Structural Depth in Jonathan Harvey’s
_Madonna of Winter and Spring_

by

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ABSTRACT

The English composer Jonathan Harvey was a distinctive and major presence in contemporary music since the early 1960s up to his death in 2012. His output in the 1970s and 1980s reflects a key transition in the development of his style and through such works as the *Inner Light* Trilogy, *Mortuos Plango, Vivos Voco* and *Bhakti* could be seen to reach a zenith in his 1986 work *Madonna of Winter and Spring*. A major element of this work and those that precede it was the composer's interest in techniques and approaches providing the structural depth the composer was endeavouring to realise. The purpose of this thesis has been to understand his use of structural depth within “Conflict”, the first section of *Madonna of Winter and Spring*.

Through an analysis of earlier works by Harvey, and those of Messiaen, Stockhausen and other composers, clear influences on his compositional aesthetic are identified. Various other contextual influences, and experiences are shown to have also strongly influenced his approach. Discourse reveals the detailed systematic approach undertaken by the composer in structuring his works, and the importance of the concepts of unity and ambiguity, and the significance of live electronics in that regard. It is shown that Harvey's use of structural depth in "Conflict" was based on a coherent model, influenced by the philosophies of Steiner and Schenker, which embraced all musical elements (pitch, harmony, timbre and narrative) within a single unity. The model is described in terms of these musical elements functioning on vertical and horizontal planes.

*Madonna of Winter and Spring* is a key work of this increasingly important English composer and reflects a milestone in his developing methodology. An understanding of its purpose and place within his oeuvre is of interest to composers, musicologists and listeners alike.
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Various people have assisted and supported me through the researching and writing of this thesis. This includes various students and staff at the University of Surrey, and others including staff at the Britten-Pears Foundation – archive and library.

I would particularly like to mention the support and guidance that Christopher Mark, my supervisor, has provided me over the last few years. Our tutorials have always been enjoyable, and I have found his advice and ideas invaluable.

I was very fortunate to have been able to visit Jonathan Harvey a few times before his sad passing in December 2012. He was so generous with his time and advice, and willingness to help me. I will remember my trips to Lewes, and the kind hospitality shown to me during my visits, with fondness.

Finally I would like to thank my wife, Georgie, and my children, Jessica, Theo and Oliver. I will be forever grateful for their patience, understanding and support.

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CHAPTER ONE: INTRODUCTION

Man is an embodied paradox, a bundle of contradictions.

Charles Caleb Colton (1820)

Aims

The contemporary English composer Jonathan Harvey presents an interesting paradox to the musicologist in that many aspects of his life suggest a mismatch of ideals – a bundle of contradictions.

Born in 1939 in the Midlands, at age nine he attended the choir school St Michael's College in Tenbury from which he went on to Repton, a public school in Derbyshire founded in 1557. Undergraduate studies at Cambridge together with teaching posts at various British universities including Oxford, Sussex and Southampton paint the picture of an archetypal English composer steeped in the legacy and traditions of the country of his birth, an idea further reinforced through his longstanding base at Lewes until his death in 2012. Certainly many of his works have drawn upon childhood experiences as a chorister in an Anglican church environment, works such as numerous carols (Gaude Maria 1965) and a church opera (Passion and Resurrection 1981) as well as commissions for church choirs. He has employed various English literary sources including settings to the texts of the poet and Anglican priest George Herbert (Tranformations of ‘Love Bade Me Welcome’ 1968) and Gerald Manley Hopkins (Cantata V 1970) all of which suggest the importance of English traditions in framing and contextualising his work. Musically, his early works can be considered to have been heavily influenced by a number of contemporary English composers including Tippett, Britten and Maxwell Davies (who, like Harvey, also spent some time at Darmstadt and Princeton), and it was in fact Britten who was to take an early interest in his musical development advising the young Harvey on suitable tutors. Many of his works, especially those composed in the 60s and 70s, are linked to Christian themes and Anglican choral traditions (Ludus Amoris 1969). Even later works such as his 1980 electronic composition Mortuos Plango, Vivos Voco, resonate with an essence of ‘Englishness’, in this case making use of just two sound-sources as material for the work: a Winchester Cathedral bell and the voice of his son, a
chorister at the cathedral. The text for the work comes from the inscription around the bell itself: *Horas Avolantes Numero, Mortuos Plango: Vivos ad Preces Voco*. Even his persona, often commented on in reviews and newspaper articles, identifies him as a softly spoken Englishman and in one obituary as having the ‘fluty and precisely modulated voice of an Anglican clergyman’ (Hewett, 2012). In 1962 Britten referred to Harvey, then aged 23, in a testimonial, as having a ‘personality of charm, although modest and unassuming’ (Britten, 1962).

However, many aspects of his life suggest a much wider and diverse range of influences, activities and interests that conflict with this simple characterisation. During his time at Cambridge, which he acknowledges as ‘not terrifically inspiring’ (Whittall, 1999, p. 4), he received extracurricular tutorage from two Austrian émigrés and was consequently versed in early 20th-Century European compositional techniques. In 1966 he encountered Stockhausen at Darmstadt and later was invited to IRCAM by Boulez, where he worked on and composed a number of works including *Mortuos Plango*. Activity has not just been limited to Europe: Harvey spent much time in the USA, studying with Babbitt in the late 1960s whilst holding a Harkness fellowship at Princeton and teaching at Stanford University. An initial Anglican religious predilection expanded to encompass Eastern spirituality and the philosophies of Rudolf Steiner; these have played an ever-increasing part in his aesthetic.

Although more recently there have been a number of key Harvey retrospectives in the UK (the Total Immersion concert series in London for example – ‘at last his work is getting the attention it deserves in his homeland.’ (Service, 2012) – there is a pervading sense that his work as a composer has received greater recognition outside the UK. His work has been performed all over the world, although many awards and premieres have only been in mainland Europe and America. It could be argued that these countries have been more enthusiastic towards the development and performance of electroacoustic works and their performance, which has

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1 I count the fleeing hours, I lament the dead: the living I call to prayer
2 On the 28th January 2012 the BBC Symphony Orchestra celebrated the life and work of Jonathan Harvey in a day of concerts, films and talks.
been an important medium for Harvey. Certainly the legacy of important composers such as Stockhausen, Varèse, Schaeffer, Nono, Cage, Babbitt together with extensive university support from the early 1950s (Stanford, Princeton, MIT, University of Utrecht, IRCAM etc.) has encouraged the development and availability of resources, techniques and performance spaces (IRCAM, GRM at ORTF, Stanford – Yamaha, NWDR Cologne). Advances in FM synthesis\(^3\) and the development of digital signal processing systems have been quickly assimilated within the academic and creative environments of European and American Universities, and integrated into the existing compositional sensitivities of acoustic composers such as Boulez, Messiaen and Cage. Europe is well known for its high profile festivals and conferences such as the Bourges International Electroacoustic Music Festival and the Ars Electronica Festival in Austria, not forgetting the important role that the Darmstadt summer school has played. It is perhaps not surprising therefore that he has been drawn to American and European activity.

It could also be argued that Harvey’s single-minded focus on spiritual dimensions within his music has also distanced him from mainstream contemporary music in the UK. His approach ‘just wasn’t very British’ (Service, 2012) as Harvey himself commented in a recent interview.

A supportive and active environment has always been important and relevant to Harvey who took a regular interest in academic endeavours in this area as illustrated in the numerous papers he published over the last 50 years, books including *The Music of Stockhausen: An Introduction* (1975d), *In Quest of Spirit* (1999a), *Music and Inspiration* (1999b) and recognition through fellowships at Princeton University and lectureships and professorships at Southampton, Sussex and Stanford Universities.

So – we have a composer for whom English and Anglican traditions clearly have an important resonance but who has also taken an active interest in European, American and Eastern traditions and musical developments. This asks the question why he sought such a diverse range of influences and

\(^3\) FM synthesis was developed at Stanford University in 1967 by John Chowning and later licensed to Yamaha.
immersed himself in such a broad range of cultures and how, ultimately, has this manifested itself within his work.

It is the aim of this thesis to identify and understand Harvey's compositional approach particularly with regard to what I refer to as his 'mid-period' works - those composed during the 1970s and 1980s. It will be shown, how this period epitomises how these influences and experiences have been realised within a number of key works, most notably \textit{Madonna of Winter and Spring} (1986). Harvey referred frequently to the importance of structural depth within his works and this concept will be used as the focus of discussion.

A number of broad questions will be considered:

- What are the key influences that can be shown to play an important role within his compositional aesthetic?
- What are the resulting themes?
- How has his compositional approach evolved and what were the motivations behind this?
- What part has technology played in enabling him to achieve his aims?
- Are there any key stages or recognisable milestones in his compositional approach?

Specifically, this thesis will consider what Harvey meant by structural depth and its relevance to \textit{Madonna of Winter and Spring}.

The term 'Structural Depth' is referred to throughout the thesis and is used to describe the arrangement of musical parts or elements (i.e. the structure) within a framework that implies depth through identifiable layers ranging from a lower level (i.e. background), to a higher level or surface (i.e. foreground). The analogy here, and one that Harvey used, is of something analogous to the layers that Schenker identified in western tonal music. Discourse within the thesis typically refers to 'structure' in terms of a clearly defined system or method that defines the composer's use of melodic, harmonic or other musical parameter. For example, use of 12-note material,
axial symmetry, melodic chains etc. Discussion relating to ‘depth’ seeks to understand the relationship between these elements i.e. the dialogue between harmonic and melodic material, or narrative and timbre. The final chapter considers Harvey’s use of the term ‘structural depth’ as it relates specifically to *Madonna of Winter and Spring*.

**Methodology**

As I shall demonstrate, Harvey’s music takes as its starting point the developments of serial and post-serial music on both sides of the Atlantic. Consequently, the methodology adopted for this thesis will start from that basis. Harvey provides some background to *Madonna of Winter and Spring* in an article written to accompany its first performance (Harvey, 1986b, pp. 431-433) and this highlights his use of vertical aggregates of notes arranged symmetrically around an axis. The composer provides basic detail regarding treatment of thematic material, the use of harmonic Spaces and symmetrical axes – in that order. However, an analysis of his pre-compositional sketches for the work highlights the importance of the axis and the role it plays in the development of the harmonic and thematic material, therefore suggesting an appropriate starting point for any analysis of the work. To gain an understanding of Harvey’s approach, this thesis will consider possible precedents for these techniques through an analysis of a number of key works by the composer, including the *Inner Light* trilogy; *Mortuos Plango, Vivos Voco, Bhakti*; and *Passion and Resurrection* (1981), that demonstrate key concepts and techniques evident within *Madonna of Winter and Spring*.

Analytical approaches will be based on those adopted by the American theorists George Perle and Jonathan W. Bernard outlined in their discussions of the symmetrical formations in works by Bartók, in which symmetry within the work is revealed through an understanding of interval class and the identification of a specific axis. Bartók’s use of axial symmetry is considered by some to be more the result of intuition than design, while Webern, who will also be referred to, might be considered to have employed a more systematic approach. Of particular interest will be the analytical techniques adopted by the American composer Ogdon (1962) in his analysis
of Webern's *Piano Variations* (1936) through use of pitch placement diagrams to illustrate interval classes and their inherent symmetry. Westergaard's analysis (1963) of the *Piano Variations* will be used to further identify correlation between pitch class and interval class.

Analysis of Harvey's works will also consider Perle's and Westergaard's theories on the presence of traditional harmonic coherence or 'tonality' within totally chromatic music and this will be used as a means by which to explore and understand harmonic structure and function within *Madonna of Winter and Spring*.

This sense of musical motion will be further explored through a discussion of the concept of 'near symmetry' suggested by Archibald in his analysis of the second movement in Webern's Five Movements for String Quartet, Op.5. (Archibald, 1972, pp. 159-163), in which the listener is led to 'expect' completion or resolution – a dynamic function traditionally fulfilled by tonal harmony and possibly considered absent in 'static' atonal music.

Harvey's desire to generate melodic and harmonic material through systematic approaches is not limited to his use of serial techniques. A number of works by him reveal an interest in the frequency components, or spectral makeup of particular sounds and instruments (the church bell in *Mortuos Plango*, a cello in the *Inner Light* trilogy (1973-1977), shakuhachi, Indian oboe, koto and temple bell in *Ritual Melodies* 1989-90) as a source for compositional material. In other works, such as *Madonna of Winter and Spring*, the use of symmetrical vertical aggregates linked to frequency components of acoustic instruments enabled Harvey to create a harmonic field, or cloud analogous with a spectrum of frequencies. In order to investigate the link between frequency and musical elements such as timbre, pitch and harmony, it is necessary to reflect on the acoustic properties of sound. A number of 20th-century composers including Debussy, Varèse, Jolivet and Messiaen have considered the frequency components of sounds and their relation to timbre and harmony within their compositions. However, it was in the work of the *musique spectrale* composers such as Grisey, Murail, Levinas and Dufourt (Moscovich, 1997, p. 21), during the early 1970s, that compositional decisions were specifically
informed through a frequency analysis of sound spectra. This approach was further encouraged by the development of computer algorithms by John Chowning and Yamaha at Stanford University around the same time, enabling the digital analysis of spectra and its synthesis, and by work carried out at IRCAM. In terms of methodology, at a basic level, the analysis of relevant works within this thesis requires an understanding of the relationship between pitch and frequency (i.e. $C_3 = 261\text{Hz}$), and the relationship of the main or fundamental frequency (by which a pitch is recognised) to its harmonic partials (typically whole-number multiples of the fundamental). More detailed analysis makes reference to Fourier transforms, a function developed by the French mathematician Fourier that reveals the frequency components of a sound over time. It is Harvey's application of these ideas and their relevance to his music that enabled him to work with technicians at IRCAM to create a number of works ($\text{Mortuos Plango, Vivos Voco, Ritual Melodies and Bhakti}$) that exploit this relationship.

Early in the research process for this thesis a decision was made to focus on the first section of $\text{Madonna of Winter and Spring}$ – ‘Conflict’. It could be argued that the last section ‘Mary’, as the longest and perhaps most important narratively speaking, might have been the obvious choice for research or indeed a study of all four sections might have been preferable. However, it was felt that an analysis of ‘Conflict’ provided the most effective opportunity to consider the concept of structural depth within the work. This was on the basis that ‘Conflict’ potentially demonstrated the clearest and most convincing argument for a systematic approach by the composer and that any analysis of the work in its entirety, or indeed ‘Mary’, would require a thorough understanding of the first section. Additionally the outcomes of the research could provide a suitable foundation for further study of the remaining sections including ‘Mary’. However, a contextual understanding of all the sections within the work, and the place of ‘Conflict’ within it, was deemed necessary to explore treatment of narrative – and this was undertaken in Chapter 9.
Positioning

A prolific writer himself, Harvey has attracted the attention of numerous writers ever since his compositions started to gain national reputation in the later 1960s. Early commentary by writers including Brown (1968), Evans (1975), Northcott (1973) and Griffiths (1985a) considered his output to date and its associated influences, although also evident is the observation of a composer potentially developing a unique approach within the contemporary scene. This is put in the context of contemporary activity and the acknowledgement of a number of dichotomies present within his approach, which will be examined in greater detail in the later chapters (tonality vs. atonality, borrowing of techniques vs. desire to find new approach, etc.). In retrospect, these early writings do identify the seeds of the development of a number of key aspects that have a continuing resonance in his work – structural depth, use of literary and religious narratives, importance of musical influences and his explorative use of sound in redefining the relationship between pitch and timbre – and that have helped create a substantial and respected body of work over the last 45 years. Later commentaries, from the early 1980s onwards, are focussed less on a catalogue of activity and more on an in-depth commentary of specific works. Bhakti, the Inner Light trilogy and Mortuos Plango, Vivos Voco have attracted the majority of this attention. As his ideas and spiritual beliefs have evolved and matured, writers have been able to comment with more authority on links between his methodology and these beliefs.

Harvey's interest in compositional methodologies based on systematic approaches – such as his use of twelve-tone structures in Bhakti (Palmer, 2001) melodic chains in Ritual Melodies (Vandenheede, 1992) and the use of specific technology (i.e. computer resources) in Mortuos Plango, Vivos Voco (Allen, 2005) and (Dirks, 2007) – have provided some writers with the opportunity to go into some depth regarding the various aspects. This included evaluating the performance implications of obsolete technology (Jamie and Lamberto, 2006) or even the graphic design of musical structure within Mortuos Plango, Vivos Voco (Evans, 2005). However, an important aspect of Harvey's aesthetic is his interest in religious and philosophical matters, and this too has attracted commentary over the last 30 years from a
number of writers including Johnson (Johnson, 2003b, Johnson, 2003a), 
articulate and well-informed speaker, Harvey has been the subject of 
interview on numerous occasions which has provided him with an 
opportunity he evidently enjoyed to expound on the background of a 
particular composition. This was often linked to a premiere of his work or, 
as was often the case, on subjects on which he has strong views, such as in 
his interview with Clarke (2008) on the use of electronics as a creative tool, 
in an article for The Musical Times - restoring the spiritual significance of 
music (Harvey, 1992) and ‘Respect for the new’ (Harvey, 1991). Whittall’s 
‘handbook’ on Harvey published by Faber (1999) - the composer’s music 
publisher - provided the first comprehensive evaluation of the composer, his 
background and compositional methodology. Based in the first section on 
an interview with the composer, followed by commentary on key works in 
the second, it lacks the depth that might have been possible at this stage in 
Harvey’s compositional career, given his extensive output, activity and 
standing both nationally and internationally. However, it does represent the 
first appraisal of his influences and impact as a composer and provides a 
useful resource for subsequent writers including Downes, who 
acknowledges a ‘particular debt’ to this ‘excellent short study’. Certainly it 
provides the most extensive documentation to that point of significant 
aspects of Harvey’s childhood, early experiences and influences through 
exploratory questioning from Whittall, and identifies the main 
developmental stages to the turn of the century through an evaluation of key 
works within the commentary. As such it provides an invaluable 
introductory resource.

Books published by Palmer on Bhakti (2001) and by Downes on Song 
Offerings and White as Jasmine (2009) have provided a more detailed 
analysis of specific works and an opportunity to consider various aesthetic 
and contextual concerns. However, to date these remain the only three of 
Harvey’s works subject to such a comprehensive evaluation.

Since the late 1960s Harvey too has used various publication media, 
including books, academic journals and more populist ‘lay’ articles, to 
inform readers about his works, opinions and ideas. Discussion relating to
his own works has tended to focus on a particular aesthetic of interest linked to a number of works rather than being focused on one particular work. However, four compositions, each with an electronic aspect - the *Inner Light* trilogy, *Mortuos plango, vivos voco, Bhakti* and *Madonna of Winter and Spring* - have received particular attention from the composer within articles to accompany their publication or first performance, to expound on the ideas and approaches behind the work. This is primarily as an opportunity to provide the listener with some context in which to hear the work rather than a comprehensive analytical discussion.

Early articles by Harvey have focused on the approaches and works of composers with whom he had an affinity, for example ‘Maxwell Davies: Songs for a Mad King’ (Harvey, 1969b), ‘Schoenberg: Man or Woman’ (Harvey, 1975e) and ‘Stockhausen’s Hymnen’ (Harvey, 1975f) and it is the latter composer in particular about whom Harvey has shown the most interest, following publication of his first book *The Music of Stockhausen: An Introduction* (Harvey, 1975c). Articles published in the following two decades focused more on specific aspects linked to his university postings – mainly in relation to composition, including articles on ‘Composition Teaching at a University’ (Harvey, 1975a), ‘The Composer’s View: Atonality’ (Harvey, 1980) and ‘Reflection after Composition’ (Harvey, 1982). Work at IRCAM in the mid-1980s generated a number of ‘technical’ articles for *Computer Music Journal* providing an opportunity for Harvey to go into some detail primarily on the software and hardware used in creating the work. This includes ‘Mortuos Plango: A Realization at IRCAM’ (Harvey, 1981) in which reference is made to Fourier transforms, the use of Music V⁴ and the singing synthesis programme CHANT⁵ developed by Bennett and Rodet; and a similarly technical commentary in ‘Notes on the Realization of Bhakti’ (Harvey et al., 1984). Consequently aesthetic considerations are fairly minimal. *Bhakti* is considered in more detail in ‘New Directions: A Manifesto’ (Harvey, 1984) and Harvey provides a evaluation of the work

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with reference to Stravinsky, Schoenberg, Webern and Stockhausen and background on his own aesthetic considerations. This is probably the most detailed commentary Harvey made on one of his compositions around that time although the *Inner Light* trilogy *Mortuos Plango, Bhakti* and *Ritual Melodies* (an unnamed composition at that stage) are looked at in a chapter entitled ‘The Mirror of Ambiguity’, in Emmerson’s book *The Language of Electroacoustic Music* (Emmerson, 1986). Discussion again focuses primarily on the technical aspects of this achieved through the resources available at IRCAM, although insight into its application within his treatment of pitch and harmony and the relationship between acoustic and electroacoustic sound sources is considered. In 1999, at the age of sixty, Harvey published two books, *Music and Inspiration* (Harvey, 1999b) and *In Quest of Spirit: thoughts on music* (Harvey, 1999a). Both books serve different purposes, but both allow the composer to elucidate on his aesthetics and the musical modernism of which he is part. *Music and Inspiration*, edited by Downes, is based on his PhD thesis of 1964. It considers the nature of inspiration through the experiences of a number of composers, ninety-two according to Julian Johnson in his review of the book, primarily those who for the most part worked in the twentieth century with Stravinsky and Schoenberg featuring the most. Taking into account that this thesis predates his activities at Darmstadt, Princeton University and IRCAM it should be read as an indication of his musical sensitivities as a composer before that time whilst providing a useful insight into key themes that were to remain of relevance. *In Quest of Spirit*, based on his Bloch lectures at the University of California in 1995, uses specific works, primarily those by the composer himself, to explore aspects of music that he connects with spirituality. Through this discourse, with accompanying CD, the book provides a useful interpretive insight into his compositional aesthetic. Key works from the seventies, eighties and nineties are considered, including the *Inner Light* trilogy, *Bhakti, Madonna of Winter and Spring* and *Ritual Melodies*, although discussion obviously focuses primarily on the inspirations behind the work rather than any detailed analysis.
A number of lectures by Steiner have been referenced to provide an understanding of concepts and ideas that had an important impact on Harvey's compositional aesthetic.

It is perhaps pertinent to point out that much of Harvey's own writing and commentary in interviews, certainly since the mid-eighties, often presents the reader with philosophical ideas linked apparently seamlessly to technical compositional matters. In his review of Harvey's 1999 publications Johnson discusses the composer moving, within a few lines, from talking about 'combinational conjunctions' and 'harmonic axial symmetry' to 'the problem of suffering'. For Harvey these concepts embody his approach to composition, that technical matters are not isolated from philosophical notions. Harvey's writings therefore may present a challenge to others in following his thought-processes. However, I prefer to view it as suggested by Johnson in the same article: 'If academic analysis is embarrassed by such intermingling of the technical and philosophical, then we should all breathe a sigh of relief that composition and analysis are still not wholly conflated into one another.' (Johnson, 2000, p.65).

As has been shown, previous writings on Harvey (by Whittall, Brown, Griffiths, et al) and by the composer himself have provided general background on his methodology and aesthetic stance. Key works such as Bhakti and Mortuos Plango, Vivos Voco have been discussed in some depth although this often relates more to technical aspects of their realisation. With the exception of Palmer's book on Bhakti, and Downes' on Song Offerings and White as Jasmine very few of Harvey's works have been subject to detailed musical analysis. Madonna of Winter and Spring has thus far escaped detailed commentary. The thesis will set out to show the importance of the work in relation to his œuvre, up to that point, and in particular as a traceable evolution of ideas, influences and practices from works such as Passion and Resurrection, the Inner Light trilogy, Mortuos Plango, Vivos Voco and Bhakti. Access to the sketches for the work and discussions with the composer have provided an insight into his approach and this has been further informed by analysis of works by composers such as Webern and Messiaen. Madonna of Winter and Spring is a key work of this important English composer and reflects a milestone in his developing
methodology. It is hoped that, by providing a comprehensive study of the work, it will add to the understanding of one of Britain's foremost post-war composers, and provide a platform for future studies of his other works.

Sources of information on Madonna of Winter and Spring.

As mentioned previously Harvey provided very little information regarding the compositional methodology behind Madonna of Winter and Spring other than a brief overview of the work in (Harvey, 1986b) in which he provides some technical background on his use of themes and harmonic Spaces constructed around a central axis – which will be discussed below. Reference to the work beyond this is limited to brief discussion on specific concepts relevant to the work, such as his emotional state when writing the ‘Descent’ section (Harvey, 1999b, p. 34), femininity (Harvey, 1999b, p. 163) and spiritual inspiration (Harvey, 1999a, pp. 35-36). Outside of Harvey’s own commentary on the work, which is referenced by a number of writers including Whittall and Downes, the work has not been considered for further technical analysis, although Downes does refer to the importance of ‘The Feminine’ to the work in his book (Downes, 2009, p. 34). Where reference is made to compositional aspects of the work (i.e. beyond aesthetic considerations) discussion tends to refer back to Harvey’s 1986 article.

It should be assumed therefore, that beyond (Harvey, 1986b) and the compositional sketches provided by the composer, both of which were used as a starting point for an analysis of the work, all findings presented herein can be considered as new and original contributions to an understanding of the compositional methodology of this work.

So, what do Harvey’s 1986 commentary on Madonna of Winter and Spring and the compositional sketches tell us?

The first section, “Conflict”, is referred to as being ‘constructed on the principles of “thematic working” ’ (Harvey, 1986b, p. 431). The composer goes on to explain -

There are 20 of these melodies forming a linked chain. Each “primary” melody has between it and its neighbour, a melody which is the sum of both of them. This latter reveals that the rests (or long notes) in melody A are
exactly the right length for insertion into notes from melody B, and vice versa. So put them together and the result is a busier melody, (A+B), made up of both, yet I hope, with a clear coherence of its own. (Harvey, 1986b, p. 431)

He indicates that 'there is much less [than the thematic workings of Beethoven or Schoenberg] that is not made of this material. There are few transitions, bridge passages or the like' (Harvey, 1986b, p. 431). This suggests that it might be fairly straightforward to identify the twenty melodies through an analysis of the first movement and early attempts by the author to do this certainly revealed clearly identifiable thematic material. However, even though attention was given to sections that might qualify as the instance 'when all twenty are played simultaneously by solo violins' (Harvey, 1986b, p. 431), in addition to sections where thematic material is presented in isolation, around forty potential candidates were identified within the first movement. Subsequent access to the compositional sketches made it possible to ascertain each of the twenty melodies precisely, although the analysis of the score without these provided a useful opportunity to first consider and familiarise oneself with the score from a thematic viewpoint. Before moving onto harmonic material it is pertinent to mention that further pointers as to the methodology for thematic material are provided by the composer in a passing reference to the use of the ‘same ideas, but totally different melodies, in an as yet unfinished work for tape at IRCAM’ (Harvey, 1986b, p. 431). The work referred to here is most likely Ritual Melodies (1989-90) and although not released until after Madonna of Winter and Spring the composer goes into some detail regarding the proposed use of melodic chains within this work in (Harvey, 1986e) and this commentary is used to assist in an understanding of the technique’s use in Madonna of Winter and Spring.

The melodic material for Madonna of Winter and Spring is presented within the compositional sketches in the form of two A4 manuscript papers titled ‘MELODIES’ with 13 melodies (example shown in Figure 1) on the first page and the remaining 7 on the second.
A more thorough appraisal of the material presented in the sketches will be undertaken elsewhere in this thesis.

Harvey's commentary on *Madonna of Winter in Spring* also provides some clues as to the harmonic structure of the work. As with the discussion on the use of themes, here he also raises what he refers to as 'some issues of a general nature' (Harvey, 1986b, p. 431). Reference is made to the use of 'seven harmonies (…) with which the work starts' (Harvey, 1986b, p. 431). Three of the four sections, "Conflict", "Depths" and "Mary", make use of these seven harmonies. The composer provides an example (shown in Figure 2) of the pitches for the first harmony, or 'space' as he refers to it, including reference to its use of mirror symmetry around a central axis (identifiable as E/F); a factor that remains in place for all seven Spaces.
Harvey provides no further information regarding the harmonic Spaces in (Harvey, 1986b) although reference in the article to the seven harmonies ‘with which the work starts’ suggested that the score might reveal some further detail. My analysis of the first six bars of ‘Conflict’ clearly revealed seven separate vertical aggregates across the orchestra (with the exception of strings). The first aggregate clearly maps, with few exceptions, against the pitches shown in Figure 2. The following six aggregates or ‘Spaces’ are also revealed to be made of a distinct set of intervals each based around the axis discussed in (Harvey, 1986b) and a numerical analysis of the intervals in each Space identified a unique set of interval classes for each one. Access to the compositional sketches subsequently confirmed the construction of each ‘space’ as a distinct set of intervals. As with the ‘MELODIES’ the composer sets out, in the sketches, each harmonic ‘space’ on two pages of A4 titled ‘HARMONY’ (one page of which in shown in Figure 3). A more detailed discussion of the sketches will be undertaken below.

Figure 2  *Madonna of Winter and Spring* pitches for Space 1. (Harvey, 1986b, p.431)
This chapter has identified some of the reasons as to why Harvey might be considered of interest to the musicologist. Particular attention has been paid to *Madonna of Winter and Spring* and the methodologies that might be employed in an analysis of the work. Although there is a scarcity of literary sources for this work, primary sources, such as the compositional sketches, will act as an important means of discourse. Before exploring possible influences on this work discussion will first seek to contextualise Harvey's approach to composition and in particular to developments in music after the Second World War.
CHAPTER TWO: CONTEXT

How soft the music of those village bells, Falling at interval upon the ear In
cadence sweet; now dying all away, Now pealing loud again, and louder
still, Clear and sonorous, as the gale comes on! With easy force it opens all
the cells Where Memory slept.

William Cowper (1795)

In 1939, the year the English composer Jonathan Harvey was born, Britain
entered a World War and with it the government instigated various national
emergency powers including the prohibition of ringing and chiming of
church bells. It was not until 1945 that they were heard again, this time to
celebrate the end of hostilities, at which time Harvey would have been
around 6 years old and had commenced piano lessons. It is difficult to
speculate what influence the absence of bells or indeed their enthusiastic
reappearance might have had on the young Harvey. However, what can be
considered is the relevance of this particular sound on his musical aesthetic
and equally the impact that the post-war musical environment had on his
developing compositional ethos.

The sound of church bells, organised into melodic patterns via the technique
of change ringing (an English invention of the 16th Century), is a
quintessentially English sound, although the sound of resonating metal is
used in a variety of religious contexts throughout the world. No other sound
would appear to have such a universal appeal across cultures and continents
and its use more often than not linked to symbolic function or practice.
Harvey, likewise, presents the interesting paradox of a composer sensitive
to the musical legacy of his country of birth but enthusiastic about post-war
musical developments in America and Europe. Similarly, his religious
predilections, after a relatively conventional Christian choir school
upbringing, have found a way to embrace both Anglican religious practices
and Eastern mysticism. Harvey referred to himself as ‘someone with
Buddhist tendencies’ (Whittall, 1999, p.13) but absorbed in Christian
mysticism that ‘led out of a framework that I knew and understood fairly
well into a more general, more heterodox consciousness, which of course
had many resonances in oriental religion’ (Whittall, 1999, p.14). His

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6 Defence of Realm Act, 1914, p.104. Bells only to be used for warning of
imminent invasion.
particular interest in religious and spiritual traditions and practices is evident from the beginning of his career through his use of Christian Latin texts in compositions such as Gaude Maria (1965) and Ludus Amoris (1969). Bhakti (1984), however, is inspired by Sanskrit texts taken from the Rig Veda, an ancient collection of Indian hymns, reflecting the composer’s developing fascination with Hinduism that would eventually lead to a deeper appreciation of Buddhism. Madonna of Winter and Spring (1986), written two years later, seems to suggest a synthesis, reflecting both orthodox Christian and Buddhist ideas. Harvey was motivated to compose the work one Mothering Sunday when he observed a statue of the Virgin Mary in his local church making a ‘beautiful gesture’ indicating her wish for him to compose a work in her honour (Harvey, 1999a, p.36). This large-scale work for orchestra, synthesisers and electronics, whilst inspired by a divine experience, has a structural form based on Vedic meditational practices tracing a spiritual evolution from discourse, in the first section, “Conflict”, to spirit in the last, “Mary” (Harvey, 1999a, p.36). His inspiration was not, though, limited to ideas arising from specific religions, and a number of works, especially early compositions, use settings from metaphysical poets such as George Herbert in Transformations of ‘Love Bade Me Welcome’ (1968) or settings from those with metaphysical predilections such as Eliot in Inner Light 2 (1977) and Yeats in Four Images After Yeats (1969).

Harvey’s fascination with spirituality was not limited to what might be considered orthodox or established religious practices. From 1972 onwards he was increasingly drawn towards the philosophies of Rudolf Steiner. As with many other influences that informed his compositional ethos, Harvey’s autodidactic approach verged on the obsessive with him reading ‘forty books [on the writings of Steiner] there and then over about a year and a half’ (Whittall, 1999, p.14).

Steiner’s philosophies have played an important role in Harvey’s approaches to writing although he was content not to over-analyse its validity: commenting in 1999 he said he ‘did not know whether Steiner’s words are true in the scientific, dualist sense. I regard them as poetry, even as music: they excite me deeply and strangely, and their impact has not faded over the twenty-five years I have been acquainted with them’ (Harvey, 1999a, p. 80).
Steiner’s role within his compositional aesthetic could be viewed differently to that provided by Buddhism and Christianity. In juxtaposition with the composer’s fascination with religious practices and ideas we have his developing interest in serial techniques, symmetry and numbers in the late 1960s, and Steiner could be viewed as providing the composer with a practical connection between these ordered mechanisms and the more intangible transcendental ideals – a way to blend or link these Apollonian and Dionysian viewpoints through an appreciation of the essence, or physics, of sound.

Commenting on the ‘complex impression’ the Austrian scholar and spiritual leader had on him, Harvey referred to how Steiner’s theories provided him with an ability to consider the spiritual nature present in all objects. Fundamental to this was faith in an objectivity different to that presented by modern scientific methods. Steiner, a Goethe scholar, believed that, rather than starting with detail which is then built up into an abstract general principle, one should first consider the object’s place within a ‘clairvoyantly perceived universe of light and colour and vibration’ (Whittall, 1999, p.14), something Harvey said one had to take ‘on trust’. He made no claim to be able to achieve the clairvoyance and vision of the ‘gifted’ Steiner; however, it was Harvey’s use of transcendental meditation techniques that enabled him to at least ‘put me on the [right] path’ (Whittall, 1999, p.14). The composer refers to many ways in which his interest in Steiner has impacted on his music - in particular an ability to consider music in a more abstract manner, removed from classical formalities in what he refers to as a ‘kind of sound world that moves away from the neatness of discourse, of statement, of argument and instates another kind of music-world which is that of living in sound, not particularly defined by argument and logic but just as a particularly intense state of being’ (Whittall, 1999, p.15). Harvey’s application of this can be seen within many works including *Mortuos Plango, Vivos Voco* (1980), *Bhakti* (1982) and *Madonna of Winter and Spring* (1986) and it is the earlier of these that best encapsulates Steiner’s influence.

Referred to earlier, the use of just two sound-sources, the spectrum of a Winchester Cathedral bell, together with the voice of his son, a chorister at the Cathedral, provides all the material for this electronic work, his first for
IRCAM. Both sounds are deconstructed to their constitute parts (or detail), the harmonic content, to enable the composer to morph effectively between them and create a new sound world, ‘a mediation of bell and boy’ that is both new and referential to their original sources and religious implications. The choice of the bell is not just important for its religious and spiritual connotations as discussed earlier: it is equally important harmonically and structurally. Compared to vibrating strings and aerophones\(^7\) the sound spectrum of a bell contains a higher degree of inharmonic partials and is therefore less closely linked to traditional Western tonality with its foundation on whole-number multiples of the fundamental frequency. The resulting extracted spectra enable Harvey to modulate from one bell sound to another, creating what he called a ‘modulatory spectralism’. This single sound-source therefore contains a plethora of related and unrelated elements that can be used as pitch and timbral resources to provide structural depth to a work both as foreground and background elements – a feature present in much of Harvey’s work, as will be shown in later chapters.

It is perhaps the complex nature of this sound, its reluctance to fit into a traditional tonal functionality and its potential to communicate spiritual meaning that encapsulates many aspects of Harvey’s aesthetic and why the particular sound features within a number of his works. However, whilst Harvey’s formative years were steeped in English music tradition, with time spent as a chorister at St Michael’s, Tenbury, and Repton, where he became ‘fanatical about Elgar’ (Whittall, 1999, p.3), it was activities that were taking place around the same time in post-war France, Germany and America that were to have a key later influence on his developing aesthetic. An understanding of this period of time will help contextualise his place within the late-modernist musical environment.

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\(^7\) Aerophones – musical instruments that primarily produce sound through vibration of air. i.e. trumpet, oboe, flute etc.
1945 - no other date has left such a mark (Griffiths, 2010, p. 1)

Paul Griffiths identifies the year 1945 as representing a shift in music – a new paradigm and there can be no doubt that a world torn by destruction and grief together with a sense of expectation and hope for a ‘new social order’ would create an environment in which composers would be drawn and encouraged to approach music in such new and exciting ways. Several established composers, Stravinsky, Messiaen and Carter amongst others, were willing to embrace these new developments. However, it was a disparate group of young composers in Europe and America ‘thirsty for something really out of the ordinary, different from what we had known before’ who were primarily responsible for this zeitgeist.

In Europe, the centres of this avant-garde activity were focused in France and Germany, countries no longer constrained by dictatorships during which forms of musical censorship had been enforced. The end of the Nazi occupation and subsequent liberation made Paris a focus of musical innovation. Banned works, by Schoenberg, for example, previously marked down as ‘degenerate art’ could now be heard, performed and discussed. This led to a renewed interest in the Second Viennese School, instigated to a certain extent by René Leibowitz, a Schoenberg scholar, although many of these new composers were to view the Austrian’s serial techniques, predominately related to pitch class, as not going far enough in fully exploring its potential as a new musical force. A decade or so later, while at Cambridge, Harvey too was developing an interest in the works of Schoenberg, Berg and Webern through the ‘careful disciplined’ tuition of Erwin Stein (Whittall, 1999, p.5), a Viennese refugee and student of Schoenberg. The use of serial techniques as a means to structure thematic and harmonic material can be observed in a number of important ‘mid-period’ compositions such as Persephone Dream (1972), Bhakti (1982) and Madonna of Winter and Spring (1986). However, its presence is evident in a number of earlier works written in the 1960s suggesting a way forward for the young English composer.

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Triptych, a work written in 1962 but now withdrawn, has been referred to as his first ‘serial’ work. Two commentators on Harvey’s early compositions, David Brown (who taught with Harvey at the University of Southampton in the late 1960s and early ’70s) and Bayan Northcott (who studied composition there with Harvey in the early 1970s) both make reference to his use of serial techniques. However, while Brown considered the work ‘readily compatible with Harvey’s tonal thinking’ (Brown, 1968, p.808), linking it with earlier works that were ‘markedly traditional’ and ‘firmly tonal’, Northcott recognised the ‘suggestion of serialism’ (Northcott, 1973, p.34) and was more enthused about its use, referring to it as the ‘first revelation of a possible way forward’. These two views neatly link Harvey’s approach to composition in the late 1960s – caught between the earlier influences of Britten, Tippett, Fauré, Schoenberg and Bartók and the increasingly important Stockhausen and Babbitt. Harvey’s increasing use of serial techniques is seen in his Variations for Piano and Violin (1965). Brown and Northcott identify the Variations as his first work founded upon a full 12-note series. This had the effect of ‘conditioning the harmonic language, producing a harmonic logic quite different’ from his earlier works (Brown, 1968, p.808). Despite this, Brown considered the work as existing side by side with his older material rather than a departure of style. Variations was viewed as a transitional piece ‘not thoroughly certain in style, and best in the simpler passages’. Northcott also considers this Harvey’s first fully dodecaphonic piece and he perceptively suggests this may result from the composer’s preparation for lectures on the Second Viennese School at Southampton University. Like Brown, he stills feels there is a link with earlier tonal works, the series retaining ‘a strong feeling of A minor’. However, a departure from earlier styles is evident as ‘vertical possibilities of a series are explored’ in this and other works written around the time resulting in a ‘strangely vagrant, withdrawn quality of harmony new in his work’ (Northcott, 1973, p.35). Symphony, written a year later, demonstrates Harvey’s growing serial preoccupations. This, coupled with a ‘persisting attraction to tonal thinking’, resulted in Harvey devising a serial practice that ‘contrives to embrace both tonal and atonal practices’ (Brown, 1968, p.808) using 9-note rows, based on a combination of major and harmonic minor scales alongside a 12-note row. Comparing the work to Cantata I,
also written in 1966, a work in which he considered Harvey had 'purposefully gathered up all his resources to date', Northcott judged the Symphony to represent a striking advance to the 'varied and generous gifts beginning to interact and grow' evident in the former piece (Northcott, 1973, p.35). The use of tonal and atonal rows is referred to by Northcott as 'tonal filtering', a device through which Harvey is able to 'pursue the most wide-ranging chromatic discourse' and yet still, in places, possess a 'quasi-tonal' clarity. The potential use of this technique, which Northcott observes could have been further refined and developed over many years, is taken over by an exploration of new musical influences 'carrying him too rapidly in other directions'. Within weeks of finishing the Symphony, Harvey was at Darmstadt and had 'succumbed to the teaching and earlier music of Stockhausen, particularly the piano pieces, which impressed him by their combination of tightest serial control with the most extreme contrast of expression' (Northcott, 1973, p. 35).

1962 to 1966 represents a period of experimentation for Harvey, a willingness to move away from traditional tonal sensitivities in the search for a unique voice. However, he was beginning to consider serial techniques, predominately pitch related, insufficient on their own in his quest 'to find greater structural depth' (Whittall, 1999, p.8). To understand the next stage in Harvey's developing aesthetic, it is necessary to return to the post-war activities in France and Germany.

One of the main protagonists of the post-war musical movement was Boulez, a student of Messiaen's, and although Messiaen was quick to embrace many of the avant-garde developments he was also subject to much criticism from his precocious student who was both fascinated and exasperated by the musical legacy of his tutor. Messiaen's use of oriental rhythms and instruments appealed, but 'his non-retrograde rhythms seemed a gratuitous constraint, his use of harmony largely precluded counterpoint and was in any case too lush and self-indulgent to appeal to the astringent ear and mind of his pupil' (Heyworth, 1986, p.10). Boulez considered Messiaen's style too limiting and deemed it insufficient as a method by which to develop a new means of order – inspiration was to come from elsewhere. Whilst Boulez was to learn much about Schoenberg and Berg through his studies with
Leibowitz, it was the serial techniques of Webern that were considered to best encapsulate the way forward. Webern's focus on interval class rather than pitch class presented a substantial re-evaluation of the traditional view of horizontal themes and vertical harmonies. Boulez combined Webern's tone-rows with Messiaen's rhythms, enabling him to integrate pitch and rhythm 'to a degree never before attempted'. (Heyworth, 1986, p.12). Messiaen's *Mode de valeurs et d'intensités*, composed in 1949/50, was described by Boulez (surprisingly, given his critique of Messiaen) as a 'stroke of genius' (Heyworth, 1986, p.13), and subsequently inspired him to consider 'total serialism' as a compositional technique – the integration of pitch, rhythm, dynamics and timbre. The stripping of music down to its fundamental elements was not restricted to activity in France. Unaware of each other's activities the American composer Milton Babbitt, based at Princeton University, was also experimenting with total serialism. Babbitt was also influenced by Schoenberg's serial works and Webern's notion of derived sets, enabling him to develop a 12-note theoretical framework in which elements other than pitch were systemised. Subsequent refinements of his technique saw moves into electronic and computer-based methodologies enabling him to fine-tune 'performances' to exacting detail. This systematic approach, effectively deconstructing music into its component elements, resonated with scientific interests at that time. Following the detonation of the first nuclear bomb in 1945, there was a change in socio-political thinking in America and Europe and a desire to investigate ways in which an understanding of atomic energy could herald a new, more promising world – atomic power represented the epitome of progress and modernity. This environment for artists, writers and composers suggested a rejection of pre-war thinking and an opportunity to effectively start with a clean sheet, and terms borrowed from physics, acoustics and mathematics were used to analyse and describe music. This ethos was highly evident in Germany, and in particular in Darmstadt, a city heavily bombed during the war with most of its inner city destroyed during one bombing raid in 1944. The Darmstadt summer school, which started in 1946, provided an opportunity for young composers to hear music previously banned under the Nazi regime as well as recently composed
work, and as such it acted as a focus for a number of important figures including Leibowitz, Messiaen, Boulez and Stockhausen.

Whilst Messiaen might have been considered a ‘pupil’ of his pupils at that time he was to return to the role of teacher through *Mode de valeurs*. This work, influenced, it is suggested by Cage, Boulez and Goeyvaerts (Griffiths, 2010, p.37), was to have an impact on a number of composers including Stockhausen who it is believed first heard the work at Darmstadt in 1951.

Music of this nature required a formalised approach. However, it was the sound of the Messiaen piece that first impressed Stockhausen, who referred to it as ‘fantastic music of the stars’, each note ‘existing for themselves in complete freedom’ (Wörner, 1973, pp.80-81). Listening to the work now some 60 years after its first performance one can hear how each note appears to exist in total isolation to its neighbours, twinkling as if in a night sky, before our attention is drawn to the next event. These detached notes led to the use of the term ‘point music’ or ‘pointillism’\(^9\) to describe this musical style prevalent between 1949 and 1955; it is this freedom from dualistic structures such as sonata form, ABA etc. that appealed to composers such as Stockhausen. *Kreuzspiel* (1951), written immediately after his exposure to the Messiaen work, marked a new exciting path for the young German composer. This work, for woodwind, piano and percussion, represented a dramatic departure from Stockhausen’s earlier conventional simple serial works, such as his violin sonatina with ‘touches of Schoenberg and Martin visible’ (Harvey, 1975d, p.15), suggesting that *Mode de Valeurs* had a seismic impact on his compositional ethos. In his monograph on Stockhausen, Harvey refers to the enormity of this change for the German composer from previous influences as representing a ‘violently clean severing of the umbilical chord’ (Harvey, 1975d, p.15). Whilst this transformation in Stockhausen’s approach is noted by a number of commentators including Griffiths, he had already shown himself to be attuned to these ideas within his thesis\(^10\) on Bartok’s *Sonata for Two Pianos*

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\(^9\) Named after George Seurat’s method of painting.

and Percussion showing ‘the tendency to think in terms of parameters or dimensions one at a time, separated rather than inseparable parts of something; and (...) concerned with conflicts between them’ (Harvey, 1975d, p.15). Equally important to Stockhausen at this time was the work and encouragement of the Belgian composer Karel Goeyvaerts. Five years older than his German contemporary, and apparently with no knowledge of Mode de Valeurs, Goeyvaerts arrived at Darmstadt in 1951 with his Nummer 1, a sonata for two pianos, a work that might also be considered one of the first ‘total’ serial compositions. Goeyvaerts can be viewed as being relevant to Stockhausen in a number of ways and this led to them developing a close working relationship from their meeting at Darmstadt.

How are these areas of common interest between these two young Darmstadt composers of particular relevance to Harvey? Firstly, like Stockhausen, Goeyvaerts was attracted to the idea that the four parameters of music, referred to by Harvey as ‘things normally left to good taste and fine feelings’ (Harvey, 1975d, p.16), were no longer emotionally determined, but were formally and perhaps more importantly separately determined. As mentioned above Goeyvaerts’ application of this thinking within his compositions appeared to have occurred in parallel with that of Messiaen, perhaps evolving from similar experiences and discussions as a student of his at Paris in 1947-48, and he was sufficiently impressed by the new direction of the French composer to return to Paris to study with him in 1952. While Goeyvaerts’ Sonata could be seen as emerging as ‘less of a masterpiece’ than Modes de Valeurs, Toop suggests that it might be Goeyvaerts’ ‘purposeful structure’ and ‘a certain kind of serial organisation’ rather than Messiaen’s modal procedures that pointed the way for Stockhausen (Kreuzspiel, Kontra-Punkte) and Boulez (Structures 1a) to continue to develop the idea of the use of ordered musical parameters. Webern’s influence is observed within the Goeyvaerts’ Sonata and in particular his use of palindromes, pivot axes and in what Toop refers to as ‘register exchange’.11 Webern’s influence on Harvey – and in particular his

Bartók’s legacy in cold war culture, Berkeley ; London, University of California Press.

11 Goeyvaerts’ had made a detailed study of Webern’s Piano Variations in 1949-50.
"Piano Variations" – will be examined in a later chapter, highlighting perhaps why Stockhausen was also to be such a key influence on his work. Harvey was to make a detailed analysis of a number of Stockhausen’s works, including *Kreuzspiel* and *Kontra-Punkte* in his book *Stockhausen: An Introduction*, published in 1975.

Secondly, as with Stockhausen, Goeyvaerts too was impressed by the sound that resulted from these techniques, not just by the mechanisms that underpinned them. The reference to sound here is both in the terms of its overall physical sensory impact and its timbre characteristics – both aspects that were to remain essential elements of his work. Choice of instrumentation was important and both Stockhausen and Goeyvaerts made use of piano, percussion and woodwind to provide the palette of dynamic levels and instrumental colour that the structural principles called for. However, neither Stockhausen nor Goeyvaerts were to follow religiously the total-serial techniques hinted at in *Kreuzspiel* and *Nummer 1*, and explored rigorously by Babbitt at Princeton. It is interesting to note that use of percussion and woodwind is linked more closely to non-European musical traditions providing perhaps the opportunity to distance it from German chamber music. However, what is primarily of interest is the role of instrumentation in determining formal process. In *Kreuzspiel*, for example, pitch and duration series are presented by specific instruments progressively moving in register. This is evident in the first section that begins with serial forms in the piano divided equally between high and low registral placements, moving to oboe and bass clarinet in the middle register. This process of registral and instrumental transfer is then turned inside out in the second section so that the music starts on the woodwind and then moves to the extremes of the piano. The symmetry inherent here has links with Webern’s *Piano Variations* and provided Stockhausen, and Goeyvaerts who also used this technique, with a form of structure that could be perceived by the listener as well as being used as a compositional device in the absence of a traditional harmonic structure. It is possible, given Stockhausen’s interest in *Nummer 1*, that Goeyvaerts is the primary source for the German composer’s application of this registral technique – Stockhausen compressing ‘the whole formal essence of Goeyvaerts’ *Sonata*
into the first 2’52” of Kreuzspiel’ (Toop, 1974, p.160). In the central movements of his two-piano Sonata a range of over five octaves is gradually reduced to two and a half at the end of the second movement and expanded again in the third. What differentiates Goeyvaerts from Boulez (who used a similar technique in his Second Sonata) and Messiaen in Modes de Valeurs is the ‘automatic’ aspect of pitch placement that ensures that when notes move out of the register in place at that instance they reappear in the bass, rather than placed subject to the composer’s taste and judgement.

