, does take on a greater importance in *Darkness.* The scale of *In Nomine*'s instrumentation means that dimensions Y and Z of figure 6.3 are greater – that the audience will expect a larger range of pitch to be used throughout the course of the piece, and a larger gradation of foregrounding and backgrounding elements. The smaller dimensions of *Darkness* will likely give the audience a more acute listening experience, one with increased perceptual subtlety. Homogeneity in each of the sound bands would be harder to achieve.

Containing each of the groups to a specific tonality aids the perception of homogeneity. The melodies between rehearsal marks **H**, **I** and **J**, are all based on the Locrian mode, displaced in different keys in each group. The bass group give an impression of moving from Cm, to C♯m, and then D♯m Locrian (figure 6.6). None of the of the other instruments share these keys, which helps them to be identified as a group.

The vocal parts are further subdivided into three individual lines, all competing for prominence. At **H** each soprano melody is in a designated Locrian mode, and the three parts simultaneously descend into the mode a semitone lower at **I** and again at **J**. So, they are autonomous in one sense, and each deliver one section of Byron's poem simultaneously, but together they occupy one area of the pitch dimension Y.

Voice	Rehearsal Mark		
	H	**I**	**J**
Soprano 1	Am	G♯m	Gm
Soprano 2	Gm	F♯m	Fm
Soprano 3	Fm	Em	D♯m
			NB all Locrian

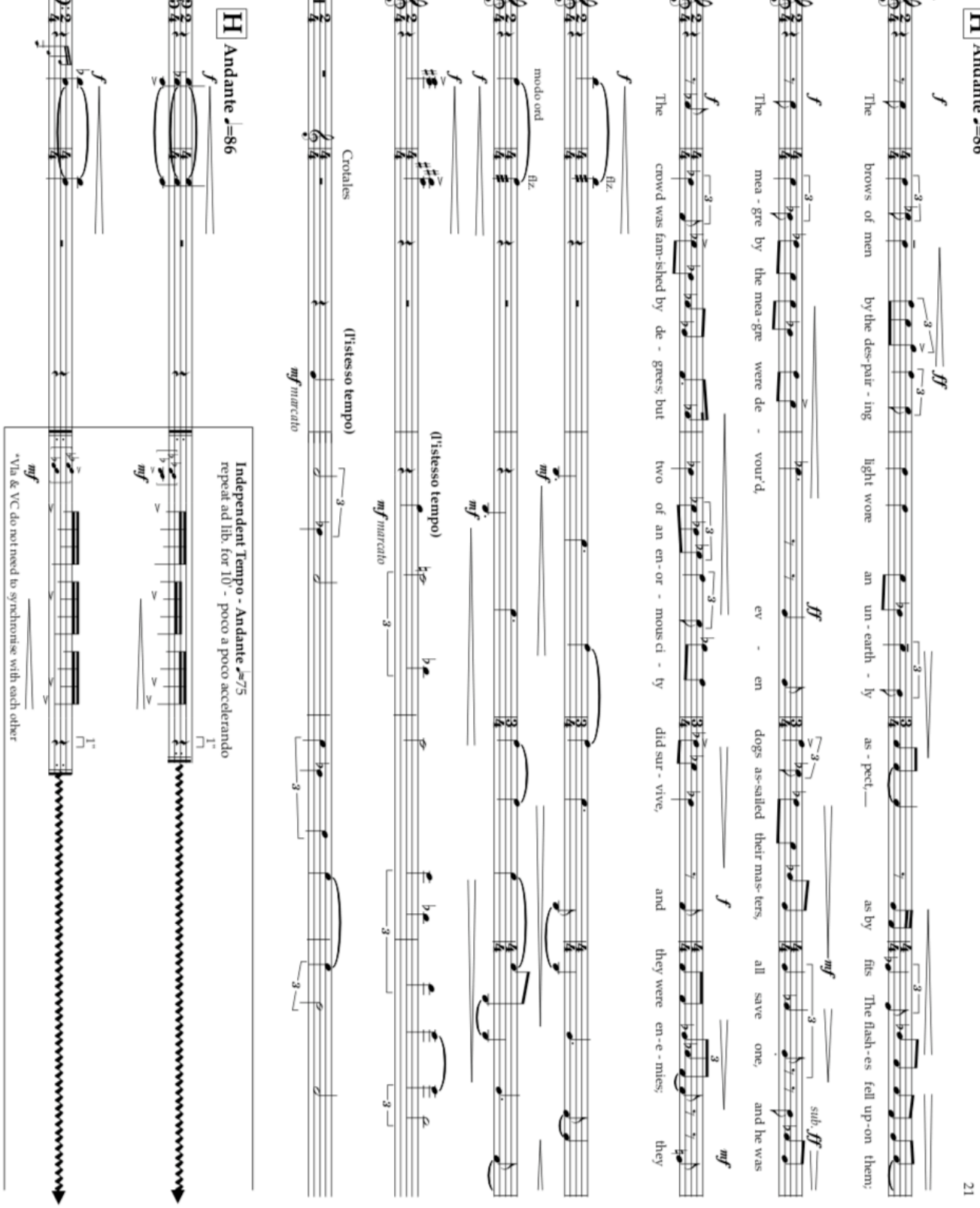
[Fig. 6.6 - Soprano pitch bands in *Darkness*]