In the 1970s Harvey used similar registral techniques within his Inner Light trilogy to provide a structure based on expansion through instrumentation, and it is a technique evident in a number of his works as will be shown in later chapters.

While the use of symmetry, registral placement and serial techniques have links with pre-war composers it is reasonable to see Stockhausen’s and Goeyvaerts’ approach as revolution, not evolution. The novelty of sounds being presented and the structural mechanisms at work required new ways of listening. ‘Where order is glimpsed – for instance in repetitions of intervallic motif – it will likely to be fortuitous. Kreuzspiel flies free from the thematic-harmonic continuity that Schoenberg had wanted to preserve, and does so not by punishing that continuity, as Boulez had done, but by ignoring it.’ (Griffiths, 2010, p.41).

Giving duration, timbre and dynamics equal footing in the musical hierarchy also enabled composers to re-evaluate the relationship between pitched and non-pitched sounds, notably Stockhausen in Kontakte. This provided composers with the opportunity to explore the potential ambiguity presented, for example, by disturbing pitch patterns where a pitched attack coincides with an un-pitched percussive attack as utilised in Kreuzspiel. As a further extension of this the use of electronics enabled transient sounds, such as percussive sounds, to have substantially long sustain as well as sourcing pitch content from these non-pitched sources. It also provided a potential new sonic palette for composers and Stockhausen had access to

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12 Use of reverb units with long delay times to ‘capture’ transient sounds.
13 Use of spectral analysis to identify the partials present within a sound and the synthesis of selected partials as unique tones.
sine wave generators in Paris in the early 1950s and was instrumental in introducing Goeyvaerts to this pure sound source. Both composers were to make active use of electronic facilities at studios in Paris and Germany, although ironically it was Stockhausen who took longer to fully embrace its potential.

Harvey also explored the relationship between non-pitched and pitched sounds, and acoustic and electro-acoustic sources, in a number of his works including Mortuos Plango, Vivos Voco, Madonna of Winter and Spring and Bhakti. The use of electronics to manipulate transient sounds is also evident in Madonna of Winter and Spring in which digital signal-processing techniques are used to capture and reverberate live acoustic events and his approach in both these aspects will be examined in later chapters.

Finally, both Stockhausen and Goeyvaerts were to find one further area of commonality. Both were devout Catholics and this led to a number of philosophical discussions and interest in developing systems that incorporated religious numerology into their serial compositions. From early times music has been linked to numbers through philosophical concepts such as Musica Universalis, incorporating metaphysical principles that linked harmonic, mathematical and religious concepts. These classical ideas were further developed during the Middle Ages through the musical treatises of Augustine and Boethius who found ways to relate them specifically to Christian philosophies. Four important ideas emerged through the writing of Augustine – firstly that the arts have a pure function and are not invented by man for edification or entertainment; secondly, they are a means (established by God) by which man can connect with God by moving from the physical temporal world to a more spiritual realm; thirdly that numbers are universal and pervade temporal and spiritual domains; and finally that there is a link between morals and man’s activity with numbers in music. These ideas were further developed by a number of thinkers and composers during the late Middle Ages or Ars Antiqua. It can be seen that these ideas could resonate comfortably with the compositional approaches adopted by Messiaen, Stockhausen and Goeyvaerts and not just
specifically to Christianity. Musical elements were given equal importance; harmonic structures imposed by man were more closely linked to natural ideas and physical properties; thinking in global time rather than linear time; processes originally subject to an individual composer's taste and judgement automated; and ultimately the whole work was seen as having a specific spiritual functionality as will be seen in a number of Harvey's works.

Much of what has been mentioned here was to be key to Harvey's compositional approach – certainly from the 1970s onwards. In the preface of his book, In Quest of Spirit, he contextualises his own work and compositional approach as follows:

symmetry of numbers presents itself as both an attractive way to account for underlying structure in apparently chaotic nature and a fitting way to think of the beauty of God’s creative mind; the important idea of music as perceptible numbers, which exemplified this symmetry, thus stretches through history (...) The idea of music as being essentially entertaining was as alien to such people’s attitudes as the idea of philosophy or psychology being essentially entertaining would be today (Harvey, 1999a, p. xiv).

Structure through registral expansion, symmetry, use of pitched and non-pitched instrumentation and its associated ambiguity are evident in a number of key works by Harvey including the Inner Light series and Madonna of Winter and Spring as will be shown in later chapters.

So what was behind his interest in these post-war developments and ideas?

Harvey's desire to find greater structural depth and meaning within his music led to a period of study with Milton Babbitt at Princeton in 1969-70. Around the same time he started on his book on Stockhausen, who he had met a few years earlier at Darmstadt. The interest for Harvey, in these influential American and European composers, is perhaps not as strange as it might first appear given the influences of Stein and Keller in his musical training. Babbitt’s serial compositions expanded on Schoenbergian techniques and Harvey viewed Stockhausen as very much a part of the

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14 See TOOP, R. 1974. Messiaen/ Goeyvaerts, Fano/ Stockhausen, Boulez. Perspectives of New Music, 13, 141-169. For influences of Ars Antiqua, numbers and India raga in Mode de valeurs).
continuing tradition that connects Haydn, Beethoven, Wagner and Schoenberg.

Both Babbitt and Stockhausen were interested in ‘Global time’, that is considering a piece of music as one object, viewed from above, in a non-linear sense. This approach opposed that taught to him in the 60s by Keller in that he (Harvey) must ‘compose concretely; (...) no sense really in which the approach was too global. His [Keller’s] idea of a strong sense of form was one which was full of violent contrasts, full of the spontaneous’ (Whittall, 1999, p.6). Later, in the late 70s, Harvey was to reflect on Keller’s teachings commenting that he was ‘aware that I had left rather fertile ground’ and ‘began to loosen up, to become less global-time orientated and to listen more to what Hans had taught me before: to go back to his words’ (Whittall, 1999, p.8). Keller pushed Harvey to:

think in linear time, not in global time, feeling each moment as the accumulated weight of what has gone before lies upon it. Each moment is composed against the weight of the past, against the patterns that have been established, the energies that you have just heard.... It is not something you can only understand from a global point of view, from above, when it is all finished (Whittall, 1999, p.7).

Harvey’s interest in Stockhausen and global time in the late 60s was seen as an attempt to tackle the problems he felt were present, for both composer and listener, within abstract works with little or no perceptible structural depth. Stockhausen’s compositions were paradoxically rational, intuitive, scientific and highly emotional and this intrigued Harvey. He respected the complexity and logic of Stockhausen’s work, and in particular Gruppen, in which he felt that ‘the logic lies in the enormous planning of the temporal relationships’ (Whittall, 1999, p.7) and this abstract approach offered him something on a different level to the ideas of tension, foreground and background that Keller advocated. He commented that ‘these were revolutionary attempts to break down how music was made, how music could be perceived as an almost spiritual dimension something rising above the material, the stuff of tension, of foreground and background, of composing against’ (Whittall, 1999, p.8). Harvey’s instruction in Viennese,

Schoenberg-tradition teachings and an increasing interest in Schenkerian analysis was developed further through study with Babbitt at Princeton in the late 60s. As early as 1947 Babbitt wrote *Three Compositions for Piano*, the earliest example of multiple serialisation in music pre-dating *Mode de valeurs* and Boulez's *Structures I*. Babbitt's bold mantra 'I, as an analyst, shall attempt to discover and formulate that which I, as a listener would like to know' (Hines, 1970) most likely appealed to Harvey's desire to communicate effectively. The American composer's multiple layers through his work in serial values in time-points, dynamics and registers provided Harvey with a possible answer to his search for greater structural depth. Nevertheless, it was not sufficiently audible for him: 'It was too dependent on learning. It didn't really take the natural impulses of musical perception, how we connect and what we perceive, sufficiently into account' (Whittall, 1999, p.9). Use of serial techniques were, however, to subsequently feature in many of Harvey's compositions, *Bhakti* (1982) and *Round the Star and Back* (1974) for example. Access to the Columbia-Princeton Electronic Music Centre and Babbitt's interest in electronics and computer music, albeit primarily as a means to present complex 'un-playable' rhythmic patterns, exposed Harvey to a new range of compositional techniques. One of Harvey's first serious forays into composing electronic music was a tape piece, *Time-Points* (1970), composed while at Princeton, described in *The Musical Times* by Paul Griffiths as 'a beautiful and intelligent essay in clear and coherent serialism of the Babbitt variety' (Griffiths, 1976, p.332). *Time-Points* contained similar pitch organisation that had manifested through the extensive study of serial techniques the composer had experienced to date although not extending to the total systematic serialisation of all elements as utilised by Babbitt, timbre not being subject to serialisation within this piece. While interested in the rigour and structure offered by the use of serial techniques, Harvey was also captivated by the sonic capabilities that the new technology offered and in particular the aspect of music as physical sound as propounded by Stockhausen:

the aspect of music as something you can feel in your fingers when you manipulate sound in an electronic studio, speeding it up, feeling the buttons as they turn, changing the sound, getting to understand and love the graininess, the smoothness, the richness, the roughness, the thinness of the
ontology of sound – Stockhausen showed me all these things intensely and has remained a mysterious guide in my work (Whittall, 1999, p.9).

Initially, as adopted in *Time-Points*, he used different combinations of raw sounds – sine tones, noise and wave oscillators, to initiate a new way to construct sounds and importantly provided the composer with an opportunity to interact, hear and modify sounds as they are developed, something that had been traditionally absent from the compositional process. In time a more scientific rational approach to his use of electroacoustic sounds would enable him to explore the internal harmonic properties of sound providing additional ways in which structural depth can be communicated to the listener – a technique that can be compared to revealing Schenkerian levels within tonal music. However, there is no doubting that this early piece presented two main aspects of his compositional methodology that were to influence much of his output: serialism and spectralism.

In a parallel with the enthusiastic musical activity that was observed in Darmstadt and Paris immediately after the war, a new group of composers, again in Paris and part of the ‘spectral music movement’ or musique spectrale, were set to start their careers – this time in a climate of political upheaval created by the authoritarian government between 1962 and 1974, under the leadership of Charles de Gaulle and Georges Pompidou. This group of composers, who included Grisey, Murail and Levinas – all students of Messiaen – developed a new compositional technique that made use of digital analysis of spectra to recreate sounds either through acoustic or electroacoustic techniques. Messiaen had already shown an interest in harmonic practices that sought to create particular timbres such as birdsong in *Chronochromie* (1960). Completed a decade or so earlier it utilised amongst other techniques, what he called ‘the resonance chord’ and it is likely that his pupils were stimulated by his approaches and ideas and those of André Jolivet, who it will be shown was to influence Messiaen.

To enable this new group of composers to explore sound sources in more detail and accuracy than before required technological advancement, particularly in the area of computer-based sound analysis techniques. Fundamental to this were the techniques developed by the 19th Century
mathematician and physicist Joseph Fourier, whose analysis of continuous sound signals revealed sound to be made of many parts that have mathematical relationship to both pitch and timbre. It was this knowledge that enabled computers to analyse, manipulate and synthesise acoustic sounds as well as giving them the ability to create new sounds.

The ability to hear the basic constituents of sound presented this group of composers, working both in groups and independently, the opportunity to explore timbre in a whole new dimension either through using this information within the acoustic domain (orchestra) or within a purely electronic environment. While Harvey was not specifically a member of this group (despite Mosovich listing him together with Grisey, Murail and Dufont), there is evidence of his interest in spectralism in the mid-1970s in his *Inner Light* trilogy, in which he used the harmonic spectrum of the Cello to create harmonic Spaces or fields. However, it was his 1980 work, *Mortuos Plango, Vivos Voco* created at IRCAM, that made full use of the spectral analysis and synthesis resources available to composers there to enable him to combine key aspects of his aesthetic through the manipulation of a cathedral bell and chorister sound source. The relevance of the work will be discussed in later chapters.

In summary, it is possible to identify through a contextual evaluation of post-war activities in Europe and America, that there are a number of key themes that were to play an important part in Harvey’s aesthetic and these will be considered in some detail within the thesis. Firstly, the continued interest in serial techniques was important, although it was the influence of Webern and Messiaen that was to play a primary role rather than the ‘revolution’ suggested by total serialism. This is evident in Harvey’s use of twelve-note systems and structures, together with symmetrical vertical aggregates to determine the underlying structure and narrative of many of his works. Whilst the total serialism of Babbitt did not ultimately appeal to Harvey, some of the ideas and links with science, philosophy and spirituality stimulated by total serialism, as evident in works by Stockhausen, did. Secondly, new approaches to the use of pitch, timbre and dynamics and the relationships between them presented a range of new sonic possibilities to composers, as illustrated in the reaction to early examples of ‘point music’ in
the late 1940s. This potential was expanded even further, following technological and computing advances undertaken by universities and institutes such as IRCAM enabling composers like Harvey to realise many of the ideas, that previously could not be created. Finally, the incorporation of a range of established religious ideas and spiritual thinking – not exclusively Western or Eastern, but a synthesis of ideals and practices from both, each with their integrity left intact. These are linked closely to, and reinforced by, concepts and beliefs suggested by serialist techniques and new sonic possibilities.

Harvey's music will be shown to inhabit the world where these three ideas meet, as shown in Figure 4.

Figure 4 Harvey's musical pre-occupations
CHAPTER THREE: AXIAL SYMMETRY

What delivers one from the anguish into which an unrestricted freedom plunges one is the fact that I am always able to turn immediately to concrete things...Let me have something finite, definite...my freedom will be so much the greater and more meaningful the more narrowly I limit my field of action and the more I surround myself with obstacles (Stravinsky et al., 1970, pp.64-65).

This Stravinsky quotation, referred to by Jonathan Harvey within 'The Mirror of Ambiguity' (Harvey, 1986e, p.190), highlights the importance Harvey attached to the presence of obstacles within computer programs as an aid to compositional freedom, because 'they “narrow down” the field of possibilities which then expand to reveal new worlds'. This approach to composition is evident in many of Harvey's pieces, both electro-acoustic and acoustic, and it is the aim of this paper to identify the specific types of ‘obstacle’ used by Harvey within key pieces of work that have in turn led to the methodological approach adopted within his 1986 piece for orchestra, synthesiser and electronics, Madonna of Winter and Spring. Some works in particular, The Inner Light trilogy (1973-1977), Mortuos Plango, Vivos Voco (1980), Passion and Resurrection (1981), and Bhakti (1982) are considered as epitomising some of these approaches. However, this chapter will first identify some key influences that have played a part in defining some of these ‘obstacles’.

Madonna of Winter and Spring - methodology

Categorising Madonna of Winter and Spring is no easy task. It is not what it is commonly thought to be, a 12-tone compositional work, although Harvey did experiment with this technique in a number of earlier pieces, and its presence can be detected within the workings of Madonna of Winter and Spring. Likewise, it could not necessarily be considered clearly as either an atonal or tonal work, in that its use of themes together with limited harmonic material as the basis for the themes provides the work with some characteristics more familiar with ‘tonal’ works. However, evidence of the use of 12-tone techniques within the construction of the ‘spaces’ and the use of a central axis likewise give the work aspects of atonality. It has also been suggested by Archibald (1965), Bernard (1986), and Ogdon (1962) that the use of the axis provides a quasi-tonal ‘functionality’ traditionally considered
absent within atonal works, as will be discussed later in this chapter. Harvey's approach here is not as deliberate as that though – there is no evidence to suggest that the composer wished intentionally to produce such a quasi-tonal work. Early commentators, such as Brown (1968) and Northcott (1973), refer to the composer's desire to find his own voice having 'rejected' the possibilities offered by total serialism, and a need to find solutions to the perceived absence of harmonic function in atonal works. However, systematic approaches to composition of the sort offered by serial techniques offered access to understanding of 'deeper human meaning' (Harvey, 1980, p.699), providing a 'powerful allegorical platform' (Palmer, 2001, p.37). Writing on the subject of atonality in 1980 Harvey referred to Schoenberg's pioneering 'vision of the 12-note serial system' which he saw as a 'picture of the world of spirit, partially suggested to him by Swedenborg via Balzac's Seraphita, with its descriptions of "heaven". The order and symmetry of serialism was to float away from the ground roots of tonality into a universe in which all directions were equal' (Harvey, 1980, p.699). There is no doubting the potential that Harvey could see serial techniques offered in his desire to communicate 'spiritual' meaning and this was explored in some detail within Bhakti written four years before Madonna of Winter and Spring with its framework based on the number 12. Palmer's comprehensive analysis of this 12-movement work reveals 'three motions divided into 12 groups, a prime 12-tone row, a block of 12 pitch cells, 6 pitch spaces, 12 rhythmic sub divisions, and 12 instrument timbres' (Palmer, 2001, p.19). Structure within a work had, in Harvey's opinion, an important part to play within the listener's experience, especially the 'initiate' as observed in this comment taken from his book Music and Inspiration.

Music is capable of fascinating those who listen to it on a number of levels. At its most immediate level, it is a uniquely hedonistic experience [...] Profound pleasure can be gained simply by beginning to listen, without any concern about where the music comes from, how it fits together, what it means. For the initiate, other pleasures are quickly added to these, gained by appreciating details of the piece's lines, harmonic tensions and instrumental combinations: as the piece becomes familiar, the satisfaction of understanding its formal construction provides an additional element of enjoyment (Harvey, 1999b, p.127).
Analysis of key concepts

Harvey's introduction to *Madonna of Winter and Spring* (Harvey, 1986b), written before its first performance, provides some insight, albeit fairly simple, into the structure and concepts on which the work is based. The composer provides basic detail regarding the treatment of thematic material, the use of harmonic Spaces and the use of a symmetrical axis, discussed in that order. However, an analysis of his pre-compositional sketches for the work highlights the importance of the notion of the axis and the role it plays in the development of the harmonic and thematic material – and, therefore, what could be considered to be the appropriate starting point for any analysis of the work.

Central axis

Symmetry of numbers presents itself as both an attractive way to account for underlying structure in apparently chaotic nature and a fitting way to think of the beauty of God’s creative mind

(Harvey writing in 1999 in the preface to his book *In Quest of Spirit*)

Symmetry, and, in particular, reference to pitch classes that radiate out vertically from a central axis, is a theme that appears often within a number of Harvey's ‘mid-period’ compositions, including *Madonna of Winter and Spring*. The use of symmetry as a compositional device is not, however, new to him, and there are some clear examples as to how his own compositional methodology might have developed from an understanding of other composers’ techniques.

When referring to symmetry of pitch collections it is possible to view it not just in literal registral terms but also in more abstract terms (Bernard, 1986, p.186). The two examples in Figure 5 show literal intervallic symmetry of two pitches (an interval of 5 semitones above and below the a’ axis) whereas the second example shows symmetry of non-literal pitches, i.e. the pitches are still D and E but are no longer numerically symmetrical.

![Figure 5 Symmetry examples (around an a’ axis)](image-url)
Both could be considered examples of symmetry. However, where intervallic dimensions are preserved absolutely, symmetry takes on a function within a real space, in which it is potentially more clearly perceived. Writing on this issue, Bernard concluded that ‘Symmetry is, after all, first and foremost a spatial phenomenon’ (Bernard, 1986, p.186). It is important to note, therefore, that discussion here considers symmetry primarily, although not exclusively, in that same manner.

Elements of symmetry are identifiable in a number of composers’ works, J S Bach’s *Invention No. 6 in E-major*, with its canonic melody mirrored around an e’ axis is a well-known early example (Figure 6). Although not exact interval symmetry it possesses what might be referred to as tonal symmetry.

![Figure 6 Invention No.6 in E-major, bars 1 - 6](image)

Symmetrical pentatonic modes surface briefly in works by Schubert, most notably in the last song of *Die schöne Müllerin ‘Des Baches Wiegenlied’* (Figure 7), its use here referred to by Harvey as ‘subtle but unmistakable’ (Harvey, 1999a, p.72) and are also noted by Harvey in works by Mahler (*Das Lied von der Erde*) and Debussy (*Le martyre de Saint Sébastien*) although it is the inherent symmetry within modes that creates the feeling of harmonic ‘stasis’ around an axis, rather than a deliberate compositional premise, based on literal intervallic symmetry. Harvey’s use of this type of mode or ‘harmonic field’, as he referred to it (Harvey, 1999a, p.74) is examined below.
The full potential of symmetry in both horizontal and vertical planes, and limited not just to pitch notation, was not fully explored until the 20th Century – most noticeably in the works of Bartók, Messiaen and Webern. It is these composers, and in particular the latter two, who can be seen to have an influence on Harvey's use of a central axis in the development of harmonic fields. The use of a central axis in the examples being considered here is as a means by which to create an inversion of melody or intervals - a 'mirror' reflection around a horizontal axis - resulting in a set of vertically ascending intervals that descend by the same degree.

Harvey was exposed to the works of the Second Viennese school through his studies with Hans Keller and indeed through his own lectures on the subject at Southampton University from 1964 to 1977 during which time he considered himself 'naturally attuned' to the styles of the 20th Century Austrian composers (Whittall, 1999, p.10). The composer identified with Messiaen and Webern's shared love of symmetrical structures enabling traditional concepts of tonality to be challenged, liking such structures as 'poised directionless in space' (Harvey, 1999a, p.75). It is Webern's symmetrical dodecaphony rather than the French composer's modal structures that were to appeal the most, in that 12-tone techniques enabled Harvey to create a sense of stasis. The composer referred to strict serialism as having at 'its heart an emphasis on cancelling the arrow of time and direction in space' (Harvey, 1999a, p.75) and 'axial feeling' was an approach that from the early 1980s Harvey referred to as his 'preferred technique of harmony for many years' (Harvey, 1999a, p.53).

Of interest next, is how specific techniques adopted by these and other composers relate to the composition methodology adopted by Harvey for *Madonna of Winter and Spring*. 
Webern

The use of chords, constructed symmetrically around a central pitch or interval is identifiable within a number of works by Webern, and a closer look at the use of symmetry in some of his works can provide background to the development of Harvey's own technique. Harvey himself refers to works of Webern, starting from the *Symphony* of 1928, as the 'first time one can feel liberation from tonal gravity in a consistent style' (Harvey, 1984, p.5) in Western music since before 1600. He clarified this statement further by suggesting:

significantly, at that point Webern ceased to be an expressionist...He suddenly relaxed, basking in the radiance of the new feelings, the new consciousness. The music is not disruptive, iconoclastic, any more, but poised in a clear space. Moreover, it is highly ordered – canons and symmetrical melodies and rhythms weave around each other in perfect equipoise. Structures start out, then retrace their steps backwards. It's like exploring a field, paths criss-crossing, as opposed to the previous aesthetic of going on a journey and dimactically arriving at a destination or goal (Harvey, 1984, p.5).

Archibald's analysis (1972, p.159) of the second movement in Webern's *Five Movements for String Quartet, Op.5*, composed in 1909, identified three 'obvious' examples of symmetrically constructed four-note chords around a central axis.

![Three axis examples showing axis of symmetry in Webern's Op. 5, No.2](image)

- 1. Second beat of bar 2 – an interval class of 3 and 8 around a F# axis
- 2. The beginning of bar 5 – an interval class of 3 and 6 around a D♭/E♭ axis.
- 3. The final chord – an interval class of 3 and 6 around a D♭/C axis.
The use of a single pitch or minor second, evident here as the axis of symmetry (Figure 8), is the technique adopted by Harvey for *Madonna of Winter and Spring* as will be shown later. In the above three examples the axes are not stated in the chords themselves – but are present by octave transposition in the 2\textsuperscript{nd} and 3\textsuperscript{rd} example although only part of the sustained chord for example 3. This is also observed in the harmonic ‘Spaces’ for *Madonna of Winter and Spring* with the exception of Space 1 – where the axis is stated. Statement of axis through octave transposition though is evident in Spaces 2 – 3. Whole-tone sonorities are prevalent in the Webern work and this affects the exactness of the symmetry employed in some sections of the work.

Writing on the subject of stasis in his book *In Quest of Spirit*, Harvey makes specific reference to symmetry - ‘when a mode divides the octave symmetrically, it ceases to have the goal orientation of the diatonic system and becomes a musical expression of suspension in space’ (Harvey, 1999a, p.71). While Harvey has commented specifically on the ‘static’ nature and appeal of serial techniques there is still the possibility of his interest in its potential within symmetrical applications as a means by which to provide harmonic progression.

Webern’s interest in palindromic approaches on both a macro (structure) and micro (pitch/duration/dynamics) scale is very much evident in later pieces, especially the Second Movement of his *Piano Variations Op. 27* composed in 1936. This much-analysed work\(^\text{16}\) utilises both horizontal and vertical axes for various musical elements, not just pitch. Westergaard’s analysis highlights a number of symmetrical patterns within this work, relating to pitch class, rhythm, articulation and dynamics. However, it is the pitch relationships that reveal most to Westergaard about the compositional methodology adopted by Webern, namely that ‘none of the patterns within separate non-pitch characteristics makes audible (or even numerical) sense

in itself” (Westergaard, 1963, p.109). What he is saying here is that for the listener the symmetrical nature of multi-layering of pitches is perceivable in a way that symmetry in other aspects (i.e. duration) is not. The pitch a’ (above middle C) is the sole horizontal axis for this twenty measure piece. Westergaard refers to seven dyads formed by the inversional symmetry around a’ (B♭/G#, A/A, C#/F, D/E, C/F#, B/G and E♭/E♭) (Figure 9) - interestingly the same number of Spaces used by Harvey in *Madonna of Winter and Spring*.

![Figure 9 Seven dyads around the a’ axis identified in Webern’s Op 27, No. 2 (shown in the order they first appear)](image)

Re-ordering the dyads and assuming non-literal registral pitches an ascending/descending structure branching out from the a’ axis is revealed (Figure 10) with a return to a ‘central’ octave pitch (E♭) for the 7th dyad. Although not a strict semitone chromatic sequence, the resulting intervals 1,3,4,1,2,4 are symmetrical on either side of the axis. i.e. <4,2,1,4,3,1> axis <1,3,4,1,2,4>

![Figure 10 Seven dyads re-ordered to show the ascending/descending chromatic pattern](image)

This ascending/descending pattern is also evident within Harvey’s seven Spaces, although a strict semitonal interval pattern is observed, with a return to a unison F, as will be discussed later.
Westergaard argues that despite the emphasis placed on the seven dyads, and the fact that they remain for the most part in the same register, the resulting large-scale intervallic structure – ‘the harmonic motion’ – sounds ‘highly static’. This contradicts Archibald’s more recent suggestion (discussed earlier in this chapter) that a dynamic function is perceivable. However, it is probably this sense of stasis that most appealed to Harvey.

Further use of symmetry within this work is shown in Ogdon’s analysis, which includes a diagram (Figure 11) showing every sounded constitute pitch element of the work laid out in its proper placement (Ogdon, 1962, p.135).

Figure 11 Variations for Piano, Op. 27, 2nd Movement. Pitch placement diagram

This diagram reveals how the abstracted scale centers on a’ and ‘divides itself into two halves related to each other by strict inversion’. His analysis indicates that some notes are sounded at only one pitch in the course of the movement, while others are sounded at two or three pitch levels and, in the case of the tritonally related E♭, four pitch levels. All the pitches are placed equidistantly above and below the central axis pitch a’. Adding the numerical intervals to Ogdon’s pitch placement diagram highlights the symmetry at work (Figure 12) although it does not suggest internal (repeated) patterns within the sequence of numbers.

Figure 12 Pitch placement diagram - showing mirrored intervals

Abstracting his pitch placement diagram further, showing notes sounding at just one pitch, Ogdon’s analysis revealed a mirrored pattern of minor and major thirds above and below the axis a’ (Figure 13). Further analysis of
notes sounding at more than one pitch revealed that ‘all other pitches are spaced (in consecutive note-pairs or groups) equidistantly above and below this particular pitch’ (Ogdon, 1962, p.135).

Figure 13 Pitch placement diagram - showing single pitch notes and intervallic symmetry

Viewing the pitch placement diagram with specific reference to the notes sounded at only one pitch one can get a clearer sense of the role of the axis pitch a’. Ogdon surmises that Webern ‘has called upon the mesé of his tonal system to act as a focal point of orbital attraction’ leading him to conclude that ‘it is this tonal centering, this rigorous pitch placement in reference to exact tonal centre, that accounts for the pervading sense of tonal logic’ (Ogdon, 1962, pp.135-136). It is this focus on pitch organisation that separates Webern’s piece from the aesthetic premise of total serialism in that not all parameters are treated independently with pitch retaining a preeminent structural role. In his analysis of the work, Westergaard writes ‘here, as in tonal music, large scale intervallic structure is the basis of form; textural details serve primarily to project or clarify this structure and thereby to create form’ (Westergaard, 1963, p.118). Ogdon’s ‘self-evident’ conclusion was that Webern’s use of a precise method of tonal centering provided an important means of motivation and control different from that provided by serial techniques. This heralded a distinct move for Webern – acknowledged as a purist of the twelve-note composers – towards a strict mirroring principle, a system that could be considered in essence simpler than serial methods. It was this ‘systematic predetermination’ that considered the use of a pitch placement centre (something he considered absent in functional tonality) that led Ogdon to conclude that ‘Webern, in the second movement of the Variations, is more precisely tonal than composers of harmonically tonal music’ (Ogdon, 1962, p.136). I believe it is this logic that was to prove attractive to Harvey in his quest for methodologies to provide structural depth to his music.
Bartók

As with Webern, much has been made regarding Bartók's use of symmetry within his compositions, its influence on structure noted in both small and large contexts with important studies conducted by a number of composers and commentators over the last 60 years, including Perle, Lendvai, Babbitt, Bernard, Whittall and Cohn. Of particular interest has been specific debate regarding its level of importance as an independent system of organization, as opposed to being part of a more general framework (Bernard, 1986, p.185). Earlier commentary on the work, in particular Perle's 'Symmetrical Formations in the String Quartets of Bela Bartók' concluded that the composer's treatment of symmetry was a secondary issue stating that:

> Impressive as these procedures are, it must be observed that Bartók's symmetrical formations are only an incidental aspect of his total compositional means…. Can symmetrical formations generate a total musical structure, as triadic relations have done traditionally? The implications of Bartók's work in this, as in other aspects, remains problematic (Perle, 1955, pp.300-312).

Rather than being problematic the evidence put forward by Perle served to strengthen the argument in support of an independent role. This was the view adopted by Bernard in his discussion on 'Space and Symmetry in Bartók' written in the same year as Madonna of Winter and Spring (1986). Writing in 1920 on the function of vertical aggregates of pitches 'as the music of our time strives decidedly towards atonality' in his essay titled 'The Problem of New Music' (Bartók, 1976) Bartók provided four examples of atonal chords, three of which are evidently symmetrical around an axis of one or two pitches (Figure 14) identifiable as C and E/E♭.

![Figure 14 Three examples of symmetry around an axis from Bartók's The Problem of New Music](image-url)
Although no specific reference is made by Bartók to the word ‘symmetry’ or ‘axis’ he recognises the role vertical groupings play in making possible ‘the plan of the “horizontal line” of atonal music. The perfection of the entire work depends solely on whether the rise and fall represents a harmonic unity’ (Bartók, 1976, p.457). What Bartók is alluding to here is that the use of an axis can provide a narrative and homogeneous function similar to that provided by traditional tonal arrangement.

A good example of Bartók’s application of the use of an axis of symmetry is in the arrangement of the fugal entrances in the first movement of Music for Strings, Percussion, and Celesta (1936). The successive entrances of this freely composed fugue are a diverging chain of perfect fifths from the initial note A – which functions as the axis of symmetry (Figure 15).

![Figure 15](Music for Strings, Percussion, and Celesta, I, bars 1-27, head notes of successive fugal entrances)

Bernard notes as significant that ‘all of these fifths are exactly seven semitones in size – that is, no inverted or compound fifths are substituted’ (Bernard, 1986, p.188), highlighting the use here of a literal registral mirror symmetry.

An earlier Bartók work, however, shows further levels of symmetry evident within the intervallic structure. In his analysis of the opening of the second movement of Bartók’s Concerto No.2 for Piano and Orchestra (1931), Bernard shows that although the symmetry evident in the contrary motion of the string parts ‘seems at first only approximate’ (Bernard, 1986, p.188), by abstracting the notes of bars 1 – 5 into a scale in their original registral positions a ‘mirror-symmetrical pattern emerges’ around a two note axis of a and a♭ (Figure 16).
This symmetry is also evident if a similar process is carried out on notes of bars 6-8 (Figure 17), also with a two-note axis, although identifiable as d and c (Bernard’s diagram suggests, perhaps confusingly, an axis of e♭).

The intervallic pattern here in both scales is based around semitone (1) and tone (2 semitones) intervals. The resulting ascending and descending patterns are: for the first pattern, <1,2,2,1,2,2,2,1,2,2,2,1> and the second, <1,2,2,2,1,2,2,2,1,2,2,2>. Within these patterns it is possible to discern secondary inner patterns of [1,2,2,[2],1], that are replicated within the overall pattern. This reveals a new level of complexity not seen within Webern’s methodology for Op.5 and Op.27, although as it will be discussed later the replication of intervallic patterns is evident within Harvey’s methodology for Madonna of Winter and Spring.

As a further level of complexity, the axes themselves can provide a symmetrical function as can be seen in Bartók’s piano work No. 141 ‘Subject and Reflection’, from his Mikrokosmos cycle of works written between 1926-1939.
Bernard’s analysis of the suitably titled work shows the composer’s use of symmetry on two different levels. The work consists of a series of short sections, each section symmetrical about either a single note, or pair of notes an octave apart. The first seven measures show clear use of a ‘pedal point’ b♭ axis with melodic phrases mirrored above and below the axis resulting in symmetrical interval patterns. (Figure 18)

When all the sections of the work are considered, seven axes in use are revealed; b♭, b, d, e, f#, g, and b♭ (Figure 19). The semitone intervals (1 and 3) between each of these axes reveal a secondary level of symmetry.

Bernard refers to this series as equivalent to Lendvai’s 1:3 scale or ‘Ode to Napoleon’ hexachord\textsuperscript{17}, also, notably one (the fifth) of Milton Babbitt’s six all-combinational hexachord “source sets” (Mead, 1984, p.319).

This series is based on a sequence of semi-tonal intervals of 1,3,1,3,1,3. Small scale symmetry is seen around each axis <1,3>1<3,1>, in effect setting up a harmonic ‘space’ or field for each axis. (Figure 20 shows harmonic Space for the b♭ axis). The development of harmonic Spaces will be explored later in this chapter.

\textsuperscript{17} Also referred to as hexatonic collection or hexatonic set class.
Reference to Bartók’s use of axes and intervallic symmetry and a possible link to works by Harvey is my own speculation and is not based on any specific commentary made by the composer. It serves primarily to demonstrate a possible source of inspiration for Harvey’s use of small-scale patterns of symmetry observed in such works as *Madonna of Winter and Spring*.

**Messiaen**

Messiaen utilized aspects of symmetry within a number of works, typically in relation to pitch and time. His *modes of limited transposition* published in his book *Technique de mon langage musical* (Messiaen, 1944), fulfil specific criteria relating to symmetry and repetition of interval groups and provided the French composer with a compositional style possessing ‘no sensation of tonal movement. This music is not going anywhere’ (Griffiths, 2011). While serial techniques are less relevant here, and the function of a central axis perhaps less clear, the symmetry of intervals and, in particular the creation of his ‘colour chords’ evident in works like *Chronochromie* (1959-60) have strong resonances with Harvey’s compositional approach to harmony for *Madonna of Winter and Spring*. Messiaen’s chordal structure will be examined in more detail later.

Messiaen’s first mode, the whole tone scale (Figure 21), contains only tone intervals; consequently, starting on any degree of the mode will result in the same sequence of intervals both ascending and descending with all of the degrees of the mode providing a potential axis of symmetry.
Figure 21 Messiaen’s First mode of limited transposition

The six other modes provide similar non-retrogradable (i.e. the same in both directions) capability. For example, the second mode, prevalent in Le Banquet Celeste (1928) in which the repeating unit is semitone-tone (Figure 22). This 25 bar long work is expected to be played very slowly – with a duration of six minutes. The first chord should therefore last seven seconds, ‘being less an element of musical discourse than an event all by itself, a harmonic atmosphere’ (Griffiths, 2011). The development of these ‘harmonic atmospheres’ will be looked at later in this chapter. Griffiths proposes that it might be this piece through which the modal concept was arrived at – by improvising chords (Diminished 7th in the case of the second mode) based on symmetrical divisions of the octave. There are parallels here with the development of the twenty themes for Madonna of Winter and Spring, derived as they are from the notes of each of the seven Spaces.

Figure 22 Messiaen’s Le Banquet Celeste: bars 1-4

Stockhausen

Although Harvey acknowledges Webern’s influence, as identified earlier in this chapter, it is perhaps Stockhausen who was the specific catalyst for his interest in the use of axis of symmetry, although unacknowledged. From the mid-1960s onwards, Harvey took a particular interest in the German composer following exposure to his works during a visit to Darmstadt in 1966. This interest resulted in publication of a book entitled The Music of Stockhausen: An introduction, written in 1975. Within this Harvey provides a comprehensive overview of works in chronological order, from his first
published compositions in the 1950s to more ‘recent’ works in the mid-1970s. In the chapter on ‘The early “moment” forms’ a large section is given to description of the use of electronics and treatment of timbre in *Kontakte* (1959-60) for piano, percussion and tape. Passing reference is made to the use of a ‘set’ used by the piano and tuned percussion, and this is shown in Figure 23. (Harvey, 1975d, p.89).

![Figure 23](image)

**Figure 23.** The ‘set’ used in Stockhausen’s *Kontakte*

This 12-note tone set is based around an ‘a’ axis and, as can be seen is very similar to the interval set used in Harvey’s *Inner Light 3*, as shown in Figure 39, although Harvey moves upwards instead of downwards from the first note. And therefore could be viewed as a possible influence on the work.

**Harvey's interest in use of axis of symmetry**

While Webern, Bartók and other composers have explored the use of axes in both planes – vertical and horizontal, Harvey’s interest in the technique was specific to the arrangement of symmetrical intervals vertically around an axis. In an article in 1984, the composer wrote ‘the bass moves into the middle: this is our musical revolution. Several composers after Webern, myself included, have been fascinated by harmonic structures which radiate out from either side of a central axis in reflecting intervals... in symmetrical mirroring structures [the bass] is forced, focal attention is forced, into the axial middle, because all relationships converge there: the sounds point to it’ (Harvey, 1982, p.2). A central axis provides the means around which to develop a symmetrical harmony, rather than build up vertically from a foundation bass with its associated tonal function. Harvey’s approach though, is different, as pointed out by Griffiths in his article in the *Contemporary Music Review* 'Webern always worked with a single series in composing his music where each moment is fundamentally identical to all the others. In Harvey’s music...there is the large-scale level of the basic
series ... and to that level others are tied as children to a parent’ what Griffiths refers to as the *cantus firmus*, adapting the Renaissance term (Griffiths, 1984, p.94). He goes on to explain the technique as:

> take one, two or three intervals from the basic series and repeat these intervals to create a series of twelve pitches. And this is an interesting technique, musically, because the basic series is a series containing all possible intervals while the derived series are limited to one, two or three – this basic series has the form of an intervallic explosion.

Whilst Griffiths recognises Harvey’s use of a derived set, and refers to ‘an oscillation of pitches around an axis’ the implication here is that the axis of symmetry is an indirect result of the derived series. This does not, however, fully appreciate the primary role that axial symmetry had within the composer’s methodology.

The use of an axis of symmetry is not new to works by Harvey, evident as it is in a number of works including *Mortuos Plango*, *Bhakti*, *Passion and Resurrection* and *Madonna of Winter and Spring* or indeed, as has been shown above, its use original to him. However, its potential as a means to provide structural depth and reduce the traditional function of ‘bass’ appealed to his compositional sensitivities, in particular following his time at Princeton in the early seventies. Writing in 1984 for the musical journal *Soundings* under the title of ‘New Directions: A Manifesto’ (Harvey, 1984), a couple of years before *Madonna of Winter and Spring*, Harvey illustrated some of the ‘seemingly calculated’ ideas behind his new composition *Bhakti*. By way of example, a twelve-note serial construction is shown with an axial semitone (G and A♭) around which the twelve notes are balanced in a ‘symmetrical universe’ (Figure 24.) with intervals mirrored above and below the axis.

![Harvey axis example - basic musical idea for Bhakti](image-url)
Harvey ‘invited’ readers to consider the ‘novelty’ of this idea (used as the basis for development of musical premise for Bhakti) suggesting ‘it's a complete break with the principle that has governed music from 1600 to the present - that is the principle of tonality. All tonal chords are mentally registered as perfect or altered triads, with a root, fifth and third. The chords are read from the bass upwards; the lowest sound is crucial to the meaning, the feel and the grammatical function of the chord’ (Harvey, 1984, p.4). Even in ‘atonal music’, although large-scale tonality in Bach's sense is not there, 'we nevertheless hear the individual harmonies in Bach's way, from the bass upwards as altered (very altered!) triads'. The relationship between bass and upper parts had, in Harvey's view, become ‘so great that the effect is of considerable dissonance and distortion’ leading to an 'uncomfortably schizophrenic' listening experience. The equality of voices, evident in Western music before 1600 and Eastern music (with their symmetrical pentatonic scales) suggested an opportunity to free ‘the dictatorship of bass' and ‘leave the conflicts of earth and fly’. This ethos provided the composer with not just a structural depth on which to base his composition, but also a means by which to incorporate spiritual depth within his works. In an interview with Whittall in 1999, Harvey commented on his use of symmetrical fields and harmonies and their ability to ‘capture states of consciousness which are achieved in meditation or in Samadhi or, as I say, to encourage them on people because of their self-contained floating nature’ (Whittall, 1999, p.21). This transcendental aspect of Harvey's music will be examined in more detail in a later chapter.

While Bhakti, a work composed in 1982, is used in the ‘Manifesto’ mentioned earlier, as an opportunity to expound on ‘new directions' there are earlier works of his that indicate the use of an axis of symmetry.

**Round the Star and Back**

While Harvey identifies Passion and Resurrection as the first time he used a symmetrical axis, (Harvey and Bossis, 2008, p.3) - revealed within the ‘Resurrection’ section of this opera written in 1981- its use is in fact noted in a much earlier little-performed work, Round the Star and Back, composed in 1972. This aleatorical dodecagonal ‘teaching piece’ for ‘piano and other
instruments capable of reasonable blend’ has no traditional score as such and is supplied with three cut out geometric sheets to be used by the 3 to 6 performers, the three sheets providing harmonic, pitch and character (i.e. ‘very soft, meditative’) information. Harvey uses the term Spaces here to refer to the development of harmonic content.

1. 12 available spaces (dodecagonal sheet)
2. 12 pitch sequences (dodecagonal sheet)
3. 12 Characters (hexagonal sheet)

Together with the sheets, the composer provides a list of instructions – 18 in total relating to how the material is to be utilised by the musicians. These are mainly very specific ‘rules’ outlining precisely the approach to be adopted. For example: ‘rule’ 5 indicates:

The PITCH SEQUENCE gives the class of pitch to be used, but not its placing in actual sound. The AVAILABLE SPACE lists the permitted placings of that pitch. If the required note from the SPACE lies outside an instrument’s range, as will occur at certain points for some instruments, that note from the PITCH SEQUENCE should be omitted and silence substituted. Each pitch must be fitted into the appropriate place in the current SPACE throughout the piece. No notes not listed in the current AVAILABLE SPACE must sound. (Harvey, 1974)

However, some flexibility in interpretation of the ‘rules’ is possible, as indicated in ‘rule’ 14:

The duration of the sections should be varied by the leader, and the number of players participating in each section may vary slightly.

and in ‘rule’ 17:

All these ‘rules’ may occasionally be broken once they are familiar (the spirit of the law, not the letter).

In its performance, sheets are to be placed on music stands, with each player having copies of each of the three sheets. Sheets are rotated clockwise or anticlockwise (on their geometric base) at the instruction of the leader to indicate the source material to which they should refer. Harmonic control of the work is through the use of the 12 spaces indicated on the ‘Available Spaces’ sheet. (Figure 25)
Figure 25 Available Spaces sheet from *Round the Star and Back* showing the 12 'options' (from original sheet obtained from the composer)

The ‘Available Spaces’ dodecagonal sheet consists of 12 staves, numbered from 1 to 12, to provide guidance to the performer as to what notes to refer to create harmonic elements. Eight of the staves (1,2,4,5,6,8,10 & 11) indicate between sixteen and thirty-one notes arranged symmetrically either side of an axis (not shown) in a range of six to seven octaves. Three of the staves (3,7 & 9) are identical, and show a range of chromatic notes with a given lower and upper note with a range of six to seven octaves. The stave numbered 12 is for a ‘piano solo’ and shows a 12-note serial melodic theme to be used for a specific purpose as indicated in the instructions.

The composer does not provide any background information on the development of the Spaces. However, a simple analysis of the eight specifically pitched Spaces (1,2,4,5,6,8,10 & 11) shows them to all be based around either a single-note axis (C# or C), or a two-note axis (C#/D) similar to the approach adopted by Webern and Bartók in creating their vertical symmetry. Keeping the axes to a small pitch range, i.e. within a tone, allows all of the Spaces to have a common base from which the harmonic fields are
generated. The eight staves do not all show exact mirror symmetry in the arrangement of their ascending and descending intervals; however, the use of a limited set of intervals is observed. Space 2, for example, uses intervals of 1, 4 & 5 semitones, Space 4 likewise, is limited to intervals of 3 & 4 and Space 5 intervals of 2 & 3. By allocating a unique set of intervals to each Space (with exception of Space 1 & 6 which are identical) the composer has created a number of distinct harmonic ‘fields’ each with their own character. As will be shown, the use of an ‘offset’ interval, as the first interval on either side of the axis for some of the Spaces, ensures that any single note dominance is avoided. This is the role of the axis – although its presence is to be perceived rather than heard, and it is noted that the axis notes are not sounded at their literal pitches and their appearance in the upper and lower ranges is minimal.

Space 1 (Figure 26) has been annotated here to show the two-note axis - C#/D in this case – and the symmetrical pattern of ascending and descending pitches based around a repeating 5 semitone interval. This shows a very simple numerical approach to creating a harmonic Space or field around an axis. The use of 5 as the semitonal interval ensures that the number of repeating pitch values is kept to a minimum, preventing note hierarchy. However, the relatively wide spacing does create a strong, distinct harmonic effect with a clear ‘chordal’ identity.

Figure 26  Round the Star and Back: Space 1

Space 8 (Figure 27) is, by way of contrast, based around a single-note axis of C, and semitone intervals of 1 and 4 symmetrically arranged around the axis. The use of a different numerical model here allows a harmonic field to be generated with a dissimilar character to that created within Space 1, although there is a commonality in the use of a semitone interval of 5 (1 + 4). This suggests, as mentioned earlier, that the semitone interval of 2 on either side of the axis in Space 1 has been introduced to ensure the pitches
are offset. As with Space 1, the choice of semitonal interval numbers prevents development of any note hierarchy.

![Semitonal Interval Chart]

**Figure 27** *Round the Star and Back*: Space 8

While the above ‘interval sets’ could be considered to contain elements that repeat, a more convincing example of this (similar to the technique used by Bartók for his *Concerto No. 2*) is observed in the intervals used for Space 5 which show a repeating set of <3,2,3,3> above and below the axis. (Figure 28)

![Semitonal Interval Chart]

**Figure 28** *Round the Star and Back*: Space 5

Compared to later works by Harvey, including *Madonna of Winter and Spring*, the approach adopted here, in developing a methodology for harmonic Spaces, is perhaps more experimental, in that a range of interval-based strategies are employed in developing pitches around the axis – rather than one single strategy applied to all Spaces. This work was written at a time when Harvey was at Southampton University, reflecting his desire to incorporate compositional and improvisational performance techniques of interest to his students and also, from his own point of view, to continue his search for techniques that would provide him with structural depth. The choice of an aleatorical work, with elements of mathematical structures, reflected perhaps a lingering interest in ideas from his time with Babbitt at Princeton University a few years earlier.

There are obvious parallels with Harvey’s use of axis symmetry in *Round the Star and Back* to works by Webern and Bartók; however, the use of an expanded range (i.e. the potential full octave range of the piano keyboard)
and symmetrical vertical aggregates enables Harvey to create a harmonic field, or cloud analogous, with a spectrum of frequencies. This is achieved within the work by specific instructions for the piano (vibraphone, celesta, harp etc.) which ‘may sustain all notes throughout each section with the pedal, so that a large selection of the SPACE sounds as a chord’ (Harvey, 1974)

*Inner Light* trilogy – axial symmetry and harmonic fields

Harvey’s *Inner Light* trilogy, a ‘sort of homage to Rudolf Steiner’ (Harvey, 1976, p.125), was composed between 1973 and 1977 although it was written in the order 1, 3, 2. The three compositions ‘explore inter-relations and transformations which lead from sounds prerecorded and manipulated on tape to the “live” music’ (Whittall, 1999, p.45). Whittall referred to these works as representing a transition ‘between the relatively heterogeneous but increasingly expressionistic early works and the later scores, which centre on his work with electro-acoustics and computers, principally at IRCAM and Stanford’ (Whittall, 1999, p.45) and certainly, as will be discussed, these works can be viewed as representing the changes in Harvey’s methodology that effectively led to works such as *Mortuos Plango*, *Vivos Voco*, *Bhakti* and *Madonna of Winter and Spring*. All three works consider an expansion of consciousness towards God – reflecting ideas drawn from Rudolf Steiner - ‘man’s endeavour should ever be to make things more conscious. That is spiritual development’ (Harvey, 1986e, p.179) – and this is inherent in the expansion of instrumentation (from seven instruments and tape in the first work to large orchestra in the last work) and also in the expansion of interval sets to form harmonic Spaces, or fields as will be seen later in this section. Harvey himself makes reference within the scores to the three works as an ‘expanding sequence’. The transitional nature of this work mentioned earlier is evident in the range of influences and counter-influences present within Harvey’s methodology at this stage and most prominent are those related to his recent engagement with the ideas of Stockhausen and Babbitt, with whom Harvey had worked with at Princeton in 1969-70. In his 2009 book on two works by Harvey, *Song Offerings* and *White as Jasmine* (Downes, 2009), Downes considered the key influences of these two composers on the trilogy citing the
'establishment of continua between the indistinct sound of tape (prevalent at the opening of each piece) and the precise pitches of the instrumental ensembles demonstrates Harvey's debt to the thinking of Stockhausen' and the 'deployment of tone rows, meanwhile, and their division into hexachords with identical or related patterns of intervals, reflects Babbitt's teaching'. However, despite these influences, it is Harvey's application of these ideas that Downes considered 'highly original', supporting Whittall's view that the trilogy was 'one of the most important achievements of a British composer in the 1970s' (Whittall, 1981, p.71). Whilst the use of axial symmetry was, as has been shown, not new, of particular interest was Harvey's use of harmonic fields or 'spaces' derived from the spectral analysis of the instruments used in the composition. Various elements of each of the three works in the trilogy will be looked at in more detail, to identify not just Harvey's continued and developing use of axial symmetry, but also how this is further extended to develop the harmonic fields that will play an important part in Harvey's evolving methodology.

*Inner Light (1)* – the first work in the trilogy was written in 1973 and is scored for 7 instruments and tape. As with all works in the trilogy it shows the relatively recent influences of Stockhausen and Babbitt on Harvey's methodology and the myriad of influences (and counter influences) present, which reinforce the idea of a 'transitional' nature of his work at this time, proposed by Whittall. Underlying the structure of the work is a 12-tone pitch set (Figure 29) identifiable from an analysis of the score as will be shown.

![Figure 29 12-tone pitch set from Inner Light (1)]

The tone row has no inherent symmetry or pattern as such in itself other than an apparent 'sine-wave' shape decreasing in 'amplitude' that ranges between its lowest (C) and highest (B) notes over the first 5 pitches, descends to a midway point between the middle of the range and lowest note, and then finishes up roughly in the centre of the range. One could
consider the final D in the row as acting as an ‘axis’, although the centre note of the range would be C/B. The primary function of the tone row is to act as the linear structure by which pitch will be transformed into a harmonic ‘Space’ throughout the work. The composer’s note in the published score explains:

At the beginning there is only indistinct sound; it becomes more timbrally focused (indistinct cello sounds), and then birth is given to a pitch-cum-timbre – C on the cello. This is the first note of the basic set, and three more notes are immediately born in similar fashion. Then each of these four pitches-cum-timbres gives birth to a musical space, or harmonic field, comprised almost completely of the interval(s) between the note and its neighbour(s)[…] Thus through the sequence “noise – timbre-music space/pitch argument”, the basic set of 12 pitches is brought into existence (Harvey, 1979).

The analogous use of parturition here provides further insight into the composer’s sense of a note as an ‘organic’ element. Figure 30 shows the ‘birth’ of harmonic Space from the sixth note in the set (G#).
Figure 30 *Inner Light (1): 'birth' of harmonic Space*

There is no evidence to suggest that at this stage Harvey was using strict mathematical modelling as a means to derive the relevant pitches of the sort...
he was to encounter at IRCAM in the early 1980s, and that were to lead to such works as Mortuos Plango, Vivos Voco. The overall ‘shape’ of the Spaces in the Inner Light trilogy reflects or suggests a typical harmonic spectrum for acoustic instruments, with intervals progressively smaller as the pitch extends into the higher registers. This could be viewed as a selective or approximation of the relevant instrument timbre rather than mathematically accurate – as the harmonic series at the higher end of the frequency would have micro divisions of semitones, and the frequencies themselves would have specific amplitude within the hierarchy, and this is not evident in the harmonic Spaces in the Inner Light trilogy. A detailed analysis (shown in Figure 31) of the harmonics of the fundamental frequency 65.403 Hz compared to the notes for the first harmonic Space in Inner Light (1) shows how the composer has created a harmonic field indicative of the harmonic spectrum, rather than one that is exact - primarily I would suggest to reduce the dominance of the note C and create a distinct but atonal ‘field’. Notes shown in grey in the table indicate a specific match with frequency present in the harmonic spectrum of 65.406 Hz i.e. C2 (the lowest note of a Cello) thereby reinforcing the argument that there is a close relationship between the notes Harvey has used, and the harmonic spectrum for 65.406Hz. Equally this is shown in the remaining notes being adjusted up or down by no more than a semitone or tone (shown in italics).

<table>
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<th>Frequency (Hz)</th>
<th>Pitch (Equal Temp)</th>
<th>Harmonic/Partial</th>
<th>Space 1</th>
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<td>C2</td>
<td>1</td>
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</tr>
<tr>
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Figure 31  Comparison of frequency spectrum for C2 (65.406 Hz), and the C2 harmonic Space used in *Inner Light* (1)

The presence of F# reflects the sympathetic artificial overtone sometimes found in the spectrum of cellos (i.e. wolf note), suggesting that Harvey may have a spectral analysis of the C2 note from a cello as a reference for development of the harmonic field.

Harvey’s intention was to allow selective elements within the sound, i.e. its timbre, to be used to develop the harmony thereby allowing the deconstruction of a single sound. The notes within these harmonic Spaces produced on tape are subsequently used as melodic elements within the acoustic instrumentation. This can be seen in the cello, clarinet and piano melody that commences at the point at which harmonic Space is fully
realised at bar 16 - pitches from the space are referenced at the relevant register (see Figure 32).

Figure 32  *Inner Light (1)*: Melodic material derived from harmonic Space.

The use of the harmonic Space as a means by which to develop melodic or thematic material is a technique that is very evident within a number of later works including *Madonna of Winter and Spring* and this will be examined in Chapter 6.
The increased importance of the partials within a sound – as opposed to its fundamental frequency or pitch by which a sound is identified – was a key element in Harvey’s interest in liberating harmony from the gravitational pull of the bass, mentioned earlier in the chapter. Consequently, this harmonic freedom enabled the relationship between thematic material and harmony to be reconsidered. Writing in 1982, Harvey discussed his thoughts on this:

Of course, the principle of the figured bass has not disappeared from music. How could it, when it is so closely related to the acoustical structure of sound itself? No, it has simply been dislocated in function. All the harmonic series we hear colouring every instrumental sound at every point are becoming functional in themselves. They are not merely colouristic designators of thematic argument, but are also assuming the mantle of thematic argument themselves – as when, notably, the harmonic series is meaningfully manipulated in electronic music, or totally re-invented. My own particular preference is to use the old bass idea in a much more simple way, so that the nature of the harmonic series above the fundamental is clear and can be clearly manipulated (Harvey, 1982, pp.3-4).

Although, as mentioned, Harvey’s approach to spectral techniques is not as prescribed as is observed in later works there is a clear interest in the nature of sound itself (developed through an interest in the writings of Rudolf Steiner), and the relationship between pitch and timbre. These could be considered as coming from two main influences on the composer – spectralism and Messiaen.

Spectralism – compositional decisions informed through a frequency analysis of sound spectra – is primarily associated with a group of composers based in Paris in the mid-1970s including Grisey, Murail, Levinas and Dufourt (Moscovich, 1997, p.21). However, their achievements in this area, partly accomplished through the development of computer algorithms by John Chowning at Stanford in the late 1960s, which enabled the digital analysis of spectra, could be traced back to the works of earlier composers with a tradition in timbral composition. The basic concept behind this approach to composition was made possible through Fourier’s\textsuperscript{18} analysis of sound in the 19\textsuperscript{th} Century, that revealed that a continuous sound-signal is made up of a numerous elements (a series of harmonics or partials) rather than just perceived as one i.e. the identifiable pitch. Fundamentally there is a

\textsuperscript{18} The Fourier Transform - A mathematical process named after the French mathematician and physicist Joseph Fourier (1768-1830)
relationship between these elements and the timbre of a particular sound-signal, and this can be represented in the form of a mathematical formula. This discovery enabled composers to consider a sound source as raw material for composition, not just a specific pitch or note to be organised in a linear fashion. Debussy could be considered as one of the earliest composers to incorporate these ideas into his compositional methodology ‘by thinking of sound as a perceived object, and using it to evoke an image, a colour or feeling by choosing to mix the sounds into sound-fields of different lengths’ and in his ‘use of time, focusing on the notation of the instant and its acoustic qualities’ (Moscovich, 1997, pp.21-22). These ideas evolved further through Varèse, a French composer based in America, and are identifiable in works such as Ionisation and Deserts. Ionisation (1929-1931) was one of the first serious works to use percussion as an exclusive instrumental medium and the appearance of pitched percussion such as chimes and glockenspiel late in the work ‘implies that he considered the timbre of the instruments used previously in the piece as being clearly separated from any traditionally organised pitch implications’ (François, 1991, p.49). In Deserts (1950-1954) Varèse presented orchestral instruments and electronics together with sequences of organised sound on tape interpolated with wind, piano and percussion. Commenting on the use of timbre in the work, Griffiths referred to how ‘Babbitt has drawn attention to the subtlety with which Varèse assembles timbres from his ensemble, and indeed much of the scoring suggests an almost Webernian care for timbre-melody – something quite new in Varèse's music, the instruments being used, for example, to vary the colours of the sustained pitches that are stations of polarity in the musical progress’ (Griffiths, 2010, p.139). The composer's intention that the work should be experienced together with film reinforces the view of sound as a perceived object mentioned earlier. Moscovich then goes on to consider Messiaen's contribution to the development towards spectral music and in particular the development of his ‘resonance chord’ in his transcriptions of bird song and ‘in these [...] we find one of the first examples of a fusion between harmony and timbre’ (Moscovich, 1997, p.22). This is more or less as much as Moscovich presents, with regard to Messiaen's role in the move towards spectralism. However, there is a stronger argument in looking more closely at the works of not just Olivier Messiaen but also his compatriot
André Jolivet as being not just part of, but in fact the commencement of, the journey towards spectral music or *musique spectrale* and a key influence on Harvey's use of spectral techniques within the *Inner Light* trilogy and later works. However, before moving onto Messiaen and Jolivet, I shall briefly comment on Harvey's views on the advent of spectralism.

In his book, *In Quest of Spirit*, Harvey acknowledged the important role that spectralism played in his compositional methodology – suggesting that, with its arrival 'music will never be quite the same' (Harvey, 1999a, p.39). However, it is its symbiotic alliance with electronic music that he recognised as of great importance - effecting a rethinking of the idea of 'colour' within his music. While he saw the latter as a technological breakthrough, he considered the former a 'spiritual breakthrough', and it is the strong link between spectralism and the physical nature of sound that enabled him to explore the relationship, or interface between acoustic and electronic sounds. Harmony and timbre, elements of 'colour', need no longer be seen as two distinct concepts, but as one and the same – 'Harmony is timbre; timbre is harmony' (Harvey, 1999a, p.40). Wagner's opera *Parsifal* is singled out by Harvey 'as the first time' a composer infers there is no distinction between these two elements:

> the real vision, it always seems, is one of timbre: the transcendence offered by the Holy Grail is not couched in terms of developed harmony [...] but in terms of timbre, of orchestration based on common chords magically transmuted to harmonic series, to spectra (Harvey, 1999a, p.40).

Wagner's treatment of harmony and timbre leads Harvey to suggest that the German composer developed into a 'proto-spectralist', a label he also attaches to Messiaen. Harvey's interest here, though, is the potential for spectralism, like rhythm, to influence not just global time but also linear time and therefore have a role in both dimensions– vertical (global) and horizontal (linear):

> But the fascination of spectral thinking is that it, too, can easily shift into the realm of linear time, into melodic thinking: there is a large borderland of ambiguity to exploit. It is not a question of forsaking harmony and regarding everything as timbre, as some French composers do, but rather of harmony being subsumed into timbre. Intervalicism can shade into and out of spectralism, and it is in this ambiguity that much of the richness in the approach lies (Harvey, 1999a, p.40).
In his appraisal of Harvey’s work in the 1990s, Julian Johnson sees the individuality of his approach to spectralism as providing a link between abstract computer research with traditional forms of narrative such as journey – ‘from dark to light, low to high, formless to form, stasis to energy, and so on’ (Johnson, 2003b, p.76).

**Jolivet and Messiaen – Chords of resonance**

In his 2009 *Tempo* article Julian Anderson discusses the nature of André Jolivet’s influence on Messiaen. Interestingly, there is some evidence to suggest that Jolivet, a student of Varèse’s in the late 1920s/early 1930s, was introduced to the theoretical writings of Helmholtz by the American composer, and that his interest in the concepts of harmonic generation derived from acoustics was to influence not only Messiaen (with whom he founded the group La jeune France in 1936) but ‘via him, on many later composers’ (Anderson, 2009, p.8). Jolivet’s technique, elaborated in an article he wrote in 1946, used the acoustical phenomenon of differential tones as a source of harmonisation. The key concept here is that the frequency of a note (in Hertz) is important in reaching harmonisation decisions. In supporting his ‘notion of influence’ argument, Anderson presents one of the three chords Messiaen borrowed from Jolivet’s *Danse Nuptiale* to demonstrate the latter’s ‘novel harmonic procedure’. Figure 33 shows how difference tones or ‘inferior resonance’ are added to the original chord. 1) shows the 2nd chord of *Danse Nuptiale*. 2) shows this opening chord later in the work with ‘added inferior resonance’ (Jolivet, 1946) and 3) shows the two notes (or frequencies) that have been referenced to produce the lower notes.

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20 *Réponse à une enquête* in *Contreponts* January 1946
Acoustic explanation of notes in Figure 33

- F# = 369.99 Hz
- C = 261.62 Hz
- 369.99 – 261.62 = 108.37 Hz = A (primary difference tone)

Anderson goes on to clarify the importance of Jolivet’s compositional technique as a means by which to generate harmonic ideas – ‘The procedure for utilizing combination tones – tones which are the acoustical result of the difference or sum of the frequencies of other pitches – was to become the mainstay of much later music. In the form of ring modulation it became a standard procedure in the analogue electronic studio from the 1950s onwards and remains in use today in computer music in various forms (notably frequency modulation or FM)’ (Anderson, 2009, p.11)

Other applications used this technique in the opposite direction, using a pair of low notes to generate overtones as a source of harmony in the middle and upper registers. Messiaen referred to these bass source tones as resonance inférieure (Messiaen, 1944, p.51 Ex. 218). This ‘sum’ technique, also used by Jolivet, together with the ‘difference’ method used as the means by which to generate a new frequency/pitch, became a standard approach to generating harmony in musique spectrale from 1975 onwards (Anderson, 2009, p.11). Messiaen’s ‘chord of resonance’, (Figure 34) an example of adding pitch frequencies, was what the composer believed to be a colourful representation of the harmonic series with ‘nearly all the notes perceptible to an extremely fine ear’ (Messiaen, 1944, p.50 Ex.208).
Figure 34 Messiaen’s ‘chord of resonance’

Anderson surmised that this 2 octave wide chord was most likely ‘prompted’ by Jolivet’s specially devised mode, from the first 15 harmonics of a low fundamental compressed into a single octave (Anderson, 2009, p.12).

The table in Figure 35 shows how the chord has been derived from the frequency spectrum of a low fundamental tone (C4), comprising of harmonics 4,5,6,7,9,11,13 and 15 and adjusted to equal temperament.

For example:

- The 5th harmonic is represented by 5 x fundamental frequency – in this case C4 which is equal to 261.626 Hz.
- 5 x 261.626 = 1308.13 Hz
- Adjusted to equal temperament this is equivalent to 1308.13 Hz = E6

<table>
<thead>
<tr>
<th>Frequency (Hz)</th>
<th>Pitch (Equal Temperament)</th>
<th>Harmonic/Partial</th>
<th>Messiaen’s Chord of Resonance</th>
</tr>
</thead>
<tbody>
<tr>
<td>261.626</td>
<td>C4</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>523.252</td>
<td>C5</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>784.878</td>
<td>G5</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>1046.504</td>
<td>C6</td>
<td>4</td>
<td>x</td>
</tr>
<tr>
<td>1308.13</td>
<td>E6</td>
<td>5</td>
<td>x</td>
</tr>
<tr>
<td>1569.756</td>
<td>G6</td>
<td>6</td>
<td>x</td>
</tr>
<tr>
<td>1831.382</td>
<td>A#6</td>
<td>7</td>
<td>x</td>
</tr>
<tr>
<td>2093.008</td>
<td>C7</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>2354.634</td>
<td>D7</td>
<td>9</td>
<td>x</td>
</tr>
<tr>
<td>2616.26</td>
<td>E7</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Pitch/Frequency</td>
<td>Relationship Table for Messiaen's 'chord of resonance'</td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------------</td>
<td>-------------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2877.886</td>
<td>F#7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3139.512</td>
<td>G7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3401.138</td>
<td>G#7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3662.764</td>
<td>A#7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3924.390</td>
<td>B7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4186.016</td>
<td>G8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Returning momentarily to axial symmetry, it is important to note that, in addition to the symmetry evident in Messiaen's *modes of limited transposition*, elements of symmetry are also evident within his *revolving chords*. These chords, published posthumously in volume VII of his *Traité de rythme, de couleur et d'ornithologie*, feature as part of an extended table of chords (chords of resonance, chords of contracted resonance, chords of transposed inversions etc.) and were utilised in the composition of many of his works. His *revolving chords* (also referred to as *accords tournants* or *turning chords*) are similar to his other chord tables in that a basic sequence of chords is provided for each 'table' (three octads in this case) each of which can be further expanded by transposition giving a total set of 36 chords across 12 'tables'. When considered in isolation, the octads could not individually be viewed as containing the type of intervallic symmetry seen earlier in this chapter. However, symmetry is evident in the manner in which the octads are developed for each table. Figure 36 shows the three revolving chords (from the 8th table) used by Messiaen within *Chronochromie*. Anderson identified these chords as having originally been derived from Jolivet's *Danse Nuptiale* (from a harmonic summary of a 3 chord progression from bars 3-6). Messiaen adapted Jolivet's chord progression by removing the inverted pedal G and replacing the top line with a rotating pattern – a retrograde- inversion relative to the bass part. This 'swiveling, circular motion between treble and bass parts' (Anderson, 2009, p.5) within the 3-chord progression was referred to by Messiaen as 'turning chords'. Within this rotating pattern there are elements of
symmetry evident with a central axis of G/G# between the top and bass lines (Figure 37) and also within the outer notes themselves with individual axes of G and G# (Figure 38).

![Figure 36 Messiaen Revolving chords (8th table)](image)

![Figure 37 Messiaen: Revolving chord - central axis](image)

![Figure 38 Messiaen: Revolving chord - individual axes](image)

Importantly these chords are used as a means by which to develop melodic material. A technique also used by Harvey, as will be discussed below.

*Inner Light 3 (1975)*

The last work in Jonathan Harvey's *Inner Light* trilogy (although written before *Inner Light (2)*) represents a culmination of many of the ideas presented so far, and what could be considered a midway point towards the development of the methodology adopted for *Madonna of Winter and Spring*. Perhaps key at this stage is the realisation of a more defined and thought-out structural depth for a composition. Compared to the other two works in the trilogy, *Inner Light (3)* has a complex system of interrelated levels and layers, although this is perhaps to be expected taking into account the
work’s continued theme of ‘expansion’ of intervals, tempo, instrumentation and timbre. However, later works, such as Mortuo Plango, Vivos Voco, Bhakti and Madonna of Winter and Spring could be viewed as having a simpler and perhaps more effective structural depth at the core of their compositional ethos, suggesting that Inner Light (3) represents a less than successful attempt on the part of the composer in adopting a Schenkerian approach to realising the structural depth he so desired, although ‘background’ and ‘foreground’ remain key concepts within many of his works. Harvey’s own doubts as to the effectiveness of his approach is hinted at in an article in The Musical Times in 1976 shortly before the work’s premiere in which he commented on his reasons for providing an explanation of the levels, in needing to draw the listeners’ attention to:

the background structures and principles, which would normally only become clear after a few hearings, in the hope that the foreground events will speak for themselves and need no surround of words. I see no other way of defending my faith in structural depth in a post-tonal world Schenker would undoubtedly have regarded as anathema (Harvey, 1976, p.127).

Despite the use of symmetrical sets that ‘were to underpin Harvey’s later harmonic thinking’, when compared with later works such as Madonna of Winter and Spring, Whittall considered Inner Light (3) ‘congested in texture and earnest in manner’ (Whittall, 1999, p.47). He argues that this is due to the composer trying to avoid ‘any inherent hierarchic tendencies in his material’ and it is only after the Inner Light trilogy that ‘fully achieved clarity and technical control, entered Harvey’s music’. The extent to which Harvey was successful in his objectives is subject, therefore, to some debate and certainly while some of the large-scale aspects within the levels might be identifiable on repeated listening, some of the more detailed elements remain difficult to perceive. While perhaps a ‘branch’ (or dead-end perhaps) in Harvey’s developing interest in structural depth, Inner Light (3) represents a good opportunity to consider Harvey’s evolving methodology at this stage through a more detailed analysis of the work, and its elements of structural depth. As mentioned above, Harvey provided some background – primarily for the listener - on the levels of structure within the

21 BBC Symphony Orchestra at Festival Hall 3rd March 1976
work, and this provides a useful starting point from which to consider their application within the score, and its relevance to later works.

Writing of Inner Light (3) in 1976 Harvey commented on his ‘quest for structural depth (in the Schenker tradition, maybe)’. He refers to ‘several levels of structure [being] inextricably woven together in a “nest”, ranging from all the details and embellishments at the top to the single macrocosmic idea at the bottom’. He goes on to illustrate the point through an explanation of what he considers the three most important levels.

Level 1. The basic set: expansion of intervals (contraction in the retrograde, and also within the set as the second half retrogrades the first). Line A in ex. 2 (Figure 40)

Level 2. Many 12-note derived sets forming the main substance of the sound: they concentrate on one or two intervals at a time, going through the intervals of ex.1 (Figure 39) in order, e.g. first the semitonal sets, then the semitone and tone sets, then the whole tone sets, etc. Line B in ex. 2 (Figure 40)

Level 3. Musical Spaces or harmonic fields - repertories of pitches through which music can move - ranging from the normal dense semitonal divisions of space to a rarefied tritonal one. Line C in ex. 2 (Figure 40)

(Harvey, 1976, p.125)

![Figure 39. Inner Light (3): interval set ‘the basic set’ (ex.1)](image)

The 12-note sets referred to above are derived from an ‘expanding’ symmetrical set (the basic set) of intervals around a horizontal A axis (ex.1 shown in Figure 39). It is not clear from Harvey’s description of the basic set whether he is referring to interval class or literal interval size. It makes sense to assume that the composer’s methodology is based on interval class as this preserves the vertical symmetry of the basic set - with intervals from the semitone (A-A#) to the tritone (C-F#) and then back to the semitone (E-D#). Further evidence in support of this is reference to the expansion of interval size from semitone to tritone in Harvey’s linear structure diagram for the work (see Figure 40).
The use of a 12-note set indicates Harvey's continued interest (i.e. after his studies with Babbitt) in serial techniques. Griffiths draws a distinction here with Webern's serial techniques in that the Austrian composer:

always worked with a single series in composing his music where each moment is fundamentally identical to all the others. In Harvey's music, and in *Inner Light* (3) in particular, there is the large-scale level of the basic series – the *cantus firmus*, if we can adapt a term from the Renaissance – and to that level, others are tied as children to a parent. (Griffiths, 1984, p.94).

In his article, Harvey provides a graphical overview of the vertical and horizontal aspects of the work (Figure 40), which reveals how the three levels (referred to as A, B & C) expand and contract throughout the work. It also reveals a further level, D, in which an expansion of range – to the limits of audibility – is realised (discussed later in this chapter).

![Figure 40 *Inner Light* (3) Linear structure. (Harvey, 1976, p.125)](image)

The diagram also refers to three sections within the work – X,Y & Z – and these relate to how the instrumentation reflects the mirror structure of the basic set, and indicate the order of entries over the whole piece (Figure 41).
Figure 41  *Inner Light (3)*: X,Y & Z sections showing order of entry. (Harvey, 1976, p.125)

Level 1 (Line A in Figure 40)

The score reveals that various forms (Harvey refers to 6 forms in total) of this set are given in a string of long notes stretching, with interruptions, across the entire length of the piece, starting from bar 10. An example of this can be seen at bar 17 (see Figure 42). Harvey creates a dense texture of notes in the divided solo cellos and double basses, with each instrument restricted here to legato quarter-tone and semi-tone intervals - the first intervals in the basic set. During section X (which I have identified as between bars 1 to 184) these intervals expand to the tritone and back to the semitone in two forms as shown as Line A in Figure 40. The end of the first form marked by a return to unison note A in the double basses can be seen at bar 31 (see Figure 43).

Level 2 (Line B in Figure 40)

These are the derived 12-note sets that also explore an expansion of intervals from the basic set. Each derived set concentrates on one or two of the intervals from the derived set in order. An example of this can be seen at bar 31 in the contra bassoon and bass clarinet part, which are restricted here to the first two intervals of the basic set – semitone and tone. Also evident is the presence of the A/A# axis in the piano. (see Figure 43).
Between bars 31 and 92 an expanded range of intervals is sequentially realised for the contra bassoon and bass clarinet melodic material.

Level 3 (Line C in Figure 40)

This level, the largest scale level across the work, is based on the generation of harmonic fields. As each instrument enters and stays in each of the main three sections (X, Y & Z) the instruments accumulate in numbers as accompaniment creating ‘clouds’ or harmonic Spaces. Bars 167–169 (see Figure 44) show such a field across the strings section and most of the wind instruments. This field slowly moves towards a more contracted texture and by bar 173 the strings are directed in the score to create ‘pure noise’. This timbrally dense material is reinforced by noise on the tape. As discussed earlier the use of harmonic fields or musical Spaces is observed in *Inner Light (1)* and earlier Harvey works, however, its application here makes full use of the extended range available electronically, and timbrally, through use of untuned percussion, and considers both a contraction of intervals to the noise domain (see above), and an expansion of intervals to the extremes of the audibility range shown as Line D in Figure 40. This expansion into extremes is identifiable at bar 502, at which a solo violin and solo double bass move gradually up/down respectively to the highest/lowest possible note over a period of around a minutes duration. Harvey’s use of resonant harmonic fields was further explored a few years later, in *Mortuos Plango, Vivos Voco* and this is discussed below.
Figure 42  *Inner Light (3)*: example of Level 1
Figure 43 *Inner Light (3)*: example of Level 2
Figure 44 *Inner Light (3)*: example of Level 3
Although Harvey’s explanation of the different levels is fairly simple there would appear to be some potential confusion over its interpretation in the score. Certain sections could be identifiable as belonging to more than one level. For example, the Level 2 contra bassoon and bass clarinet melodic material, shown in Figure 43, could also relate to Level 1, in that it shows an ‘expansion of intervals’ from the basic set i.e. semitone and tone.

Of primary interest in this work is the oscillation of intervals around an axis, evident in the series derived from the ‘basic set’ or series (Figure 39). The derived series refers to the basic set from left to right and then right to left making use of the smallest intervals – evident as minor seconds and quarter tones at the start of the work – to larger intervals as the work proceeds and back to the smallest intervals. This expansion and contraction, or oscillation of intervals, consequently provides the work with its overall form and structure. Griffiths draws an association of Harvey’s basic series with Stockhausen’s Kontakte, itself derived from Nono’s works in the 50s (Griffiths, 1984, p.94). This link with Kontakte makes sense taking into account Harvey’s interest in the works of Stockhausen in the late 60s.

However, while unity of pitch, timbre and duration are key components of Kontakte, it is the relationship between pitch and harmony – and its relationship to timbre - that is Harvey’s primary focus. Also, in contrast to Kontakte’s ‘moment form’, in which each element is ‘to be heard as individual, as implicit eternities, rather than as stations on a journey’ (Griffiths, 2010, p.162), Harvey has in place a formal structure based not on traditional diatonic harmony, but on the expansion of intervals, enabling him to explore the relationship between pitch and noise, or by abstraction, from silence to noise, thereby providing a narrative for the work. Where Stockhausen and a number of his contemporaries considered abandoning the form and structure suggested by Webern, Harvey was investigating ways in which some of this new thinking could actually provide the structural depth he was seeking, as a replacement to that provided by diatonic harmony.

Atonal music has what might be considered, a static nature, in that it does not develop, or has problems developing. This is in contrast to tonal music, which creates a structure driven by harmony. What Harvey is presenting
here is an opportunity to reconsider the concept of ‘development’ within an atonal work. A 12-note basic set and its derived series provide material for *Inner Light (3)*, but it is the evolving timbral aspects that provide a possible narrative. Griffiths suggests that whilst the listener is not directed by harmonic forces that follow a linear sequence, they find themselves within a harmonic field in which they:

may circulate within the field, or take a spiral movement. (…) Like a spiral, the work finds itself from time to time in the same region; and also, again like a spiral, it does not retrace its steps and could conceivably continue without end. (…) What we hear of *Inner Light (3)*, starting in noise and ending in silence, is simply what we are to hear of a process that has no real beginning or end (Griffiths, 1984, p.95).

When present, this beginning and end are linked to tonality, and in particular European diatonic music pre-1900. From the beginning of the last century a number of composers including Debussy, Messiaen, Boulez and Stockhausen have taken an active interest in non-European music and in its potential for freeing up of direction governed by time. Whether or not Harvey was directly influenced by Asian and African music, he has certainly shown a willingness to consider new approaches to treatment of narrative. Griffiths presents a persuasive argument for this ‘spiral’ approach. However, while elements of *Inner Light (3)* do reveal a desire to release the work from structures typical of diatonic works, I would question the extent to which the listener is aware of this. The work has a number of identifiable sections that present to the listener the sense of journey, and thereby imply that the work has a clear beginning and end. It is also worth questioning whether or not the composer had considered any form of spiral structure within the work. Harvey makes reference to the final piece in the trilogy being ‘concerned with expansion itself, a reflection of the basic idea of the expansion of the consciousness towards God’ (Harvey, 1976, p.125).

*Mortuos Plango, Vivos Voco*

This highly respected work written in 1980 at IRCAM is one of Harvey’s first entirely electro-acoustic works (an earlier tape work *Timepoints* written in 1970 was withdrawn). Harvey had already experimented combining acoustic and electronic elements in works such as the *Inner Light* series written in the 70s, however, developments in computer-based composition
at IRCAM provided Harvey with the opportunity to further realise a number of ideas key to his developing compositional ethos in a purely electronic domain. As mentioned earlier, Harvey was interested in the works of the spectralists in the 1970s and the relationship between frequency and timbre explored in such works as *Inner Light (1)*. Completed at IRCAM in 1980 *Mortuos Plango* sees a continuation of the composer’s interest in these themes. However, while the work contains pitch elements, it is not a 12-note series that provides the basic musical material. Fundamental to this work is the harmonic analysis of the tenor bell at Winchester Cathedral that provides a number of inharmonic partials to be used as a resource for exploration. The analysis of the bell revealed 33 partials (Figure 45) with a fundamental of 130Hz which were used as the basis of pitch material.

![Bell spectrum and eight central pitches](image)

**Figure 45* Mortuos Plango, Vivos Voco* bell spectrum and eight central pitches. (Harvey, 1986e, p.182)**

Eight pitches (Figure 45), from the available real and false harmonics, were used to structure the work into eight sections. Griffiths noted that these are ‘not tonics as they might be in conventional music: they are rather axes of symmetry, as in *Inner Light (3)*’ (Griffiths, 1984, p.98). His reference here could be confusing, as the eight pitches do not appear to have an identifiable axial of symmetry observed in the basic series for *Inner Light (3)*. However, Harvey does make reference to a ‘pivot’ function to enable modulations from one transposition of the bell to another through the use of glissandi which has a symmetrical function. Harvey explained his approach - ‘To avoid banal parallelism, I chose differently located slices of the spectrum as beginning and end sounds, and the current central note was the “pivot” of the
modulation’ (Harvey, 1981, p.22). Two such transpositions taken from the sixth section, one-degree or ‘step’ apart, are shown in Figure 46 with a C ‘pivot’ acting as the means to modulate from one bell sound to another.

![Figure 46](image)

Figure 46  Transformations from one bell sound to another made as glissandi through pivot C

The creation of these eight ‘bell-tonics’ enables the composer to effectively modulate from one tonal centre to another, articulated in what he refers to as ‘Schenkerian hierarchies analogous to (but distinct from) the traditional Western tonal system’ (Harvey, 1986e, p.182). This provides a functional form for the work demonstrating Harvey’s continuing search for a replacement to that provided by ‘tonal logic’, and an ongoing interest in Schenkerian concepts of foreground and background. The structural premise, however, is far simpler than that presented in the *Inner Light* trilogy and consequently more effective in its aesthetic realisation. This is not a serial work, no 12-note strategies are evident here. However, there are certainly similarities with Harvey’s earlier 12-note inspired works. Firstly, parallels can be drawn in the composer’s use of a limited set of pitch resources for melodic and harmonic development. In *Mortuos Plango* the bell spectrum analysis provides ‘ample territory for exploration’ (Harvey, 1986e, p.181) through the resultant 33 inharmonic partials (although elsewhere Harvey refers to 24 pitches)\(^{22}\). Secondly, in that these strategies are further developed to enable him to address his desire to create a sense of harmonic movement. Common to all his works at this ‘mid-period’ stage was the use of rigorous limitations ‘to achieve a frisson of richness’ and this is most evident in his next work for IRCAM, *Bhakti.*

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**Bhakti**

This 1982 devotional meditative work is Harvey's second composition from the IRCAM electronic music studios and represents a number of ongoing developments in the composer’s methodology observed in the *Inner Light* trilogy and *Mortuos Plango*. As with the two earlier works, *Bhakti* explores the dialogue between two different sound worlds – electronic and acoustic. As seen in *Inner Light* the composer combines real instrument sounds with a tape part. However, rather than simply processing the instruments' sounds Harvey used the technological advances in sound processing and synthesis utilised in *Mortuos Plango* as a means by which to generate pitch material from instrumental sounds. Whilst his first IRCAM piece used a bell spectrum from which to create synthesized pitch material *Bhakti* returns to the use of a 12-note series, similar to that observed in *Inner Light* (3), as a source of material for the work. Palmer’s detailed analysis of the work (Palmer, 2001), based on Harvey’s pre-compositional sketches, identifies the whole pitch organization of the work as being derived from a 12-tone row as shown in Figure 47.

![Figure 47 Bhakti: 12-tone row and derived ‘chordal’ formations](image)

It can be seen that this 12-note series is symmetrical about a G/A♭ semitone axis and from this (including the axis) four separate note groupings are formed. As with previous works by Harvey the use of a Schoenbergian series together with Webern-inspired symmetry enables him to achieve certain aesthetic and spiritual objectives not possible through traditional tonal idioms. Palmer’s analysis reveals the importance of the 12-tone row to the entire work, exemplifying what he refers to as a ‘self-contained universe (...) which in turn generates further disclosures of related cells and tone-rows as complementary perspectives of the same musical essence and spirituality’ (Palmer, 2001, p.37). The adoption of a relatively basic formula
from which to generate varied, complex and multi-layered material is observed in a number of works by Harvey, however, *Bhakti* represents his most encompassing approach to date identifiable in the domination of the number twelve, in relation to not just pitch and harmonic content, but also the number of instrumental timbres, sections, derived cells etc. Our main focus at this stage, however, will be in relation to the pitch strategies present and their relevance to earlier works and Harvey’s following major composition, *Madonna of Winter and Spring*. Palmer observed four features within the 12-note series that could be easily identified.

1) The series contains the complete set of characteristic intervals
2) The relatively wide span of the register unfolds over two and a half octaves
3) A diverging bi-directionality, stemming from the initial axis includes an ascending line from A flat up to the high B flat and a descending path from G down to F below middle C (See Figure 48)
4) The bi-directionality is overall symmetrical around the axis, in that the ascending order of intervals is exactly mirrored in the descending line (See Figure 49)

(Palmer, 2001, pp.37-38)

![Figure 48 Bhakti: Bi-directionality in the series](image1)

![Figure 49 Bhakti: Intervallic mirroring](image2)

It is interesting to note that Palmer considers the axis an implied microtonal axis rather than a dual axis, noting that, whilst its use accommodates the technical possibilities of certain instruments, it is 'tempered by necessity, in that it needs to be applicable to all the instruments in the ensemble
(including, for instance, the piano and vibraphone) and comprehensively usable in the subsequent arrangement of cells and spaces’ (Palmer, 2001, p.38).

If we examine each of the four features referred to by Palmer we notice that the complete set of ‘characteristic’ intervals could be considered in two different ways – i.e. either by each note in sequence or according to the bi-directionality. With the latter this indicates the following interval classes: $A=5, B=3, C=4, D=9, E=2$.

*Passion and Resurrection*

Harvey refers to one particular section, the ‘new world’ within the Resurrection part of his 1981 opera causing him problems initially. He eventually ‘lit on the idea of symmetrical harmony around a central axis, a floating, weaving world freed from the dark gravity of bass oriented music’ (Harvey, 1999a, p.53). This ‘floating, weaving world’ provided Harvey with the potential to communicate spiritual ideas to his listeners, suggesting that ‘such music can trigger powerful spiritual experiences’ (Harvey, 1999a, p.71). Writing on the idea of symmetry in 2008, reference is made by Harvey to the ‘Resurrection’ section in which ‘the harmony, built on fundamental notes located in the centre, seems to levitate some sound textures as a metaphor of Christian spiritual transcendence, just as Christ’s resurrection reveals human suffering. The writing technique is put at the service of spiritual ideas’ (Harvey and Bossis, 2008, p.3). Figure 50, taken from Scene 12: The Resurrection Garden, shows clearly the symmetry present – again based around a semi-tonal $G/G#$ axis. This particular phrase, that accompanies the three Marys singing as they enter the garden, is a 12-note pattern similar to that used in *Bhakti*. This scene is dominated by melodic writing, in fairly strict adherence to the semi-tonal axis across both vocal and orchestral parts, the axis itself reinforced throughout.
This theme continues in two other works referred to in the same article. *One Evening* for two singers, instruments, electronic and tape composed by Harvey in 1993, in which ‘the first movement is constructed intervallically - on the principle of symmetrical inversion around an axis. Music flees around a central point clearly enunciated by the singers’ (Harvey and Bossis, 2008, p.3). Similar reference in the article to this ‘floating feeling’ is made in relation to Harvey's 1982 *Bhakti* commissioned by IRCAM: ‘the harmonic symmetry axis [...] creating a sort of suspension and allowing for the free flourishing of the generating idea of the work: devotion’.

At the start of this chapter reference was made to Harvey's interest in the use of 'obstacles' as part of his compositional aesthetic. There is sufficient evidence, within the composer's own writings, and through analysis of a number of his works, to suggest the importance of axial symmetry as such an 'obstacle' and that this has developed out of an interest in serial techniques. Harvey makes no claim to be unique in his approach, and acknowledges the influence of Webern in this regard. His use of symmetrical vertical aggregates in *Round the Star and Back, Bhakti* and the *Inner Light* trilogy around a semi-tonal axis can be traced back to techniques used by the Austrian composer. For Harvey, this compositional methodology provided the potential to 'float away' from the ground roots of tonality and 'free the dictatorship of bass' but importantly, also provided an alternative to tonal functionality by maintaining the potential for narrative structure through harmonic progression. Aligned to this is the use of interval classes to create vertical aggregates based on numerical sequential patterns as seen
in Bartók’s *Concerto No. 2.* Taking ideas from Messiaen’s ‘chords of resonance’ and the spectralist composers’ recreation of harmonic spectra through analysis of acoustic sounds, Harvey extended axial symmetry to create harmonic fields or spaces analogous with the frequency components of a single acoustic sound. Both *Inner Light (3)* and *Mortuos Plango, Vivos Voco* demonstrate Harvey’s interest in the nature of sound and the use of techniques that enable the composer to explore and utilise its component details and compositional material. Key to all this is how these approaches have enabled him to access the ‘deeper human meaning’ referred to at the start of this chapter in that these techniques are inextricably linked to metaphysical concepts. Spectralism, and in particular, its function in both vertical and horizontal dimensions provides a route into which Harvey could explore these concepts.

The next stage will be to consider how all the ideas explored so far have developed and been applied within his 1986 composition *Madonna of Winter and Spring.* Firstly, will be to consider the relevance of axial symmetry to the development of melodic material.
CHAPTER FOUR: MELODIC CHAINS

As has been shown in the previous chapter axial symmetry was a key element of Harvey’s compositional technique in his mid-period works leading up to Madonna of Winter and Spring. However, the development of thematic material was an important extension of this concept. From the early 1980s Harvey presented the desire and, as he saw it, the ‘courage’ to break free from the ‘old avant-garde taboo on thematicism’ (Johnson, 2003a, p.120) prevalent at that time, through a return to recognisable melodies. Harvey was to develop a particular formalised approach for a number of works during the 1980s including Ritual Melodies, a work commenced in 1984 but not published until 1989/90, and Madonna of Winter and Spring. Harvey first makes reference to this approach within The Mirror of Ambiguity (Harvey, 1986e), in which he discusses work carried out at IRCAM on an as-yet-unnamed work – although there is clear evidence that this was eventually to be Ritual Melodies.23 Ambiguity was a key concept of this work and the resources of the Paris institute were used to create simulations of ‘recognisable sounds’ including: shakuhachi, Indian Oboe, koto, temple bell, Tibetan monks and Western plainchant (Harvey, 1986e, p.185). These simulations were further manipulated to enable sounds to mutate into others ‘so one is forced to consider that all these exotic individuals are simultaneously one continuum, or their existence flips rapidly and ambiguously between “is-ness” and “belonging-ness”’ (…) These identities, hybrids and transitions are articulated by melodies’ (Harvey, 1986e, pp.186-187). Harvey’s approach was loosely based around a number of musical devices, including heterophony, which can refer to small changes in unison and complex contrapuntal material,24 and canons to create a chain

23 Example five melodies presented in HARVEY, J. 1986e. The Mirror of Ambiguity. In: EMMERSON, S. (ed.) The Language of Electronic Music. London: Macmillan Press. are identical to those presented by Vandenheede. There are also references to the same instrumentation, technical resources etc.

24 ‘Heterophony’ – Typically understood to refer to ‘simultaneous variation of a single melody’, however, ‘its meaning could range from reference to minute discrepancies in singing or playing in unison or octaves to the most complex of contrapuntal writing’. The Oxford Dictionary of Music, 2nd ed. rev.. Oxford Music Online. Oxford University Press, accessed April 7, 2013.
of melodic material. Both aspects will be explored within this chapter as will
the resulting theme of ambiguity that arises out of this approach.

As with much of Harvey’s work throughout his career, the use of melodic
writing is linked closely to extra-musical ideas, often providing the means by
which narrative could be linked to spiritual meaning. In an interview in
1992 Harvey explains the approach he adopted for Scena (1992), a work for
violin and chamber ensemble, in which he introduces a ‘kind of folk’ melody
fairly early on within the work. This then becomes cellular and textural
evolving ultimately into a straight unison melody. The melody goes on a:
narrative journey and breaks out (...) It’s connected to Buddhism. The basic
aim of Buddhism is to break out, I like to think. You know the idea of the
_koan_ in Zen is to shatter every logical process in the mind: you break out
and suddenly your eyes are opened and you see the light. That’s what I
mean by breaking out, and being close to Buddhism has given me rather a
consciousness of this breaking out. (...) So a melody can be a kind of
innocent, unburdened thing which comes as the goal of the journey, as a
representative of a breaking free’ 25 (Johnson, 2003a, p.121).

Whilst Harvey’s technique, as will be seen, might be considered as primarily
functional - a simple mechanism by which to develop material - it is
important to recognise that with his work there is an underlying purpose in
approach and this will be explored in Chapter 9.

**Polyphony and heterophony**

As referred to earlier melodic writing was an important part of Harvey’s
aesthetic, both during the 1980s, and in the decades that followed. As with
much of his work, a systematic approach was adopted, and he refers to
‘strict techniques of making melodies that were ambiguous but memorable’
(Johnson, 2003a, p.119). In his search for these techniques he refers to
being ‘struck’ by Messiaen’s birdsong and:

> by how you could recognise anything from three to fifteen different birds at
the same time–how you could recognise consistent differences in
polyphony, which wasn’t just a mass texture but had real characters in it ...
as Mozart, was achieving in the _Jupiter_ stretto and Schoenberg was
achieving in parts of the First Chamber Symphony ... many well-defined
themes occurring in combination (Johnson, 2003a, p.119).

25 ‘Koan’ – a story or dialogue used within Zen practices to test a student’s
progress.
He makes the clear distinction that it was not a fugal texture he was looking for, but one that enabled him to explore the tension that was created, through the simultaneous recognition of different melodies; and making things belong to ‘different identities’ as he put it. Whilst Harvey makes no reference to any specific works by Messiaen in this regard a good example of this technique can be seen in his orchestral work *Chronochromie* (1960) the sixth movement of which, ‘*Epode*’, consists of eighteen string instruments, each portraying a different birdsong in an ‘almost seamless tangle’ (Griffiths, 1985b, p.193). One can imagine the composer’s aim here was to effectively allow his birds some freedom – to release them from the constriction of the extrinsic harmonic and rhythmic framework in the previous movements. The success of this ‘daring effect’ (Armfelt, 1965, p.857) is subject to some discussion, as it potentially calls upon the listener to differentiate between the thematic ideas presented simultaneously. Figure 51, by way of example, shows the first point at which all of the themes are present, following the entry, at bar 8, of the 18th theme - the ‘2nd Loriot’. This gives some idea of the potential confusion arising in marked contrast to the other movements which are more open both visually and aurally to a conventional ‘vertical’ interpretation. It effectively denies the listener the opportunity to consider any form of progressive structure, marking as Griffiths puts it, ‘an extreme of stasis (...) Time stops because the forward movement of the music thoroughly baffles any attempt to comprehend it: there is no direction here, only a tissue of motivic connections operating horizontally and vertically, forwards and backwards’ (Griffiths, 1985b, p.193). Indeed, early performances of the work were subject to much audience criticism; the kaleidoscopic ‘*Epode*’ section setting off ‘howls of protests’ at the premiere26 at Donaueschingen (Hill and Simeone, 2005, p.419). One senior critic, René Dumesnil, likened the public’s response to that received for Stravinsky’s *Rite of Spring* in 1913. (Hill and Simeone, 2005, p.243). Messiaen, though, was simply portraying what he heard, in effect a dawn chorus – taking his ‘lessons from nature’ (Armfelt, 1965, p.857) - requiring him on occasion to personally defend the work and in particular the four minute-long outburst of birdsong in the sixth movement, recognising that ‘mingling them together

26 16th October 1960
shocks audiences of all persuasions’ (Hill and Simeone, 2005, p.244).
Harvey was to adopt a similar effect, also using solo strings, in Madonna of Winter and Spring, in which the 20 themes used throughout the work are presented at a particular section polyphonically. However, whilst no literal ‘natural’ or avian rationale could be argued here, his use of thematic material that is linked to its neighbours suggests that Harvey was aware of the potential problems inherent in this technique. The relationship between different themes within Ritual Melodies and Madonna of Winter and Spring will be looked at later in this chapter, and in Chapter 6.

Figure 51 Chronochromie ‘Epode’. Bars 8-9 showing entry of all 18 birdsong themes.

27 An example of this can be seen at bar 111 to 118 in the ‘Conflict’ section of Madonna of Winter and Spring
Chains and canonic devices

Harvey makes no specific reference to the inspiration, if any, behind his use of melodic chains, and there is nothing to suggest, in any of the sources referred to, the application of this technique in any of his works earlier than *Ritual Melodies*. Whilst he gives the impression of going against a contemporary view of thematic material, Harvey was not alone in considering the value of melodic material in the post-modernist music environment. The works of Ligeti, and in particular, *Melodien* (1971) with its ‘fifty-seven short melodies that unfold, eventually in four different instruments [that] are treated as unordered sets in pitch space and displayed as vertical resultants’ (Bernard, 1999, p.10) i.e. melody interpreted as harmony, should be considered as a possible source of inspiration. It is likely that Harvey was aware of this work, and conceivably heard it at the UK Prom concert in 1982, or more likely had read the score at an earlier point.

The reference earlier to polyphony in the birdsong of Messiaen provides some background to his approach in creating something more than just ‘mass-texture’; however, it is insufficient in considering the ‘chain’ aspect. The use of canonic devices was made earlier in this chapter, although its application in Harvey’s aesthetic is loosely connected to its conventional meaning in music, i.e. the sequential entry of a melodic theme with each entry imitating exactly, at an interval of time, that of the first28. In the description of his approach to the formation of melodic chains in *Ritual Melodies*, Harvey refers to both canon – ‘we also made canons out of these melodies’, and quasi-canon – referring to one theme following the other ‘quickly after in quasi-canon, and so on up to 16 polyphonic voices’ (Harvey, 1986e, p.188). As with much of Harvey’s work, he makes no claim to this being a unique approach, so one is left to surmise potential influences for its use. Canons, and indeed fugues, both make use of the staggered entry of a

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28 ‘Canon’ - Strictest form of contrapuntal imitation. The word means ‘rule’ and, musically, it is applied to counterpoint in which one melodic strand gives the rule to another, or to all the others, which must, at an interval of time, imitate it, note-for-note. *The Oxford Dictionary of Music*, 2nd ed. rev.. Oxford University Press, accessed April 5, 2013, http://www.oxfordmusiconline.com/subscriber/article/prt237/e1770.
theme, or themes and this technique has been utilised by many composers, going back hundreds of years. The key concept (i.e. the quasi-canon) being considered here is not that the themes should be identical, or related through some other strict mechanism such as inversion or transposition, because in Harvey’s music they are not, but that the technique incorporates a circular device, or chain of melodies that links the last melody to be introduced to the first so there is no ‘privileged starting point or direction’ creating, as Harvey puts it, ‘a quarry for compositional plunder’ (Harvey, 1986e, p.187).