In this, the most texturally dense passage of *Darkness,* the dramatic effect of the texture takes over from the clarity of the text delivery. The busyness simultaneously obscures the presentation of the words yet amplifies their meaning (or at least aims to).

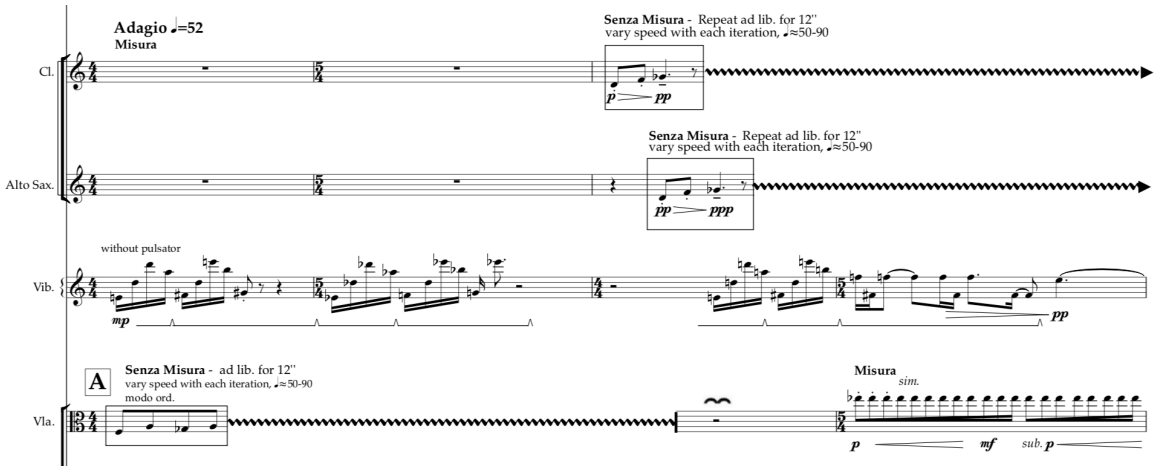
The saturation this achieves would not have been possible with the mobile notations in the early works in the portfolio and is only achieved through careful selection of which elements can be indeterminate. The rhythm can be, and should be, to create the necessary variety. The pitches themselves are important but the exactness of their deployment is not. Careful manipulation of audience perception and expectation is also key.

If ascertaining prominence is key for a listener's understanding of texture, when seeking to create a dense texture a composer must deploy a number of elements all of which seek to be prominent. It is my experience that natural prominence is given to the voices, perhaps because of a human need for understanding the words, or because of a biological or evolutionary requirement to focus in on speech-like sounds.

This fact does not however mitigate the need for sensitivity in writing instrumental parts accompanying voices from a composer. Care must be taken to ensure that the instruments do not overpower the voices, unless this is specifically desired. My understanding of what makes material foregrounded or back grounded, discussed in Chapter 4, has certainly been of use in the composing of *Darkness.* Examining rehearsal mark **A**, for example, it is clear to see how the narrow range and rhythmic regularity of the accompaniment parts will allow them to be backgrounded and the voices given prominence. Similarly, at **B** four accompanying instruments accompany the voices but create a two-part texture by virtue of isomelody.