Works by Bartók have already been mentioned with regard to the use of axial symmetry, and it is to the 20th Century Hungarian composer to whom we now return. His Third String Quartet (1927) contains many melodic elements clearly presented, which on close analysis are revealed to represent chains of motivic material. There is a large amount of analytical literature on this quartet including a comprehensive paper by Babbitt (Babbitt, 1949), with whom Harvey studied at Princeton. Babbitt observes that:

Bartók’s thematic material (...) consists, characteristically, of a small number of chromatically related tones stated in their linear span. Such a theme can, by alterations of relative durations, metrical placement, and dynamic emphasis, serve as the elaboration of almost any one of its component elements, without sacrificing its initial character. Then, rather than functioning as a fixed unit that is acted upon, such a theme can itself act as a generator, avoiding redundancy through continual variation, but creating, at the same time, continuous phases of association (Babbitt, 1949, p.378).

The term ‘continuous phases’ is further elaborated on by Straus in his analysis of this string quartet (Straus, 2008), in which he refers to the ‘spinning out’ of melodic lines from brief ‘motive’s in the form of ‘motivic chains’ – each ‘motive’ being a series of pitches or pitch classes, typically three notes in length; and a chain occurring ‘when the last note or notes of one motive become the first note or notes of the next’ (Straus, 2008, p.25). In this particular case, the motives are related through one of four traditional serial transformations: transposition (T), inversion (I), retrograde (R), and retrograde inversion (RI) generating four different types of motivic chain. By way of explanation, Straus provides an analysis of the opening melodic line demonstrating how a 4-bar melodic phrase has been
derived from a 3-note motive, A#-B#-A. Figure 52 shows two such motivic elements within a single melodic phrase, demonstrating how the end of one motive is the start of the next, creating a chain of motives. The gap between the I-Chain and the RT-Chain is generated by an overlapping RI and T Chain (not shown).

Figure 52 Motivic Chains in Bartók’s Third String Quartet, Prima parte, Bars 2-6

The above example shows the development of a melodic phrase within one instrumental line, in this case played by violin 1. Elsewhere within the work there are examples of these motivic chains, operating through the use of canons. The Seconda parte of this two-section work is also dominated by variations and transpositions of the main thematic material, with sections that ‘begin as straightforward melody with chords and evolves into a very dense web of imitative counterpoint’ (Wilson, 1992, p.100).

Figure 53 Canon in Bartók’s Third String Quartet, Seconda parte, Bars 95-103

As in the earlier example this ‘imitative counterpoint’ incorporates a circular or chain device, linking the end of one element to the next. It also highlights the pitch relationship between the two melodic phrases, and in particular how the combined or overlapping melodies could perceivably be considered a new composite melody, albeit with a greater focus on harmonisation. Whilst this might appear a slightly tenuous idea to introduce at this stage it
highlights the potential, melodically speaking, that counterpoint techniques can suggest.

The reference to Bartók and a possible link to the works of Harvey is my own speculation and serves primarily to suggest a possible source of inspiration for Harvey's use of melodic chains either through an understanding of his works or indirectly through his association with Babbitt.

Before moving onto Harvey's use of melodic chains there are a number of concepts to consider. Firstly, the polyphonic treatment of thematic material, as seen in Messiaen's *Chronochromie*; and in particular the desire for themes that are identifiable and that retain their independence will be seen as an important aspect of Harvey's aesthetic, as will the potential for ambiguity in the use of these techniques. Secondly, reference to heterophony has been made earlier within this chapter, and whilst this term has traditionally meant simultaneous variation of a single melodic line, and therefore limited in its application here, the term remains relevant to discussion of Harvey's works, suggesting the opportunity to consider a neologism, such as extended-heterophony. This term suggests that the themes or melodies simultaneously presented are in some way connected, although they are not directly variations of one basic melody.

Thirdly, the use of melodic chains, or circular devices, has been referred to through the use of canonic devices. However, although Harvey has used this term in relation to his discussion of melodic chains, again the term may be insufficient to accurately describe his approach, and may need clarification. Finally, that the combination or overlapping of melodic material can lead to creation of secondary melodic material that has its own identity, but remains related to its neighbours. As will be shown, these four concepts form the basis of Harvey's approach to his use of melodic chains, and when considered individually there are precedents for their application.

Stockhausen's *Zyklus* (1959) for percussion is also of interest here. Written as a set piece for a percussionist competition it is an example of an early 'moment form' work. Harvey wrote about this work in some detail in his Stockhausen monograph, and therefore was well know to him. As the title
suggests it is based the concept of a 'cycle'. The 'cycle' here is the use of a sequence of sixteen pages of music set up in a cycle that surround the player. They start with any page of their choice and work through each page in sequence until all pages have be performed. As a 'moment form' work there is no specific start of end – it is effectively a continuous chain.

Although there is an aleatory aspect to this work Stockhausen goes into great detail: 'it is extremely carefully thought out, and the systematic complexity is considerable' (Harvey, 1975d, p.82). Ultimately Harvey failed to be impressed by the work's interplay of content and form, and found it a 'dull work' (Harvey, 1975d). However, the concept of a chain of musical ideas, and attention to detail was to have some influence.

Although not featured in his book on Stockhausen (which only covered works up to 1974), his 'opera' Sirius (1977) should also be viewed as potentially influential on Harvey's approach to thematic ideas and melodic chains. At a time when many postmodernists were moving away from the idea of thematic material Stockhausen's use of thematic material to represent the principal characters will be seen to have resonance with Harvey's developing methodology. Of particular interest was Stockhausen's use of transformations which see 'one melody progressively assume the features of another, as a series of mists and frosts "borrowed" from winter will gradually transform the autumnal aspect of October from Summer nostalgia into Winter foreboding' (Britton, 1985, p.516). Sound morphology and seasonal analogy will be seen to have a resonance, and likely influence on Harvey's approach – especially in Ritual Melodies, and Madonna of Winter and Spring.

**Ritual Melodies**

Harvey's second purely electronic work composed at IRCAM, after Mortuos Plango, Vivos Voco (1980) was completed in 1990, although he commenced preparatory work on it in 1984. The work was subsequently discussed in some detail by Jan Vandenheede, Harvey's technical assistant at IRCAM, in an article published in 1992 (Vandenheede, 1992). However, the composer outlined the basic compositional concepts behind the work eight years earlier in a chapter of Simon Emmerson's book *The Language of
Electroacoustic Music (Harvey, 1986e). As referred to earlier, the technical resources at IRCAM enabled Harvey and Vandenheede to analyse a range of acoustic instrumental sources by which to create simulations that could be manipulated to enable smooth transitions from one instrument to another. In the article, Harvey puts the work in context to the two other works, Mortuos Plango and Bhakti (1982), completed at the Parisian studio:

My work at IRCAM since those two pieces has been concerned with completely recognizable sounds and the paradox of their interchangeability. Our memories seem to work in discrete quanta. Our mental pictures are mostly of static images robbed of the element of change. Continuums are slippery, they elude our grasp and puzzle us when thrust under our noses. We try to slice them into comfortable bits (Harvey, 1986e, p. 185).

In his analysis of the work, Vandenheede states that the pitch system is based ‘almost entirely’ on the harmonic series of G0. There are a few exceptions to the system, but these are limited to the occasional use of glissandi and a previous section transposed down two octaves, both occurring towards the end of the work (Vandenheede, 1992). The use of frequency components as a source of pitch material was also adopted for his earlier IRCAM work Mortuos Plango, although Bhakti, written two years later is based on a 12-note pitch system. Spectral analysis enabled Harvey to synthesise instrumental sounds to explore timbral relationships between different sounds, allowing him to explore the concept of ambiguity within the work. However, the discussion here will focus on the melodic material and pitch relationships. In (Harvey, 1986e) the composer outlines his use of melodies as a means by which to articulate the identities, hybrids and transitions of the resulting synthetic models. Harvey justifies his approach in that these models are essentially monodic (i.e they are instruments only capable of producing one note at a time) each with, as he puts it:

highly individual ways of moving from note to note. Therefore it is entirely natural that the projected work should be essentially melodic. Though in fact I enrich the melodic concept with heterophony and parallelism, and beyond that, with polyphony (Harvey, 1986e, p. 187).

The main melodic material is organised as described in (Harvey, 1986e) and (Vandenheede, 1992) as a set of eight basic or prime melodies A,B,C,D,E,F,G,H and a corresponding set of intermediary or secondary melodies A+B, B+C, C+D, D+E, E+F, F+G, G+H, H+A. The melodies are
presented as a cycle or chain, enabling staggered introduction of each melody with the final melody, H+A, linking back to the first, A. The secondary melodies are obtained by ‘superimposing’ two neighboring prime melodies. An example, shown in Figure 54, of five melodies in a chain is provided by the composer in (Harvey, 1986e) and this clearly shows how a succession of prime melodies is linked by the secondary melodies which are a composite of the prime melody above and below29.

Figure 54 Five melodies in a chain. Only the beginnings of the melodies are shown here. Instrumental timbral transitions are indicated above each line (Harvey, 1986e, p.189).

In both Harvey’s discussion and Vandenheede’s detailed analysis of Ritual Melodies, a number of characteristics are identified; and a review of these here will provide an opportunity later to consider and compare the pitch organisation with that adopted for Madonna of Winter and Spring.

1. Melodic chains utilise a pitch system – in this case based on a harmonic series. The use of harmonic series is evident in the size of the intervals present at the extremes of the range, with minor thirds below middle C, as seen in melody G; and chromatic intervals in the upper range, as seen in melody ‘I’. The global range or tessitura of the cycle is surprisingly small,

29 In (Harvey, 1986b) the last melody is referred to as ‘I’ although in (Vandenheede, 1992) this is identified as the ‘first’ melody in the chain - ‘A’
the lowest partial being 6 and the highest 36 giving a range of 2 octaves and a fifth. Each melody has its own range within this including a unique highest note, consequently each melody has a character that can be described by its range and intervals.

2. The secondary melodies, i.e. G+H, use motifs from the prime melodies on either side, creating a new melody that is both unique and related its neighbours. The motifs are such that they fit ‘neatly’ together to create a new melody.

3. The staggered entry of melodies, and the way in which they fit with their neighbouring melodies allows the melodic material to effectively progress forward to create the cycle or chain of melodies eventually linking back to the first melody.

4. The prime melodies exhibit a strong identity/character, through their tessitura, interval class, instrumentation, rhythmic variations and performance directions. The secondary melodies, with elements of these characteristics from two prime melodies present opportunity for ambiguous interpretation.

Point 4 above raises the question as to whether it is possible to hear the difference between the prime and secondary melodies. The character of the different melodies will be explored in detail in Chapter 6. It is sufficient at this point to mention that Harvey uses various techniques, such as timbral differentiation to identify when secondary Melody might be present.

The use of the harmonic series as a source of melodic material has already been identified, in a previous chapter, within an earlier Harvey work, *Inner Light* (1). Whilst this work, written in 1973, does not make use of melodic chains it should still be regarded as relevant to the development of melodic material in *Ritual Melodies* and *Madonna of Winter and Spring*.

Before moving onto *Madonna of Winter and Spring*, it is important to note that discussion at this stage is focused on pitch organisation and melodic chains. Both Harvey and Vandenheede elaborate in some detail on the synthesis of sounds in *Ritual Melodies*, and the importance of timbre and ambiguity. These concepts will be explored in Chapters 7 and 8.
CHAPTER FIVE: AXIAL SYMMETRY IN _MADONNA OF WINTER AND SPRING_

The previous chapters have shown how axial symmetry was an important part of Harvey's developing compositional technique. This has been explored in relation to possible influences on his approach, and its use in a number of his compositions leading up to _Madonna of Winter and Spring_. This chapter will now discuss specifically the application of these techniques within that work.

**The axis**

The axis acts as the foundation on which Harvey applies interval-derived methodologies from which the main (and only) thematic and harmonic elements of the piece are drawn. The axis used for _Madonna of Winter and Spring_ is middle E/F – see Figure 55. This is clearly identified (and labelled as such) in the composer’s own sketches for the piece at the top of the page showing the seven harmonic Spaces highlighting its importance, but is also obviously discernible from an analysis of the Spaces.

![Figure 55 Axis for Madonna of Winter and Spring](image)

In (Harvey, 1986b, p.432) the composer identifies that this central axis used in the first movement “Conflict” is transposed down for the third section “Depths”, and up for the last section “Mary”.

![Figure 56 Axis movement within Madonna of Winter and Spring](image)

It is observed that the movement of the axis, down and up, is symmetrical about the E/F axis.
The axis remains static throughout each of the sections with the exception of the second section, “Descent”, where the axis slowly descends to its lower position for “Depths”. The interval transposition in both directions is thirteen semitones – a number chosen, one assumes, to allow a suitably large enough range perceivable for purposes of the narrative, and to ensure no noticeable tonal associations.

The starting position for the axis in the first section, its slow descent, to static position in Depths, and then its move to high register for “Mary” is closely linked to the narrative – which will be explored in Chapter 9.

*Madonna of Winter and Spring* is not a microtonal work; there is no evidence within the score of use of intervals less than a semitone, with the exception of an input signal for the ring modulator, although glissandi are used. Harmony is therefore based clearly on a traditional tonal framework. His use of a dual axis raises questions as to whether the actual ‘axis’ is in fact a midway point between E and F. This argument is supported by his use of 339Hz (the frequency of this midway point) as an input signal for the ring modulator (this is discussed in Chapter 8). The use of a dual axis should be viewed as suggesting or implying this exact midway point, rather than presenting it precisely. This midway point is of some conceptual value in that it is unheard, and therefore possesses mystical or mysterious value. The use of E/F as the ‘implied’ axis enabled Harvey to use orchestral fixed-pitch instrumentation for the harmonic Spaces, and to build his harmonic material based on clear integer intervallic relationships as will be discussed below.

**Development of harmonies or Spaces**

Most of the harmonic fields I use have four properties: they divide a certain span of roughly an octave or double octave symmetrically; they are inversionally around a governing axis for the piece; they are made of only two or three intervals; and they are atonal within the two octaves’ span. As harmonic fields, in addition, they can remain in place for anything between a second and ten minutes and thus have the ability to achieve large-scale stasis (Harvey, 1999a, p.74).

Seven different harmonies or Spaces are constructed around the central axis, and these provide the basis for all the harmonic material of the work and also the thematic material, as will be shown later. The number seven, a ‘favourite’, has relevance to the composer in that it is ‘ungraspable, but only
just’. By this I believe the composer considered this the maximum number of sets of unique harmonic material that a listener would just about be able to differentiate between – any more than this, and it could be considered highly unlikely that a listener would be able to recognise if this was a harmonic space that had already been introduced or not. No reference is made to the Roman Catholic devotion to the Virgin Mary in the ‘seven joys of Mary’. However, taking into account the religious nature of the work, its relevance was probably not missed by the composer. The ‘seven joys’ or ‘mysteries’ (fully referred to as The Franciscan Crown, or Rosary of the Seven Joys of the Blessed Virgin) refer to the popular devotion to events in the life of the Virgin Mary, typically represented in medieval art and literature. These are: The Annunciation, The Nativity of Jesus, The Adoration of the Magi, The Resurrection of Christ, The Ascension of Christ to Heaven, The Pentecost and The Coronation of the Virgin in Heaven. (http://www.catholictradition.org/Litanies/litany34a.htm)

The basic concept of a space in the context of this work is a vertical aggregate of notes, containing the same intervallic proportions radiating symmetrically out above and below a central axis. The use of semitone intervals, in all but Space 2, ensures that octaves are avoided, and the spaces are distanced from tonal harmonies.

The harmonic structures for Spaces 1 to 6 are derived from a mirroring of an initial semitone interval on either side of the axis middle E and F that follows a mirrored chromatic sequence - see Figure 57. This ascending/descending chromatic pattern is not shown on the sketches, but is discernable from an analysis of the Spaces revealing perhaps the next stage of the developmental framework for the work.

![Figure 57 Semitone intervals either side of axis for Spaces 1 to 6](image)

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30 Discussed with the composer via email 19/1/11
The resulting ‘initial’ interval around the central axis therefore increases by two semitones sequentially for Spaces 1 to 6 in the following semitone sequence; 1,3,5,7,9,11 – shown in Figure 58, with Space 1 starting with the actual axis notes having an ‘interval’ of 1. A link (coincidence or otherwise) can be observed between the initial intervals, and the intervals present in the interval set for each Space. For example, Space 2 has a semitone interval of 3 around the central axis and 3 is one of the two semitone intervals used in the intervallic sequence for that Space. Space 3 has an interval around the axis of 5 and this is an addition of two of the intervals used in the intervallic sequence for that Space (5 = 1 + 4) as well as being present in the intervallic sequence itself. Only Space 1 contains the notes of the central axis itself although in Spaces 2 to 6 its presence is perceived as it still functions as the axis for intervallic symmetry in those Spaces.

Figure 58  Axis intervals for Spaces 1 - 6

However, for Space 7, the symmetrical set of pitches is mirrored around a ‘new’ axis of middle F - see Figure 59. When asked why, the composer was unable to recall the actual reasons for the different approach for this Space, however, commenting on possible reasons, he suggested that the logical extension of the series requiring symmetrical intervals on either side of the E/F axis would have detracted from the ‘important sounding presence of the F itself’ citing how the ‘upper resolution, optimistically speaking, of the leading note E and tonic F is the progression to F at the end’ of the work. As will be shown Chapters 6 and 9, the Spaces are fundamental to the structure of the work (both on a micro and macro level).
Each of the seven Spaces is based on a unique set of semitone intervals that symmetrically spread out from the central axis with the initial interval as the starting point, thereby providing each space with its own ‘recognisable’ harmonic identity. This is essential as the thematic material, each of which also needs to reflect the composer’s desire for memorable themes (Harvey, 1986b, p.431), is based around notes taken from one or two of the Spaces in sequence, as will be shown later. The number of specific semitonal intervals used for each set range typically between two and four in number. For example: for Space 2, the interval set is based on semitone intervals of 3 and 4. Space 3 – uses intervals 1, 4 and 5.

Each space has a total range of seven to fourteen notes on either side of the axis, providing a relatively fixed harmonic sequence in terms of octave range, with no intervals of an octave or greater, although the fixed range of note pitches with ordered sets of hexachords and tetrachords, found in the Bhakti Spaces have been abandoned for a more flexible system. However, analysis of the sketches show the continued use of a 12-note set in the two groups of six notes – see Figure 60 - used on either side of the axis for all seven Spaces suggesting that Schoenberg's self-contained environments with 'no absolute down, no right or left, forward or backward' (Schoenberg et al., 1975, p.223) still have an important metaphysical resonance for Harvey.
Further to this, there are identifiable cells, or groups of pitches in the Spaces, as seen in Bartok's 2nd Piano Concerto, although this is not consistent (c.f. Bhakti). For example, Space 2 has the following interval chain [4-4-3-4-4]-3-[4-4-3-4-4] with the 4-4-3-4-4 chain repeated twice within the sequence separated by semitone interval 3 on both sides of the axis. This pattern of two groups (of six notes), separated by an interval is also noted in Space 3 with two groups of [1-4-5-1-4] separated by semitone interval 5. Space 1 has two groups of four notes separated by a semitone interval although this pattern is not repeated in the higher register. It is interesting to note that on the composer’s original sketches for the work it is Spaces 2 & 3 that were presented first, then Space 1, perhaps taking inspiration from a similar methodology adopted for the six Spaces in Bhakti, although, contrastingly the repeated cells present in the earlier work are not universally applied to all the Spaces in Madonna of Winter and Spring as repeated cells are less identifiable in Spaces 4 to 7.

Similarity between the Spaces, which are typically presented in sequence throughout the piece, is minimized through the use of different sets of intervals for neighbouring Spaces. For example Space 1, with semitone intervals 1,2,5 & 6 shares no intervals with Space 2 (semitone intervals 3 & 4), which in turn only shares one interval with Space 3 (semitone intervals 1,4 & 5). With the exception of Space 2 and Space 7, all Spaces share at least one interval with their neighbour. This has relevance for the melodic chains which source their pitches from the Spaces. This will be discussed further in the next Chapter.

While the seven Spaces have a specific function as ‘reference material’ for the composer, not all the pitches from a space might be used within the piece itself. However, sufficient are present in totality (barring extremes) over relatively short number of bars to be perceived (Harvey, 1986b, p.431).
The extent to which the Spaces are memorable is debatable; however, their presentation in bars 1 to 5 at the start of the piece and the use of the Spaces’ harmonic material as a source for the thematic material and the limitation of harmonic content to just seven Spaces each with a fairly unique set of intervals certainly highlights the composer’s wish to make them an important reference point for the listener – albeit only just.

**The Spaces for *Madonna of Winter and Spring***

**Space 1 (Figure 61)**

![Figure 61 Space 1 showing semitone intervals symmetry](image)

The first space, like all seven Spaces, follows a symmetrical expansion of intervals from a central axis. Semitone intervals 1,2,5 & 6 are used to provide a chain of mirrored intervals {5-2-6-1-1-5-2-6-1-6-1-1}, on either side of the central axis as shown in Figure 61. Within the set of intervals a repeated cell of [5,2,6,1] is identifiable. There are twelve notes on either side of the central axis, allowing for a perfect mirroring of the harmonic field on either side. The six notes around the axis, including the axis itself, make up the 12-note set.

**Space 2 (Figure 62)**

![Figure 62 Space 2 showing semitone intervals](image)

This Space is also made up from an expansion of symmetrical intervals around the central axis middle E & F (not shown). The starting notes for the mirroring of intervals are a semitone on either side of the central axis, middle D# below and middle F# above as shown in Figure 59. Semitone
intervals 3 & 4 are then used in a mirrored sequence of {4-4-3-4-3-4-3-4-4} on either side of the axis to produce the expanding harmonic spectrum, with a repeating cell of [4,4,3,4,4] identifiable. Alternatively, if one includes the axis interval of 3, a cell grouping of 3,4,4 is evident. While all of the Spaces here contain a 12-note set around the central axis, Space 2 actually contains two 12-note sets. The compositional sketches for the work list Space 2 first suggesting that this might have originally been the original design methodology – but one that ultimately could not be sustained.

Space 3 [Figure 63]

Figure 63  Space 3 showing semitone intervals

The third Space is also based on an expansion of symmetrical intervals around the central axis middle E & F. The starting notes for the mirroring of intervals are a tone on either side of the central axis middle D below and middle F above. Intervals of 1,4,5 are then used in a sequence of {1-4-5-1-4-5-1-4-5-1-4-1} on either side of the axis to produce the expanding harmonic spectrum. A repeating cell of [1-4-5-1-4-5] is identifiable which could be further sub-divided into a repeating smaller cell of [1-4-5]. The two sets of six notes around the central axis, make up the 12-tone set.
Spaces 4 to 6 (Figure 64)

Figure 64  Spaces 4 to 6 showing semitone intervals

As with the first three, Spaces 4 to 6 also reveal symmetry of intervals around a central axis, and use of a 12-note set around the central axis. In Spaces 4 to 6 the repeated cells, evident in the first three Spaces, are less clear, but are observed. This suggests that the repeating cell idea might have been an initial structuring device to help organise the intervals with the intention of the use of symmetry at a number of levels. Practicalities of ensuring the distinctive harmonic character of each Space, and of the 12-note set may have made it difficult to maintain this with the same clarity throughout all the Spaces.

Space 7 (Figure 65)

Figure 65  Space 7 semitone intervals. Dotted line shows - ‘new axis’ or ‘tonic’ F
Whilst there are some similarities with the other Spaces in terms of the use of symmetrical intervals and a wide registral range, there are a number of key differences with Space 7 that imply it has an intentionally different musical character. As discussed above, Space 7 is based around a single central axis rather than a dual semitone axis. There is a simplicity to this Space compared to the others, having a reduced number of notes – with only seven notes either side of the axis. This is determined by the use of two ‘large’ intervals and the absence of intervals 1, 2 or 3 which are present in the other Spaces. The choice of semitone intervals 5 (perfect 4th) and 6 (tritone) could also be taken as relevant given their associations with symmetry. The unique character of this Space is intrinsically linked to its role within the narrative and this will be explored in Chapter 9.

**General Observations regarding Spaces**

As described above the seven Spaces reveal a systematic approach by the composer to define the harmonic material within *Madonna of Winter and Spring*. This harmonic material will also be used to define the thematic material as will be shown in Chapter 6. Within the work the Spaces are used, often in sequence (i.e. Space 1, then Space 2 etc.), as a mechanism to define harmonic progression. This is either done through use of vertical aggregates or through the thematic material that is based on the Spaces. The repeating cells evident in a number of the Spaces suggest the presence of further axial centres meaning that axial symmetry can be further described in terms of higher and lower regions. In his analysis of *Bhakti*, Palmer observed a similar technique being used in the Spaces for that work allowing for, he suggested, ‘greater flexibility in their textural application’ (Palmer, 2001, p.50). The following table (Figure 66) shows the interval chains and interval set of each Space. From this it can be seen that the interval around the central axis is linked to the interval set. This is either as an exact integer, as is the case for Spaces 1 and 2, or as an addition of intervals in the set. For example, Space 3 uses intervals 1, 4 and 5 and the interval around the central axis is 5 which is equal to interval 5 and the sum of 4 and 1. This pattern is observable in all the Spaces except Space 7. Also evident from the table is the use of repeating cells in each of the Spaces. In all of the Spaces the sequence above the axis is mirrored exactly below the axis.
Space | Interval around the central axis (interval set source shown in brackets) | Interval set | Interval chains above axis. (sequence below axis is mirrored) Repeating cells are shown in [ ]
---|---|---|---
1 | 1 | 1,2,5,6 | [5-2-6-1]-1-[5-2-6-1]-6-1
2 | 3 | 3,4 | [4-4-3-4-4]-3-[4-4-3-4-4]
3 | 5 (1+4) | 1,4,5 | [1-4-5-1-4]-5-[1-4-5-1-4-1]
4 | 7(1+2+4) | 1,2,4,5,6,7 | 1-2-6-2-5-[1-1-4]-2-7-[1-1-4]-1
5 | 9 (1+8) | 1,8 | 1-[8-1-1-8]-[8-1-1-8]
6 | 11 (10+1) | 1,2,3,10 | 2-[1-3-10]-1-3-1-[1-3-10]
7 | n/a | 5,6 | [5-6-5]-[5-6-5]-5

Figure 66 Table showing interval chains in each Space

It is clear from the compositional sketches, and further identified in the discussion and table above that Harvey had intended to use a systematic approach to the development of thematic and harmonic material within *Madonna of Winter and Spring*. The next chapter will explore how these Spaces were used as the basis for the creation of thematic material.
CHAPTER SIX: MELODIC CHAINS IN MADONNA OF WINTER AND SPRING

Axial symmetry and the use of vertical aggregates founded on serial techniques has already been identified as fundamental to the harmonic components of this work through the development of seven harmonic Spaces around a E/F axis. The pitch organisation and its relation to these Spaces will now be considered.

In (Harvey, 1986b) the composer provides some background to Madonna of Winter and Spring prior to its first performance at the Albert Hall on 27th August 1986. Here, as with his commentary on preparation for Ritual Melodies, he sets out his case, vehemently so, for the use of ‘thematic workings’ within the first section of the work “Conflict”:

The idea of having themes in the old sense of memorable melodic shapes was bad enough; actually to ‘work’ with them was outrageous: such practices belonged in the sham rhetoric of a world long since found to be emotionally false – sure of itself in a context where nothing is certain. Integral serialism, or similar-sounding music, was an attempt to disinfect such diseased notions from the sound world. Post-modernism prefers the universalist depersonalisation of pattern, pattern as continuum rather than articulated melody. So why have themes as opposed to cells, patterns, textures and gestures? Premature senility? Arrested development? (Harvey, 1986b, p.431).

Harvey puts forward the idea that how thematic workings are treated within this work might present ways in which they could be desirable again. He goes onto to provide basic information regarding his approach:

There are 20 of these “melodies”, forming a linked chain. Each primary melody has, between it and its neighbor, a melody that is the sum of the both. [...] the last melody links with the first, making the chain circular. It can be modulated along, the melodies gradually transforming one into another (backwards or forwards), or jumped across at a greater or smaller interval (Harvey, 1986b, p.431).

Further outline, in the briefest of terms, regarding the melodic chains recalls his approach for Ritual Melodies in (Harvey, 1986e) and (Vandenheede, 1992); and in fact reference is made to ‘using the same ideas, but totally different melodies, in an as yet unfinished work for tape at IRCAM’ (Harvey, 1986b, p.431). No guidance is provided in (Harvey, 1986b) as to the thematic material itself – musical examples or otherwise – and no further commentary either by Harvey or others have been identified with regards to Madonna of Winter and Spring; so it raises the question as to how the
thematic workings might be revealed. Encouragingly (for the analyst hoping to identify the thematic material) Harvey refers to:

> Another aspect that may distinguish this type of thematic working from that of Beethoven or Schoenberg is that there is much less that is not made of this material. There are few transitions, bridge passages and the like. The themes are almost always there (in “Conflict”) and it is their relationships, both successive and polyphonically simultaneous, that provide the discourse. They are not “heroes” in the classical sense, highlighted in the context of supporting material, made important on their entry. They should be memorable and yet serve as texture fodder equally well, as for instance when all 20 are played simultaneously by solo violins (Harvey, 1986b, pp.431).

The suggestion here is that the thematic material is fairly prominent within the score and the 20 themes should be easily identifiable through an analysis of the score and in particular the polyphonic section that brings to mind the “Epode” section of Messiaen’s *Chronochromie* referred to earlier.

Fortunately, the composer’s own sketches for the work identify each of the individual themes or melodies\(^{31}\) and access to these has made the process of understanding their function and characteristics more straightforward. These have been used as a point of reference for an analysis of the score.

The original compositional sketches for the ‘primary’ Melodies A to D, including the neighbouring or secondary Melodies A+B, B+C, C+D are shown in Figure 67.

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\(^{31}\) Harvey uses the heading ‘Melodies’ in the compositional sketches rather than themes. Within this chapter the term ‘Melody’ and ‘Melodies’ will be used when referring to a specific melody (i.e. Melody A) or group of melodies (i.e. Melodies A and A+B) from *Madonna of Winter and Spring*. The term ‘theme’ will be used when referring to their use within the work.
The remaining 14 melodies are presented in a similar manner providing some clarity as to the characteristics of each theme and its relationship to its neighbours, the presence of rests allowing for adjacent themes to effectively ‘fit together’. Also evident is the manner in which the melodic material progressively moves forward to enable the sequence or chain of melodies – the final melody linking back to the first. The fact that these elements are connected within an ordered system is fundamental. Harvey uses the technique to provide unity within the work by ensuring that these elements work together towards a single idea.

The link between unity and order is obvious: music cannot be unified if it is not ordered. Unity, however, implies something more: not only that the elements of the work are logically consistent and connected, but also a more profound sense that each contributes to a single whole, and that the effect of each part is in proportion with and subordinate to the requirements of that whole (Harvey, 1999b, p.138).
Characteristics of the melodies

For the pitch organisation of his melodies Harvey did not use a harmonic series, as was adopted for Ritual Melodies, but instead made use of the harmonic Spaces or Spaces developed for the work as referred to in Chapter 5. There are seven of these Spaces - each one a vertical aggregate of pitches symmetrical around a central axis with each space possessing a specific set of interval classes. A comparison of the pitch material for Melody B, shown in Figure 68, with the seven harmonic Spaces reveals that all the notes for this Melody are sourced, without exception, from Space 1, shown in Figure 69.

Figure 68 Melody B – transcribed from compositional sketches for Madonna of Winter and Spring

An analysis of the remaining Melodies reveals them all to be based on pitch material taken from six of the harmonic Spaces and this is supported through Harvey's annotations on the compositional sketches. Most of the Melodies make use of just one Space as a pitch source. However, as would be expected given their composite nature, a number of the Secondary Melodies refer to more than one Space. The table in Figure 70 shows the relationship of each Melody to a Space or Spaces. The alphabetical and numerical sequence revealed highlights the methodological approach adopted by the composer in preparing the reference material for the work. It is also evident that there are four sets of three neighbouring Melodies, which are dominated by one specific Space – either 1,3,4 or 6.
Figure 70 Table showing relationship between Melodies and Spaces for *Madonna of Winter and Spring*

As mentioned earlier, the Melodies’ presence within the score is easily identified, and one example of the interplay between this thematic material can be seen between bar 123 to 128 within the “Conflict” section. Melody H is introduced at bar 123 in the clarinets and bassoon (shown in Figure 71) and this is combined with Melody G at bar 125 in the cellos (shown in Figure 72). At this point therefore there are two clear primary Melodies, H and G, identified through the woodwind and strings respectively. Also perceivable is the secondary Melody G+H, though its identity is more ambiguous when the timbral characteristics of the bassoon and cello are considered. At bar 126, Melody I is introduced in the oboe, cor anglais and bassoon whilst the clarinets play the H+I Melody (shown in Figure 73). In this case the identity of the secondary Melody is perhaps less ambiguous as it is played by one instrument. Harmonically, it can be observed, this section progresses through Spaces 4, 5 and 6.

<table>
<thead>
<tr>
<th>MELODIES 1-10</th>
<th>SPACE/S</th>
<th>MELODIES 11-20</th>
<th>SPACE/S</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>1</td>
<td>F</td>
<td>4</td>
</tr>
<tr>
<td>A+B</td>
<td>1</td>
<td>F+G</td>
<td>4</td>
</tr>
<tr>
<td>B</td>
<td>1</td>
<td>G</td>
<td>4</td>
</tr>
<tr>
<td>B+C</td>
<td>1,2</td>
<td>G+H</td>
<td>4,5</td>
</tr>
<tr>
<td>C</td>
<td>1,2</td>
<td>H</td>
<td>5</td>
</tr>
<tr>
<td>C+D</td>
<td>1,2,3</td>
<td>H+I</td>
<td>5,6</td>
</tr>
<tr>
<td>D</td>
<td>3</td>
<td>I</td>
<td>6</td>
</tr>
<tr>
<td>D+E</td>
<td>3</td>
<td>I+J</td>
<td>6</td>
</tr>
<tr>
<td>E</td>
<td>3</td>
<td>J</td>
<td>6</td>
</tr>
<tr>
<td>E+F</td>
<td>3,4</td>
<td>J+A</td>
<td>6,1</td>
</tr>
</tbody>
</table>
Figure 71  Entry of Melody H in clarinets and bassoon in bar 123.
Figure 72  Entry of Melody G in Cellos at bar 125 and Melody H continuing in woodwind
Figure 73  Entry of Melody I in oboe, cor anglais and bassoon, Melody H+I in clarinet at bar 126. Continuation of Melody G in cello.
Definition of a melody

Before embarking on an analysis of the twenty melodies an appropriate definition of melody should be considered and in particular what Harvey had in mind when he referred to ‘memorable melodic shapes’ and ‘articulated melodies’ (Harvey, 1986b, p.431).

Most definitions make reference to the organisation of pitched sounds arranged in musical time, which is then further elaborated to enable an assessment of its ‘character’. Grove refers to the character of a given melody as being:

- determined by its range or relative position within the total pitch continuum, its ambitus or pitch spread, its contour or linear design, and its syntactic structure with respect to elements of contrast and repetition, variation and development (Alexander, 2007-2013).

The above definition suggests three potential broad lines of enquiry that could be adopted:

1. Pitch-related characteristics – its position within the available pitch continuum and its pitch spread i.e. range or ambitus.
2. Contour or linear design
3. Syntactic structure – identifiable elements within the melody

The first of these relates to easily observed empirical data and is therefore straightforward to quantify for each melody once a set of characteristics is identified.

Contour or linear design and syntactic structure will require further clarification if a strategy is to be outlined for the analysis of the melodies in these areas.

Contour or linear design

Melodic contour is an important aspect of pitch perception in that it is based on a listener’s ability to hear pitches relative to each other i.e. as higher, equal or lower. Contour could be considered in one of two ways, either on the basis of its relationship to language (i.e. musical diction) or in the isolated sense of considering the relationship between one pitch within a melody to the others surrounding it.
Interest in melodic contour, as a variant distinct from musical diction, is a twentieth century preoccupation with works by Varèse, Xenakis and Ligeti exploring the structural role of that contour. It was not until the late 1980s and early 1990s that it captured the attention of a number of musicologists including Namour, Friedmann, Polansky and Morris. Much of this research focused on registral direction (i.e. up/down), as opposed to intervallic relations (particularly Eugene Narmour's implication-realization model) and often in relation to post-tonal theory involving detailed mathematical analysis of pitch-class sets.

Whilst serial techniques, as has been shown, are an important aspect of the harmonic material in *Madonna of Winter and Spring* I believe it would be futile, and possibly misleading, to analyse the contours of the melodic material in this work using the techniques developed by Friedmann et al. Firstly, the use of pitch-class relates specifically to the symmetrical vertical structures of the Spaces and not to the resulting linear design of the 20 melodies. Secondly, it is Harvey's desire to create melodic shapes in what he referred to as the 'traditional' and therefore in a sense that might be viewed as 'tonal'. Reference to 'tonal' here is to recognise that the development of melodic material is linked to a linear harmonic framework of some sort, rather than an atonal structure. Consequently a more effective approach might be to evaluate the contour in its simplest terms – as a reductive abstract shape - in relation to its overall movement up, down and static. Further understanding of the relationship between pitch and contour may

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be gained from a statistical analysis of the foremost types of interval used within the melody.

**Syntactic structure**

The syntactic structure or underlying ‘grammar’ within a melody can relate to elements of pitch, dynamics and duration or indeed combinations of some or all of these. Each of the Melodies presented by Harvey is a discrete object – a self-contained unit with a clearly defined beginning and end. However, each melody may contain a number of patterns or components which themselves help define the character of the melody. We hear the individual parts of a melody in succession as ‘we cannot perceive them all at once. We cannot observe backwards and forwards at pleasure’ (Helmholtz and Ellis, 1954, p.252), therefore it makes sense to deconstruct each melody into possible component parts. Post-tonal theory has provided an opportunity to explore, in algorithmic detail, patterns such as retrograde, inversions, cells etc. in music that might be deemed to lack an easily perceived structure. However, as with contour, and for the reasons outlined above, I do not believe this is an appropriate approach despite Harvey’s use of serialism within the intervallic structure. The composer has, I believe, adopted two key strategies with regard to the syntactic structure.

Firstly, for each Melody to be ‘memorable’ implies that it makes use of structural techniques more typical of traditional ‘tonal’ melodies i.e. harmonic progression, motifs, repetition etc. Secondly, Harvey’s use of melodic chains (i.e. G+H) implies the use of techniques that enable melodies to ‘fit together’ and therefore contain components, including the use of silence, that facilitate this. An effective analytical method should focus therefore on visually identifying the syntactic structure of each Melody taking into account how a listener might perceive each part or element.

**Analysis of the twenty Melodies**

Each Melody is relatively short, being typically no more than the equivalent of 2 bars long (bar lines are not shown in the compositional sketches). The sketches are very detailed showing not just pitches and durations, but also specific dynamic and articulation markings. This attention to detail, as will
be shown, is carried through to the final score in which the Melodies are presented with little or no modification in the first movement, “Conflict”. A number of strategies are identifiable as having been adopted by the composer in each of the primary Melodies (on which the secondary Melodies are based). These strategies ensure each melody can be considered distinct – while at the same time satisfying the linking demands of the primary and secondary neighbouring Melodies.

An evaluation of these strategies requires a number of questions to be considered:

1. How important are the Spaces to the melodies and what is their role
2. Are there any dominant features within the melodies and what makes each Melody distinct and therefore potentially memorable
3. Are there any identifiable structures within the melodies and what is their role
4. Why might the Melodies be considered 'melodies' in the conventional sense as opposed to simply arpeggiated chords?

To investigate these questions further a statistical analysis of the twenty melodies was undertaken. Given the importance of numbers within Harvey's compositional aesthetic, a quantitative methodology was considered appropriate, although for the reasons outlined above not necessarily governed by post-tonal theory. The melodies, as presented individually in the compositional sketches by the composer, were used as the primary source of data. The analysis focused on the following criteria or categories of classification. These were deemed, for the reasons outlined above, to be appropriate and reasonably quantifiable parameters by which to describe each melody.

1. Source of pitches – i.e. which space or Spaces are they aligned with
2. Number of notes in each melody
3. Range in semitones (+/- axis)
4. Number of unique note values taken from the Space or Spaces
5. Number of pitch classes used – from a 12-tone sequence
6. Pitch contour or shape – up/down
7. Predominant interval (semitones)
8. Interval range
9. Predominant durations
10. Number of identifiable themes or motifs within the melody including evaluation of distinct opening and/or phrases.

Initial findings

Source of pitches – alignment of melodies to the Spaces.

By comparing the pitch material within the melodies with those of the Spaces it is evident, as identified earlier in this chapter, that these are the primary source for pitch material. Thirteen of the melodies are aligned to a single Space, in that one Space is the source of notes for a particular melody. These particular melodies are in identifiable neighbouring groups of three (or ‘Groups of 3’) with the exception of Space 5, the pitch material of which is aligned to a single melody H.

- Space 1: A, A+B, B
- Space 3: D, D+E, E
- Space 4: F, F+G, G
- Space 6: I, I+J, J
- Space 5: H

The remaining seven melodies are aligned to two Spaces with the exception of C+D, which is aligned to three. Figure 74 reveals that there are in fact six ‘Groups of 3’ identifiable along with 2 individual melodies E+F and J+A. There are four ‘Groups of 3’ that are aligned to a single Space, as indicated above, and two ‘Groups of 3’ that are aligned to more than one Space. The two individual melodies, not part of a group, are both aligned to two Spaces. It is observed that the groups aligned to single Spaces are ‘separated’ by the groups and individual melodies aligned to more than one Space. These ‘separators’ are shown in Figure 74 (see also Figure 70).

34 The compositional sketches were used as the reference source for the analysis of the Melodies and Spaces.
Figure 74 Graph of melodies and their alignment to Spaces showing 'Groups of 3' and 'separators'.

It is evident from the graph that the composer has adopted some basic 'rules' with regard to aligning each melody to a Space or number of Spaces. I suggest that these are as follows:

1. Space 7 is not used as the basis for any melody (within “Conflict”) although it appears as a vertical aggregate at the opening of the work.
2. The neighbouring ‘Groups of 3’ melodies aligned to a single Space always have primary melodies (i.e. A, B, D, E etc.) on the outside, and a secondary melody in the middle (i.e. A+B, D+E etc.).
3. The ‘Separators’ in ‘Groups of 3’ have secondary melodies on the outside and a primary melody in the middle and are aligned to more than one Space with the exception of H which is aligned to a single Space.
4. The above set of rules results in six groups of 3 melodies i.e. a total of 18 melodies. The two remaining melodies, both single

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35 Where a melody is aligned more than one Space this is shown as an alternative colour.
36 The reasons for this are unclear at this stage. It is feasible that melody H could have been aligned two Spaces as is the case for its neighbours (G+H and H+I) although with half the number of notes this might have been unpractical.
'Separators’ are positioned in the middle (the 10th melody) and at the end (the 20th melody) and are both secondary melodies (E+F and J+A) and both aligned to two Spaces.

This set of ‘rules’, revealed through an analysis of the melodies and their associated Spaces, suggests a clear methodological approach i.e. a system that was adopted by the composer in creating each melody. Given the number of Spaces used (6) and the number of melodies (20), the system adopted by Harvey allows for a balanced distribution of the source material through the inclusion of the single ‘Separators’ positioned in the middle (E+F) and at the end (J+A). This all suggests a desire on the part of the composer to ensure, through deterministic means, that no hierarchy within the harmonic and melodic material pervades – similar to that achieved through the use of serial techniques.

**Number of notes in each melody.**

The average number of notes\(^{37}\) used in the melodies is twenty-four, with J possessing the lowest with four notes, and B+C the highest with forty-two notes. The majority (i.e. 80%) of melodies have fifteen or more notes with 55% of the twenty melodies having twenty-four notes or more. There is a divide evident in that no melodies in the second half of the set (F to J+A) possess more than twenty seven notes, the average of the first ten melodies being thirty one notes and the last ten melodies seventeen notes. A falling gradient is visible across the entire set of melodies (A to J+A) as shown in Figure 75. The reasons for the allocation of numbers of notes would appear less systematic than that for the pitch source. However, Harvey’s desire to create melodies that were memorable would support the argument of using a range of note numbers across the twenty melodies in that this might be one way in which a melody could be recognised. Additionally one might also consider the use of a minimum number of notes for the construction of a sequence necessary for a melody to be sufficiently perceived and to be more than just a motif or gesture. However, the use of just four notes in Melody J

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\(^{37}\) Tied notes within the melodies, as shown in the compositional sketches, were counted as a single note.
suggests its purpose may be more functional than melodic as a mechanism by which to link the last melody back to the first.

Figure 75  Graph of number of notes in each melody.

**Range of melody in relation to the central axis E/F**

The range, above and below the axis (E/F), for each melody was analysed (See Figure 76) and it was evident that all twenty melodies are placed predominately above the central axis. The maximum total range for any melody was thirty-six semi-tones (three octaves) as seen in Melodies A+B, B and B+C. The smallest range was Melody G with thirteen semi-tones and the average for all melodies was just over two octaves. The majority of melodies (i.e. 90%) possessed a range of at least one and a half octaves or more.

Figure 76  Semi-tone range of melodies above and below the central axis
Given that the melodies appear within the score more or less as indicated in the compositional sketches the actual pitch at which the melodies are sounded is of relevance. One might assume that taking the symmetrical nature of the Spaces into account the melodies would be presented similarly - as balanced equally above and below the axis. However, it would appear that Harvey chose to select the majority of pitches from above the axis as the main source of pitch material for the melodies. There may be practical reasons for this that, I suggest, could be as follows.

1. The majority of instrumentation\textsuperscript{38} for the work is placed comfortably within this register – i.e. range of two octaves above middle C.

2. To enable the primary and secondary melodies to fit together neatly is easier if a limited range is adopted. This would be more difficult to accomplish if the full range of the Space was to be utilised. The use of smaller intervals, that the limited range would encourage, would also encourage a sequence of notes more traditionally recognisable as a melody i.e. less disjunctive.

3. The composer’s desire to make the melodies memorable is conceivably easier to achieve if the melodies are pitched similarly to the human voice – where particular frequencies are more likely to be noticeable to the listener.

4. A limited range for the melodies provides a sufficient contrast to the larger range used for all the Spaces enabling a greater sense of foreground and background to exist.

**Number of unique note values taken from Space or Spaces**

This part of the analysis considered the number of notes taken from a Space for each melody, providing an indication of the amount or percentage of the

\textsuperscript{38} The published score for *Madonna of Winter and Spring* indicates twenty-one different instruments. Of these there are six instruments (bassoon, contra-bassoon, trombone, tuba, cello and double bass) which predominately sound in the bass clef register. The fifteen remaining instruments would be able to play at least six of the melodies (G to I+1). In terms of ability to play all the melodies there are probably nine instruments - including flute, piccolo, alto flute, trumpet, piccolo trumpet, harp, piano, violin, and synthesizer.
Space used by that melody. A melody, it could be argued, that uses a reasonable percentage of notes from an associated Space may demonstrate how effectively that melody is perceived as being uniquely aligned to a particular Space. For example, Melody B takes thirteen of its notes from the twenty-six available in Space 1 indicating that 50% of the Space is used within the melody suggesting sufficient utilisation to be perceived.

Where a melody is aligned to more than one Space, the percentage usage of each Space is considered individually (shown in Figure 77 as different coloured bars).

![Graph of Space usage](image)

**Figure 77** Graph of Space usage

The analysis, shown in Figure 11, reveals that while no melody uses more than 50% of one Space as the source for its notes the majority use at least a third of the notes within a particular Space as the notes for the melody. This percentage makes sense when you take into account the typical semi-tone ranges of the melodies compared to the six or seven octave range typical of the Spaces. Where a melody is aligned to more than one Space, as is the case with C+D which is aligned to Space 1,2 and 3, there is usually a principal or dominant Space; in this case Space 3. This is also evident for E+F, G+H, H+I and J+A where a new Space is introduced, either as the ‘dominant’ or ‘sub-

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39 Where a melody is aligned more than one Space this is shown as an alternative colour.
dominant’ Space\(^{40}\). This facilitates, it might be considered, a smooth transition from one Space to the next as each new melody is introduced. This harmonic progression may also have a similar function to that achieved through traditional tonal progression. This will be explored further in a later chapter.

**Number of pitch classes used.**

The use of serial material within the Spaces was referred to in an earlier chapter. *Madonna of Winter and Spring* is not a 12-note composition in the same manner that earlier Harvey works such as *Bhakti* are. However, the presence of 12-note musical organisation is evident in the melodies as it is within the Spaces. Each melody was analysed to identify the number of pitch classes used from a 12-note set (See Figure 78). As with the previous diagram different coloured bars are used to indicate the percentage for different Spaces within a particular melody.

![Figure 78 Number of notes from 12-note set in each melody](image)

It is important to recognise that the 12-note musical organisation is incorporated into all the Spaces (typically the six notes on either side of the axis) and will therefore be an expected feature within the melodies.

\(^{40}\) The terms dominant and sub-dominant are used here as clarification of importance or dominance not in relation to degrees of a diatonic scale.
All melodies, with the exception of G and J use six or more (i.e. 50% or more) of the pitch classes from the 12-note set. Nearly half of them use ten or more suggesting that the 12-note set is an important element of the melodies. No single melody uses all twelve pitch classes, although four (A+B, B, B+C and D+E) use eleven pitch classes.

A number of important aspects can be observed:

1. While serial techniques are evident within each melody they are not strict 12-note melodies.
2. All the melodies consist of sufficient evidence of 12-note musical organisation to support the premise that its use is deliberate rather than accidental.
3. Melodies predominately based on 12-note techniques minimise the perception of tonal hierarchy.
4. A limited set of source notes for each melody could increase the listener perception of an individual melody.

**Contour**

One way in which a melody can be categorised is in relation to its shape or contour. The contour describes the linear motion of a melody as it ascends or descends in pitch. To understand if the contours of the melodies reveal anything of interest a simple visual analysis was undertaken of each melody. The melodies were not considered in great detail as an overall idea or sense of shape was deemed sufficient to indicate possible methodologies at work. Consequently, as indicated earlier, the analysis considered large gestures across the entire melody rather than note by note detailed examination. An analysis of the melodies is shown in Figure 79 and Figure 80.
The contours revealed in Figure 79 show that the first ten melodies are predominately based on an up/down or up/down/up contour. With the exception of Melody B these have very clear ascending motifs at the start of each melody, typically covering a span of two octaves or more. The contours for the last ten set of melodies, shown in Figure 80, reveal contours that are slightly less defined than the first ten in that they utilise a smaller range. The last six have clear up/down contours, whilst the previous three have contours that mainly ascend. The eleventh melody (F) has less of a defined contour and could be read as a down/up/down with the last motif either part of an ascending or descending contour.

So what identifiable methodologies are at work here? The analysis suggests some similar approaches for each melody although there are contradictions that need to be evaluated.

Firstly – Most of the melodies follow a clear up/down or up/down/up linear motion. This might be thought surprising given the composer's desire to create melodies with their own distinct memorable character as contour can be one of the elements that helps distinguish a particular melody. However, there are a number of reasons why this method might have been adopted.
1. In order to allow adjacent melodies to fit together, as defined by the melodic chains methodology explored in an earlier chapter, it is appropriate that they follow a similar contour. For example – with B, B+C and C the up/down/up/down contour of B+C accommodates the down/up contour of B and the larger scale up/down of C.

2. To provide sufficient connection to a particular Space the notes follow the sequence as they appear in that Space. This will dictate a contour that moves up and down.

![Figure 80 Contours for the last ten melodies. F to J+A](image)

Secondly – if one is to suppose that a systematic approach was adopted by the composer one might have expected to see a more consistent approach to the types of contour used. However, the second set of ten melodies, and in particular F to I+J possess contours that are noticeably not as clearly defined as the first set. This is the result of a smaller range of notes used for these melodies, as shown in Figure 76, resulting in less steep contours; and the use of more static or horizontal contours.

One of the reasons for the change in the types of contour is the introduction of a held note at the start of Melodies F+G, G, G+H, I+J, J and J+A in contrast to the ascending motifs observed in nearly all the first ten melodies. The
introduction of the held note and a reduced range results in markedly
different contours than those of the first set of ten melodies although the
last six, with a suggestion of up/down contours, indicate a move back to the
contour of the first Melody A.

It is my belief that it is the contours of the first and last melodies, A and J+A
respectively that play an important part in dictating the contours. Given that
the melodies need to fit neatly together as outlined earlier, both in terms of
combining primary and secondary melodies and creating a cyclic narrative,
the contours of the starting and ending melodies need to be defined at an
early stage in the compositional process. The simplest mechanism for
making the vertical aggregates present in each Space is through an up/down
contour or arpeggiation. This up/down contour is easily extended with an
up contour, but to create diversity (and more memorable melodies) held
notes are introduced in the later Melodies, F+G to G+H. To facilitate a return
back to the contour of the first Melody A it is necessary to work towards the
up/down contour of this Melody as revealed in Melodies H to J+A.

**Interval profiles**

To further understand the use of intervals within the melodies a quantative
analysis of the types of intervals within each melody was conducted. The
results of this analysis are show in Figure 81. As one would expect each
Melody is dominated by the types of interval present within the Space or
Spaces associated with that Melody. Melody E, for example, is associated
with Space 3 which has intervals of 1,4 and 5. The predominant interval in
this melody is an interval 5 with a total of ten occurrences. Intervals 4 and 1
have three and two occurrences respectively. However, this melody also
contains occurrences of intervals of 6 and 11 not explicitly stated in the
Space although their presence can be explained as combinations of the
intervals from the Space. For example:

Melody E – aligned to Space 3 with intervals of 1,4 and 5

- Interval 6: 1 + 5
- Interval 11: 1 + 5 + 5
This combinatory method, effectively missing out one or more note from the vertical aggregate of intervals in a Space, is present in all of the Melodies.

The most frequently used intervals across all of the Melodies are the intervals 1, 5 and 6. These three intervals are present, either as discrete intervals or combinations (i.e. $6 = 1 + 5$) in Spaces 1, 3, 4 and 6 and therefore feature in one way or another across most of the Melodies. Correspondingly, Intervals 3, 4 and 7 (minor third, major third and perfect fifth respectively given their diatonic names) feature infrequently as do the intervals 8, 9, 10 and 11 (minor 6th, major 6th, minor 7th and major 7th) and interval 12 (octave) makes no appearance in any of the melodies. It could be argued that as the Spaces are the source material for the Melodies, the intervals observed within those Spaces are likely to be dominant in the Melodies. However, it is clear that Harvey had given certain intervals preference in organising the Melodies as some of the intervals (i.e. 3, 4) feature in a number of Spaces but feature infrequently in the Melodies.

Given the apparent importance of some of the intervals what might their individual and collective roles be?

Interval 1 – semitone interval.

This interval is present in all of the Melodies, with the exception of Melodies A, F and J. Correspondingly it appears in five of the six Spaces from which the notes for the Melodies are derived. There are seventy-nine occurrences of its use across the twenty Melodies with nine of the Melodies having individually five or more uses of the interval. Consequently its use could be viewed as more functional rather than specific to the character of one Melody.

The use of the semitonal interval has, I believe, three important functional roles to play within Harvey's methodology. Firstly, the use of a shared interval facilitates the integration of a Melody with its primary and secondary neighbours. Secondly, in that it supports the notion of a perceivable melody as opposed to a simple arpeggiation of the notes within a Space. And thirdly in that the use of chromatic intervals prevents a melody having a predominant tonal or diatonic character.
Interval 6 – tri-tone.

This interval appears in thirteen of the Melodies and therefore has a significant presence. The importance of the tri-tone has already been discussed in relation to axes of symmetry and the works of Webern and Bartók and their subsequent influence on Harvey. Its presence is particularly noticed in three of the Melodies, A+B, B and B+C, in what could be perceived as a means to define a character for Melody B and its secondary neighbours.

Interval 5 – perfect fourth.

This interval appears in fourteen of the melodies, typically with less than three occurrences, although as seen in Interval 6 it is particularly present in three of the Melodies, in this case D+E, E and E+F, with ten occurrences in each. This could be viewed as a 'character defining' interval for Melody E and its secondary neighbours. Additionally, the presence of the perfect fourth within the Melodies could be viewed as distancing it from tonal harmony, representing, as it does, neither a major or minor interval within traditional tonal hierarchy.

Intervals 3,4,7 and 12

These four intervals are used rarely within the Melodies – i.e. accounting for less than 4% of the intervals present across all the Melodies. One interval in particular, 12, does not feature in any of the Melodies. Given that this tonal equivalent of this interval is the octave it is of relevance to consider the tonal equivalents of the other three intervals in this group in that Intervals 3,4 and 7 can also be identified as representing Minor 3rd, Major 3rd and Perfect 5th in the diatonic scale. However, I believe that Harvey's interest (or indeed lack of interest) in these particular intervals is related to their placement within the harmonic series rather than any diatonic scalic association.
<table>
<thead>
<tr>
<th>Numeric Interval</th>
<th>Diatonic Interval Name</th>
<th>Harmonic</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>Octave</td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
</tr>
<tr>
<td>7</td>
<td>Perfect Fifth</td>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
</tr>
<tr>
<td>4</td>
<td>Major Third</td>
<td>5&lt;sup&gt;th&lt;/sup&gt;</td>
</tr>
<tr>
<td>3</td>
<td>Minor Third</td>
<td>19&lt;sup&gt;th&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Harvey's use of the harmonic series, and his fascination with spectralism has been mentioned earlier. As evident in the above table the first three of these intervals represent major components of the harmonic series, the 2<sup>nd</sup>, 3<sup>rd</sup> and 5<sup>th</sup> harmonics respectively. Their dominance within the harmonic series has been the basis of traditional western harmony with the tonal 'root' of a given chord represented by the fundamental frequency, and characterised by the fifth and the third intervals. Harvey has, I believe, avoided the use of these key intervals to distance the Melodies from any association with a tonal root and thereby place greater emphasis on the higher-order harmonic frequencies i.e. interval 1 (minor second - 17<sup>th</sup> harmonic), interval 6 (tritone – 11<sup>th</sup> harmonic) and interval 5 (perfect fourth – 21<sup>st</sup> harmonic). These higher-order harmonics have a greater association with timbre and resonance as will be explored later.
Figure 81. Interval profile showing frequency of interval type in each melody, usage percentage and variation in interval range.
| Duration | British name | A | A+B | B | B+C | C | C+D | D | D+E | E | E+F | F | F+G | G | G+H | H | H+I | I | I+J | J | J+A | Totals | % |
|----------|--------------|---|-----|---|-----|---|-----|---|-----|---|-----|---|-----|---|-----|---|-----|---|-----|---|-----|-----|-----|-------|---|
| 1/32     | demisemiquaver | 4 | 39  | 26 | 27  | 1 | 2   | 1 | 21  | 20 | 22  | 1 | 3   | 13 | 12  | 16 | 6   | 6 | 4   | 224 | 50 |
| 3/64     | dotted demisemiquaver | | | | | | | | | | | | | | | | | | | | | | | |
| 1/16     | semiquaver | 3 | 1   | 2 | 9   | 8 | 8   | | 11 | 13 | 15 | 2 | 3   | 1 | 7   | 7 | 8   | 3 | 6   | 107 | 24 |
| 3/32     | dotted semiquaver | 1 | 1   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 1   | 4   | 1   | | |
| 1/8      | quaver | 1 | 4   | 4 | 23  | 21 | 11  | 1 | 2   | 2 | 1   | 1 | 2   | 1 | 1   | 73 | 16 |
| 3/16     | dotted quaver | 2 | 3   | 3 | 3   | 2 | 1   | 1 | 1   | 1 | 1   | 1 | 18  | 4 | 1   |   |   |   |   |   |   | |
| 5/32     | quaver + demisemiquaver |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 1   | 0   |   | |
| 1/4      | crotchet | | | | | | | | | | | | | | | | | | | | | | | |
| 3/8      | dotted crotchet | 1 | 1   | |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 2   | 0   |   | |
| 5/16     | crotchet + semiquaver | | | | | | | | | | | | | | | | | | | | | | | |
| 9/32     | crotchet + demisemiquaver | | | | | | | | | | | | | | | | | | | | | | | |
| 13/32    | Dotted crotchet + demisemiquaver | | | | | | | | | | | | | | | | | | | | | | | |
| 1/2      | minim | 1 | 1   | 1 |   | |   |   |   |   |   |   |   |   |   |   |   |   |   | 3   | 1   |   | |
| 19/32    | minim + semiquaver + demisemiquaver | | | | | | | | | | | | | | | | | | | | | | | |
| 5/8      | minim + quaver | | | | | | | | | | | | | | | | | | | | | | | |
| 7/8      | double dotted minim | 1 | 1   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 3   | 1   |   | |
| 1        | semibreve | | | | | | | | | | | | | | | | | | | | | | | |
| >1       | | | | | | | | | | | | | | | | | | | | | | | |
Interval range

Figure 81 clearly shows that the interval range is not static across the twenty Melodies with a variation of range from seven (Melody J) to twenty-five (Melody E). The expansion and contraction of interval range is clearly visible as shown by the dotted line in Figure 81. The interval range at the start and end of the Melodies is typically around thirteen semitone intervals with the maximum of twenty-five at the ninth, Melody E, more or less central to the set of twenty Melodies. It is obvious therefore that Harvey has deemed that a dynamic, but linear, variation in the interval range of each Melody was a requirement. This can be thought of as a means to meet two different objectives. Firstly as a mechanism to ensure that neighbour Melodies can be effectively chained together. This is evident through the gradual expansion and contraction of the interval range and through the matching of the interval ranges at the extremities of the twenty Melodies i.e. Melody A and Melody A+J. Secondly, whilst the above condition could be met by having the same interval range for all twenty melodies, a variation in the interval ranges allows for each Melody to have a more defined individual character. Melody B, for example, is characterised by small, connected intervals and is therefore more conjunct, whilst Melody E has a more disjunct character with larger disconnected leaps. The contraction of interval range towards the end Melodies ensures that Melody J+A links effectively with Melody A.

Predominant durations

An analysis, shown in Figure 82 of the note durations used in the twenty Melodies, clearly indicates that the composer referred to a relatively small pool of note lengths. Four durations in particular: demisemiquaver (1/32), semiquaver (1/16), quaver (1/8) and dotted quaver (3/16) together account for 94% of the rhythmic values used and of these the demisemiquaver accounts for 50% and the semiquaver around 25%. As with the interval profiles, although less defined, there is a sense of expansion and contraction across the twenty Melodies with the middle Melodies have a greater mix of small (i.e. demisemiquaver) and large (i.e. minim and semibreve) note durations and the beginning and end Melodies
using predominately smaller note durations. Also evident is concentrations of particular durations within certain Melodies. For example, there is a greater concentration of the shortest note duration (demisemiquaver) in A+B, B and B+C; and a grouping of the longest duration (i.e. > semibreve) in F+G, G and G+H. As with interval variation the rationale for Harvey’s approach regarding use of particular durations is based on a number of factors. Firstly as a mechanism to ensure that the melodies can be effectively linked sequentially and that the last and first Melodies can be linked or chained together, and secondly as a means to help define the individual character of each Melody. The expansion and contraction of durations across the Melodies allows Harvey to introduce a greater sense of character in the individual Melodies and at the same time ensure that neighbouring Melodies with fit together and that the end Melody J+A will link back to Melody A. Finally, Harvey’s use of relatively simple note durations provides the opportunity to create melodies with comprehensible rhythmic patterns, which will in effect make it easier to identify an individual melody.

Number of identifiable themes or motifs within the melody

The final stage of the analysis was to consider the presence of any clearly identifiable sub-units within the twenty melodies. A process of visual analysis and deconstruction was applied to each Melody in turn to reduce it to its simplest components or definition of what might be deemed recognisable motifs or themes. The process focused on the grouping of similar note durations and recognisable shape or contours. An example of this is shown in Figure 83 suggesting that Melody B+C can be broken down into three potential discrete sub-units (identified as Theme X,Y and Z) with a possible single note overlap of Theme Y with Theme X and Z. Each of these themes could, of course, be deconstructed further, however, each theme has been considered in terms of its contour, note duration grouping and potential to be perceived as a simple melody in its own right. Whilst this might seem an arbitrary process, each sub-unit was considered in relation to those of its neighbours, as will be shown below.
Figure 83 Deconstruction of Melody B+C into three discrete motifs or themes.

A comparison, shown in Figure 84, of the thematic material in Melody C+D with its neighbours C and B reveals that the three themes are shared with no variation. Theme X and Z are shared with Melody C and Theme Y is shared with Melody B. This is to be expected given that Harvey's modus operandi was to construct each secondary Melody from the material in the neighbouring primary Melodies. Evaluation of the notes present in the Themes clearly links each Theme to a specific Space. In this case Theme X and Theme Z contain notes particular to Space 2, and Theme Y to Space 1. This makes sense given that in the analysis carried out earlier (see Figure 70) Melody B+C was shown to be aligned to Space 1 and Space 2.

Figure 84 Themes shared across Melodies B, B+C and C.

When this analytical process was applied to all twenty Melodies (see Figure 85 and Figure 86) some interesting patterns emerged. The number of identifiable themes ranges from one to six, with the majority (sixteen of the twenty) having one, two or three recognisable themes or motifs. There is a noticeable grouping of those having more than three themes in the middle Melodies, i.e. between C+D and G+H echoing the expansion and contraction

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41 Harvey's compositional sketches were transcribed using notation software as a more effective means by which to compare the themes within each Melody aligned with that of its neighbours.
seen in interval and duration range. The sharing of themes, as identified in Figure 84, is omnipresent across all twenty Melodies. Themes are replicated with little or no variation and each theme is linked to a specific Space (shown in each ‘theme box’ in Figure 85 and Figure 86). Most interesting is that themes are, almost without exception, in neighbouring groups of three. This reveals the structure or framework Harvey used to ensure that the Melodies could be linked or chained together and that the Melodies progressed harmonically through the sequence of Spaces. The linking or chaining of each melody to the next is facilitated through ensuring that a sufficient gap is available to incorporate the next Melody. This is most noticeable in Melody B to Melody D+E where once a theme is dropped the gap left is replaced by a new theme, often referencing the next Space in the sequence. The importance of the Primary Melodies is also revealed in that each group of three themes is across a single Primary Melody (i.e. C) and two Secondary Melodies (i.e. B+C and C+D) with the Primary Melody placed centrally. The only exception to this grouping of three is where the final Melody (J+A) chains back to the first Melody (A). One would expect to see the third of the three themes in J+A present in both A and A+B. However, whilst it is absent from A+B the notes in this theme are present within the new theme introduced in its place in A+B. One must assume that this deviation from the pattern of three was a necessity given the requirements of fitting triadic groupings across twenty Melodies. Following on from this there is the possible suggestion that Harvey used Melody B as the start or initial Melody from which the pattern or grouping of three is established.
Figure 85  Shared themes across Melodies A to E+F
Figure 86  Shared themes across Melodies F to J+A
Returning now to the research questions posed at the start of the chapter some key aspects of Harvey's methodology can now be discussed.

1. How important are the Spaces to the melodies and what is their role.

The twenty Melodies have a close and deep-rooted relationship with the Spaces. In drafting each Melody Harvey referred to one or more Space as necessary as an exclusive resource for pitch content. Whilst Harvey has treated the Spaces in a more or less egalitarian manner, working with six Spaces across twenty Melodies has required an element of flexibility – i.e. the use of ‘separators’; and a variation in the total number of Spaces referred to by each Melody. By sourcing notes from the Spaces for the Melodies Harvey achieved two things. Firstly in providing a form of harmonic progression, equivalent to that found in traditional tonal harmony, but not dictated by root note derived harmony. Secondly, in introducing a sense of ambiguity, or nebulousness, between the vertical Spaces and the horizontal Melodies. This can be compared to some of the techniques and ideas introduced in earlier works by Harvey, such as Round the Star and Back, where the sustain pedal is used with certain instruments, to create a sound analogous to a harmonic ‘cloud’. It also has parallels with spectralist concepts in being able to treat sounds as a sum of their component parts. Finally, it permits a reconsideration of the concept of foreground and background in that rather than being part of a hierarchical system where harmony might be considered background, and melody foreground, the roles are in effect interchangeable.

2. Are there any dominant features within the Melodies and what makes each melody distinct and therefore potentially memorable.

To satisfy Harvey’s desire to make the melodies memorable, and therefore distinct, it follows that the Melodies will contain dominant elements that define their character. These, as was suggested earlier and the analysis reveals, are pitch, contour and syntax related. However, variations within these elements, to facilitate distinctiveness, operate within a carefully designed framework that ensures that any variation takes place in a linear fashion – through a system of expansion and contraction.
3. Are there any identifiable structures within the Melodies and what is their role.

The analysis revealed that each Melody is constructed from one or more thematic elements. These themes or motifs can be considered as important and discrete components in their own right as they play a key role in facilitating the creation of a Secondary Melody from material presented in a Primary Melody. The individual thematic elements are themselves positioned in such a way as to ensure that each Melody can ‘fit’ or ‘slot’ with its neighbours through the use of rests and long note durations. This enables the formation of a ‘Melodic Chain’ allowing the last Melody to link with the first.

4. Why might the melodies be considered ‘melodies’ in the conventional sense as opposed to simply arpeggiated chords?

Because of their close relationship to the Spaces these Melodies could be considered a form of prolongation – in that they accommodate the ‘elaboration in time of governing vertical sonority’ (Salzer and Schachter, 1989, p.144). Although traditionally considered a ‘tonal’ Schenkerian concept prolongation has been subject to much discussion as to its effectiveness when discussing post-tonal music (Straus, 1987) (Lerdahl, 1989). However, this discourse has focused primarily on an equivalent hierarchy based on dissonance and consonance (or tensing or relaxing) or through voice leading. Whilst Harvey's Melodies are not tonal in the Schenkerian triadic sense they are equally not atonal in the manner of Schoenberg. Consequently what Harvey presents here is a new way to consider the concept of ‘prolongation’ closer in reality to Schenkerian derived ideas of foreground and background. Arpeggiation, is obviously one method of prolongation. However, is it acceptable to say that these Melodies are simply a horizontal presentation of the vertical aggregates present within the Spaces? I believe that the composer has utilised a number of strategies to lessen the strength of this argument – primarily on the basis of needing to ensure that the Melodies can be considered ‘memorable’ or ‘articulated’ – a feature less likely to be present in arpeggiated structures. Whilst primary Melody B and its secondary neighbours A+B and B+C might
be deemed to be a straightforward arpeggiation of Space 1, albeit using a limited range from the Space, the remaining Melodies all use a variety of methods to break up any sense of arpeggiation. These include the use of semi-tone intervals, notes of longer duration, tied notes, repeated notes and grace notes. To what extent each of these twenty melodies might be considered memorable is of course subjective. What is less in doubt is the conscious effort on Harvey’s part to create twenty distinctive Melodies that submit to a structural framework that facilitates a sense of unity, ambiguity and narrative.
CHAPTER SEVEN: HARVEY’S APPROACHES TO INSTRUMENTATION AND ELECTRONICS PRIOR TO MADONNA OF WINTER AND SPRING

We shall use electronic sound production in the future. It will make everything easier, clearer, more reliable – and we shall govern the material: it won’t govern us.

Letter from Stockhausen to Goeyvaerts December 7, 1952 quoted in (Toop, 1979)

Looking through history, little by little, new palettes come up and I see it now as the turn of electronics

Harvey in an interview with Andrew Clarke (Clark, 2008)

This chapter will explore Harvey’s use of acoustic and electroacoustic material in works before Madonna of Winter and Spring. Discussion will be placed in the context of works by the composer, both acoustic and electroacoustic, and key influences on his approach and method. Important to this discourse are technological developments that took place in the 1970s and 1980s, and ultimately Harvey’s interest in the concepts of ambiguity, unity and stasis. A number of works discussed in earlier chapters will be revisited, in order to explore specific aspects related to timbral composition and the use of electronics.

Harvey’s initial fascination with the potential of electro-acoustic techniques can be viewed as three distinct phases: a period of exposure to the music of Stockhausen in the mid-to-late 1960s, a period of study and compositional experimentation with Babbitt at Princeton University in 1969 and 1970, and finally, exposure to new technology and compositional techniques at IRCAM, Boulez’s research institute in Paris, in the late 1970s and early 1980s.

First Phase: Stockhausen and Darmstadt

Harvey encountered Stockhausen in 1966 at the International Summer School at Darmstadt. During the 1950s, Darmstadt had become the assembling place for the European avant-garde, and following the breakup in the early 1960s of the ‘Darmstadt School’¹⁴³ aleatory, electronic and ‘moment’ forms dominated the directions of the school’s primary members,

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including Stockhausen, as well as activity at the Summer School. It is in this post-serial environment that Harvey was to experience a range of new concepts and ideas that were to have an important impact on his compositional aesthetic. He refers to this encounter at Darmstadt in the late 1960s as the catalyst for his interest in electronic music, calling it his ‘great Stockhausen’ conversion (Jaffé, 1999). It is significant to point out that, at this time, Harvey’s output, as we saw in Chapter 2, was restricted to a handful of works, the Little Concerto for Strings (1961), a number of choral and instrumental works in 1965, and a Symphony in the following year; and musically very different to the work of the European High Modernist composers. Many of these early works by Harvey revealed strong influences of the music of Britten and Tippett, although he was beginning to explore a wider range of compositional ideas, and later works such as the Symphony (1966) were more attuned to the influences of his Viennese teachers Stein and Keller. Whittall notes that the ‘principal echoes to be heard […] range from Schoenberg, Berg and Webern to the then recent Little Symphony (1963) by Alexander Goehr’ (Whittall, 1999, p.39). Other works show an interest in Schoenbergian serialism and Messiaen’s modal technique (Triptych 1962). However, exposure to the works of the High Modernists at Darmstadt was beginning to have an impact on his compositional methodology. Reflecting on this period of his life in a 1999 interview, Harvey recognised his growing interest in High Modernism and the concept of ‘global time’:

Both Stockhausen and Babbitt were interested in global time: they shared the High Modernist belief that time becomes space, and that one views a musical work, a work of art, as one object, very complex, which should be experienced somehow from above, moving through it but yet conscious of it as a whole, and with no particular sense of line pushing through from moment to moment (Whittall, 1999, p.7).

One of the means by which this concept could be explored was total serialism – a unitary standard principle ‘in which not only pitches, but also durations, dynamics, registers, densities and even timbres and spatial projections were made subject to a strict ordering system’ (Harvey, 1999b, p.140). It was clear to both Stockhausen and Babbitt that these ideas were both aligned, and ultimately achievable through electronic and computational systems and processes. Harvey saw potential in these ideas,
although they went against a lot of the teaching and ideas that he had been exposed to until then. He saw a clear difference between these new ideas, of ‘music that could be perceived as an almost spiritual dimension’ and those expounded by Keller, ‘the stuff of tension, of foreground and background, of composing against’ (Whittall, 1999, p.8). Consequently, he refers to a lack of surprise by Keller’s disapproval of his Stockhausen book, and of his studying with Babbitt (Whittall, 1999, p.8). Correspondence between Britten and Harvey\(^44\) also indicated Britten’s displeasure at his planned trip to America. Given his respect for these two important influences on his development, one can imagine that this was potentially a difficult decision for the young composer. However, as identified in Chapter 2, he desired to find greater structural depth – to understand where the equivalent to levels found in Schenkerian analysis were in contemporary music - something that he felt was lacking in the traditional forms of music he was working in. This drove him to explore and experiment beyond his current methodologies and practices. Ultimately, Harvey was to become ‘less global-time orientated’ (Whittall, 1999, p.8) and whilst Babbitt’s influence waned Stockhausen’s interest in the spiritual and physical aspects of sound were to have an increasing significance on Harvey, as will be seen.

High Modernism was not the only concept of interest to Harvey at Darmstadt; electronics were also to play a part in his developing compositional methodologies. However, by the time Harvey arrived at Darmstadt, the use of electronics in music composition was already fairly well established within Europe and America. The electronic music studios based in Cologne\(^45\), Paris\(^46\) and New York\(^47\) had been set up a decade or so before, and composers such as Stockhausen, Messiaen, Varèse, Schaeffer, John Cage and Morton Feldman had already completed a number of works utilising electronic technology at these centres of activity. Many of these early works were based around two techniques that were implemented separately or together: the use of tape machines that could be used to

\(^{44}\) HARVEY, J. 29th October 1968a. RE: Letter to Benjamin Britten regarding study at Princeton. Type to BRITTEN, B.

\(^{45}\) WDR electronic music studio

\(^{46}\) Pierre Schaeffer’s RTF Electronic Studio

\(^{47}\) Music for Magnetic Tape project
manipulate recorded sound, and electronic sound-generators, used to create new sounds, or mimic acoustic sounds. Given Harvey's fairly conventional output at that time, as discussed above, it is reasonable to assume that whilst he might have been aware of developments in these areas they did not yet play a key role in his compositional methodology.

The itinerary for Darmstadt in the year of Harvey's visit refers to courses and lectures by Stockhausen on 'Synthesen elektronischer, instrumentaler und vokaler Musik'\(^48\), and performances of a number of his works, including *Mikrophonie I & II* (live electronic works), alongside lectures on 'Computers und Musik' and performances by other composers including Varèse and Ligeti. As such, it represents a useful and convincing starting point for the consideration of potential influences on Harvey, and in particular the role of Stockhausen. In (Whittall, 1999, p.9) Harvey describes how Stockhausen intrigued him with the complexity of his approach – one that attempted to combine 'the rational, the scientific, the mystical, the intuitive and, let's say, the chaotic'. What interested him was Stockhausen's treatment of music as a physical sound, a tangible object. In an interview with Whittall in 1999 he explained it as follows:

> the aspect of music as something you can feel in your fingers when you manipulate sound in an electronic studio, speeding it up, feeling the buttons as they turn, changing the sound, getting inside the sound, getting to understand and love the graininess, the smoothness, the richness, the roughness, thinness of the ontology of musical sound – Stockhausen showed me all these things very intensely and has remained a mysterious guide in my work (Whittall, 1999, p.9).

By the time of the aforementioned 1966 Darmstadt lecture, Stockhausen had written eight works that involved electronics of one type or another: *Étude* (1952), *Studie I* (1953), *Studie II* (1954), *Gesang der Jünglinge* (1955-6), *Kontakte* (1959-60), *Mikrophonie I* (1964), *Mixtur* (1964) and *Mikrophonie II* (1965). The first four of these, *Étude, Studie I, Studie II* and *Gesang der Jünglinge* are electronic works\(^49\); the other four are live performance works that use a combination of electronics and live acoustic instruments. All eight

\(^{48}\) Electronic synthesis, instrumental and vocal music

\(^{49}\) The term 'electronics works' here refers to music composed and performed through use of magnetic tape and/or electronic sound generation.
pieces have relevance to Harvey’s use of electronics and approach to the treatment of sound, and in the case of the latter four, his use of electronics with orchestral instruments; they are therefore worthy of mention. Many parallels can be drawn between these works and Harvey’s output and in some cases, as will be demonstrated, shown as a direct model or narrative for a particular work.

Stockhausen’s first electronic work, *Étude*50 (1952) was a musique concrète piece, composed at Pierre Schaeffer’s studios in Paris. Stockhausen used his time in Paris to analyse recordings of acoustical sounds – ‘sounds of wood, of metal, of speech, in fact any kind of noise that was available as a recording on tape’ (Wörner, 1973, p.125). This work should be viewed as an experimental footnote to his developing methodology. Indeed, Stockhausen chose not to recognise this work as the first entry in his œuvre51, and is only given passing mention in Wörner’s book. It lacks the systematic organisation of later works, like *Kontra-Punkte* and *Studie I* and *Studie II*, and could be considered as a failed attempt to articulate particular aspects of total serialism, as will be explained. However, it does provide a useful insight into some of the fundamental concepts important to Stockhausen at this time.

Schaeffer’s studio in Paris was one of the few places where tape music was being made professionally in Europe in the early 1950s52, and consequently it attracted the attention of a number of composers including Messiaen, Stockhausen and Boulez, who viewed electronic music (and in particular tape music, as this was the primary way by which electronic music was being created at this time) as a means by which the ultimate objectives for the serial organisation of musical parameters could be realised – not subject to the performance limitations of humans. Whilst manipulation of tape, through the technique of splicing and editing, provided a means by which to control duration to the precise levels required of the total serialists, timbre was a much greater challenge – ‘there was no obvious way in which one might place in order, for example, the sound qualities of harp, cello, flute and

50 Also referred to as *Konkrete Etüde* by Toop, Stockhausen et al.
52 WDR Studio in Cologne opened in 1953, the Studio di Fonologia, Milan, in 1955.
harp’ (Griffiths, 2010, p.51). This was despite the attempts of some composers to address the issue, as in, for example, Babbitt’s *Composition for Twelve Instruments* (1948); and through instrument grouping schemes Boulez’s *Polyphonie X* and Stockhausen’s *Formel* (1951). The fundamental problem was that timbre needed to be broken down into its basic components so it could be reconstructed from basic principles – something that corresponded to the equal-tempered scale for pitch, and its relationship with harmony. One can understand why musique concrète and magnetic tape techniques might have appealed to this group of composers in the first place. Pierre Schaeffer’s recordings and treatment of acoustic sources – including trains, speech, weather and other natural sounds – and the studio equipment available provided an opportunity to analyse and understand timbre in a manner that might in turn lead to a systematic model for its use. Stockhausen refers to making ‘hundreds of analyses of instrumentally produced sounds’ (Stockhausen, 1971, p.644) whilst at Schaeffer’s studio in Paris. However, Stockhausen’s reflections on his activity, which he groups under the single heading of electronic music at this time, are open to some debate. The composer would appear to have been involved in two distinct – although related - activities at this time. Firstly, experiments with tape recording techniques, filtering and ring-modulation with prepared-piano sounds. Secondly, correspondence with Goeyvaarts on the nature of simple musical elements (discussion that consider both the nature of sound and religious concepts), and experiments with sine waves which ultimately resulted in Stockhausen’s first purely electronic work, *Studie I* (1953). Stockhausen’s first three electronic works, the *Étude*, and the two *Studies* were to prove mere hors d’oeuvres though. Whilst providing an opportunity for the composer to explore the physical nature of sound, through the manipulation of recorded acoustic material and generation of electronic sounds, ultimately the results were not as sonically exciting as the theory promised. Harvey refers to *Studie I* as ‘a rather monotonous piece’ and *Studie II* ‘as very circumscribed’ (Harvey, 1975d, p.25) and certainly the limited range of timbres presented in both works reflects the crude and

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inaccurate technology available to Stockhausen at that time. Consequently he did not return to either musique concrète or pure electronic music (i.e. only using electronic sound sources) in any of his subsequent works, although their presence can be felt in much that followed. *Gesang der Jünglinge* (1955-6), written a year after *Studie II*, a period of time described by Harvey as ‘this most amazing inventive and fertile patch’ (Harvey, 1975d, p.77), was Stockhausen’s first work to combine electronic sounds in the form of sine waves together with acoustic material – in this case a recorded boy’s voice singing the *Benedicite* in German. It is in this highly organised serial work that Stockhausen attempted to bring together into a single sound both sung notes and electronically produced ones. To do this he had to deconstruct a complex acoustic sound, the human voice, into its component parts – vowels (sounds) and consonants (noises). In conversation with Wörner he described it as follows:

so that a fusion of all the timbres used into a single family of sound only becomes palpable when sung sounds can appear like electronic sounds, and when electronic sounds can appear like sung sounds. At certain points in the composition the sung sounds become comprehensible words, at other times they remain pure sound values, and between these extremes there are different degrees of verbal comprehensibility (Wörner, 1973, p.41).

These new ideas certainly appealed to Harvey, and in his 1975 book on Stockhausen he referred to the three serialised scales used within the work, of which:

the most impressive and original scale used is that between two camps – voice and electronic sound, human and machine, and related to it – that between discursive meaning and pure sound. At those moments where one realizes that a sound one had initially thought of as a vocal one turns out to be an electronic one, and vice versa, the unity of the two contrasting elements is apparent, and apparently submitted to a higher ordering that transcends the difference between them (Harvey, 1975d, p.79).

This important work, one that will be shown to have had a particular influence on Harvey’s *Mortuos Plango, Vivos Voco* (1980), introduces into the discussion the key concepts of unity and ambiguity. Unity through the creation and combination of sounds that can be perceived as single entities, and the understanding of a single sound as a composite of usable individual sounds; and ambiguity through the presentation of sounds the origin of which, from the listener point of view, is not necessarily clear.
Stockhausen's next work to utilise electronics was *Kontakte* (1959-60)\(^{54}\) and this continued the theme of exploring the connected relationship between electronic and instrumental sounds (hence the title of the piece). As Stockhausen's first work to involve electronics and live instrumental performance, it should be regarded as an important turning point, and many of his following compositions also employed these two media. This work, for piano, percussion and tape, is composed in what he referred to as 'moment form'. In moment form each musical event, whether a state or process, is considered as complete in its own right and able to define an independent existence. It represented a major paradigm shift from the traditional horizontal presentation of music, where events are composed against what precedes or follows it - which Stockhausen referred to as:

> a concentration on the Now - on every Now – as if it were a vertical slice dominating over any horizontal conception of time a reaching into timelessness, which I call eternity: an eternity which does not begin at the end of time, but is attainable at every moment (Wörner, 1973, p.47).

The mixture of voice and electronics in *Gesang der Jünglinge* is extended in *Kontakte*, timbrally speaking, through the use of four distinct instrument groups – piano; ‘pitched’ percussion such as crotales, marimbaphone and tam-tam; percussion with ‘perceivable’ pitch such as African wood drums and tom-toms; and noise percussion, and tape. This enables the ‘timbral’ fusing (i.e. contact) of potentially disconnected live piano sounds and electronic noises through the use of certain percussion instruments. Writing about *Kontakte* in 1975, Harvey provides some insight into his own preoccupations at that time:

> the variety of timbres and textures is greater than any previous work, and (...) one must live for the moment alone, for the vivid sense of aperçu - it is not particularly enriching to recall what has gone before or what is yet to come by way of comparison (Harvey, 1975d, p.89).

The synchronisation of live instruments with an audio playback on tape presented new challenges to the performers. Careful attention to the dynamic levels of performance are required in preserving the concept of ambiguity – ‘extremely sensitive performers are required’ (Harvey, 1975d,

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\(^{54}\) Stockhausen's *Kontakte* exists in two versions, one purely electronic and the other for piano, percussion and electronics. Only the latter is considered in this discussion.
p88). Commenting on one such performance, Harvey observes that ‘one’s attention becomes transfixed by the beauty of the colour idea, the interplay wherein one is even unsure of distinguishing the piano from the tape’ (Harvey, 1975d, p89). This particular piece, though, explored another device by which ambiguity as a concept could be presented – a device that was to feature in a number of Harvey’s compositions.

Around this time, Stockhausen had been experimenting with the spatialisation of sounds through the use of multiple loudspeaker configurations. The origin of a particular sound, and therefore its likely source, will be reinforced through visual confirmation – it is relatively simple for an audience member to associate a particular acoustic sound and its source to a particular performer. A wide variety of timbrally contrasting tape sounds presented through a single speaker or even a pair of speakers is limited in this regard. In Kontakte, Stockhausen uses various new forms of spatial movement to present the tape sounds. This included: rotation of sounds at various speeds and in both directions, and ‘flutklang’ (flood sounds), where a sound is presented from one speaker to many others in succession. When a sound is fed to more than one speaker, its source of origin becomes more complicated. For example, if a sound is distributed, in equal amounts, to four loudspeakers, sound will appear to originate from a central point equidistant from loudspeaker locations. Varying the amounts distributed to each speaker enables the positioning of a sound anywhere within that horizontal plane. The use of a four-channel system in Kontakte, with four loudspeaker groups set up in a square surrounding the audience, provided Stockhausen with a means to make the origin of a sound much harder to identify – thereby reinforcing the ambiguous nature of the sounds used. In an interview with Nicolas Donin in 2006 (conducted at IRCAM), Harvey spoke about spatialisation within his compositions, and Stockhausen is identified as a key influence – in particular Gruppen (1955-57) and Kontakte. What fascinated Harvey was the potential for a ‘dialogue in space’ (Donin, 2006, p.75) – and specifically sounds that move. Kontakte was of interest because it suggested a way in which the different types of movement, discussed above, were equivalent to musical themes - ‘this was a way of structuring spatial movement’ (Donin, 2006, p.76). In his interview
with Donin he commented on why Stockhausen’s approach was of interest to him; how it was closely linked to musical thinking – and not just purely cosmetic:

When I was quite young I became interested in his work and I felt there was a certain metaphysics in Stockhausen. This metaphysics is concerned with flying. One’s movement as a body in space, but also among other bodies themselves moving around: invisible objects or presences moving. This seems to be a very important change in music, because it’s a completely new dimension (Donin, 2006, p.76)

The use of spatial techniques was to feature in a number of works by Harvey, including Bhakti and Madonna of Winter and Spring, that followed his time at Darmstadt and Princeton, and these will be looked at later in this and the next chapter.

The subsequent ‘electronic’ compositions by Stockhausen, Mikrophonie I (1964), Mixture (1964), and Mikrophonie II (1965) are all ‘moment form’ works, and all three combine electronics with acoustic instruments. However, whereas the previous three works used magnetic tape as a source of sounds, these attempted to overcome some of the balancing and synchronisation problems and issues of duality – whereby tape sounds and instrumental sounds will be perceived as incoherent and disjointed elements. The solution to this was to manipulate the instrument sounds during the performance of the work – through real-time electronic manipulation of the acoustic sounds. In Kontakte, Stockhausen made use of microphones to pick up sound from a rotating speaker enable him to move sounds round the loudspeakers. In Mikrophonie I, microphones are now used to pick up the direct sound – in this case produced by a large 160cm tamtam, the only instrument used in this piece. Two performers use a wide range of materials to induce vibrations, that are picked up by two other performers using hand microphones. A further two performers process the sound using band pass filter and volume controls. Overall, the musical process is split into three distinct areas: production, presentation and transformation of sounds. Stockhausen likened the process to auscultation with microphones - ‘in much the same way as a doctor uses a stethoscope’ (Wörner, 1973, p.54). This statement provides some insight into his desire to deconstruct sound, to get inside it and reveal its various elements. The
tamtam is a rich source of harmonics and provides the greatest potential for reaping a wide range of timbres and, whilst not electronic in origin, it is capable of producing sounds that to most ears were unfamiliar. Harvey probably first heard (and saw) this work at the Darmstadt Summer School on 29th August 1966, where it was part of a film presentation by Stockhausen (Dhomme, 1966). The work obviously impressed the young English composer, not just in the thoroughness of Stockhausen’s approach, but also in his endeavours to reveal the inner workings of a single sound, as his comments on the work a few years later demonstrate:

The piece is obviously a tour de force, something totally new achieved by painstaking trials and errors, once and for all. It can be very long, twenty minutes if the earliest cue arrows are taken, much less if they are not, and it is formally and timbrally very limited. But if one can submerge oneself into this giant mixing machine with all its complex reverberations (...) it cannot be denied that a totally new experience of sound is offered, as well as an exhaustive knowledge of the complex nature of one simple object – a microcosm of ‘moment-form’ technique (Harvey, 1975d, p.92).

Stockhausen further developed the concepts introduced in Mikrophonie I in his next compositions, Mixture and Mikrophonie II. These two works also use acoustic instruments, which are fed to microphones, and processed before being sent to groups of loudspeakers. However, a much wider palette of initial timbres is accessible through the use of full orchestra in Mixture, and choir and Hammond organ in Mikrophonie II. These sources of sound were further modified through the use of ring modulators to modify timbre, rhythm, intensity and pitch, as directed by the score. The ring modulator had been used extensively within radio receivers and was therefore known to composers in electronic music studios affiliated with the French and German radio stations. The ring modulator is of particular interest because, unlike most signal processors, i.e. filters, which subtract or boost elements from the original sound, the ring modulator introduces new frequencies based on the sum and difference of the frequencies present within the original sound and that of a simple waveform such as a sine wave. By modulating the sine wave in real-time, a wide range of distinct and original timbres can be created, ranging from sounds with a rhythmic transformation (with low modulating frequencies) to bell-like metallic sounds (with high modulating frequencies). The appeal to Stockhausen of such a device is that these new sounds are still very much connected, if not
recognisable, to the original sounds fed from the microphones. They also tap into the sound at an ‘atomic’ or micro level, enabling a more precise control of pitch, dynamics, timbre and rhythm – to what Harvey referred to as the ‘inner life of sound’ (Harvey, 1984, p.9). One can assume that Harvey was aware of both these works as they are commented on, albeit briefly, within (Harvey, 1975d). As possible further evidence, the use of microphones and ring modulators feature in a number of mid-period Harvey compositions including Gong-Ring (1984) and Madonna of Winter and Spring (1986).55

Before moving on to the next phase in Harvey’s development, it is important to comment on his compositional output at that time. Whilst there is much to suggest a fascination with Stockhausen’s music during the late 1960s, compositions by Harvey did not, at this stage, fully reflect this. Works composed around the time of his Darmstadt visit, and in the two years that followed, such as Symphony (1966), Cantata I (1966), Iam Dulcis Amica (1967), Transformation of ‘Love bade Me Welcome’ (1968) and Four Images of Yeats (1968) demonstrate a greater preoccupation with serial thought, as discussed in Chapter 2. A number of commentators (Northcott, Evans et al) viewed these as transitional works, suggesting a possible way forward for Harvey as he moved away from the influence of Britten and Tippett towards that of Stockhausen and Babbitt. However, these works, all written prior to Harvey’s position at Princeton, did not yet incorporate the use of electronics, which would in time enable him to explore timbre and spatialisation in greater detail and therefore had not fully considered the concepts of ambiguity and unity discussed above. Some aspects of Stockhausen’s influence though do start to appear after his Darmstadt visit. In his appraisal of Harvey’s output up to 1973, Northcott made the following observations regarding the influence of Stockhausen’s tight serial control with the ‘most extreme contrast of expression’ (Northcott, 1973, p.35):

something of the effect of this encounter can be seen in the progress of the Three Lovescales (Cantata II) (...) The second and third songs, which together last a quarter of an hour, are by comparison [with the first song] far less easy for performer and listener to grasp. Textures range from violently disjunct outbursts, including percussive note clusters and some

55 Whilst at Stanford University Harvey taught a module titled Instrumental Music with Electronics that includes a lecture on the use of Ring Modulators. https://ccrma.stanford.edu/CCRMA/Courses/149/Lab-4/Lab-4.html
limited aleatoric writing, to passages of extreme bareness, and although the endless repeated chord-device of Stockhausen’s Klavierstücke IX occurs at one point, there is in general a careful avoidance of tonal references or periodic phrasing.

Further comparisons with Stockhausen are identified within Iam Dulcis Amica (1967):

More fruitful was Harvey’s adaptation of the superimposition and cross-cutting of contrasting musical layers, as suggested in Stockhausen’s essay How time passes and carried out in such works as Gruppen (Northcott, 1973, p.36).

Despite a fascination with the new sound world and global time thinking, it would appear that Harvey’s main preoccupation at this time was the potential for disciplined serial techniques, evident in earlier Stockhausen compositions, in turn influenced by Messiaen, as a means to provide structural depth within his music as an alternative to that possible within traditional tonal harmony. In an interview with Whittall in 1999 he explained the background behind his rationale:

My reason for going into High Modernism was an urge to find greater structural depth. The early Symphony, Four Images after Yeats, Three Lovescapes, Ludus Amoris and works of that sort were intensely emotional, rather mystical pieces; simply because my aesthetic predilections in the period before I went to study with Babbitt were strongly influenced by the desire to achieve dark and strong states of intense experience. But I did feel that to reverse the balance and swing the pendulum back a little bit towards classicism, to see if I could find in some of the theories of Stockhausen and Babbitt a way to increase the intricacy of pattern of perceptible meaning that one draws from the listening experience (Whittall, 1999, p.8).

Harvey’s measured autodidactic approach meant that he was in his mind not yet ready to fully embrace some of the exciting new ideas experienced at Darmstadt within his compositions – there was still learning and experimentation to undertake in considering the potential for total serialisation. In an interview with Paul Griffiths, he recalled ‘saying quite definitely to myself that I wanted to take things steadily, to develop a complex and powerful language step by step (...) I wanted to elaborate by a natural process, like an organism; spontaneously, intuitively, nothing forced’. (Griffiths, 1985a, p.50). This part of Harvey’s character was also identified by Brown in an earlier appraisal - 'He is still growing as a composer, but he deliberately refuses to force this growth, tempering his
inborn eclecticism with a cautious acceptance of new influences.’ (Brown, 1968, p.809)

This brief period in Harvey’s development was to have greater impact a few years later after his return from America.

**Second Phase: Babbitt and Princeton University**

I shall be going to the U.S.A for 12 months, and I have hopes that this will provide a refreshing change and unexpected new ideas, which I will have to decide whether to accept or reject, & which may invigorate my teaching as well as my composing. It is hard to get away from England with a wife & children, and this seems to be about the only opportunity to see what else exists!

Extract from letter on 4th October 1968 from Jonathan Harvey to Benjamin Britten. (Harvey, 1968b)

During 1969 and 1970, Harvey went to Princeton University as a Harkness fellow. It was during his tenure that he was able to study with Milton Babbitt, a composer who had already established himself as a leading exponent of the exact control of musical parameters developed in parallel with similar activity in Paris during the early 1950s. The post was a difficult decision for Harvey, although one that he felt was necessary for him to take at that stage, as can be seen in his letter to Britten on 4th October 1968. In his interview with Whittall thirty years later, he referred to the catalyst for the move as Stockhausen’s and Babbitt’s ‘revolutionary attempts to break down how music is made’, the logic for which ‘lies in the enormous planning of the temporal relationships in *Gruppen*, or in the serial values in time-points, dynamics, registers and so on in Babbitt’s work’ (Whittall, 1999, p.7).

Both Keller and Britten, who had played such an important part in Harvey’s development up to that point, disapproved of his planned move to America. Britten supported his application for a Harkness Fellowship by providing a reference, but indicated his strong disapproval in a letter to Harvey – are you ‘sure you want to go to the U.S.A for 12-21 months?’ – having ‘the greatest mistrust of the University musical life over there’, and questioning whether it ‘is it wise to leave this country & your excellent job for so long?’ (Britten, 1968). The letter does conclude with acknowledging the ‘cheek’ of the writer, and recognising the Harvey will have ‘thought long & hard about’ the decision. However, it does highlight the extreme opinions and divisions
in music thought present in England at that time, and why Harvey considered a move a necessity if he was to encounter unexpected new ideas.

Given Harvey’s admiration for Stockhausen at this time, it questions his choice to move to America, rather than Europe. I believe the reason for this is twofold. Firstly, what Stockhausen offered to Harvey was far more complex and involved, bringing together what he referred to, on reflection thirty years later, as ‘the rational, the scientific, the mystical, the intuitive and, let’s say, the chaotic’ (Whittall, 1999, p.9). Harvey, even at the age of thirty, was not yet ready to tackle these disparate, but potentially unifying, aspects within his compositional aesthetic from what he referred to as a ‘mysterious guide’ in his work. He recognised that some of the underlying elements of these lay in the serial techniques of Webern, and in an understanding of foreground and background layers as relate to all musical elements including timbre. In a letter to Britten, to assist with the Harkness Fellowship application, he outlined the purpose of his visit:

What I am intending is: 1) a study of set theory, i.e. Schoenberg and Webern’s serial techniques; 2) analysis of classics and moderns in depth by the sort of methods Schenker first put forward. These subjects are, of course, ones that I will myself have to teach, and are also the ones I find most helpful to me as a composer; I’m pretty sure that at Princeton they push them a good deal further than I have yet done (Harvey, 1968a).

Further insight into the relevance of Babbitt to Harvey’s compositional aesthetic is provided in Harvey’s Music and Inspiration (Harvey, 1999b). Babbitt’s methods, based on complex sophisticated mathematics that were built on the serial methods devised by Schoenberg, could, he suggested, possess an inner beauty. Citing the use of abstract mathematical relationships, such as ‘golden sections’, he observed that ‘mathematical proportion was valued not only for its own sake, but because it held out the possibility of achieving an abstract, pure beauty in music.’ (Harvey, 1999b, p.134). Harvey goes on to comment that ‘For a composer who is interested in communicating a vision of an ideal world, the study of mathematics is a logical first step’ (Harvey, 1999b, p.134). Given his exposure to the Second Viennese School through tutoring from Stein and Keller, it is reasonable to assume this thinking informed his decision-making rather than solely a retrospective reflection on his experiences at Princeton. For Harvey, the
potential link between the approach of Babbitt and structural depth was at this stage a real possibility - 'I wanted to gather from Babbitt how much one can hear, how possible was it to get a real sense of structural depth, which one has almost automatically in the great tonal works' (Harvey, 2009).