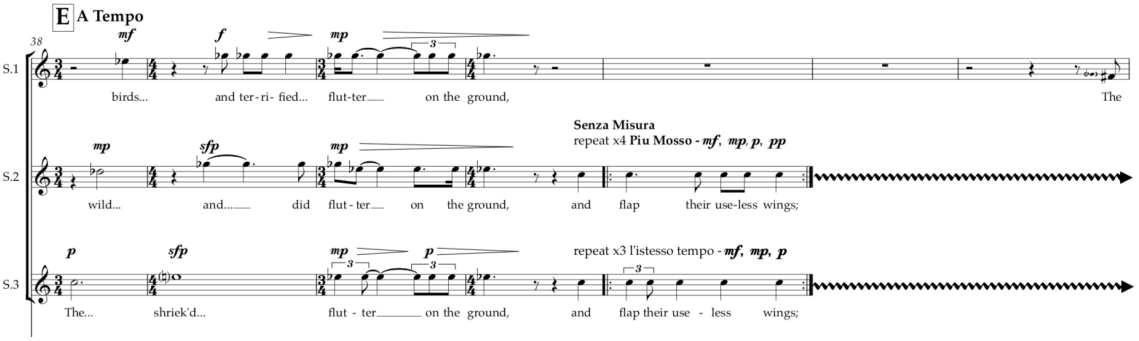


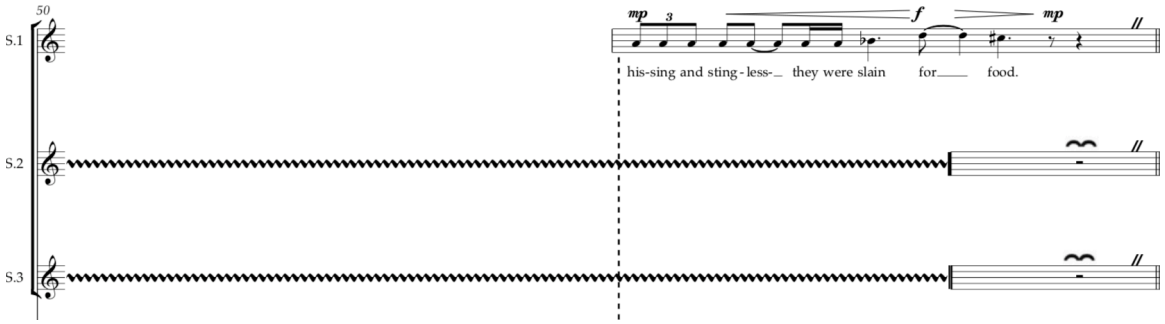
[Fig. 6.7 - Rehearsal marks **H**, **I**, and **J**, in *Darkness*]



[Fig. 6.8 - Rehearsal mark **A** in Darkness]

The discussions in Chapter 4 have further avoided the audience related problems with indeterminate notation discussed in section 4.4. At moments, such as rehearsals mark **E** and **M**, the repetitive cell notation which is very similar to those that featured in the early works of my portfolio is no longer and isolated moment with limited horizontal function in the music. By deploying indeterminate devices within a metred framework the continuous development of dimension X the music is not halted in the way they were in *Address to the Woodlark* and *The Darkling Thrush.* Furthermore, these repeated elements become backgrounded which allows for audience reflection and digestion of the text, before the metred material takes prominence and continues the journey of that X dimension.





[Fig. 6.9 - Soprano parts at rehearsal mark **E** in *Darkness*]

Darkness is demonstrative of my mature compositional style, exploiting the open techniques explored in my previous work and considering their implications for foregrounding and backgrounding parts of the texture. With indeterminacy as a primary compositional device I have been able to explore textures which enhance text through dramatic narrative and word-painting, and 'pure' music where textures become the stuff of the musical narrative in turn.

I use techniques that allow for some freedom of choice but within my pre-composed framework, and the degree of *authorship* in collaboration between composer and performer is firmly loaded in my favour. My work is never aleatoric with regard to its structure, and it always provides tight parameters for performance of indeterminate elements.

I am satisfied with these techniques of indeterminacy, and I believe that they have provided me with the capability to write music that is texturally interesting. These experiments have, however, only been conducted in pieces of shorter dimensions. With the exception of *In Nomine* I have exclusively written for small ensembles. *In Nomine* uses a large orchestral group, but the work is of relatively short duration. Future compositions might test whether these techniques are effective over larger periods of time, and with large ensembles.

I hope that I can continue to explore and develop the techniques that I have begun to introduce into my music over the course of this doctoral study, and that I learn to deploy them in increasingly complex and innovative ways. I want to continue working with texts, specifically the romantic poetry that I find so inspiring, and that I can continue improving as a composer.

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