The second reason relates, I believe, to the type of environment on offer to Harvey in America. European centres for the study of electronic music (or electroacoustic music by which it was beginning to be known) had grown out of public broadcasting organisations such as ORTF\textsuperscript{56} in Paris, and WDR\textsuperscript{57} in Cologne, and were not formally attached to academic institutions. Composers based in these studios utilised technology that was typical of a radio studio: magnetic tape recorders, sine wave generators, filters and ring modulators. This was equipment that was designed specifically for a different purpose to music composition – which lent itself more to the processing of sounds rather than the creation or precise control of them. In contrast, the Columbia-Princeton Electronic Music Centre, established in the 1958, was set up by a group of professors from Columbia University and Princeton University (including Milton Babbitt) and funded with a grant from the Rockefeller Foundation, which was used to finance the acquisition of the RCA Mark II sound synthesiser. Babbitt certainly believed that this was the best place to undertake this type of work – ‘this research requires the cooperation of the musician, the electrical engineer, the psychologist, and even the mathematician: the community of diverse and specialized knowledge available uniquely at the university’. (Babbitt and Peles, 2003, p.70)

I believe the structured academic research and collegiate environment available in America would have appealed more naturally to Harvey rather than an atmosphere of intuitive experimentation - certainly at that stage.

\textsuperscript{56} Office de Radiodiffusion Télévision Français (ORTF) was, between 1964 and 1974, the national agency that provided public radio and television in France.

\textsuperscript{57} Westdeutscher Rundfunk Köl (WDR) is a German public-broadcasting institution created in 1955 based in Cologne, Germany.
Not much is published about Harvey’s time at Princeton. The very few comments that exist relate primarily to brief statements made in his 1999 Whittall interview (Whittall, 1999, p.8). The reason for this is probably that, as an inspirational route for his developing compositional methodology, it ultimately failed. To his mind, the equivalent Schenkerian layers were just not accessible within serial music. Babbitt’s approach was:

too intellectual, for me at least. It was not sufficiently audible. It was too dependent on learning. It didn’t really take the natural impulses of musical perception, how we connect and what we perceive, sufficiently into account. It involved a forced jump of effort (Whittall, 1999, p.9).

In an interview ten years later, as composer in residence for the Huddersfield Contemporary Music Festival, he presented his thoughts more succinctly:

I came away [from Princeton], having made my own experiments in composition, with a feeling that that was not really the path. Keller, with whom I was in contact, certainly urged me that the important thing was spontaneity, inner logic rather than outer logic, and freedom. These things were very important, and he was an influence in making me forge a way beyond serialism (Harvey, 2009).

A lengthy letter to Britten (Harvey, 1968a), a few months into his stay, provides some insight into his initial thoughts. He writes about being ‘happily settled in Princeton in a spacious apartment overlooking Carnegie Lake’ and that the campus appears to have been ‘imported wholesale’ from Cambridge. Musically though, it is a ‘curious experience’ – he had been listening to a lot of recorded East Coast music which had a ‘certain very tangible characteristic’ as opposed to the ‘alarmingly opposite’ West Coast ‘Cage inspired and psychedelic experiences of one sort or another’ which were ‘dismissed pretty summarily by the East’. Harvey’s comments indicate a high respect for Babbitt, referring to him as being a ‘father figure’ to a group of composers, although none as ‘extreme as he’. Babbitt is ‘very serious, very competent, everything is beautifully and carefully written’. Just as the young American composers at Princeton were starting to draw distinctions between East and West coast, Harvey had some interesting observations of his own on Babbitt’s approach, as opposed to that of the European composers, as indicated in this extract from a letter to Britten during his stay:
The complexity seems always to be complexity of musical argument and never complexity of texture for its own sake as in, for instance, Messiaen, Stockhausen, Boulez etc. This I find refreshing. But just as the virtues are different from European ones so are the faults. If European music excels in emotional exploitation and sometimes falls into sensationalism, its main fault is uncomfortable incompetence. If East Coast music excels in intellectual sophistication and sometimes falls into overcomplex arguments, its main fault is emotional avidity (Harvey, 1969a).

Despite these early opinions, Harvey considered the year a stimulating and exciting ‘refresher course’ likening it to an ‘eighteenth century Italian composer coming to Germany for a bit of contrapuntal stiffening’. One senses that Harvey is more or less clear as to what he wants to get from his stay, and while potentially a heady mix of ideas will not allow it to detract from his main objective – ‘I think it will enrich without basically changing my thought considerably’.

Many of Harvey’s compositions around this time demonstrate serial working of the type proposed by Babbitt, although, as his letter to Britten suggests, not in a radical way. He only published one electroacoustic composition during his time at Princeton - *Time-points* (1970). This Babbitt-inspired piece for magnetic tape, since withdrawn, does suggest some positive aspects of his stay at Princeton. Palmer, in discussing Harvey’s electronic work before *Bhakti*, identifies what he considers ‘the seeds of the two most important technical characteristics of Harvey’s compositional voice to come.’ (Palmer, 2001, p.1). The first of these is the methodical organisation of pitch through serial techniques, and the second characteristic, and perhaps the more important, the freedom given to the treatment of timbre – which was not systematically serialised. The scientific approach adopted at Princeton University provided the ideal foundation on which Harvey could better understand how acoustic structure might dictate musical structure. This brought Harvey closer to some of the inventiveness he had experienced in Stockhausen compositions including *Studie I*, *Studie II*, *Gesang der Jünglinge*, *Mikrophonie I* and *Mikrophonie II*. The equipment available to him at Princeton, including the RCA Mark II Sound Synthesiser 58, facilitated the creation of new sounds that was both intuitive and

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experimental, but was motivated by a technical understanding of the acoustic (spectral) nature of sound.

So, during the few years that separated 1966 and 1970, Harvey had been thoroughly absorbed with the works of what Downes referred to as ‘two powerful mentors’ (Downes, 2009, p.17). Consequently, the decade that followed is highlighted by works such as the Inner Light trilogy, which Whittall writes as having a ‘transitional’ quality. (Whittall, 1999, p.45). This serves, therefore, as a good opportunity to reflect on some key works of that transitional period, after Babbitt but before the period spent at IRCAM - reflecting influences of Babbitt and Stockhausen, and suggesting a new, more clearly defined voice for Harvey. Some of these works have already been discussed in some detail in Chapter 3. The primary focus here is on the relationship between timbre (i.e. spectral material) and harmony.

**Cantata VII – On Vision (1972)**

This is an important work, as it marks the first time that Harvey used tape with live instrumental performances. Written two years after *Time-points* (1970), he had acquired an understanding of the use of tape whilst at Princeton, although he was not yet ready to consider the use of live electronics of the type he heard in *Mikrophonie I* at Darmstadt in 1966 – possibly because it risked the type of ‘emotional sensationalism’ referred to in his letter to Britten, but more likely because he could not yet see how the technology would work in way that allowed him to realise the structural depth he desired, i.e. through a sense of foreground and background, and incorporating aspects of unity and ambiguity. However, the use of tape with an orchestra, soloists and chorus suggests a willingness to experiment with acoustic and electroacoustic sources of sound in a live environment. The tape part for this particular work features mainly manipulated speech and there are obvious parallels with the resources for *Cantata IV Ludus Amoris* (1969) for orchestra, soloists, speaker and chorus. In *On Vision* a basic series ‘governs the proportions of each of the six movements as well as defining their detailed serial contents’ (Northcott, 1973, p.38), demonstrating a continued preoccupation with serial thinking. Babbitt’s influence is also noticeable in the internal proportions and their rhythmic structure, which
follow the pattern of the same series. However, this is not extended fully across all musical parameters, as one might expect within a Babbitt work. Likewise, the tape material focuses more on sonic possibilities and the potential for ambiguity: ‘the first and fifth movements comprise an electronic collage of words (...) spoken by a child to a disembodied accompaniment of synthesized pitches.’ (Northcott, 1973, p.38). Harvey uses the tape part to bring together – to unify - the soloists, orchestra and chorus - ‘an awareness of the timbral potentialities of the electronic medium is clearly evident’ (Palmer, 2001, p.2) reminiscent of Kontakte. Whittall is less complimentary, referring to this post-Babbitt period as:

an epic struggle to project his emerging philosophical and spiritual concerns through essentially expressionistic music structures and gestures. The result was music of at times disconcerting density and stress, in which lyricism has to struggle to survive (Whittall, 1999, p.44).

Whilst this opinion might be justifiable for earlier works, a number of ‘transitional’ pieces that followed, including the Inner Light trilogy, begin to reveal a more assured control of the lyrical and musical elements.

**Inner Light 1 (1973)**

With this piece, the first of the Inner Light trilogy, Harvey showed a possible way forward in his quest to communicate a sense of perceivable structural depth within his compositions. Having rejected Babbitt’s overly complex mathematical control of musical parameters as a possible solution, this work for seven instruments and tape is more aligned to Stockhausen’s approach to concepts of unity. Central to Harvey’s philosophy is that a single sound can also be an acoustic complex. This is allied with his developing interest in the writing of Rudolf Steiner, which will be explored later in this chapter. The tape part consists of simulations of instrument spectra, which comprise of partials mathematically related to fundamental frequency. By modifying the levels of these partials, and increasing the amplitude of the individual partials, he was able to create a harmonic identity from a timbral identity.
These are identifiable as vertical aggregates or harmonic fields (which were examined in Chapter 3), an example of which can be seen in the tape part at bar 239 and 240 (See Figure 87). This harmonic field of ten notes is related to the partials of the single F# in the bar 239, which is duplicated in the Cello. At this point, at bar 239, timbre is the main component; with the partials in the cello and tape sound the basis of the timbre that can be heard. By bar 240, the partials in these sounds have ‘opened out’ or expanded to become individual pitches, and create a ‘derived’ harmonic field. The
instrumental parts (flute, clarinet, violin, viola and piano) are part of these large-scale harmonic fields, because they are from the same pitch field, or complement it, and are therefore integrated within it. The timbral structure and harmonic structure form a continuum reminiscent of Stockhausen’s ‘timbral fusing’ in Kontakt. However, in Inner Light (1), the role of timbre is more defined in that it is linked spectrally to the individual instruments’ sounds. Referring to the concept of “Cello-ness” within the work, Harvey called this ‘part of the structure not just an implement to play the structure with’ (Harvey, 1986e, p.179). This interplay between harmony and spectrum is also evident in a number of later works by Harvey, which do not use tape. In (Harvey, 1986e), the composer discusses this interplay, or ‘fusion’ and ‘fission’ as he refers to it here, in such a work, Song Offerings (1985) for soprano and chamber orchestra. Within sections of the work, where ‘fusion’ is present, the string partials mirror characteristics of the voice by playing harmonics or senza vibrato, so that they are effectively hidden. When the fusion breaks down ‘the string partials come out of hiding and proclaim themselves individuals again [...] and in the gesture move to harmonically “correct” locations in the syntax of the piece.’(Harvey, 1986e, pp.180-181). Harvey’s use of the words ‘individuals’ and ‘hiding’ here reveals the importance he places on how the listener might perceive these activities within the structure of the work – is what they are hearing part of something else or a single entity? Central to this are the concepts of ambiguity – ‘the teasing veil of identity’ (Harvey, 1986e, p.181) and unity or ‘mystical union’.

Round the Star and Back (1974)

The use of an axis of symmetry and the creation of harmonic Spaces in this improvisation piece were discussed in Chapter 3. However, there is one further aspect of this work related to the discussion of timbre, ambiguity and unity that merits mention. The performance of the work is governed by a number of ‘rules’, No. 15 of which is as follows:

The piano (also vibraphone, celesta, harp etc.) may sustain all notes throughout each section with the pedal, so that a large selection of the SPACE sounds as a chord (Harvey, 1974).
The use of the sustaining pedal allows timbres of instruments with typically short transient sounds to linger in the form of a harmonic cloud. When this technique is utilised within a performance, it can reinforce the harmonic structure at play or provide an ethereal 'halo' effect to the melodic material; and therefore has a structural function which can influence the listener's understanding of what can be perceived as foreground and background material. As with *Inner Light (1)*, Harvey’s aesthetic predilection here is to integrate timbre into the structure of the work. The interplay of harmony and spectrum here anticipates several other works by Harvey that followed, both electronic and acoustic (as in *Song Offerings* discussed above). However, this particular technique lends itself to electronic manipulation or signal processing as electronics allow a sound to be artificially sustained. It also permits the sustain of instruments that do not have a natural means by which to sustain their timbre, as is the case for transient sounds, and can therefore take on a new character. Later works, including *Inner Light (3)* and *Madonna of Winter and Spring*, explore this scheme through more effective and efficient electronic means as will be discussed below. It therefore provides an interesting insight to Harvey’s developing aesthetic at this time in that it is the concepts that are being explored not the technology, which is the catalyst for their investigation.

*Inner Light (3)* (1975)

The third piece in the trilogy, actually the second in the compositional sequence, continues the theme of expansion developed in *Inner Light (1)*. Whereas in the first work tape is used to transform timbre into structural harmony, in *Inner Light (3)*, it is used to transition from one instrumental timbre to another. The interplay between the different timbres is further explored through the use of spatialisation techniques, similar to those observed in *Kontakte*. The programme notes for *Inner Light (3)* indicate the use of a 4-channel (quadrophonic) system to distribute the audio signals from tape to the speakers (Harvey, 1975b). Using the quadrophonic tape and multi-channel speaker system, Harvey was able to seamlessly transition instrumental timbres between sounds on tape and live performance – using the speaker systems to feed the tape sounds around the auditorium. The programme notes provide an example of this – ‘a trumpet sound leaves the
orchestra, changes progressively into a clarinet in mid-flight, so to speak, and returns to the stage area where the orchestral clarinet takes it up’ (Harvey, 1975b).

The structure of *Inner Light (3)* was discussed in Chapter 3, and was shown to be have been based on the use of different intervals within three levels 1, 2 and 3. Each level refers to the expansion and contraction of different types of interval, which at its smallest (i.e. where the partials are closest together) is noise (i.e. spectrum), and at its largest a tritone interval (i.e. harmony). Noise here relates to the use of electronically generated white noise, characterised by the presence of all frequencies (analogous to light), and could be considered ‘pure timbre’ in that it will have no pitch material. The progression of each of the three levels, and the expansion and contraction of interval throughout the piece, is shown respectively by the Lines A, B and C in Figure 88. (Harvey, 1976, p.125)

![Figure 88](image)

**Figure 88**  Levels in *Inner Light (3)*. (Harvey, 1976, p.125)

As with *Inner Light (1)*, there is a transition of timbral structure, in this case noise, to harmonic structure. However, in *Inner Light (3)*, as can be seen in Figure 88, this continuum now has a more distinctive role in defining the structure of the work. Each of the Lines A, B and C follow a unique pattern that is repeated within the structure of the work. The lines are nested within each other such that, in the space of one occurrence of Line C (from expansion to contraction), Line B will have competed two cycles of its pattern, and Line A, four cycles. Consequently, the different Levels, which provide the pitch and timbral content for each of the Lines, can each be perceived as foreground or background material throughout the duration of the work. Harvey’s structural diagram, shown in Figure 2., indicates a further Line ‘D’, which ascends off Line C. Harvey provides the following description:
A second system continues to expand outwards at the point where the first starts to contract from the tritone inwards again, giving a background sequence of ever wider intervals which peep through the gaps of the texture, so that fewer and fewer pitches can be contained in the audibility range. Eventually only two are left, which slide off the high and low limits respectively into silence (Harvey, 1976, p.125).

This ‘second system’ has, I believe an important part to play in generating the structural depth of the work. At its simplest level, it provides a strategy by which to exit the cyclic patterns inherent in Lines A, B and C, and draw the work to a distinct conclusion. It also provides a different type of timbre for the transition between timbral structure and harmonic structure. This secondary timbre is less dense than noise, and is more comparable to a sense of dreamlike space or ultimate expansion i.e. as transcendence beyond earthly activity. The sense of continuum within the structure seeks to unify all aspects of harmony and timbre into a single, but complex entity. The work’s dedication ‘In homage to Rudolf Steiner’ provides further insight into the compositional aesthetic at work here, and the relevance of this will be explored below.

**Third Phase: IRCAM**

During the 1970s, Harvey held positions at two UK universities; firstly at Southampton and then, from 1977 onwards, at the University of Sussex, where he was to remain for a further 18 years. In 1980 he was invited by Pierre Boulez to spend some time at IRCAM59. This Paris-based studio, founded by Boulez in the late 1970s, was the leading centre in the field of computer based composition and performance at that time. Boulez had already established himself as one of the main proponents of the need for a constructive relationship between musical creativity and technology. The problem was that existing approaches to this were through adaptation rather than innovation - as evident in the European broadcast studios in the 1950s. The available equipment was designed by scientists who did not fully understand the mindset of the composer - ‘new instruments and sonic media scarcely existed to carry the visions of the new post-atonal acoustic language’(Harvey, 1986a, p.240). Central to Boulez’s belief was that research and development needed to be at the heart of this endeavour to

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successfully bring together science and artistry. In 1986, Harvey contributed a chapter to (Glock, 1986) in which he gave an overview of activities and resources based on his experiences at IRCAM. Harvey’s description of the period after the initial ‘stars’, Boulez, Berio, Risset and others had left, is very factual in terms of the equipment and resources available, and no reference to music composed there, either by himself or others, is made. However, Harvey’s focus on specific opportunities available to composers such as himself provides some insight to his preoccupations at that time.

Important to the English composer was the establishment of a new order at IRCAM in the year before he arrived; one that was far more conducive to his way of working, in being less dependent on intuitive solo efforts. Previously isolated departments were reorganised into four areas: research, pedagogy, production/creation and information. The interaction encouraged between these departments led to a far more supportive and cooperative environment suitable for visiting composers or researchers – ‘IRCAM became more truly a co-operative venture’. (Harvey, 1986a, p.241).

Three particular areas of IRCAM activity were to play an important part in Harvey’s electroacoustic output – analysing and recording, sound creation, and signal processing (or manipulation). Different hardware and software were available to accommodate this, including MUSIC V (Richer, 1979) and CHANT (Rodet, 1984), and these are referenced by Harvey in articles he wrote regarding three works in particular – *Mortuos Plango, Vivos Voco, Bhakti* and *Ritual Melodies*.

Rather than provide a detailed description of the hardware and software, as presented in (Harvey, 1986a), I will look at the specific functionality that the resources at IRCAM offered Harvey, and that was to have such an impact on his compositional aesthetic. A good starting point for this is to identify one of the key differences between approaches Harvey encountered at Princeton, and those at the IRCAM. It was well understood at both centres that the use of electronics was fundamental to the creation of new sound palettes. However, at Princeton in the late 1960s, the main technology for the synthesis of sound was founded around the concept of subtractive synthesis. This technology used electronically generated simple waveforms (sine, square, ramp etc.) as the basis for sound creation. These sounds were
then treated by filters, which removed (i.e. subtracted) various frequency components. These techniques could be used with more complex sounds, i.e. those originated from acoustic recordings, although as with simple waveforms, the potential for isolating, controlling or creating the inner components of sound was limited as both Stockhausen and Harvey encountered. This was mainly due to the fact that these systems used analogue technology, which made it difficult to precisely and reliably define aspects of the resulting sound and predict what sound would result. In contrast, at IRCAM, technology for the creation of sounds was based on two techniques founded on the formation and addition of harmonics to create complex sounds. The first of these techniques utilised Yamaha’s frequency modulation system\(^{60}\) to create complex audio spectra by modulating the frequency of simple waveforms through a process referred to as additive synthesis. Using this system, complex waveforms, and in particular those with inharmonic content, such as the sound of bells and gongs, could be synthesised. This provided composers with a much wider palette of sounds that had a greater acoustic realism than those possible through subtractive synthesis. The second technique used computer programs to simulate the physical properties of acoustic instruments. This required the creation of a digital or ‘virtual’ model of a particular ‘instrument’ with its various resonating features that defined its timbre, for example vocal tract, pipes, guitar body etc. By sending an impulse through this ‘virtual’ model, realistic sounds that contained all the nuances of physical instruments could be synthesised. The use of digital systems in both techniques resulted in a far more detailed level of control enabling real-time manipulation of these sounds. Ultimately, it was far easier for composers to predict the type of sound that could be created.

It was in this new environment that Harvey was able to start consolidating some of the ideas that were beginning to take shape following his interest in Stockhausen, studies with Babbitt, and work on ‘transitional’ pieces such as *Inner Light* trilogy. These ideas came under the general heading of the search for structural depth, and through these works Harvey had identified

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\(^{60}\) System developed by John Chowning at Stanford University (1967-68), patented in 1975 and later licensed to Yamaha.
the importance of timbre or timbral composition, and ways in which it could be integrated into the structure of the work. He had identified that the challenge was that we perceived timbre quite differently to how we interpreted melody and harmony, and the technology available at IRCAM enabled him to realise possible solutions in terms of successfully communicating ideas. Ultimately to be able to present timbre in a way perceivable with the clarity with which we perceived pitch.

To explore concepts of ambiguity and unity, Harvey needed to work with sounds (both acoustic and electroacoustic) that retained a clear sense of identity with regards to their origin. He was not interested in unique unfamiliar alien sounds, although these were possible, as they would have no point of reference for either composer or listener. The technology outlined above offered ways in which he could synthesise or model sounds that were perceived as ‘real’ sounds. At its simplest level, an analysed instrument sound could be modelled electronically to enable elements of its timbre (i.e. partials) to be used structurally. For example, an instrumental sound, with clearly defined pitch and timbre, could be presented with its spectra deconstructed. Transformations (i.e. glissandi) could be applied to these new spectral components resulting in activity that is both ‘unified’ with the original sound and separate to it creating ambiguous meaning. These transformations could also take on a ‘superhuman’ role that enable transient sounds to be sustained or sounds to be relocated spatially. Additionally the spectral components of two individual acoustic sounds could be overlaid to enable a continuum to exist between each sound, thereby creating a new unifying sound, which possesses an ambiguous relationship with the two other sounds.

There are parallels with the total serialists’ attempts to consider timbre in the same way as pitch, which goes some way to explain why Harvey had initially considered Babbitt as a way forward. The difference here is that the approaches adopted by the Paris centre resonated with the legacy of Debussy and Messiaen, and the new ideas of the spectralist composers to whom instrumental colour and its potential to stimulate ideas was already valued. This interest in timbre was to have a direct effect on Harvey. In his evaluation of Harvey’s IRCAM output, Johnson identified an increasing
French influence on his work, referring to it as ‘post-Webernian serialism overlaid with no less a fascination for the music of Debussy’ (Johnson, 2003b, p.64).

Boulez had also considered the function of timbre in music composition and on April 17th 1985, he presented a paper at a seminar on timbre held at IRCAM – later published as (Boulez, 1987). In this, he discussed the difficulties encountered in preserving artistic value in the integration of sound and timbre in the structure of a composition beyond mathematical or scientific measurements. ‘Even when one deals with the perception of sound phenomena and their quality, it is mostly a question of perception in isolation, exempt from any concept.’ (Boulez, 1987, p.161). Boulez’s view was that timbre existed aesthetically, and therefore had quality, when it was directly linked to ‘the constitution of a musical object’ – this was problematic when many different sounds or timbral identities are relayed through a single loudspeaker. There are parallels here with much of Harvey's treatment of timbre, and it is reasonable to assume that the French composer influenced much of his thinking, as Harvey made reference to Boulez's seminar in (Harvey, 1986a), and has used terms such as ‘fusion’, also used by Boulez within that seminar, in his description of the relationship between timbre and structure.

IRCAM ultimately provided Harvey with the artistic motivation to realise some of his finest electroacoustic work, that not only brought him international recognition but also helped bring together many of the concepts that had preoccupied his thinking – as such it marks a crucial milestone in his musical development. Before moving on to look at how Harvey's timbral thinking was evident in these works, it is necessary to first consider some of the philosophical ideas that influenced his use of electronics and treatment of timbre in these works.

Steiner – The Inner Nature of Music

In Chapter 2, various philosophies and ideas were presented as having influenced Harvey at various stages throughout his compositional career. In 1972, following his return from Princeton, the composer became fascinated, possibly even obsessed, with the writings of Rudolf Steiner – ‘I read I think
forty books there and then over about a year and a half.’ (Whittall, 1999, p.14). Christianity and Buddhism remained constant sources of inspiration for most of Harvey's compositional output; it is Steiner, though, who enabled Harvey to find a way to link spiritual and religious ideas with concepts of sound and timbre. A simple review of the titles of some of Harvey's pieces between 1965 and 1986 (shown in Figure 89) reveals how his spiritual and philosophical preoccupations had evolved. Of particular interest is that towards the later part of this period many of the influential religious ideas are more archetypal concepts such meditation, death, suffering etc. that comfortably run across western and eastern religious practices.

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<th>1965 - 1968: Christianity and metaphysical poets (Yeats, Herbert)</th>
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<td><em>Gaude Maria, Iam Dulcis Amica, Four Songs of Yeats, Love Bade me Welcome, Four Images of Yeats, Laus Deo</em></td>
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<th>1969 – 1974: Global time (Stockhausen), American East/West coast composers (Babbitt, Cage)</th>
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<td><em>Time-points, Round the Star and Back</em></td>
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<th>1972 – 1977: Steiner</th>
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<th>1980 - 1986: Steiner, Buddhism and Christian practices, Indian texts</th>
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<td><em>Passion and Resurrection, Bhakti, Mortuos Plango, Vivos Voco, Madonna of Winter and Spring, Ritual Melodies</em></td>
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Figure 89  Harvey composition titles between 1965 and 1986

Steiner could be viewed as a critical point in Harvey's compositional aesthetic, in that it enabled him to return back to the religious and spiritual ideas that he considered fundamental to his inspiration – but in a manner that enabled him to embrace and unify different ideas, both spiritual and timbral, into a cohesive structural form, something that total serialism and global time concepts had failed to inspire in him.

Steiner's numerous lectures61 and writings, dating from 1902 to 1924, reflect a range of ideas drawn from the writings of the eighteenth-century

61 Rudolf Steiner archive [http://www7.rsarchive.org/Lectures/] lists 160 lectures.
philosophers Schopenhauer and Goethe, alongside occultist and ‘Atlantean’ theories. Steiner wrote many lectures on the subject of sound under such headings as *The Inner Nature of Music and the Experience of Tone* (Steiner, 1983); *The Arts and Their Mission* (Steiner, 1964); and *Art as Seen in the Light of Mystery Wisdom* (Steiner, 1984), and it is highly likely that these featured in Harvey’s enthusiastic reading. One of the main ideas presented within these is the positioning of music as distinctly different from other art forms that have a basis in reality (i.e. a sculpture, or poem can portray or describe real-life physical objects):

> When the musician composes, he cannot imitate anything. He must draw the motifs of the musical creation out of his soul. We will discover their origin by pointing to the worlds that are imperceptible to the senses (Steiner, 1983, Lecture 1).

In order to access these ‘worlds’, Steiner inferred the need to acquire different states of consciousness – such as might be achieved through transcendental states of meditation. These practices were to feature both in Harvey’s daily routines\(^{62}\) and as the inspiration for many pieces including *Inner Light* (2), which was dedicated to Steiner, *Bhakti*, and *Madonna of Winter and Spring*.

As a Goethe scholar, Steiner believed that, to understand a sound, one had to first consider it as a single entity – one should ‘start with the generality and finish with the detail’ (Whittall, 1999, p.14). Modern scientific methods tended to focus on an understanding of minutiae and work towards an abstract truism – reducing the ‘vividness of the immediate detailed entity’ (Whittall, 1999, p.14). By approaching sound in this way, ‘tone’ could be seen as something greater than a simple physical manifestation:

> The world of tone is permeated also with light and colors that belong to the astral world. A tone lies at the foundation of everything in the physical world. All objects have a spiritual tone at the foundation of their being, and, in his deepest nature, man himself is such a spiritual tone (Steiner, 1983, Lecture 1).

Steiner’s use of the term ‘tone’ here does not relate to the traditional tonal tonic but to something more individualistic:

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\(^{62}\) In an interview with Whittall in 1999, Harvey refers to using Vedic techniques of meditation that have led to experiences of transcendence, which have informed his musical writing.
In the future we will no longer recognize the individual tone solely in relation to other tones, which is to say according to its planal dimension, but apprehend it in depth; penetrate into it and discover therein its affinity for hidden neighboring tones. And we will learn to feel the following: If we immerse ourselves in the tone it reveals three, five or more tones; the single tone expands into a melody and harmony leading straight into the world of spirit (Steiner, 1964, Lecture VIII).

In his interview with Whittall, Harvey referred to the ‘wonderful worlds’ talked about by Steiner ‘which were poetically very resonant for me, worlds of light and colour and sound’ (Whittall, 1999, p.15). Steiner saw a future where man’s relationship with tone went beyond perception of sound or timbre and regarded as a ‘kind of window through which they enter the spiritual world’ (Steiner, 1984, Lecture V).

Harvey was aware of the impact that these ideas were having on his music – ‘dissolving some of the clear classical formalities into more impressionistic textures, perhaps closer to French music, to Debussy – what ‘Boulez [approvingly] (...) called “phantasmagoria”‘. (Whittall, 1999, p.15). Harvey’s comments here reinforce the idea that the lineage of certain French composers and their approaches to timbre was evident at IRCAM. He could see that concepts of spectralism and timbral composition were synergetic with Steiner’s ideas in that objects can be viewed in terms of universal quanta i.e. frequency as opposed to pitch. By applying this philosophy, tone could become something more than pitch, no longer completely bound to its human origins but of something far greater and universal. The technology available to Harvey at IRCAM in the early 1980s allowed him to explore and realise these concepts. He did this first through the ability, as experimented by the Spectralists, to make detailed analyses of single acoustic sounds that revealed their timbral detail or spectral components or partials. Harvey had explored this technique in Cantata VII and the Inner Light trilogy to facilitate a timbral continuum between tape and acoustic instruments, as discussed above. However, at IRCAM he was now able to accurately recreate these partials, through such synthesis tools as Music V, enabling him to integrate timbre far more effectively into the structure of the work than had been possible in these transitional pieces. This is particularly evident in Mortuos Plango, Vivos Voco, as will be discussed below, together with two other works, also IRCAM compositions, which, while consolidating many of the
ideas discussed above act, I believe, as a precursor to *Madonna of Winter and Spring*. Although listed as published in 1989-90, *Ritual Melodies* is included in this discussion as the majority of the work was undertaken in 1984.

**Mortuos Plango, Vivos Voco** (1980)

Harvey’s first work for IRCAM is also what might be considered his first timbral composition. The structure of the work is based entirely on the spectrum (timbre) of the large Winchester Cathedral tenor bell, as discussed in Chapter 3, providing what Harvey considered ‘ample territory for exploration.’ (Harvey, 1986e, p.181). The only other sound-source used is that of a boy chanting the Latin text inscribed on the bell, either on a partial from the bell, or as a short melody based on the bell-spectrum pitches. Both sounds were used in acoustic and electronically synthesised forms, acquired through an analysis of their associated spectra. While the technology for the spectral analysis of sound had been available for some time, it was the combination of this technology together with the sound synthesis capabilities of IRCAM’s version of Max Mathews’ Music V63 (originally developed in 1969), and the singing synthesis program CHANT64, that enabled Harvey to manipulate the sounds in ways not possible purely through the signal processing of original audio sources. *Inner Light* (3) had provided the opportunity for the composer to begin his exploration of the relationship between pitch and timbre. However, *Mortuos Plango, Vivos Voco* presented a re-evaluation of how the listener may perceive pitch and timbre. Writing in 1986, Harvey outlined this change in perception - ‘Normally of course we don’t de-compose spectra; we hear a pitch with timbre. So the aim of the piece might be described as coaxing us to hear abnormally, to hear a spectrum as de-fused individualities. Or rather, the aim is to hear it both that way and the normal way simultaneously’ (Harvey, 1986e, p.181). Harvey was relatively successful in his aims as this work, his first at IRCAM, was very well received and acknowledged as a ‘significant landmark not only within Harvey’s career, but within the history of IRCAM’ (Downes,

2009, p.22) and could be considered responsible for bringing electroacoustic music to a much wider audience, perhaps due to its use of two recognisable sounds within this new sound world both with strong reference points – both religious and humanistic.

The analysis of the bell, taken at a point half a second after the beginning of the sound to avoid the distortion of the attack transient, revealed 33 partials in total with a fundamental of 130 Hz (C below Middle C), to which a secondary tone 347 Hz (F above middle C) was added (Figure 90)\(^\text{65}\). This secondary strike tone did not show up in the analysis but was audible due to a psycho-acoustic phenomenon. Harvey referred to the resulting vibrations as being 'heard from far afield in Winchester to curiously thrilling and disturbing effect' (Harvey, 1986e, p.181), suggesting perhaps that, while attracted to the precision offered by the digital technology, the composer was equally keen to ensure an physical realism to the sound source.

![Figure 90 Mortuos Plango, Vivos Voco bell partials showing secondary tone F. (Harvey 1986e, p.182)](image)

Consequently, the harmonics available to Harvey include real and artificial harmonics, the F note associated with its own set of artificial partials evident within the spectrum. Having identified the harmonics present in the bell spectrum, Music V (IRCAM) was used to create synthesised versions of each partial with its amplitude and envelope intact. However, the software enabled Harvey to change envelope/amplitude data for any particular partial, thereby enabling him to 'turn the bell inside out by making the low

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\(^{65}\) This diagram was discussed in Chapter 3 and is reshown here for convenience.
partials, which normally decay slowly, decay quickly' (Harvey, 1986e, p.181).

Harvey used a combination of different techniques for the boy's voice, which included using digitised recordings using Music V, and synthetic simulations using CHANT. By modifying the attack and decay characteristics of these sounds, and using bell partials he was able to give the boy's voice 'bell-like' characteristics providing what he referred to as 'boy-ness' and 'bell-ness'. Whilst the work contains pitch elements, as described above, it is this evolution of timbral character that is the primary focus of the listener – and therefore instrumental in exploring the concept of ambiguity. Consequently, it has attracted the attention of many musicologist (Allen, Evans, Wen-Chung, Dirks et al) seeking to analyse and notate the work. In (Allen, 2005) the dualistic combinations of timbres, associated with the 'polar life-death combinations implied by the title' (Allen, 2005, p.78), are shown to be based on three different groups: Paired Sonorities, Sonority Evolution, and Sonority Convolution. Within each of these Allen identifies the potential for different types of ambiguity achieved through different types of layering, cross-fading and other techniques.

Accepted by many as one of the finest electroacoustic works ever composed it brought Harvey much international acclaim. Certainly Mortuos Plango was successful in that it managed to bring together many of the ideas that preoccupied Harvey's thinking at that time. There are obvious parallels with Stockhausen's electronic masterpiece, Gesang der jünglinge (1955-56), a work with which Harvey was very familiar, as it was discussed in his 1975 book on Stockhausen. It was clear that it made a great impression on him, and he considered the work as part of the German composer's 'richest creative period' and amongst 'the most artistic and influential groups of musical works of its time'. (Harvey, 1986e, p182). The similarities are numerous, as both works are tape compositions that combine two sound worlds - the sound of a boy's voice singing a religious text alongside/coupled with electronic sounds. However, in the earlier work, these are electronically generated sine waves and white noise rather than timbres inspired by an additional acoustic sound. Structurally, timbre is also
important, and in both works the composers treat the material and
structure as one and the same thing. Equally influential on Harvey at this
time are the concepts of unity and ambiguity explored within Gesang der
Jünglinge referred to earlier in this chapter.

*Mortuos Plango, Vivos Voco* is one of only two purely electronic works\(^{66}\) that
Harvey composed; the other being *Ritual Melodies* (1989-90). While it marks
a milestone in his compositional aesthetic and as a precursor to a number of
works that followed, it could also be viewed as a tangential compositional
path that ultimately ended. The reason for this is it suffered from what
Boulez had identified in his lectures as issues of quality relating to the
‘constitution of a music object’ (Harvey, 1975d, p80) as discussed above.
This piece only exists in a recorded format with no opportunity for Harvey
to fully explore the complex social and spiritual relationship between live
performance and sounds on tape. Consequently, it could be considered an
experimental work, albeit a successful one, and one that enabled him to gain
experience of timbral composition and prepared for his next IRCAM work
*Bhakti*.

*Bhakti* (1982)

Harvey's second IRCAM work can be seen as a continuation of the ideas
explored in the *Inner Light* trilogy and *Mortuos Plango, Vivos Voco* and in
particular the dialogue between electronic and acoustics timbres. As with
the *Inner Light* trilogy, Harvey returns to the use of tape with live
instruments. This time though the tape sounds are synthesised and
manipulated using the technology used in *Mortuos Plango, Vivos Voco* (i.e.
Music V and CHANT). As discussed in Chapter 3, the work is structured
around the number twelve and this infiltrates much of the musical
organisation of the work including the systematic use of a 12-note series. As
with his first IRCAM composition, a limited timbre palette is used, although
this is now expanded to 15 instruments. The chamber ensemble is the main
source for sounds on the tape, although the tenor bell previously used in
*Mortuos Plango, Vivos Voco* also makes an appearance. The treatment of the

\(^{66}\) Not including the tape piece *Time-points* (1970), since withdrawn.
instrumental sounds on tape is restrained and they are not transformed beyond recognition as Harvey felt:

> the social and spiritual differences between loudspeaker music and live-player music to be aesthetically insupportable and that they should be made contradicted – and ambiguous – by having the sound and structure of the tape music as similar as possible to the live music (Boulez, 1987, p.166).

This enabled Harvey to challenge some of the quality ‘concerns’ raised by Boulez above, and facilitate a more expanded evaluation of the relationship between the tape and instrumental sounds also explored by Stockhausen in such works as Gesang der Jünglinge. In his programme notes, Harvey sets out the function of the tape as being ‘of dialogue, transformation, memory, anticipation, “simultaneous translation”, and of reaching beyond the instrumental scale to a more universal dimension’ (Harvey, 1986e, p.183). Minor deviations from the original instrumental sounds allow the listener to retain a sense of connection with the ‘new’ timbres because, in Harvey’s words, they can gauge ‘how far removed they are from their “base”’ (Harvey, 1989) although the point at which it becomes ‘tape’ rather than live may be blurred. This ‘base’ of instrumental timbres provides a ‘background’ against which a ‘foreground’ of new timbres can be positioned. The creation of a perceivable foreground and background, and an area in between in which the dialogue referred to in the programme notes can take place, could be seen as equivalent to ‘Schenkerian’ type structural layers.

In his detailed appraisal of Bhakti, Palmer suggests that to fully understand Harvey’s timbral aesthetic, one should not treat the tape and acoustic instrument parts as separate, but as connected through a ‘mirror of sound’:

> The tape part of Bhakti was conceived as a reflection of the instrumental ensemble in that through the electronic medium the sonic identity of the acoustic instruments is reflected on the musical discourse of another, altered, perspective (Palmer, 2001, p.74).

Palmer reasons that this is a logical argument, as Harvey has used the term ‘mirror’ before in this context, most noticeably in (Harvey, 1986e, p.184). The connected nature of the acoustic and electronic sounds facilitates a musical transcendence, whereby the interconnectedness of ‘two strictly interlocked perspectives of the same reality’ can be explored. Palmer based his analysis of this acoustic-electronic mirroring on two levels:
a) A macro-level – the relationship between tape and ensemble on a large-scale structural and sectional basis.

b) A micro-level – timbral strategies integrated with a specific texture i.e. directly related to melodic and harmonic formations.

This provides a useful methodology and one that will be revisited for the analysis of the relationship between electronic and instrumental sounds in *Madonna of Winter and Spring*.

Macro-level

Various strategies were adopted by Harvey to cope with the practicalities of synchronisation, inherent in the use of tape with live performers. This was important to realise the types of aim identified in the programme notes (i.e. dialogue, transformation, memory, anticipation and simultaneous translation). A brief visual analysis of the orchestral score reveals the full integration of tape throughout the work and not as alternative or secondary to the live instrumental performances highlighting the important role of the tape. The tape part features in all but one of the 12 Movements, the 3rd, and in most of them is present for much of the activity. Tape entry points vary throughout, suggesting again the democratic treatment, with entries occurring at the start as in the 1st Movement, or in multiple entries as in the 12th Movement, which has five tape entries. Palmer identifies three different types of temporal relationship, and examples, between the tape and ensemble as implied by Harvey in the programme notes as:

Recollection (the past) - i.e. repetition of earlier sections, as evident in 5th Movement

Dialogue (the present) – i.e. in the 6th Movement, where the tape and ensemble are interlocked in a similar textural density

Anticipation (the future) –i.e. by announcing a musical idea on tape played by ensemble soon after in such a way that anticipates the idea not recollects it. i.e. At the beginning of the 2nd Movement, where the rhythmic musical idea is first introduced on tape and then continued together with the ensemble from bar 26 to the end of the Movement.
Micro-level

Harvey chose his timbres deliberately, ensuring a range of sufficiently recognisable characteristics. The 15 instruments (4 woodwind, 3 brass, 5 string, piano, harp and percussion67) reflect a wide range of potential timbral characters for an effective dialogue to take place. The instruments could be grouped into two distinct groups; sounds capable of being sustained (i.e. brass, strings, woodwind), and those that are not prolonged and have plucked or percussive attack (i.e. piano, harp and percussion). Each instrument was recorded or ‘sampled’ as single sustained notes using the resources at IRCAM and then subject to various signal processing techniques including ‘reverberation, filtering, ring modulation’ and modified through ‘amplitude shaping, detuning, pitch shifting, hybridisation (by joining two samples) and cross-fading’(Harvey, 1986e). Many of these techniques would have been familiar to early electronic music composers, including Stockhausen. However, at IRCAM as well as being able to carry out these techniques with greater precision and to a higher audio fidelity, Harvey also had access to specific spectral processes. These allowed the hybridisation of sounds through spectral interpolation and additional synthesis that in turn enabled the composer to explore the pitch and spectral information of the different instrumental sounds – as was achieved in *Mortuos Plango, Vivos Voco*. For example, hybridisation was used to graft the attack of one instrument, within the groups identified above, on to the resonance of another; for example, harp/piano, crotale/vibraphone, tubular bell/glockenspiel, harp/crotale, or piano/tubular bell.’ (Harvey, 1986e, p.184). Other techniques included modifying the attack envelope of one tape sound to reflect the attack characteristics of other instruments. By applying subtle changes to the instrument sounds, and using the techniques discussed above Harvey was able to further explore the concepts of unity and ambiguity considered in the *Inner Light* trilogy and *Mortuos Plango, Vivos Voco*. So far we have only considered ways in which recorded

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67 In HARVEY, J. 1986b. The Mirror of Ambiguity. *In: EMMERSON, S. (ed.) The Language of Electronic Music*. London: Macmillan Press. The composer refers to the three violin parts as individual instruments although they are in effect the same ‘instrument timbre’. The reference to 15 instruments relates to the number of scored parts not to the number of separate timbres.
instruments were modified. However, the live instrument parts are also subject to timbral, pitch and amplitude manipulation through specific performance directions to bring the tape and instrument parts even closer together. Examples of this include: indication for the Cello to play with ‘bow touching the bridge’ in the 1st Movement, bar 22; use of trombone mute to reflect filtered tape part in 3rd Movement, bar 74; or more direct indications such as ‘imitate tape’ in 6th Movement, bar 16 for ten instruments.

Ambiguity is further enhanced through the use of quadraphonic tape that enables timbres to be placed anywhere within the concert hall, or moved within it as utilised in *Inner Light* (3).

Through many of the techniques discussed, it is evident that the different musical ideas and the integration of ensemble and tape part operate not just at a temporal level, but also at different vertical structural levels, i.e. as foreground, background or varying levels between. For example, the use of high frequency partials on the tape part in conjunction with foreground live instrument sounds to create a background halo or shimmering resonance effect. Whether foreground or background, the tape part enables the instruments to take on a ‘super human’ or other worldly role, but not one divorced from the original instrument timbres – ‘reaching beyond the instrumental scale to a more universal dimension’ (Harvey, 1986a, p.184). This reflects the central theme of the work, which is transcendental consciousness, achieved through Hindu meditative practices – a devotional practice that takes a person from first hearing about God to an enlightened path that reflects a restoration of the human-divine relationship. For Harvey, the electronic medium facilitates this passage and mirrors this enlightened path and is compatible with Steiner’s belief in sound as part of a spiritual dimension.

*Ricercare una Melodia* (1984)

This short piece for trumpet and electronics is a popular work that has been adapted for a number of different solo instruments68. The electronics in this

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68 Faber Music publish a number of versions, including flute, cello, oboe and trombone.
work are a pair of four-track tape recorders setup to create a number of different types of delay.

*Figure 91 Circuit Diagram for Ricercare una Melodia*. Diagram from Faber Music Score.

One tape machine is set to record, and one to playback (See Figure 91) to enable the sound of the solo trumpet to be delayed, transforming the original melody into a 5-part canon. Using different tape speeds the resulting sound covers a wide register, and produces a sound that is both textural and colourful. It is of particular interest as it demonstrates Harvey increasing use of electronics in a live environment. This predilection will be discussed further in Chapter 8.

**Ritual Melodies (1989-90)**

Harvey’s third IRCAM composition was finished in 1990, although work began on it in 1984, two years after Bhakti. After Mortuos Plango, Vivos Voco, it is his second, and only other purely electronic work, as all other compositions involving electronics have also incorporated the use of live instrumental performers. Ritual Melodies is of importance to Madonna of Winter and Spring because of its use of melodic chains, as was discussed in Chapter 4. It is included in the discussion here because of its use of sophisticated modelling and ‘hybridisation’ as a development of the timbral composition techniques used in Bhakti and a continued interest in religious themes.
For this particular work, Harvey chose to work with a more exotic set of timbral sources than his previous IRCAM commissions. The sounds used were: Tibetan temple bell, Vietnamese koto, Tibetan chant, plainchant, an Indian oboe and a Japanese shakuhachi. The four instruments and two vocal sources have been selected from different geographical locations and all have religious or spiritual connotations. There are obvious parallels with Mortuos Plango in the combination of sounds with a religious association. However, the number of sounds, and in particular the complexity of those sounds, presented Harvey with a different set of challenges. For Mortuos Plango, he had used the resources available at IRCAM to synthesise and integrate the two different sound sources through a relatively simple spectral ‘snap shot’ of the spectral content. The instruments used in Ritual Melodies required a greater spectral understanding of the acoustic instrument to produce a successful model. This is especially evident in a complex sound like the shakuhachi, which contains numerous variations in pitch and timbre during performance. FTT analysis of the instrument undertaken by Harvey and Vandenheede\(^{69}\) revealed two complex sets of partials, for the tonal and breathy part, which presented different technical modelling problems to some of the other instruments.

The modelling of this instrument was a quite different problem from the one of the koto, where pitch-evolution was the main difficulty in modeling the temporal micro-world of the instrument. In the case of the shakuhachi [sic], we spent most of the time on determining how the evolution of the spectral envelope could be kept interesting on one pitch during the timespan of, for instance, 10 seconds (Harvey, 1989).

An understanding of this spectral envelope and its accurate and sophisticated modelling was important if Harvey was going to be able provide each instrument with a clearly defined character. Basic synthesis techniques would not be capable of recreating the necessary detail on a temporal scale. But why did Harvey go to all this trouble?

As with the previous two IRCAM works, themes of ambiguity and unity are important to this work, although the techniques used in Ritual Melodies to precisely model each instrument also provided the opportunity to facilitate a more extensive consideration of these ideas. As with Bhakti and Mortuos

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Plango, Vivos Voco Harvey used ‘hybridisation’ to combine sounds, either by simple mixing techniques as the combination of koto notes and bell strokes as described as a 'kotobell’ in (Vandenheede and Harvey, 1985, p.98); or by integrating the partials from each sound as in 'boy-ness’ and 'bell-ness’ discussed above. By synthesising the spectral envelopes of complex sounds like shakuhuchi and the oboe evolution of timbral textures, and therefore dialogue, between these instruments, could take place within the structure of the melodic material. An example of this timbral transition is shown in Figure 92. – melody ‘G+H’ where ‘o’ represents oboe and ‘s’ the shakuhachi timbres.

Figure 92 Ritual Melodies, example chain melodies (beginning of) showing timbral transitions. (Vandenheede, 1992, p.151)

The use of timbral transitions within the melodies helps to identify the underlying structure, in that the timbres remain associated to specific elements of the melodies, although a sense of ambiguity is preserved, as the timbre transitions changes often occur at these points of interchange.

As discussed in Chapter 4, the melodic pitch material is derived from the harmonic series of G0. Vandenheede refers to the composer using this to create ‘a set of curtain-like sounds’ (Vandenheede, 1992, p.163) which is accomplished by taking each prime melody (i.e. A,B,C etc.) and ‘freezing’ it through an infinite reverb programme to create a 20-second sound that is harmonically related to the melodic material. The origins of this approach could be traced back to his use of the sustaining pedal in Round the Star and Back.

Like Mortuos Planko this work could also be considered as ‘experimental’ as it effectively marked the end of his exploration into ‘tape only’ works.
although, as with the earlier work, it succeeds as a piece in its own right. It is also an important milestone in that it represents the consolidation of the key themes that dominated Harvey’s compositional aesthetic just prior to *Madonna of Winter and Spring*.

As discussed in Chapter 1, Harvey wrote very little about *Madonna of Winter and Spring* and certainly not much regarding his specific approach to timbre, instrumentation and his use of electronics within the work. The composition has also escaped detailed appraisal by other writers. Consequently, in order to fully understand Harvey’s approach to timbral composition within the work, it has been necessary to identify key influences and earlier compositions that might help provide an insight to Harvey’s methodology. The period under evaluation here covered around twenty years from the point at which Harvey encountered Stockhausen in 1966, to the composition of *Madonna of Winter and Spring*, and therefore represents the composer’s formative years, with his professional compositional career commencing around 1965. However, the key influences and activities discussed above were not to have an immediate effect on his compositional aesthetic. There is a recognisable period of reflection and assimilation – to ‘elaborate by a natural process’ as he called it, and a willingness to accept and combine certain ideas (i.e. serialism and spectralism) and reject others (i.e. total serialism). The above discussion has drawn out three themes, unity, ambiguity and stasis, which have developed and been refined during that twenty-year period – themes that were to have an important resonance within *Madonna of Winter and Spring*.

**Unity**

Stockhausen has been identified as an important influence on Harvey’s compositional aesthetic. ‘Moment form’ and global time introduced Harvey to a new way to treat narrative and structure within musical works in marked contrast to Keller’s ‘composing against’ and ‘stuff of tension’. While Harvey did not ultimately fully subscribe to these high modernist ideals, they did suggest a way to consider a sound as a single entity, and an entity that could contain many related elements. For example, where a single
instrument could be the source of many different timbres (as in Mikrophonie I), or where two or more sounds are combined to create a new unified ‘object’ (as in Hymnen and Kontakte), or where musical activity is linked to form a circular structure with no set beginning or end (as in Zyklus). As discussed in Chapter 2, Catholicism was an important influence on Stockhausen, however, his religious and spiritual preoccupations brought about through his travels were much broader. In his 1975 book on Stockhausen, Harvey refers to influences that informed the German composer’s mysticism as including the ‘yogic books of the Indian, Sri Aurobindo’ (Harvey, 1975d, p.118), and more interestingly Schopenhauer, identified above as a key influence on Steiner. Harvey refers to finding out about Steiner through a ‘friend’ (Whittall, 1999, p.14), although it is possible that Stockhausen’s interest in similar ideas encouraged his own interest.

Steiner’s thoughts on the inner nature of sound, or ‘tone’, resonate fittingly with concepts of global time and moment form. These theories and opinions equally fit neatly with the mechanics of spectralism – in that a single sound or timbre can be deconstructed into constituent elements. This all suggested to Harvey a possible alternative structure to that provided by pitch and harmony.

Whilst early experiments with these ideas were purely acoustic pieces, as with Round the Star and Back, exposure to potential of tape and electronics at Darmstadt, Princeton and IRCAM led to a number of works that used tape in isolation (i.e. Mortuos plango, Vivos Voco and Ritual Melodies) or combined with acoustic instruments (Inner Light trilogy and Bhakti). Common to all these works was the consistent use of timbres that related to real-world instruments and voices - in that they were unified under the guise of recognisable, definable sound sources. Timbres were permitted to take on a ‘super human’ aspect, either by electronic processing to take on new attributes (i.e. extended frequency range, ring modulation, filtering etc.), or though ‘physical’ placement of the sound using quadrophonic speaker systems. Parallel to these ideas of expansion are some of the ritualistic themes explored by Harvey, including transcendental meditation- a journey from the physical to spiritual world. Maintaining a connection between these two worlds, within a unified ideal, was important to the composer.
Quoting Steiner in his Stockhausen book, he refers to 'every step forward in the spirit world must be accompanied by three in the moral world, otherwise you lose the power to tell illusion from reality' (Harvey, 1975d, p.118). The concept of unity was further enhanced in many of Harvey's compositions during this period through the use of a single spectrum (i.e. timbre) to define the harmonic content within a work. This is evident in all three IRCAM compositions.

**Ambiguity**

For unity to work musically for Harvey it had to incorporate the concept of ambiguity. Hans Keller had suggested to the young composer that 'the conscious pursuit of unity was dangerously academic, more craft than art' (Harvey, 1999a, p.27). However, Keller's interest in psychoanalysis had led him to apply the precepts of logic to the concept of unity – suggesting it was something he recognised as important. Quoting Keller in (Harvey, 1999a):

> As Keller put it, "The Law of Contradiction says that A is not both B and not B: in music it must, axiomatically, be both. The Law of Excluded Middle says that A either is or is not B, whereas in music it goes without saying that A must have it both ways if it is to be meaningful" (Harvey, 1999a, p.28).

Harvey went on to say:

> So music has to do with two things-with ambiguity. A drive to unity is there, but it must be way of variety. Both must coexist, be held in vibrant tension-what Goethe called "dynamic unity." (Harvey, 1999a, p.28)

When we talk about concepts of ambiguity within a musical work we are referring to the possibility of interpreting an expression in two or more distinct ways, through a manner that implies a vagueness or uncertainty of meaning. For this to be successful, the listener has to have a point of reference, usually culturally, for that 'expression'. Harvey explored two devices by which ambiguity could be explored as a concept within his compositions. Firstly, through the expansion of a single idea, as in the case of a single instrumental timbre that took on a 'super human' role; and secondly, through exploring the timbral relationship between two or more distinct instrument timbres. In both cases it was necessary for Harvey, despite the sonic potential offered by electronics, to restrict his timbres to those that were culturally relevant to the listener- in that they remained in
some way connected to a physical reality with which they could connect.
‘How can one construct form, if one has nothing to memorise’

Instrumental timbres that took on a ‘super human’ role, either through
signal processing or through spatialisation techniques, allowed a dialogue to
take place between these elements and challenge listener perceptions of a
sound’s source. Instrument timbres on tape could be ‘relocated’ from their
physical space, occupied by the performer, removing the usual visual clues
to their origins. By denying the listener this information, the still
recognisable instrument timbres could take on a different aspect of the same
‘character’ to enable the composer to develop the ambiguous relationship
between these elements of reality and illusion. The source of inspiration for
these ideas can be seen in various Stockhausen pieces, including
*Mikrophonie I* and *II*.

Harvey also considered the potential for ambiguity between *different*
instrument timbres. The simple layering of different instruments to provide
a wider timbral palette is a device that composers have used for centuries,
although this is based on the fairly basic technique of balancing the
amplitude level of instruments to create a new timbre – or hybridisation.
Electronics and computer software provided Harvey the means to create
more effective hybridised instrument timbres by a variety of techniques,
including the manipulation of frequency content and amplitude envelopes to
transfer characteristics from one instrument to another. Additionally,
technology at IRCAM provided Harvey with a way to spectrally morph from
one instrument to another through an understanding of an instrument’s
spectral envelope. The legacy of French composers including Debussy,
Messiaen, Boulez and the spectralists can be seen in this fascination with the
potential of timbre. However, Stockhausen is a dominant influence here,
specifically in the potential of electronics to explore concepts of ambiguity.
His *Kontakte* and *Gesang der Jünglinge* are two works that clearly inspired
Harvey’s compositional aesthetic for *Cantata VII – On Vision, Inner Light*
trilogy, *Mortuos plango, Vivos Voco, Ritual Melodies* and *Bhakti*. As with the
manipulation of a single ‘known’ instrument timbre, Harvey saw great
potential in the combination of spectra:
The fusion of two spectra into one magical new spectrum does not mean that we necessarily lose sight of the separate instruments (think of Berlioz’s moments of timbral mastery) but that there exists a particularly intriguing combination of spectra as well as the original ones (Harvey, 1986e, p.171).

**Stasis**

The final concept to be considered is that of *stasis* - standing still, of opposing forces cancelling each other out. Musically this could be thought of as a ‘snap-shot’ of musical activity at a particular point, and allowing the resulting timbre, with its associated harmony, to sustain in a frozen state for a given length of time. Stockhausen used reverb units in *Mikrophonie I* and *Mixtur* to create such an effect (Maconie, 2005, p.502). Harvey too had explored this concept in both acoustic and tape compositions during the period under discussion, most notably first in *Round the Star and Back* through the use of the sustain pedal on certain instruments to create a ‘halo’ or shimmering resonance. Later, in *Madonna of Winter and Spring*, he used reverb units to create a similar effect.

Using synthesis, a more controllable and definable method was possible. In electronic tape compositions, such as *Inner Light (1)* and *Bhakti*, the composer used an understanding of the spectrum for a given instrument timbre to recreate the relevant partials using additive synthesis techniques. The synthesised sound could then be used to allow the resulting ‘stasis’ to be slowly revealed by introduce the partials in turn. These techniques are closely related to the concepts of unity and ambiguity discussed above, and likewise are symbiotic with Steiner narratives of expansion and meditation, of moving from a physical to a spiritual realm.

Harvey explored these concepts within a number of acoustic and electroacoustic tape works in a consistent manner through much of the mid to late 1970s and early 1980s. It has been identified above that Harvey was attracted to the potential of electronics in this regard. However, following a number of tape works, both with live performers and those solely using tape it would appear that by 1984 he was not completely satisfied with his approach. Verbal jottings in his sketches for *Bhakti* referred to ‘Basic necessity (in Wagner’s sense) of the work is to unify the disparate ensemble into 1) *texture*, and 2) melodic unison. Tape achieves this by fracturing
instruments and rebuilding them like gold-dust.’ His reflective response to this jotting was ‘I tried very hard to achieve this but was ultimately defeated, I think. Such defeats are of vital importance for future work, especially if the idea won’t lie down and beckons seductively.’ (Harvey, 1984, p.3)

The challenge was now to use electronics in an entirely live environment.
CHAPTER EIGHT: TIMBRAL DISCOURSE IN “CONFLICT”.

The previous chapter identified three themes: unity, ambiguity and stasis, linked to Harvey’s approach to timbre and electronics in a number of earlier works. This chapter will aim to show the continued importance of these themes within the first section of *Madonna of Winter and Spring* - ‘Conflict’, and present the argument that this work represents an important milestone in his compositional development, with regard to his use of instrumentation. Discussion will first consider the range of timbral resources, acoustic and electroacoustic, used by Harvey within the work; and secondly the nature of the relationship between the different resources in ‘Conflict’ and their relevance to the three themes.

*Madonna of Winter and Spring* is of particular interest for its combination of acoustic and electroacoustic resources – using synthesisers and acoustic instruments together with live electronics. It followed a number of works by the composer during the 1970s and early 1980s that incorporated the use of electronics with live acoustic instruments. This period of activity commenced with works using tape or other recorded media (i.e. CD, ADAT, CDROM etc.) including *Cantata VII*, the *Inner Light* trilogy, *Smiling Immortal*, *Toccata*, and *Bhakti*. Between *Bhakti* and *Madonna of Winter and Spring*, Harvey wrote three works, *Gong-Ring*, *Ricercare una Melodia* and *Nachtlied*, which incorporated the use of ‘live’ electronics with acoustic instruments. This represented an important departure for Harvey from the use of pre-recorded material as part of the compositional process, with tape only featuring in a handful of works70 after *Madonna of Winter and Spring*, although he continued to use ‘live’ electronics in numerous works until his death in 2012. The previous chapter considered possible reasons for Harvey’s increasing preference for live electronics – and concerns regarding the contextual weakness of tape sounds when used with live performers. Additionally synchronisation of tape with live performers was a potential issue that impacted on the compositional process – as evident in the numerous tape cues in *Bhakti*. Harvey’s demands on sound synthesis though

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had required the type of off-line processing only available in studio environments. However, during the 1980s, digital technology that would facilitate these types of sound synthesis in a real-time situation was beginning to become available. Harvey’s main argument was that the potential for unity of ambiguity, a key theme, was far greater when use of electronics was restricted to live performances:

> When electronics are performed in real time like instruments and combined with instruments or voices, the two worlds merge in theatre of transformation and legerdemain. No one listening knows exactly what is instrumental and what is electronic any more. Legerdemain deceives his audience as in a magic show. When they lack connection to the familiar instrumental world, electronics can be overwhelmingly alien-other, inhuman, inadmissible, dismissible [sic] (like the notion of flying in a rational world). When electronics are seamlessly connected to the physical, solid instrumental world, however, an expansion of the admissible takes place and the “irrational” world is made to belong. If electronic sounds are completely separate from traditional instruments, they may as well be on the moon: there can be no measurement of interval and consequently no music (Harvey, 1999a, p.62).

This quote reveals two aspects of Harvey’s approach to the use of electronics. Firstly, the importance of boundaries or a framework within which the discourse will take place, and secondly, the importance with which he considered the space or environment in which his music would be experienced by the audience.

Harvey’s use of live electronics prior to 1986 had related primarily to the processing of audio signals in a method similar to that used by Stockhausen in *Mikrophonie I* and *Mixtur*. A microphone is placed in front of an instrument, or group of instruments, and the resulting audio signal is fed to a processing device before diffusion via a speaker system. Signal processing devices used in this manner by Harvey included the ring modulator (*Gong-Ring*) and audio delay devices (*Ricercare una melodia*). However, the real-time manipulation of live instrument timbres did not provide Harvey access to the types of timbral manipulation he had used in his ‘tape works’71. This type of manipulation had considered the inner nature of sounds. For example, the expansion of timbres from a single sound as used in the *Inner Light* trilogy, or the hybridisation techniques used in *Ritual Melodies* or

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71 The term ‘tape’ works is used here to refer to numerous types of recorded media including magnetic tape, CD, CDROM, ADAT tape etc.
Bhakti. To achieve this he needed to consider the use of real-time electronic sound generators – i.e. synthesisers and samplers. Harvey had used a simple synthesiser in Inner Light (2), albeit primarily as a real-time effect to produce filtered noise sounds. However, Madonna of Winter and Spring represents the first time Harvey considered the use of such devices in the context of a live performance instrument – ensuring that he could continue to incorporate some of the approaches to timbre used in earlier ‘tape works’ that considered timbre’s relationship to harmony and at the same time resolve issues of context that had been worrying him.

**Instrumentation overview**

**Orchestra**

Performance of the work requires a full orchestra with an extended percussion section (see below) providing the composer with a rich palette of timbres with which to draw. The instrumentation for woodwind, brass and strings is such that a wide octave range is available within each timbre ‘group’ for the presentation of the harmonic Spaces discussed in Chapter 5 – above and below the central axis. Consequently, the woodwind covers a range of seven octaves - from three octaves below middle C (contra-bassoon) to just under four octaves above (piccolo flute); the brass a range of six octaves - from just under three octaves below (tuba) to three octaves above (piccolo trumpet). Together with the wide range of strings, piano, tuned and untuned percussion, this facilitates the complete performance of any Space within any instrument timbre groups, or across a number of timbre groups.

When one looks at the instrumentation used for some of the preceding ‘electronic’ works, one can see a gradual increase in the range of timbres and the corresponding numbers of instrumentalists used by Harvey within his compositions suggesting a desire to work with a wider range of timbres. Inner Light (1) is for seven players, Inner Light (2) – eleven players (and choir), Bhakti - fifteen players, Inner Light (3) – sixteen players (and four percussionists). Madonna of Winter and Spring uses a similar set of instrument timbres to Inner Light (3). However, the number of players is substantially increased especially within the woodwind, brass and string
sections. Not only does this provide a greater dynamic range in a performance setting it also, more importantly, accommodates the performance of concurrent material on the same timbre. For example, when individual members of the string section each perform concurrently a primary or secondary melody. It also permits the performance of the many notes of a specific ‘Space’ to be played simultaneously. Examples of this will be looked at in more detail below.

Percussion

A substantial percussion section is required, with each of the five percussionists allocated a wide range of different instruments. This includes pitched percussion: vibraphone, xylophone, glockenspiel and tubular bells, providing a complementary set of timbres to the piano and harp as well as various ‘unpitched’ percussion including gongs, tamtam, cowbells, cymbals and Indian bells. Other percussion includes membranophones (tomtoms, bongos, snare drum and bass drum), struck percussion (temple blocks, claves), as well as maracas and a whip. This provides a huge range of different timbres, transient and sustained sounds, some pitched and some un-pitched. Many of these instruments can produce different timbres through specific playing techniques. For example, the tamtam struck gently produces more dominant lower frequencies, but struck forcibly produces a much wider range of frequencies, especially in the higher range. As identified above, there is a noticeable increase in the range of percussion used by Harvey in certain works throughout the period before *Madonna of Winter and Spring*, although particular percussion is common to many of them. These include instruments that have cultural or religious connections, such as gongs, tamtam, Indian bells and temple blocks – all of which also feature in *Madonna of Winter and Spring*. These particular sounds, which contain many inharmonic partials, and are therefore complex timbrally, are of particular interest to Harvey. Within this work, and many of the preceding works mentioned above, Harvey affords percussion an important role, and one that contributes melodically, harmonically and timbrally alongside other instruments, as will be shown. His attention to detail and realisation as to the potential of percussion recalls works of two composers that have
already been referred to as key influences on his compositional aesthetic, Stockhausen’s Zyklus and Messiaen’s Turangalîla.

**Electronics**

Within the full score (Harvey, 1986d), the composer provides instructions as to the electronics required for performance. Four types are covered within the preface to the score. These are:

- Synthesiser 1 & 2
- Ring modulator
- Reverberation
- Diffusion

**Synthesiser 1 & 2**

Two synthesisers are specified: a Yamaha DX1 with a TX816 Tone Generator System, and an Emulator II. The TX816 is controlled by the DX1 through a MIDI connection, allowing the keyboard on the DX1 to control both or either; the two devices are referred to in the score as ‘Synthesiser 1’ with clear indications as to which is being used, and the program selected. The Emulator II, which also has a keyboard, is referred to as ‘Synthesiser 2’. Details regarding the settings and configurations for both devices are provided in the score including detailed settings for the required sounds for the TX816, an example of which is shown in Figure 93. Data sets of this type are provided for twenty-four different sounds for the TX816. The DX1 uses data ROM cartridges, two available from the manufacturer and one from the publisher (Faber). The Emulator II uses three floppy disks available from Faber Music; the sounds on them, one must assume, created specially for the work by the composer.
Figure 93  Example TX816 voice data from Madonna of Winter and Spring score (Harvey, 1986d)

These two digital synthesisers, both considered state of the art in the mid-1980s, have different, but very specific roles within the work, which will be explored within this chapter. Harvey does not clarify the rationale for their choice although, as they are founded on quite different synthesis techniques, possible motives for their selection could be realistically considered.

The Yamaha DX1 and the TX816 are based on the creation of sounds through additive synthesis techniques, which use an understanding that timbres are created by adding sine waves together. This form of synthesis is very good at recreating certain instrument timbres, and in particular, inharmonic sounds such as metallic and wooden timbres as found in bells and percussive instruments. Consequently, many of the ‘default’ sounds selected by the composer for use in the work are of that type – i.e. *African Mallets, Hi Bell, Timbale, Metal Electric Piano*. FM synthesis (the term Yamaha used for this type of additive synthesis), is also capable of producing ethereal ‘pad’ strings sounds such as *Strings Mellow, Inner Space, Dream Voice* etc., all of which are specified in the score. Harvey uses all three types of sounds, metallic, percussive and pad, to complement and ‘expand’ the acoustic instrument timbres within the orchestra – as will be shown.
The relationship between sine waves and timbre had been of interest to Stockhausen, and further developed by the spectralist composers both of which were to have an influence on Harvey’s compositional aesthetic, as was discussed in the previous chapter. He had shown an interest in these techniques and had made use of additive synthesis (albeit on tape) in his IRCAM compositions, including Mortuos Plango, Vivos Voco, as they enabled him to explore the structural relationship between timbre and harmony. The idea of sound or tone as an entity that could be deconstructed can be viewed as compatible with Steiner’s thoughts on the inner nature of tone, and therefore the use of this type of synthesis appealed to Harvey as it provided both a timbral and spiritual inspiration for its use within the work.

The second synthesiser was an Emulator II manufactured by E-Mu. As mentioned above, it utilised a completely different synthesis approach to that of the Yamaha system. Although both utilised digital technology, in contrast to earlier analogue synthesisers, the Emulator II used a combination of ‘sample’-based technology and subtractive synthesis to produce its timbres. Digital sampling, developed in the late 1970s, facilitated the recording of an audio signal into the synthesiser so it could then be used as a sound source. The audio signal, which could be input via microphone, would then be converted into a digital signal that could then be played back via keyboard. Once converted into a digital audio file, the sound could be edited (i.e. truncated), looped to create a sustained version if desired, and mapped against the keyboard to enable performances of the recorded sound in a range of pitches. The system was not limited in what it could record other than in the duration of the signal itself, which was typically restricted to a few seconds. This could therefore be a single note, or a short performance of a number of notes or expressive gestures. The sound could further be manipulated through subtractive synthesis techniques that enabled the changing of dynamic information (i.e. amplitude envelope), pitch modulation (i.e. vibrato) and amplitude modulation (i.e. tremolo), or filtering of the frequency content (i.e. removing of high frequencies using a low pass filter). Because the sound generation was based on actual audio recordings, the resulting sounds were obviously very realistic although the synthesis techniques enabled these sounds to take on an enhanced or
‘superhuman’ character compared to their orchestral equivalents. Harvey specifies seven pre-set sounds to be used with ‘Synthesiser 2’, including piano, percussion, bell, cello and violin—some of which include single samples containing multiple note performances (i.e. pressing a single note on the keyboard plays back a recorded sequence of notes).

Digital sampling techniques can be viewed as closely related to the use of magnetic tape to manipulate recorded sound, and many of the techniques used in digital sampling have direct equivalents with those used for musique concrète. For example, splicing tape to truncate a recorded sound, reversing a recording, changing the speed of playback and layering sounds to create hybridisation. Harvey had gained experience of these tape techniques for Cantata VII and the Inner Light trilogy, and had used digital sampling for his IRCAM tape pieces Mortuos Plango, Vivos Voco, Bhakti, and Ritual Melodies.

The Emulator II provided the means by which he could now produce and control these types of timbres in a real-time environment.

The use of Synthesisers 1 and 2 enabled Harvey to treat the performance of these timbres in the same manner as the orchestral instruments in that they were in the control of performers under the direction of the conductor. They also provided a continuation and development of techniques he had been exploring in earlier timbral works. Harvey did not use the synthesiser parts to perform technically complicated or sophisticated sounds, although this was possible. The scored parts are in fact quite simple, and the sounds chosen closely related to acoustic sources. He could have used tape, or other media, to present these sounds alongside the orchestral performers; and whilst this might have required consideration of synchronisation issues, I believe the main concern for Harvey was that these sounds would be contextually flawed i.e. removed from the core narrative, without the direct involvement of a performer on stage.

**Ring modulator**

A ring modulator is used to treat the Harp, Piano and Vibraphone at various points within the score, either individually or together. It is controlled by an operator, who is directed by instructions within the score. It is noted that these three instruments are similar in terms of their transient attack
envelope, fixed pitch, rich timbral character, registral range and polyphonic capabilities, suggesting reasons for their selection. These particular types of sounds work well with ring modulator treatment, in terms of the resulting effect compared to monophonic acoustic sounds, such as wind, strings and brass, with a less complex timbral character and slow attack. The device will have two inputs, one of which will be the microphone signal from the Harp, Piano or the Vibraphone, and the other input a 399Hz sine wave (Harvey, 1986d). The ring modulator has the effect of adding frequencies to the instrument sound, creating a sound with a quite different frequency content, but still recognisable as a harp, piano or vibraphone. The new frequency components include the sum and differences of the two input frequencies. For example: piano note A3 = 440Hz, therefore the output will include 440Hz + 339Hz and 440Hz – 339Hz. This example just shows the effect on the main fundamental frequency – all the frequencies contained within the piano sound will be similarly affected, creating a new complex timbre. Because of its potential to create inharmonic content, the resulting sound is often ‘metallic’ in nature, and Harvey’s choice of 339Hz as the input sine wave frequency will have some bearing on the nature of the resulting sound. However, more importantly, the pitch equivalent of this frequency is E half-sharp above Middle C (shown in Figure 94).

![Music Note Image]

Figure 94 339Hz, shown as pitch equivalent Middle E half-sharp

In Chapter 5, the axis used for the foundation of the thematic and harmonic material was identified as Middle E/F. 339Hz represents the exact mid-point between these two notes. Its choice as a ring modulator input signal must therefore be taken as a deliberate mechanism by which Harvey could ensure that all new timbral content remained ‘connected’ as it were, to the central axis. The 339Hz tone would not be heard at the output of the ring modulator, so its influence would be related to the timbral content rather than as an identifiable reinforcement of the axis pitch.
Harvey had used the ring modulator on a number of earlier works, including *Gong-Ring*, and inspiration for its use within *Madonna of Winter and Spring* could be traced back to works by Stockhausen, including *Mikrophonie I* and *Mikrophonie II*. With Harvey’s use of the ring modulator in *Madonna of Winter and Spring*, we see a continuation of some of the themes discussed in Chapter 8 – providing an opportunity, in real-time, to present enhanced but related, superhuman, versions of the instrument performances.

**Reverberation**

The score specifies the use of a reverberation unit – a ‘Quantec Room Simulator or other system with adjustable reverb time and freeze facility’ (Harvey, 1986d). This type of high quality digital processor is capable of recreating the ambience of large acoustic spaces with lengthy reverberation times. A microphone is used to pick up an overall signal of the entire orchestra, and the operator can control the level of the live signal fed to the reverberation unit, and then onto the auditorium speakers. The unit is set to ‘continuous’ and the amount of signal is controlled *very precisely* according to the score (Harvey, 1986d) to create an ambient sound of any specified duration. As seen in Chapter 7, Harvey had previously used a similar type of effect in *Round the Star and Back* and *Ricercare una Melodia* as a means by which to create a sense of stasis, a harmonic cloud. The resulting sound contains the orchestral timbres, and is therefore what one might describe as still being ‘of the orchestra’ although it takes on a new character, one that functions as a ‘freezing’ of a current state. Whilst this effect could be created in a studio and recorded to tape, it would not capture precisely the sounds in the concert hall at that specific point and therefore would not, in Harvey’s mind, be unified sufficiently with the live instrumental performance.

**Mixer and diffusion**

The ring modulator (fed from Harp, Piano and Vibraphone signal), reverberation and the three synthesiser signals are controlled through an audio mixer, centrally placed in the auditorium, before being diffused through a speaker system. The mixer also receives individual microphone
feeds from Clarinet 1, Cor anglais, Horn 1 and Trumpet 1\textsuperscript{72} – the function of which will be explored below. The setup of the mixer and speakers is shown in Figure 95. This diagram (in what appears to be in Harvey’s hand) provides details of the signal paths for each audio signal. The two-channel output (left and right) from the mixer is fed individually to two quad pan pots that feed a set of four speakers designated a lower and higher circuit.

![Figure 95 Mixer and speaker setup for performance of Madonna of Winter and Spring (Harvey, 1986d)](image)

Harvey indicates that the placement of the speakers will depend on the layout of the concert hall, but that the ‘lower front 2 speakers should be above, but “connected” to the back of the orchestra, and the higher circuit should be dispersed as high as possible’ (Harvey, 1986d). The set-up for *Madonna of Winter and Spring*, which in effect is two quadrophonic systems, is now used to create an audio field that is behind the musicians but that can

\textsuperscript{72} The score preamble does not identify which section member. However the operator instruction within the score identify Clarinet 1, Horn 1 and Trumpet 1.
also move above the musicians and above the audience. The two quad pan-pots allow for sounds to move between the sets of speakers, and therefore allow an instrument sound to be sourced from the orchestra, and appear to move around and above the audience. Instructions in the score provide the operator with details of the movement required - either panned left or right and/or panned across the lower or upper circuit. As seen in Chapter 7, Harvey had used multiple speaker configurations before, most notably in \textit{Bhakti}, which utilised a quadraphonic system that surrounded the audience. The reference above to the 'lower speakers' being 'connected' to the back of the orchestra suggests that the composer desired the effect of a continuum of sound – one that links the acoustic orchestral instruments closely with the treated sound (i.e. ring modulated and reverberated) and Synthesiser sources. The pan-pots and upper speakers allow these sounds to take on an expanded, spiritual character. Harvey referred to this as a mechanism by which to ‘people’ the space. \cite{Harvey1986c}. By this he meant providing the audience with the sense that diffused sounds were originating from a ‘physical’ performer. The programme notes provide a helpful visual analogy of the desired effect. ‘Those who have seen Tiepolo’s ceiling paintings with their flying cherub-trumpeters, for instance, will be familiar with such an image!’ \cite{Harvey1986c}.

\textbf{Relationship between timbral elements}

Having first identified the different timbral elements, electronic and acoustic, within the work, I shall now examine the nature of the discourse between these elements, and how Harvey uses this timbral dialogue in the first section of the work to explore the themes of unity, ambiguity and stasis, discussed in Chapter 7. The use of electronics features in much of the first section, ‘Conflict’, with their use in one form or another active in around 100 of the 212 bars of music. Its role within the overall structure of the work will be discussed in the next chapter.

\textbf{Example 1: Bars 1-3. Presentation of the harmonic material (i.e. Spaces) across all instrumentation}
“Conflict” opens with the participation of more or less every instrument presenting a series of ‘explosive’ timbral events. Within the first six Bars, two distinct instrumental groups of activity can be identified. The first of these, which I will term Group 1, contains woodwind, brass, percussion (single hit), synthesiser 2 and double bass, and Group 2, which contains violin, viola, cello, percussion (shaken, scraped) and ‘Synthesiser 1’. The Flutes and Piccolo share some aspects of Group 2.

Group 1 is used to present each of the harmonic Spaces (discussed in Chapter 5) in sequence, across six Bars of music. The first four of these (Space 1, 2, 3 and 4) can be seen in Figure 96 (as solid line boxes) with each of the Group 1 instruments playing a note from the space as a demi-semi-quaver. Each Space is presented as a series of timbral events or crashes which could be viewed vertically - in contrast to Group 2 activity (which is shown as dotted line boxes), which has a sense of horizontal activity. As seen in Chapter 5, the Spaces consist of vertical pitch aggregates that spread out from a central axis E/F above Middle C. These pre-defined vertical aggregates contain a large number of notes (typically over twenty – split equally above and below the axis). Consequently, to recreate each Space fully, each instrument performer is allocated a note covering, in the case of the Space 1, the full range from E0 on Double Bass to a G+6 in the Piccolo. There is some duplication – primarily, I believe, to ensure a balanced overall sound, and to avoid any single pitch or timbre dominating within each Space. The piano, for example, is doubled by ‘Synthesiser 2’, whereas the brass are allocated individual notes to perform, and the double bass players are divided into four sections – two for each of the four notes in the score.
Figure 96 Bars 1 – 3, "Conflict" - *Madonna of Winter and Spring*
The transient attack of each Space is reinforced through the use of struck percussion, with each space allocated a different percussive instrument (sidedrum -> large tomтом -> medium tomтом etc.) – the only timbral variation in the Spaces present at this stage. This may draw attention to the fact that the harmonic content is different for each Space – without introducing a noticeable pitched element.

In addition to introducing each of the seven Spaces in sequence, Harvey is also presenting to the audience the full range of timbres to be utilised within the work. However, at this point (with the exception of the percussion noted above) they are to be heard as a unified sound or tone so timbre is not a defining characteristic to help identify each vertical aggregate. As each Space is heard with the same instrumentation, the key objective here is to help intensify the harmonic character of each Space, so that it can in theory be recollected at a later stage, whether consciously or subconsciously.

Group 2 (shown as a dotted line box in Figure 4), has a very different function, with activity based clearly between each Group 1 vertical ‘event’. The Group 2 instruments, which are all pitched above C3, perform dense clusters of notes with upward glissandi leading up to the next Space to be heard. The amount of glissandi varies - with the higher pitched instruments (i.e. violin, piccolo and flute) with the smallest pitch change – typically semitone/tone and the lower pitch instruments (the violas and cellos) raising a major sixth to an octave. Crescendos and diminuendos feature throughout this activity, and the timbre of strings is varied through the use of sul ponticello in the strings in Bar 3. The overall effect here is one of dynamic, pitch, harmonic and timbral change, in marked contrast to the relative static nature of the Group 1 vertical aggregates. This sense of movement is further enhanced by Synthesiser 1, which whilst playing a similar part to the violins is enhanced through diffusion, as indicated in the score, as a ‘PAN across high front each gesture’. Percussion, in the form of maracas, medium cymbals scraped contributes to this sense of change or flux. Together, these timbres, dense clustered notes, glissandi, and pan effects create a sound that is in marked contrast to the Group 1 instrumentation, creating the effect that these two elements are in ‘conflict’.
In his programme notes, Harvey refers to this Group 2 activity as ‘something like monstrous breathing’ (Harvey, 1986c).

However, as the first six Bars progress, the gap between these two elements diminishes, and at the point in Bar 5 where the seventh Space is introduced, there is a sense that the elements are in fact unified.

Example 2: Bar 18-20. Relationship between acoustic and electronic elements

The example explores the relationship between Piano, Harp, pitched percussion and electronics (signal processed and synthesised). In Bar 18 (shown in Figure 97), a short phrase is performed by the Harp, Piano and Vibraphone. Each instrument plays a different combination of notes taken from Space 7 - in a similar rhythmic pattern. The combination of the three similar instruments creates a timbrally sophisticated, but ambiguous, sound that is neither specifically recognised as one instrument or the other. In the following bar, the combined pattern of notes is now performed by ‘Synthesiser 2’, as an audio sample. This sample is a prerecorded sequence of notes, triggered by playing a single key – in this case C2. No indication is provided in the score of the nature of this sample. However, review of an audio recording of the work suggests it is of a prepared piano, and is therefore heard as a manipulated ‘mirror’ or ‘echo’ of the orchestral instrumentation.

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Figure 97 Bars 18-20, “Conflict” - *Madonna of Winter and Spring*

In the following Bar (20), the piano, harp and vibraphone are now processed by the ring modulator and joined by the Glockenspiel. Over the course of these three Bars, Harvey presents an expansion of timbre from the orchestra located ‘piano type’ timbres, via a synthesised version fed to the front.
speakers, and then back to the orchestra, but this time enhanced by the ring modulator. This could be considered a form of timbral progression. Through the electronics, the relatively familiar piano-type timbres take on an extended or altered character.

Example 3: Bars 24-26. Relationship between Spaces, Themes and timbres

At different sections of the work, instrument timbres take on specific roles directly related to the Spaces and Themes. This particular example, taken from the point where the second theme, A+B, is introduced for the first time, demonstrates how Harvey uses timbre to initiate a dialogue between the Space and Thematic material. The seven Spaces were outlined in Chapter 5, and the twenty Themes in Chapter 6. The secondary Theme A+B, and Space 1 are reproduced here for the purposes of discussion.

Figure 98 Space 1

Figure 99 Secondary Theme A+B

The Secondary Theme A+B, (Figure 99) is introduced by the violins (Desks 1,2,3) in Bar 23, the notes of which precisely follow the first eleven notes of Theme A+B (shown in Figure 99). Bar 24 (shown in Figure 100) sees a continuation of the theme in the violins, although moved between different desk sections. At the same time, held notes, B♭3, C4 and G#4 from Space 1 (shown in Figure 98) are performed by the trumpets. As the theme notes are derived from the Space, this has the effect of both reinforcing the harmonic material present in the melodic theme, and creating a ‘background’ halo or cloud to this ‘foreground’ theme. The similarity between the timbres of the violin and trumpet is further augmented through
the use of ‘con sord’ for both instruments - the trumpets instructed to each use different mutes from each other. At Bar 25, the trumpet ‘halo’ is complemented by a short piano/harp phrase also using notes from Space 1. Pitched at a higher octave than the trumpet and reverberated through use of the sustain pedal, the instruments are then enhanced further through the ring modulator and diffused to the concert hall via circular panning. The overall effect here is to create a dense, timbrally rich and diffuse sound in which the boundaries between the acoustic timbres connected to a physical performer and the electronic timbres moving around the concert hall are broken down and presented as a continuum. It is harder, therefore, to differentiate clearly between these instrument timbres as the composer’s approach has the effect of unifying them within a single sound presented across a spectral foreground and background.

Figure 100  Bars 23-26 “Conflict” - Madonna of Winter and Spring

Example 4: Bars 53-57, Themes and Ambiguity
Harvey uses a number of different timbral techniques with a perceived increasing complexity for the presentation of themes within ‘Conflict’. For example, at the beginning of the section, Theme A is performed by flutes, oboes and clarinets with each instrument performing the theme together in its entirety – with the latter instruments playing transposed versions of the theme. As a variation of this, at Bar 23 (shown above), Theme A+B is performed by the violins - with different ‘Desks’ taking parts of the theme. As an extension of this technique, at Bar 53 (shown in Figure 101) we see presentation of two primary themes, split between two timbral groups. The Primary Theme A is performed by Flute 1 and Clarinet 2 with the latter playing a transposed version of the theme using notes from the associated Space. Theme B is performed by solo strings with a transposed version of the theme in the 2nd solo violin and solo viola. Heard together these two instruments groups perform Secondary Theme A+B.
The overall impression, therefore, is that while the two individual themes (A and B) are associated with a specific timbre, there is also the perception of a third theme (A+B), which does not belong clearly to a single timbre, but to a new 'combined' timbral character. This ambiguous relationship of theme to instrument is also evident within the presentation of a single theme, in what might be considered at a 'micro level' referred to in the previous chapter. Whilst the first part of Theme A is performed by Flute 1 in Bar 53, Clarinet 1 takes over the second part in Bar 54. It is clear from the 'cross-fade' dynamic markings in the score (diminuendo in Flute and crescendo in the Clarinet), that Harvey had intended the resulting sound to be perceived as 'morphing'
from one timbre to another - recalling his use of hybridisation techniques in *Ritual Melodies*.

Both techniques, i.e. within one theme and across two themes, present to the listener a sense of ambiguity and unity, by allowing timbral identity to be effectively ‘distanced’ from its instrument’s ‘ownership’, and become something else less tangible, but still associated with instrument timbres.

Also evident in this section are notes from the harmonic Space (1), heard in ensemble violins and violas. This recalls the trumpets at Bars 23-26 outlined above in providing a harmonic support to the themes. Whilst the notes come from the same Space as the Theme, it is noticeable that they are primarily notes that are unused by the performance of the themes by the Flute, Clarinet and solo violins. This, I believe, serves two purposes – firstly, in ensuring that enough of the Space is heard to be perceived sufficiently as that Space, and secondly, to allow the melodic theme to be heard in the ‘foreground’ as emerging from the ‘background’ harmonic Space.

**Example 5: Bar 121 – 122, Reverb and Stasis**

The reverb device is used at four instances within ‘Conflict’: at Bars 92, 118, 121 and at the very end of the first section in Bar 212. The approach adopted by the composer is the same in each case, in that the device is used to capture a substantial transient moment performed across most of the orchestra, and ‘freeze’ that event in time. This transient moment follows a sense of climax through a build-up of Space or Thematic material, and the resulting reverb is permitted to exist more or less in isolation for a number of bars before instrumental material is reintroduced. The amount of time for which the reverb exists is substantial enough for it to be perceived as a specific moment or event, and as distinctly different to any reverberation that could naturally be present within the concert hall. This sense of artificiality is also evident in that the reverb is subsequently cut, rather than left to decay ‘naturally’. An example of this standardised approach to the use of reverb within the work is shown in Figure 102. At Bar 125, the reverb signal is sourced from a semi-quaver event that uses Space 5 pitch material performed by most of the orchestra, with exception of Brass, Synthesisers, Double Bass and some percussion. Harvey uses a ‘block’ graphic at the foot
of the score to indicate the duration of the output reverb signal. The reverb has the effect of creating a blurred or ghost like resonance of Space 5, containing a wide range of timbres, but not identifiable as any one particular timbre, and therefore functions to unify them within a single object.
Figure 102 Bars 121-123 “Conflict” - Madonna of Winter and Spring

Whilst the reverb exists as if the event is frozen ‘in mid-air’, its abstract nature is further enhanced through the addition of the Synthesisers in Bar
122, whose notes, taken from the high end of Space 5, are panned ‘from highest back right towards high front’. The composer indicates that this Bar should last between 13”-14”, highlighting its strategic importance, and allowing the Space to sufficiently resonate around the auditorium creating both a sense of stasis and expansion into a ‘supernatural world’.

At the commencement of Bar 123, the reverb is cut abruptly, and the harmonic material is replaced by another transient event – harmonically taken from Space 2. The change of harmonic character is also marked by a subtle change in timbre, with the introduction of tuned percussion and removal of wind instruments. Out of this new timbre, Theme H on the Clarinets is able to arise.

Summary

Chapters 5 and 6 considered the various methods used by Harvey to define and structure the melodic and harmonic material within *Madonna of Winter and Spring*. It was evident that various ‘obstacles’ in the form of a central axis, harmonic Spaces and Melodic Chains all governed his compositional aesthetic for the work. The question here was the extent to which timbre was subject to an equivalent level of systematisation. Analysis of Harvey’s use of timbre was within the context of his approach to timbre in a number of previous works, as discussed in the previous chapter, especially in his use of electronics. The analysis explored the continued importance of the themes of unity, ambiguity and stasis in this regard.

It is reasonable to consider Harvey’s use of timbre alongside his approach to melodic and harmonic material, in that, through his studies with Babbitt, he had shown an interest in the potential of total serialism. However, through the analysis of earlier works in the previous chapter, we are aware that at no time did he apply comprehensive serial techniques to his use of timbre, although in *Bhakti*, the number twelve is used as a means by which to structure the dialogue between tape and orchestral timbres (Palmer, 2001, p.86). Likewise, *Madonna of Winter and Spring* is not a timbral composition in the manner of a spectalist work, in that the composition process was not directly informed by an analysis of frequency components, or indeed considered timbre above pitch within some form of hierarchy of musical
elements. However, the analysis undertaken in this chapter of the first section of the work, “Conflict”, and the instrumentation used, revealed a number of strategies adopted by the composer that could be considered an attempt to present a structural or organised approach to his use of timbre, and that this approach is within the context of the themes of unity, ambiguity and stasis.

The analysis identified that Harvey's approach to his use of timbre could be framed within two key aspects. Firstly, in the rationale for his choice of instrumentation, and secondly, in the manner of discourse between instrument timbres. In both cases, it was possible to discuss preceding works in which a similar approach was adopted, and that this approach was in some sense consolidated within *Madonna of Winter and Spring*.

**Choice of instrumentation**

Harvey's choice of instrumentation reflects a desire to ensure that all of the instrumentation is performed live. Consequently, sounds that in previous works, and in particular those composed at IRCAM, might have been created within the studio and presented on tape, are now created alongside the acoustic instrumentation as part of the concert hall performance. This was, I believe, a desire of the composer to protect the aesthetic quality of the electronic timbres – or as Boulez referred to it, the ‘constitution of the musical object’ (Boulez, 1987, p.166). The wide range of instrumentation, both electronic and acoustic, covering both an extensive octave range and a variety of timbral character, suggests a desire of the composer to contemplate a single sound containing all frequencies i.e. white noise. Therefore, all instruments (acoustic and electronic) are effectively unified within one sound or tone. It is noticeable that Harvey avoids using any synthetic sounds that might represent this type of ‘unified’ sound on their own (although synthesis lends itself to this type of sound creation), opting to choose synthetic sounds based heavily on acoustic instrumentation; or indeed avoiding the use of electronics to enable him to achieve performance techniques beyond the ability of human performers. Likewise, electronic treatment (i.e. reverberation, ring modulation and diffusion) of instrumental sounds does not aim to remove all sense of recognition – the synthetic
sounds and electronic treatment remain closely linked to an acoustic reality. However, what the electronics are able to provide is a means for timbres to be perceived as a ‘mirror’ of the acoustic instrumentation. Harvey’s use of electronic treatment and electronic sounds is in marked contrast to many other contemporary works that combine electronics and acoustic instrumentation in that its use is restrained and subtle. He avoids large gestures and instances; electronics in Madonna of Winter and Spring are used to provide what Whittall referred to as: ‘the backwash, the texture, the harmonic fields, the fused object into which the defined instruments of the orchestra blend’ (Whittall, 1999, p.29). This (i.e. backwash) might appear an unfair judgement given that for Harvey the role of electronics was immensely important in terms of musical meaning – of providing the ambiguity needed.

From a practical point of view, Harvey also had to consider the number of performers required to ensure that the basic structural requirements, outlined in the premise of the work (i.e. compositional sketches), could be accommodated. This included allocating individual notes to a sufficient number of instrumentalists to be able to perform the Spaces in their entirety (i.e. both above and below the central axis). It also facilitated the performance of multiple themes concurrently, or for transitioning from one theme to another within the same, or different timbres.

**Dialogue between timbres**

The analysis of the “Conflict” revealed various methodological strategies for the exploration of timbral dialogue. Three main types of dialogue were identified.

**Discourse between:****

1. Instruments of the same or similar timbres
2. Instruments of different or contrasting timbres
3. Acoustic and electroacoustic timbres
1. Dialogue within instruments of the same or similar timbre is primarily related to treatment of thematic material. Two techniques have been identified within this analysis.

Firstly, presentation of thematic material across an instrumental timbral group (i.e. wind instruments at Bar 53 – see Figure 9, Clarinets at bar 123 – see Figure 10.), with each instrument playing a transposed version of thematic material with notes taken from the relevant harmonic Space – typically, notes adjacent to each other within the vertical aggregate. In order to present memorable themes, one might have expected Harvey to use unison or solo instrumentation to reinforce the melodic nature of each theme. However, whilst there are some places where this is the case (see below), most occurrences are examples of relatively dense heterophony, or perhaps more correctly be termed ‘complex monophony’. The use of the term heterophony here is perhaps misplaced, as it implies that there is a hierarchy between a main melody and its associated variations. The effect of this is to hear the thematic material as intrinsically linked, and therefore unified, to the relevant harmonic Space, or Spaces. Whilst the compositional sketches identify thematic material at a specific pitch, there is no evidence to suggest that Harvey is using the melodic material solely as a means by which to present thematic material – it must be considered as part of a harmonic and timbral ideal.

Secondly, as mentioned above, there are some cases where a single theme (primary or secondary) is shared by a single instrument or group of instruments in unison (i.e. sectional strings at Bars 24-26 – see Figure 8.) - with the theme moving from one instrument to another in sequence. The dialogue here is one of ambiguous ownership in that, the theme, whilst presented by a single timbral group, is played across different performers as if by a single instrument. This could be considered a subtle extension of timbral character, as it would be heard by the listener as a minor, but perceivable character change. This understated change could be viewed as part of a continuum that ranges from acoustic to electroacoustic timbres.
2. The analysis also revealed dialogue between acoustic instruments of contrasting timbre. Three techniques adopted by Harvey were identified in this regard.

- Thematic material presented concurrently by two contrasting timbres
- Thematic material in one timbre and harmonic material in a contrasting timbre
- Multitude of thematic material presented across a timbral group

2.1. Related thematic material presented concurrently by two contrasting timbres.

This technique occurs throughout much of ‘Conflict’ – i.e. at Bars 53-56 (see Figure 101) and Bar 125. Typically, we see a primary or secondary theme presented in one timbral group overlaid by a neighbouring theme in a different timbral group. The use of contrasting timbres (i.e. strings and wind) ensures that the individual themes could still be perceived as separate entities. However, as discussed in Chapter 6, the design of the primary themes is such that they can interlock to form a new theme (the secondary theme). This could be viewed as part of the timbral continuum referred to above in that, whilst the individual themes will remain connected to a particular timbre, the overall effect is of a single theme (i.e. A+B). The resulting theme unifies the different timbres within one timbral character, whilst the ‘original’ themes retain their own personality through the use of contrasting timbres.

2.2 Thematic material in one timbre and harmonic material in a contrasting timbre

The next technique adopted by Harvey is the use of one timbre for presentation of harmonic material (i.e. Space), simultaneous with thematic material in a different timbre. This technique is used throughout much of ‘Conflict’ i.e. at Bars 23-26 (see Figure 100) and Bar 123 (Figure 102), in what must be considered a means by which to ensure that the harmonic

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74 A further example of this (Bar 125) was also discussed in Chapter 6.
Space/s to which each theme is connected is perceivable. It could be argued that, by virtue of the fact that the pitch content for the themes is drawn directly from the harmonic Spaces, this might be not be necessary. However, by reinforcing the harmonic Space, through non-thematic content, Harvey ensures that the harmonic Space remains present and always perceivable. The reasons for this, I believe, are firstly to unify the musical elements together, within what might be viewed as a homogenous entity, and secondly, to facilitate and support a form of harmonic progression inherent within the Melodic Chains (as outlined in Chapter 6). Finally, it is a means by which to create a sense of structured foreground and background – a concept that will be further explored in the subsequent chapters.

2.3 Multitude of thematic material presented across a timbral group

The third technique occurs once within the first section, at Bars 111-118, and is the polyphonic presentation of all the thematic material. Figure 103 shows an example of three bars from this section. The influence of Messiaen's Chronochromie on his approach here was discussed in Chapter 6, and although Harvey refers to his polyphonic use of themes somewhat dismissively as ‘texture fodder’ (Harvey, 1986b, p.431), I think it performs a more important function beyond that. It is positioned almost exactly at the mid-way point of the first section and marks the point at which the presentation of the first ten Themes finish and the second ten Themes begin - the structural importance of which will be discussed in the next chapter. From a timbral point of view, it provides opportunity for Harvey to present all the thematic material as a single unified entity – made feasible through the interlocking nature of the material and supported by the use of one timbral group, the string section, for the event.
3. The final approach regarding timbral discourse is the nature of the relationship between acoustic and electroacoustic timbres.

The composer's use of electronics alongside traditional acoustic instruments could be seen and experienced as parallel, but separate to each other – a criticism that was levelled on works that used tape. In the previous chapter, reference was made to Palmer's evaluation of the relationship between acoustic and tape elements in Bhakti as functioning at macro- and micro-levels (Palmer, 2001, p.75). He argued that, to consider the two timbral elements (i.e. tape and acoustic instruments) separately would 'indicate a lack of understanding of Harvey's aesthetics of timbre' (Palmer, 2001, p.74). However, the purpose of the 'macro-level' discussion related primarily to the large-scale structural and sectional issues of synchronisation of tape to the acoustic performances throughout the twelve-movement work. The
difference or apparent evolution in Madonna of Winter and Spring is that, as the electronic performances are more integrated into the sonic discourse – to the extent at which activity functions at a micro-level, no different to any other instrument acoustic or otherwise. To achieve this level of integration, Harvey followed two clear strategies for the work.

The first of these is that all the electronics to be utilised are controlled and operated by performers alongside the acoustic instrument performers. Within the score he provides detailed instructions as to the source of the electronic sounds including data sets, equipment specification and speaker configurations. These are all designed to keep the electronic sounds as closely connected to the acoustic instruments as possible.

Secondly, there exists a controlled continuum between the electronic and acoustic sound worlds. By controlled, I mean that specific instructions, given in the score, control the levels and timbral character of different sounds, both acoustic and electroacoustic. This includes instructions for acoustic instrument performance techniques (i.e. use of mutes, dynamic changes to cross-fade with other instruments, scraped cymbals etc.). Likewise, clear direction is provided for the performers and operators of electronic devices (i.e. setting the amount of signal fed to the signal processors, the type of diffusion to be applied, changes to synthesiser patches, durations for reverberation etc.). This tightly controlled framework, surprisingly such given the untapped timbral and technical potential of electronics, suggests that, as with pitch and harmonic material, Harvey is using ‘obstacles’ as a means to structure discourse. Key to this is the concept of ambiguity, in that the border between acoustic and electronic sounds is blurred through the various techniques outlined above. The level of deliberate and designed activity with an almost obsessional attention to detail could be viewed as indulgent or contrived. For example - to what extent is the precise setting of the ring modulator sine wave frequency to the axis pitch important to the overall sound? Probably not that much. However, it is indicative of the composer’s desire to ensure that all musical material is unified in some way to facilitate effective discourse and is therefore central to his compositional aesthetic.
As seen in the previous chapter, many of the concepts and approaches to timbre adopted for *Madonna of Winter and Spring* are evident in preceding works by Harvey. Fundamental to his approach were the three IRCAM works, *Mortuos Plango, Vivos, Voco, Ritual Melodies* and *Bhakti*. Whilst all very much complete and successful works in their own right, there is a sense that dependence on tape, studio techniques and computer processing was problematic for Harvey. If we look at the area of hybridisation, there is no doubt that studio techniques and computer processing would be far more effective sonically than live electro-acoustics in this regard. For example, with the computer-based spectral sound transformations in Trevor Wishart’s *Red Bird* (1973-77), we hear far more convincing sound morphs/morphing(s)⁷⁵. However, key to Harvey’s compositional timbral aesthetic is the potential for discourse between acoustic and electroacoustic sounds that carry some cultural reference for the audience. To explore the borderland between acoustic and electronic sounds and the potential for ambiguity, one needs performers of acoustic instruments together with the electroacoustic sounds. For the mirror of ambiguity to be truly effective, the audience must be able to ‘people’ the sounds.

In this and previous chapters I have considered the various musical elements that support this discourse. I will now turn attention to the structure and form of *Madonna of Winter and Spring* to fully understand the function of this discourse in relation to the work’s narrative.

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⁷⁵ For explanation of techniques used refer to Wishart’s *On Sonic Art* (1984)
CHAPTER NINE: STRUCTURE AND FORM OF "CONFLICT"

One day after Eucharist at my local church in Lewes my eye alighted on a statue of Mary above the altar and I found myself asking quite simply if she would wish me to write music in her honor. To my delighted surprise the statue distinctly moved and with a most beautiful gesture clearly indicated that she would (Harvey, 1999a, p.36).

Harvey had been commissioned to write a work for orchestra and electronics for the 1986 BBC Promenade concert, and was considering a work that explored various subjects including pre-Christian Celtic mythology, scenes from life of Christ, Amfortas (ruler of the Grail kingdom) 'contrasted with a spiritualized view of suffering' (Harvey, 1999a, p.36) and other potential ideas that he had noted in his sketchbook. The above-quoted event, which happened significantly on Mothering Sunday, March 17th 1985, was ultimately to provide the inspiration for Madonna of Winter and Spring - the score indicating it was 'composed in honour of Mary, mother of God' (Harvey, 1986d). However, this work goes beyond what might be considered as a conventional view of Mary within Christianity. As discussed in Chapter 7, eastern and western religious practices and metaphysical themes had been a major pre-occupation of the composer from the early 1970s onwards and this work continued his interest in these themes. As will be shown, the form and structure that Harvey adopted for this work are intrinsically linked to the underlying narrative, and to provide some context and understanding we need to first question why Harvey had considered narrative so important to his compositional aesthetic. It will also provide some context for a more detailed examination of the structure of the first section, "Conflict".

Importance of narrative

Harvey deemed messages in music as something that could not be ignored – 'Music is never value-free' (Whittall, 1999, p.33) – 'it can’t escape its references (...) if nothing is consciously in the composer’s mind, what are you going to title it except perhaps “Symphony” or something?' (Jenkins, 2006, p.228). Consequently, he took his duties as a composer seriously, advocating

76 Harvey mentions Amfortas. It is assumed, given an interest in Wagner, he is referring to the character Amfortas mentioned by Wolfram von Eschenbach in his 13th Century epic poem Parzival.
that ‘one has to take on board that music has a purpose (...) make sure that, as a composer, your music has the purpose you have thought carefully about’ (Whittall, 1999, p.33). However, whilst certain themes, such as religion, appear to always have been present in one form or another, it was the manner of their articulation that changed. Certainly following exposure to Steiner’s philosophy in 1972, Harvey acknowledges that from that point onwards ‘all my works would be spiritual’ (Palmer, 1998, p.5). Harvey had briefly entertained ideas of global time after his visit to Darmstadt and period of study at Princeton, and a number of works could, on reflection, be seen to represent these ideas strongly. For example, the Inner Light trilogy and Mortuos Plango, Vivos Voco both demonstrate aspects of the exploration of a single theme or idea, rather than a sense of narrative, especially one connected to the idea of metaphorical journey. Discussion of Mortuos Plango, Vivos Voco by various commentators, including Griffiths, Downes, Palmer, Allen, Clarke et al, and described as ‘both a technical exercise and a marvellously moving, allusive work’ by Whittall (Whittall, 1999, p.57), tended to focus on its objective capacity rather than its subjective nature. Thus the work has been described as a ‘way of thinking about sound’ (Johnson, 2003b, p.76), an ‘imaginary journey into the inner realm of sound’ (Palmer, 2001, p.4), as ‘different perspectives on an object that is always present’ (Clarke, 2006, pp. 139-140) and a ‘detailed investigation into the nature of sound’ (Downes, 2009, p.22). Harvey’s own comments similarly emphasise its interest as a timbral composition with discussion regarding its ‘narrative’ limited to references to ‘the “dead” bell is Mortuos, the “living” boy the Vivos. They are one’ (Harvey, 1999a, p.61). In his appraisal of the work, Downes refers to Clarke’s views on the teleological nature of the work, and recognises the work as being in line with Harvey’s global time preoccupations at that point in his career - although suggestion of a narrative is made in his noting of the contrast that exists between sections ‘creating a strong sense of drama’ (Downes, 2009, p.22). The Inner Light trilogy, a work dedicated to Steiner, can be viewed similarly in that it is also an exploration of the inner nature of sound as opposed to a ‘journey’. As discussed in Chapters 3 and 7, the work was shown to be based on a structure of timbral expansion – ‘an enormous crescendo, lasting for more
than an hour if the three works are played in succession’ (Griffiths, 1984, p.89). Which could be considered a type of narrative, although one lacking in dialectic.

In both these works, Harvey saw a connection between the potential of global time as advocated by Stockhausen and the ideas of Steiner. However, while the contrasts might exist in a timbral sense, they lacked the strength of contrast in terms of dialectical narrative – they were too distant from corporeal concerns and focused on singular states of being. Neither possesses an underlying ‘human story’ in the same manner as Passion and Resurrection and, as will be seen, Madonna of Winter and Spring. The key aspects of these particular two works is that they reflected a return to what Harvey referred to as more ‘fertile ground’, the ‘stuff of tension, of foreground and background, of composing against’ and of being ‘less global-time orientated’ (Whittall, 1999, p.8).

To be ‘less global-time orientated’ implied that Harvey was showing an interest in traditional concepts of linear time or narrative, although, as will be shown below, he did not abandon global time concepts entirely. In his appraisal of Harvey’s work during the 1990s, Johnson argued that what distinguished much of his music, in a way that was unusual for a composer with an interest in spectralism, electronics and computer music, was that it brought into play ‘age-old narrative paradigms’ and that important among these was the sense of ‘journey - from dark to light, low to high, formless to form, stasis to energy’ (Johnson, 2003b, p.76). For Harvey, this narrative or journey needed a strong dialectic to help him in his on-going quest to understand human aspects central to Christian, Indian and Buddhist tenets:

I’m struggling along the path, like everyone else, and what interests me is the nature of suffering in an unsatisfactory life, and the vision that liberation or enlightenment offers us (Harvey, 2009).

He saw within an acknowledgement of ‘our basic condition is one of suffering’ (Johnson, 2003a, p.122) the opportunity to attain a sense of transcendence or liberation through music as one of the ‘great door-openers’ (Johnson, 2003a, p.122) and the ability to heal through the juxtaposition of musical and narrative contrasts:
music can be cathartic in its great tragic moments; it can heal; it can bring together violent and unexpected contrasts in a way that is free and shocking and it can bring together music from different styles, tonal and atonal (Whittall, 1999, p.34).

For example, the twin themes of healing and suffering are very evident in Harvey’s church opera, *Passion and Resurrection*\(^7^7\). The narrative uses a setting of medieval Benedictine liturgical dramas that tell the story of Christ’s trial, crucifixion and subsequent resurrection from death. The form of the work is divided into two halves each with their own musical character. ‘The Passion is austere, chantlike, masculine in voice, and often violent (...) The Resurrection (...) is more lyrical, feminine in voice’ (Harvey, 1999a, pp.52-53).

Whilst this dialectic of suffering and healing provided Harvey with a powerful narrative, it might appear overly concerned with a linear concept of time - ‘the now is always informed by a tension of what has just happened’ (Whittall, 1999, p.33). To embrace the spiritual, other worldly aspect, Harvey needed to integrate the linear music of past centuries with music associated with global time. He commented on this viewpoint in his interview with Whittall in 1999 as follows:

These types of music are really about different times, thinking about time in a different way (...) As I was saying with the Goethe and Steiner approach to a world view, we start with a general feeling for eternity and unity, we arrive at the specific individuality in detail, and that detail is informed and made more vivid by what was preliminary to it (...) So I think there has to be a marriage of both these types of time, and that is the music, regardless of its style or whatever, that I find the most interesting (Whittall, 1999, p.33).

In an interview with Julian Johnson four years later, he provided some insight into how this ‘marriage’ might be achieved though an appreciation of the ‘to and fro’ within the narrative of a ‘journey’ and the importance of the ‘fro’:

> If the pathway is clear as one thing, not just as a linear direction but as an object which you can see both ends of and also the middle of, then it’s a unity, it’s a field which is visible in one glance. It’s not just a journey where you can only see the beginning and an arrival where you can only see the end. I think the global view is more important than the journey – just to go in a line, which is a bit mono-dimensional. (...) It’s wiser to understand the totality rather than just the end result (Johnson, 2003a, p.124).

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\(^7^7\) Passion – translation of the Greek word *paschien* – ‘to suffer’
In *Passion and Resurrection*, it is the presence of Jesus who unites the various dialectics that are present within the work:

Jesus, for me, heals the rift between post-Renaissance individuality and spiritual community. Modern man-philosophers and scientists, scrutinizing and proudly independent - is brought back by Jesus to the fold of unity and into a higher social order, not with an unquestioning obedience as in medieval Christianity, but with a freely chosen integrated consciousness, which contains divergence and is beyond opposites. He also restores femininity to masculinity (Harvey, 1999a, p.53).

This he achieves through various music devices that seek to integrate the different characters so that musical thinking is guided by spiritual themes – 'Jesus' music heals, bringing together the hard and dark music of the crucifixion, dominated by priests and soldiers, with the anguished and lyrical love of the three Marys' (Harvey, 1999b, p.163). For example: 'As he sings he is always surrounded by a halo of higher harmonics or lyrical violin melodies. He sings slowly and with deep majesty, in contrast to the violent conflicts surrounding him’ (Harvey, 1999a, p.53).

It would appear, therefore, that Harvey had not in fact fully abandoned the idea of global time, i.e. the ability to view the work as a unified ‘non-linear’ idea, within his compositions, but had in fact found a way to unify linear narratives within it. It was the ‘interpenetration of two dimensions, of the vertical and the horizontal, the global and the linear, which seems to fascinate him as a composer’ (Johnson, 2003b, p.76). Whilst this might fascinate, Harvey acknowledged that the challenge of uniting these dimensions was not easy. Experiencing this ‘subtle dialectic of discourse and spirit, where one leads into and is unified with the other, is the gift of intelligent and sensitive listening’ – 'In *Madonna of Winter and Spring* this dialectic is explicitly the subject of the work itself. *Madonna* moves clearly from discourse to spirit’ (Harvey, 1999a, p.36). Manifestation of ‘spirit’ within his music was a particular problem. However, it was a problem that he had no hesitation in tackling – whether directly or naively. He acknowledged that one would always ultimately fail in this regard ‘because in the end it is true: spirit has to be mediated. But the attempt is crucial. It is my obsessive song’ (Harvey, 1999a, p.36).
The overall form of this ‘obsessive song’ will be now be looked at in more
detail to understand how the narrative of *Madonna of Winter and Spring* was
articulated musically.

**Madonna of Winter and Spring - Form**

The work, which is about 40 minutes in duration, has four distinct
sections, “Conflict”, “Descent”, “Depths” and “Mary”. Each of the sections is
to be heard as part of a continuous sequence with no gap between them,
although the musical character of each is sufficiently distinctive that it is
relatively easy to discern where a section starts and finishes. From this, it is
reasonable to assume that Harvey had intended for the work to be heard or
experienced as a single or integrated ‘movement’ or ‘journey’ - although the
listener should be aware of the transition from one section to the next. This
is in marked contrast to the suite structure of *Bhakti*, with its twelve
‘movements’ with distinctive conclusions and openings to each section. The
later work had, in Warnaby’s opinion, a ‘thoroughly cohesive structure of
“symphonic” dimensions’ (Warnaby, 1986, p.23) compared with *Bhakti’s*
limited integration, making a comparison of the two works’ merits difficult.

*Madonna* does not draw upon a specific text for its inspiration, as is the case
with *Mortuos Plango, Vivos Voco, Bhakti* and *Passion and Resurrection*, so it is
not possible to refer to a specific literary source to gain some insight of
narrative on that basis. The composer refers to a type of ‘spiritual trajectory
or evolution’ as the motivation for the work with its overall form based on
that of a meditative journey (Harvey, 1999a, p.35). Harvey had first
considered the value of meditation through his interest in Steiner, and
although his ideas were helping him achieve greater clarity of thought, the
composer found the philosopher’s approach to meditation less beneficial: ‘I
could not practice regularly; the aim was not crisply defined’ (Harvey,
1999a, p.4). Vedic transcendental meditation techniques, to which he was
introduced in 1977, would appear to have been more successful and were to
become part of his daily routine from then onwards. Writing in 1999 about
the influence of these practices, he provided some insight into their impact.

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78 Harvey uses the term ‘sections’ rather than ‘movements’ to describe the
divisions.
on *Madonna of Winter and Spring*, referring to the work as a quasi-archetypal form of a typical meditation:

One leaves the tumult of a busy day to settle the mind until it reaches a point of quiescence. There it stays for a while, empty. From that level new, radiant, and often blissful thoughts and feelings arise (Harvey, 1999a, p.5).

One can see a clear correlation between these stages of Vedic meditation practice\(^\text{79}\) and the titles of the four sections in *Madonna of Winter and Spring*:

- “Conflict” – commotion of busy day
- “Descent” – settling to state of stillness
- “Depths” – empty state
- “Mary” – blissful thoughts and feelings

Further insight on narrative can, unsurprisingly, be provided through appraisal of the work’s title. Reference has already been made to the influence of the statue in the Lewes church and Harvey’s use of the word ‘Madonna’ reflects that. However, it has a further role, beyond its immediate Christian association, both Catholic and orthodox, which is its representation of the feminine. Harvey recognised a clear difference between the male and female psyche in appreciating an understanding of the world in which we live. ‘We are unable to access truth because of our concept-making mind, through which the world impinges, and our observation of objects changes the objects as we observe them’ (Harvey, 1999a, p.38). Harvey viewed the ‘concept-making mind’ as primarily a male trait and that our limited worldview was ‘precipitated by men in a patriarchal system using characteristically male modes of analysis’ (Harvey, 1999a, p.38). As (Harvey, 1999a, p.38) puts it:

> To understand we are *part* of a world that is *creating itself* (...) is a feminine understanding: an understanding based on wholeness, community, intuition, connection, healing, emotion, ambiguity.

\(^\text{79}\) Vedic Meditation is a form of meditation developed from Hindu religious practice intended for use by all outside of a strict religious context. It is typically described as a twice-daily routine, 20 minutes in length, which enables the practitioner to enter a state of restfulness by settling the process of thinking.
As discussed above, Harvey had used the idea of reflecting masculine and feminine identity within *Passion and Resurrection* and a similar approach can be observed in *Madonna of Winter and Spring*, as “Conflict” can be seen as predominately masculine in voice, and “Mary” as representing the feminine. But in the later work, rather than two clearly defined states, we experience a continuum, through “Descent” and “Depths”, representing the meditative journey. Harvey used the idea of the feminine archetype as a potential solution to suffering in a number of works, including *Song Offerings* (1985), *White as Jasmine* (1999) and *Mothers Shall Not Cry* (2000) and, as pointed out in (Downes, 2009, p.36), it is important to recognise that his use of the term is not directly linked to biological gender but to potentially universal attitudes. In his book *Music and Inspiration*, Harvey refers to the concept of the ‘Goddess’ appearing in many guises within his works giving specific examples of the Virgin Mary in *Madonna of Winter and Spring* and, as described earlier in this chapter, in *Passion and Resurrection* where ‘she might be Jesus’ (Harvey, 1999b, p.163). In both works it is the role of the ‘Goddess’ to convey an understanding of the ‘feminine’ healing spirit contrasted against the ‘masculine’ suffering. This is not to be done in isolation but as an integrated part of the masculine/feminine discourse. ‘She magnificently dares one to become aware of one’s depth, and of life as an undivided whole’ (Harvey, 1999b, p.163). Harvey’s views on feminism can be traced back, to a 1906 lecture by Steiner on woman and society (no doubt part of Harvey’s extensive reading of the philosopher’s writings in the early 1970s), that espouse the importance of a world-view of spirit (feminine) in a scientific viewpoint (male) of the world:

> it should not surprise us that, in an age that has given birth to a masculine culture, the spiritual culture which has begun in the Theosophical movement had to be born from a woman. Thus this Theosophical or spiritual-scientific movement will prove itself to be eminently practical. It will lead humanity to overcome gender in itself and to rise to the level where Spirit-Man or Atman stands, which is beyond gender, beyond the personal — to rise to the purely human. (...) Just as Goethe speaking from the depths of soul, once said, ‘The Eternal-feminine bears us aloft’, so others too who, as women feel in themselves the other side of the human being, and who, in a truly practical sense understand it spiritual-scientifically, will speak of the Eternal-masculine in the feminine nature. Then true

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understanding and a true solution of soul will be possible for the Women’s question (Steiner, 1985).

Further insight can be gained from the reference to “Winter” and “Spring” in the title. There appears to be no specific literary or artistic source for the work’s exact title that I have been able to find, although it suggests various allusions beyond its obvious similarity to use within the visual arts (i.e. Madonna of the Rocks, Madonna of the Meadow etc.). The most obvious reference to “Spring” would be through its association with Lady Day, and therefore ‘the feminine’. Furthermore, the liturgical calendar date for this, 25th March, is also associated with the start of the agricultural year, as it coincides more or less with the Spring Equinox. One can see the attraction of the reference to Harvey, as it suggested the symbiosis of ancient mystical cultures and Christian religious themes. “Spring”, therefore, has a range of implied meanings including femininity, birth, new beginning, healing, connection, balance, community, clarity etc. Correspondingly, “Winter” implies suffering, death, emptiness, stillness and what Harvey viewed as perhaps more ‘masculine’ aspects of the world. Finally, the title implies that Madonna is of both these “worlds” and is part of the background spirit that pervades all.

Broadly speaking, spirit underlies discourse. It is the Ground, the All. The background level of the Schenkerian tree, which contains everything, all discourse, yet which seems empty of content (Harvey, 1999a, p.37).

Harvey refers to the work’s concern with ‘breathing’ inspired by a line in a poem by the 16th Century mystic, St John of the Cross, translated by Allison Peers – ‘And in thy sweet breathing, full of blessing and glory,/How delicately thou inspirest my love!’ (Cross, 1977, p.18). For Harvey, ‘breathing’ implied not just a physiological function but also a mystical, metaphysical activity common to many religions, most noticeably in meditative practice, providing what he called a ‘sonic representation of

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81 Also known as the Feast of the Annunciation of the Blessed Mary in the Western liturgical calendar.
82 The Spring, or Vernal Equinox normally occurs on 19th, 20th, or 21st March each year.
83 Some translations (i.e. Gerald Brenan) refer to breath rather than the action of breathing.
emotion’ (Harvey, 1999a, p.38). There was an opportunity in *Madonna of Winter and Spring* to incorporate and depict breathing rhythms into the formal structure of the work - ‘in which inhalation comprised distinct form and the exhalation was luminescent, formless. Form and luminescent thus alternated in gently varying duration-spans of breath’ (Harvey, 1999a, pp.38-39). The manifestation of this is observable in the glissandi strings at the beginning of “Conflict” that separate the explosive orchestral events (i.e. presentation of the seven harmonic Spaces discussed in Example 1, Chapter 8).

So, although no primary literary source has been used as the basis for the work’s narrative, there are a number of themes that would appear to dictate it.

These are:

1. Steiner’s views on the inner nature of sound through a journey from discourse to spirit (as discussed in Chapter 8)
2. The dialectic of suffering and healing
3. Meditative ‘journey’ based on Vedic meditation techniques
4. The dialectic of ‘Masculine’ and ‘Feminine’ as relate to Steiner’s philosophies on Woman in Society
5. A symbiosis of Christian, Eastern and mystical spiritual and religious practices
6. The role of the Madonna (i.e. the feminine) in the above themes
7. St John of The Cross reference to the ‘breathing’ of God - and its connection with meditative practice

Common to all these themes is the presence of a dialectic - two potentially opposing factions or contrasting ideas/ideal. In the absence of an accompanying narrative text (i.e. as in *Passion and Resurrection*) it is purely Harvey’s treatment of the various musical elements, and therefore the musical character, that enables him to communicate this narrative to the listener.

Before evaluating the structure and form of “Conflict” in more detail, I shall first provide an overview of the musical character of each section as it relates to the overall narrative.
Madonna of Winter and Spring – Musical character of the four sections

“Conflict”

The first section lasts just under 8 minutes, and consists of 213 bars of intense musical activity – ‘one of Harvey’s most brilliantly orchestrated dance movements’ (Whittall, 1999, p.69). The instrumentation was reviewed in the previous chapter and shown to fully involve all available acoustic and electroacoustic resources. The section introduces the seven harmonic Spaces and the twenty Themes, and their relationship dominates the activity and provides the discourse. As the title implies, this section is all about closely argued discourse reflecting the ‘masculine’ world view, although the ‘feminine’ spirit is present, articulated through the electronics and diffusion, which, although perceivable, are relatively subtle at this stage.

“Descent”

The first section segues straight into “Descent” following a ‘swirling and battering climax at the end of Conflict’ (Harvey, 1986c), although its musical character is very different. Timbrally, it is dominated by the synthesisers, which perform slowly descending glissandi, identified by Harvey as a sliding augmented triad - an element of Space 2 (Harvey, 1986b, p.432). The overall effect is of a swirling downward movement to a state of stillness and emptiness, with increased use of diffusion and reverb, in sharp contrast to the commotion of “Conflict”. The predominance of electronic sounds in this section was closely allied to the narrative in that it enabled Harvey to: ‘explore the inner timbral life of the chord in a way which leads consciousness inward, away from the outer world of the discourse prevalent in the first section’ (Harvey, 1986b, p.432) – a practice he associated closely with Eastern music traditions.

Lasting approximately 6 minutes over 33 bars, the tempo gradually slows and the discourse reduces to such a state that one might consider the function of this section as somewhat perfunctory. Warnaby, who reviewed its first performance, suggested that ‘this effect has been created at the expense of the orchestra, whose sparse use is highlighted by the impact of its reappearance and more substantial form at the beginning of the third
section’ (Warnaby, 1986, p.22). The composer’s intention, though, was that the simplicity of this section left space for what he referred to as ‘other things’ – ‘here words fail, or at least are inappropriate. The experience of sinking, slowly falling, is essentially a psychic one; the intellect has little play’ (Harvey, 1986b, p.432).

Additionally, one might consider this a necessary ‘palette-cleansing operation’ to ensure that timbral and thematic impact and contrast is maintained and remains effective.

“Depths”

While the previous section marks a transition, which Harvey refers to as a ‘change of consciousness-gear’ (Harvey, 1986b, p.432), “Depths” is a static, frozen state with no specific direction and very little discourse – like a ‘dark night of the soul, almost empty of content’ (Harvey, 1999a, p.35). At just over 4 minutes long it is the shortest of the four sections. It is characterised by activity predominately in the lower register, primarily acoustic instrumentation, muffled timbres, and sparse thematic material drawing elements from the twenty themes perhaps heralding the return of thematic material in the last section. Bell-type timbres, both acoustic and electronic, feature, reminiscent of Mortuos Plango, Vivos Voco, and pre-empting their use in “Mary”. Within the meditative journey, this recreates the sense of emptiness required before blissful thoughts and feelings can emerge. In contrast to the previous sections, the tempo remains constant throughout at a unhurried 56 bpm, until the last few bars before “Mary”, where it slows almost to a stop.

“Mary”

The last section emerges gently out of “Depths” in sharp contrast to the work’s tumultuous and emphatic opening in “Conflict”. At just over 17 minutes in length, and 250 bars out of 550, it is the longest of the four sections. While retaining some of the delicate and spacious feeling of the previous two sections, it sees a return to thematic working which includes the introduction of a new melody – the 21st – and activity in a higher register in contrast to “Depth”. Musically, the section represents the notion
of ‘Mary’ for Harvey - the ‘Yin as opposed to Yang [i.e. the masculine nature of “Conflict”] – yielding as opposed to assertive – and imbued with the gentle redemptive feminine touch which characterises the beloved Christian figure’ (Harvey, 1986b, p.433). The end of “Mary” represents the objective of the meditative journey - that of complete transcendence - ‘a spring-like illumination, finishing (...) with something oceanic, mystical’ (Harvey, 1999a, p.35).

To reflect this final stage of the transition from discourse to spirit, there is an increased and more perceivable use of the electronics – and in particular diffusion. As Harvey puts it:

when the sounds are sufficiently transformed, or purely electronic, the removal from the easy, unambiguous picture of instrument and player is complete, and we are encouraged as listeners to be more attentive to the actual role of physical precept and its interface with structured form. Everything is called into question (Harvey, 1986b, p.433).

Warnaby saw a direct connection between Harvey's experiences as a chorister singing Tudor music and Eastern religious ideas.

When heard in a large church, where the natural reverberation disguises the source of the sound, this music approaches the transcendent condition with which the sacred musicians of the East are familiar. (Warnaby, 1986, p.23)

This increased use of electronics is identified in the score markings for “Mary” with numerous operator directions for electronics and diffusion in dramatic contrast to the previous three sections, with detailed directions taking place throughout much of the section. For example:

Bar 386 - PAN: becoming increasingly "spectacular" as the "dance" gets wilder...

Bar 420 - PAN: biggest spatial gestures (in sync with rhythms)

Bars 458 to 461 - Ring Modulation: Harp, Piano, Vibraphone Harp – fast alternation of RM – pan from one to another – not too loud (delicate)

The composer’s attention to detail in the manner of the directions reflect a desire to ensure that, whilst the gestures and treatment might be perceivable, the treatment is kept within a controlled and prescribed
boundary of operation. This is to ensure a direct link with the musical activity is maintained.

Unfortunately, such a methodological approach can be lost in translation. In his review of the work's first performance, Warnaby noted that the impact of this spatial dimension for the listener is at its most powerful within an auditorium (The Royal Albert Hall in this case), but does not transfer to stereophonic reproduction so effectively – ‘In the hall it was possible to hear sounds creeping stealthily across the “flying saucers”, but when the performance was rebroadcast such detail was lost' (Warnaby, 1986, p.23).

**Overall form**

Given the significance of the first and last sections within the whole work, both in terms of their musical activity and duration, “Conflict” and “Mary” could be seen as overshadowing 'book-ends' within the overall form of the work. It is possible to see a direct comparison of the work's form with that of *Passion and Resurrection* with its ‘masculine’ and ‘feminine’ two-part form. However, Harvey's objective in *Madonna* is not a two-part, or even four-part form but one of integration and cohesion. Whilst the ‘feminine’ nature dominates in the last section, its presence can be felt throughout – it is always there, typically through the appearance of electronic treatment. As the overall form is one of a meditative journey, the various identifiable stages of that journey are important in terms of effective communication to the listener. In that regard “Descent” and “Depths” have an important role to play and the relevance of each section is clearly defined through their musical character. Integration and cohesion is achieved through the manner in which the sections are linked, the unifying elements such as harmonic Spaces and thematic material, and approach to timbre and electronics throughout the work.

Before moving onto the form and structure of “Conflict” a brief mention regarding the composer's use of rhythm is required. Discussion in this and the previous chapters has focused primarily on musical parameters other than rhythm. This is not to specifically overlook Harvey's approach to rhythm within the work, but to recognise that its treatment is not
systemised in the manner that harmonic, melodic and timbral material is within the work. There is nothing to suggest, in either commentary or through my own analysis of the work, that Harvey devised a specific methodology for treatment of rhythm other than narrative aesthetic considerations. “Conflict”, as suggested by Whittall, is a ‘dance movement’, and one with a clearly different rhythmic character to “Descent”, “Depths” and “Mary”. The strident and contrasting rhythmic ideas presented in this first section serve to primarily enable the composer to explore the various dialectics discussed above. Harvey’s treatment of rhythm is, I believe, an aesthetic concern linked to narrative rather than an element of structural depth to be explored in its own right and therefore not discussed in isolation.

The structure and form of “Conflict” will now be considered in more detail.

“Conflict” – Form and Structure

An analysis of the first section “Conflict” was undertaken, the main objective of which was to ascertain the manner in which the musical material dictated the form and structure, and to identify strategies adopted by the composer. The analysis, which focused on the presence of thematic and harmonic activity within each bar, resulted in a table that revealed the presence, or otherwise, of each of the twenty themes, and the seven harmonic Spaces. The rationale for this approach was that Harvey had used the twenty Themes and the seven harmonic Spaces as the basis for more or less all the music material in “Conflict” - as discussed in Chapters 5 and 6. In the composer’s words: ‘...there is much less that is not made of this material. There are few transitions, bridge passages and the like’ (Harvey, 1986b, p.431). The resulting table provided a visual basis through which to identify patterns of activity.

Overall form of “Conflict”

Commentary on “Conflict” by the composer, and other writers including Whittall and Warnaby, typically only makes reference to two specific areas of activity and these are the introduction of the Spaces at the start of the work, and the simultaneous presentation of the twenty Themes. However,
the analysis revealed five recognisable stages or ‘phases’ of activity (shown in Figure 104) related to the treatment of thematic and harmonic material suggesting a strategic and methodological approach to the presentation of musical material.

![Diagram of the five phases of activity](image)

Figure 104 Key 'Phases' in "Conflict"

The analysis revealed that each of the five ‘Phases’ could be further described in terms of specific thematic and harmonic activity that implies an organised and designed approach to structure and form.

**Introductory Phase: Bars 1 to 19**

The first identifiable phase within "Conflict" covers the first 19 bars of music within which there are three recognisable subdivisions that can be grouped together as a form of preliminary activity (see Figure 105)
Figure 105  Analysis of Bars 1 to 19 showing thematic and harmonic activity grouped as three sub-divisions within an 'Introductory Phase'

- Bars 1 to 5 cover the introduction of the seven harmonic Spaces in sequence, interspersed with 'breathing' portrayed by glissandi strings. Each Space is heard as a single explosive semi-quaver event across all instruments. There is no thematic material in these 5 bars.

- Bars 6 to 11 present Theme A, in its entirety, in the woodwind. As discussed in Chapter 6, this Theme is based on Space 1, and therefore suggests that particular harmonic Space, although its presence is reinforced by a single semi-quaver in each bar in the strings and horns. The orchestration is fairly unsophisticated with thematic and harmonic material presented in its simplest form.

- Bars 12 to 19 see each Space (1 through to 7) reintroduced in sequence, each explored across a single bar. In contrast to the first 5 bars, the harmonic Spaces are now heard as disintegrated or broken up across different instrument timbres. As with the first 5 bars, there is no thematic material evident.

The overall impression of this first phase is an introduction for the listener to the various elements of the entire work in sequence – almost as if the whole of “Conflict” has been condensed into 20 bars in the form of an ‘overture’. I believe Harvey's objective here is the form of a didactic exercise – to help the listener understand and contextualise the musical elements at play. All the harmonic Spaces, and therefore all the harmonic material are presented in two different forms, together with an ‘example’ theme. The harmonic progression reflects that of the entirety of “Conflict” – as will be shown below. Harvey often commented on the importance of the relationship between the composer and their audience: a chapter is devoted
to the subject in his book *Music and Inspiration*. As Harvey puts it: ‘If music is communication, then the identity and nature of the second party involved in the communication process – the audience – is crucial’ (Harvey, 1999b, p.83).

**First Thematic Phase: Bars 21 to 98**

This phase is dominated by thematic working as Harvey explores each of the first ten themes (A to E+F) over 77 bars of music. The themes are presented typically in their entirety, as outlined in Chapter 6, and attached to a particular instrumental timbre. Harmonically, these themes suggest Spaces 1, 2, and 3, which could, given the specific role of Space 7 (not used as the basis for any of the twenty themes), be viewed as the first ‘half’ of the harmonic Spaces.

The themes are presented more or less in ‘alphabetical’ sequence (i.e. from A to E+F) as follows:

- Bars 23 to 35: Theme A+B
- Bars 38 to 47: Theme D+E
- Bars 52 to 56: Theme A and Theme B
- Bars 57 to 68: Theme B+C, Theme C, Theme C+D, Theme D+E
- Bars 69 to 79: Theme B+C and Theme C+D
- Bars 80 to 87: Theme E and Theme E+F
- Bars 88 to 98: Theme C+D

As identified in the previous chapter, Harvey uses a number of different methods for thematic dialogue: sometimes within the same timbral group (i.e. String section in bars 23 to 35), or between two different timbral groups (i.e. String section and Flute/Clarinet in bars 52 to 56). There is a noticeable increase in the amount of electronic treatment of timbre (i.e. diffusion, reverberation and ring modulation) as the section progresses, with discourse between thematic material on acoustic instrument timbres and harmonic material through electronic timbres and treatment.
**Middle Phase: Bars 99 to 117**

This section is positioned at the mid-point of “Conflict” and is marked by the presentation of multiple themes concurrently (as mentioned in Chapter 6). This follows a brief section (Bars 99 to 108) where Spaces 1,2,3,5 and 6 are reintroduced in sequence across all timbres followed by a ‘breathing’ section (Bars 109 to 110) of glissandi violins that recall the opening of “Conflict” and pre-empt the presentation of multiple themes. Harvey makes reference to an instance where ‘all 20 are played simultaneously by solo violins’ (Harvey, 1986b, p.431). However, he provided no specific idea as to the location of this event, although it would appear there are two possible occurrences – one in “Conflict” at Bars 111 to 117, and a lengthier episode in “Mary” at Bars 340 to 384. The later occurrence would appear to use all twenty Themes (and therefore the more likelier candidate for his reference) whilst that in “Conflict” there are, by my reckoning, only 15 of the Themes evident (as shown in Figure 106)

<table>
<thead>
<tr>
<th>Bar No.</th>
<th>111</th>
<th>112</th>
<th>113</th>
<th>114</th>
<th>115</th>
<th>116</th>
<th>117</th>
<th>118</th>
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<tbody>
<tr>
<td>A</td>
<td>VI2.3</td>
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<tr>
<td>B</td>
<td>VI1.7</td>
<td>VI2.7</td>
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<tr>
<td>C</td>
<td>VI1.3/2.6</td>
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<td>C+D</td>
<td>VI2.5</td>
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<td>E+F</td>
<td>VI1.6</td>
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<td>F+G</td>
<td>VI1.5/Ob1/2</td>
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<tr>
<td>G</td>
<td>VI1.2/2.7 &amp; Vla2/3 &amp; Horn 1</td>
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<td>G+H</td>
<td>VI2.2/Cor Ang</td>
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<td>VI1.8</td>
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<td>J+A</td>
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**Figure 106 Concurrent Themes at Bars 111 to 117**

Two Primary Themes (F and H), and two Secondary Themes (B+C and H+I) do not appear to be directly represented, although their presence is implied through the relevant neighbouring Secondary (E+F and G+H) and Primary
Themes (B, C, and I). The overall effect of this section, and of the corresponding one in "Mary" is, by its very nature, texturally dense, potentially confusing and chaotic. One is aware that thematic material is involved, but it is difficult to draw out, or follow any specific melodic thread. As each theme is associated with a specific Harmonic Space, or Spaces, all 6 Spaces are represented concurrently, making the section both melodically and harmonically dense. Therefore, no one melody or harmony can be viewed as being more or less important. For Harvey, these sections had a specific objective – that of unity. Commenting on this particular effect within *Madonna*, he referred to seeking ‘an oscillating foreground/background shifting quality, the strands, all equal, being now perceptible in the weave, now merged into a larger whole’ (Harvey, 1986b, p.431). This section in “Conflict” has, I believe, one other role that relates to its strategic positioning within the structure. At almost exactly the halfway point of “Conflict”, it marks the end of the First Phase of thematic discourse (Themes A to E+F) and the beginning of the Second Phase of thematic discourse (Themes F to J+A). Its positioning, therefore, must be of some importance beyond that of a simple structural device. It could be viewed as an opportunity to reinforce the idea that these melodic ideas have a grander and more humble purpose. Harvey had referred to these melodies as not being ‘heroes in the classical sense’ (Harvey, 1986b, p.431) and its positioning midway allows the second set of themes to be heard in that context.

**Second Thematic Phase: Bars 121 to 155**

This Second Thematic Phase is very similar to the First Thematic Phase described above in that it is structured through thematic working. However, where most of the dialogue is between thematic material in the First Phase, there is now an increase in the amount of supporting instrumentation that uses the Harmonic Spaces associated with the relevant Theme. Thematic discourse is centred on material from the second half of the twenty Themes – from F to J+A - which by association relates to harmonic material of Spaces 4,5 & 6. Discourse between thematic material is in a manner similar to that in the First Thematic Phase, although this section is half the length at only
34 Bars. As discussed in Chapter 6, the second set of Themes is conspicuously simpler, and less obviously ‘melodic’ in nature. This twinned with an increase in the Harmonic Space activity sees an increased sense of harmonic rather than melodic activity. This includes towards the end of the section the re-introduction of Harmonic Spaces 1, 2 & 3, which are more associated with the first set of Themes. The overall impression, therefore, is that the dialectic between thematic material is less confrontational (ambiguous) and that a sense of balance is being approached. This section is characterised by the use of almost no electronics, suggesting that this sense of balance or resolution (moving away from conflict) is being achieved within the discourse and not yet the ‘spirit’. Categorisation of sub-divisions through identification of thematic material is less definite than that for the First Thematic Phase primarily due to the character of the second set of themes and the increase in harmonic material. However, the following sub-divisions were discernable indicating a formal structure for the presence of the themes, and the use of the harmonic Spaces as discussed above.

- Bars 123 to 126: Themes H, G and G+H, harmonic Spaces 4 & 5
- Bars 127 to 138: Theme I, Harmonic Spaces 5 & 6, and from Bars 134 to 138, Harmonic Spaces 1, 2, 3, 4, & 6
- Bars 140 to 145: Harmonic Space 1
- Bars 146 to 150: Theme G
- Bars 153 to 155: Themes I & H

End Phase

The last identifiable phase of "Conflict" is characterised by the reintroduction of the Spaces in sequence in a 'harmonic' progression, eventually leading to the introduction of the Harmonic Space 7 at the conclusion of the section. This recalls the Introductory Phase, which was the last time that this particular Space was used. Over this 'harmonic progression', melodic material from across the set of twenty themes is presented, eventually giving way to arpeggiated material before reaching a
final ‘fanfare’ section - based on Harmonic Space 7 – which marks the start of the “Descent” section.

There are four sub-divisions recognisable in this End Phase:

1. Bars 157 to 173 cover the progression of Spaces 1 to 6, with Themes E, E+F with associated Spaces 3 & 4, and Themes J & J+A with associated Spaces 5 & 6. In contrast to the use of thematic material elsewhere, harmonic material is presented first, and thematic material, which is based on the same Harmonic Space, ‘emerges’ out of the harmonic ‘background’. The two sets of Themes used here are not arbitrary as they reflect numerically the middle Themes (the 9th and 10th in the sequence) and the end Themes (the 19th and 20th).

This allows Harvey to wait until the harmonic Spaces are established before reintroducing thematic material (See Figure 107). This presents a sense that the harmonic material (i.e. the spirit) is becoming the more dominant presence, but that the thematic material (i.e. the discourse), although still evident, is becoming one with it.
2. In Bars 174 to 198, we see the simultaneous presentation of two or three Themes in a form of counterpoint spread across many timbres in contrast to the more timbrally distinct discourse that characterises the First and Second Thematic Phases (see Examples in Chapter 8). Themes used are now representational of all twenty Themes as distinct from earlier discourse that referred to a smaller set (i.e. first 10 Themes). For example, in Bar 175 we have Themes A, C and F+G, and in Bar 181, Themes G, I and J+A. This provides further evidence that Harvey's objective here is to diminish or neutralise the strong characters that the thematic material represent. This could be analogous to conflicting ideas and thoughts eventually being calmed through the meditative process. This move towards a more spiritual sentiment is further evidenced through increased diffusion activity with circular panned movement of Horn and Cor Anglais.

3. At Bars 199 to 207, there is sense that we are reaching a climax, as Harvey introduces a new 'thematic' device that gradually dominates the music. This 'thematic' device develops out of the mordant/chromatic pattern at the end of Theme I – which ends the previous sub-division. This pattern eventually develops into a falling and rising arpeggiated pattern based around the notes from Spaces 1, 2 or 5 with the movement of the instruments falling in sync. This infers that, within the meditative process, the thematic ideas that formed the basis of “Conflict” have been ‘ironed out’ and that unity pervades.

4. Bars 208 to 212: In the final sub-division of “Conflict”, the rising and falling arpeggiated patterns used in the previous few bars are now based around Space 7 – harmonically, the last in the sequence and importantly, of a harmonic character that it not associated with any of the Themes. The first phase of the meditative journey is complete and ready for the ‘descent’ to emptiness.

Harvey uses the harmonic Spaces and the thematic material to structure and organise the harmonic progression and thematic discourse in “Conflict”.
There is a methodological approach to his use of this material, in that, in addition to restricting musical material to the twenty Themes and the seven harmonic Spaces, the material is presented in a sequential pattern that dictates the form and structure. Harvey’s use of a sequential methodology is linked to the cyclic nature of Melodic Chains (as discussed in Chapter 6) – and the manner in which they provide a sense of movement forward. This is evident throughout “Conflict”, although in terms of purely harmonic progression it is most evident at the start and end of the section. There are parallels with a sonata form, in that the End Phase – or ‘recapitulation’ recalls the sequence of harmonic Spaces in the Introduction Phase or ‘exposition’, and that the two Thematic Phases separated by the Middle Phase represent a ‘development’ of thematic material. However, the ‘development’ relates to the nature of discourse rather than thematic development, as the Themes remain more or less intact. Throughout all of “Conflict”, Harvey uses the Melodic Chains and the harmonic Spaces, either in isolation, or as suggested by the relevant Theme to move the activity forward – comparable to traditional tonal harmonic progression.

The five different phases within “Conflict” suggest musically the different sections of the first stage of the meditative journey that will ultimately reach its conclusion in “Mary”. This first stage of the meditation is initially a very physical, corporeal process with ‘masculine’ earthly concerns dominating. This is portrayed through the explosive introduction of Spaces, and the ‘breathing’ suggested by the glissandi strings. Various ideas and thought trails occupying the mind are presented in the form of thematic discourse flowing from one idea to the next. The discourse remains true and believable through concepts of unity and ambiguity. By this, I mean that the potential extremes of the dialectic are controlled and work within a framework – the electronic treatment of acoustic timbres remains connected in some way to the original sound and its source.

Throughout the discourse, ‘Mary’ is present in one form or another – either through the harmonic Spaces that support the thematic material or through the electronic treatment that enables acoustic instrument sounds to adopt a sense of numinosity. Towards the end of the final phase, the thematic
material eventually gives way to arpeggiated harmonic material (i.e the 'spirit') unified in terms of movement and rhythm, and absent of any thematic ideas or discourse. The presence of the harmonic Space 7, suggesting that a point of conclusion, at least at this stage in the meditative journey has been reached.

It is the use of a strict and carefully defined form and structure that enables Harvey to articulate his ideas musically – providing a framework on which the narrative can be communicated effectively. It is the nature of this framework – i.e. the structural depth - that will be discussed in the final chapter.
CHAPTER TEN: STRUCTURAL DEPTH

A structure becomes architectural, and not sculptural, when its elements no longer have their justification in nature

Guillaume Apollinaire (1880-1918)

Harvey made a number of references to the importance of structural depth to his compositional aesthetic during his career. In his 1999 interview with Whittall, he referred to his reasons for going into High Modernism in the late 1960's as being ‘an urge to find greater structural depth’ (Whittall, 1999, p.8). A few years later, in 1976, he referred to his music being ‘increasingly concerned with a quest for structural depth (in the Schenker tradition, maybe)’ (Harvey, 1976, p.125).

Prior to the influence of Babbitt and Stockhausen, he had written a number of works, including Four Images after Yeats, Ludus Amoris amongst others, that ‘were intentionally emotional, mystical pieces (...) strongly influenced by the desire to achieve dark and strong states of intense experience’ (Whittall, 1999, p.8). However, he felt that these abstract expressionistic ideals needed to be balanced by a return to ordered classical attitudes – to ‘swing the pendulum back a little bit towards classicism’ (Whittall, 1999, p.8). His in-depth Schenkerian studies of Haydn, Mozart, Beethoven, and Schubert during the 1960s had revealed connected structures and layers, and made him question whether such layers or levels existed in contemporary music – did the approach of these classical composers enable them to facilitate a more effective means of communication?

Throughout his compositional career Harvey reflected carefully on the relationship between composer and audience – ‘composers (...) do not work in a vacuum: their music is, with certain rare exceptions, to be heard, and the process of performing and reception that this entails are themselves influences in composition’ (Harvey, 1999b, p.81). Attention to detail within many of his compositions, for example, intricate performance markings, careful use of electronics with live performers, sophisticated diffusion methods etc. suggest the importance Harvey placed on understanding how his music might be received. One can see parallels with his mentor Britten in the sensitivity with which the needs of the audience are embraced. The
highly ordered techniques of High Modernism suggested to Harvey parallels with Classicism – and therefore ways in which the effectiveness of the composer/audience relationship might be enhanced. As Harvey put it, the aim was ‘to see if I could find in some of the theories of Stockhausen and Babbitt a way to increase the intricacy of pattern, of perceptible meaning that one draws from the listening experience’ (Whittall, 1999, p.8). However, his fascination with structural depth at that time did not accord with the views of many of his peers:

Once after I had given a lecture about Schenkerian principles of structural deep unity, the English composer Robin Holloway objected: “But it is the varying surface which is important, it is that which attracts and delights.” Lutosławski likewise used to emphasise that “the quality of the ideas is everything” – deep structural thinking is secondary (Harvey, 1999a, p.27).

For Harvey, the problem was that narrative and plot were primarily being described in terms of verbal language or visual concepts – something he viewed as ‘borrowed perspectives’ and ‘inadequate for music’ (Harvey, 1999a, p.27). One could not, in his view, describe the structure of music through these types of discourse. It was, in his words, ‘something much more profound, mysterious, and difficult to get at’ (Harvey, 1999a, p.27). Despite the challenge this presented, it was, he felt, his job as a composer to attempt to redefine structure depth. As discussed in Chapter 9, it was his ‘obsessive song’ to understand how narrative might be manifest. The role of narrative and its effective communication was of great importance to Harvey, and a new approach to structural depth offered a stratagem in which he could be confident. As the 1960s drew to an end, Harvey embarked on a mission to understand how this ‘intricacy of pattern’ - this ‘greater structural depth’ might be realised.

Discussion within this thesis has been on the basis that the consequence of this mission or journey of Harvey’s was, in some way, crystallised in *Madonna of Winter and Spring*. This outcome was not purely the result of his initial interest in High Modernism, but influenced by various stimuli that shaped and developed his compositional aesthetic over a sixteen-year period between 1970 and 1986 – what I have referred to as his mid-period. This phase commences with *Time-points*, a serial tape work in the manner of Babbitt written in 1970; through pre-IRCAM works such as *Round the Star*
coherent means who play tutors English chapters. Further School, Princeton, didactic provided. the activities Prior considered can familiarity Harvey including the composed and & be seen Back Light Analysis; (1974), and the Inner Light trilogy (1973-1977); the IRCAM works composed in the early 1980s, Mortuos Plango, Vivos Voco, Bhakti, and Ritual Melodies; and a number of key works written around the same time including Passion and Resurrection (1981), Ricercare una Melodia (1984) and Song Offerings (1985); culminating in Madonna of Winter and Spring (1986). Analysis of these works, amongst others, within the thesis revealed the growing importance of a number of compositional methodologies including the use of axial symmetry, serial techniques and melodic chains. Harvey did not claim to be the originator of these approaches, and a familiarity with works by Webern, Messiaen, and Stockhausen in particular can be seen to have influenced his approach. Additionally, these works were considered within the context of the influence of various people with whom he had contact, including Britten, Keller, Stein, Babbitt, and Stockhausen. Prior to this period, and throughout it, Harvey was to undertake a number of activities which can been seen to have had a influence, not just in terms of the people with whom they were associated, but also the environment they provided. His time at Princeton exposed him to the exciting potential offered by computers and electronics, something he further explored at IRCAM. His didactic approach was well suited to the academic surroundings at not just Princeton, but also encouraged through teaching posts at the Universities of Southampton and Sussex, providing him with an atmosphere conducive to both the detailed study of various composers including the Second Viennese School, alongside opportunity for compositional experimentation. Two further aspects of his life have been referred to during the preceding chapters. Firstly, the manner of his upbringing, especially contact with English choral traditions during his schooling, and the influences of his tutors Stein and Keller; and secondly, the role that the writings of Steiner played in shaping his compositional methodology. In this final chapter, I will be presenting the idea that it is the influence of the Austrian philosopher who acted as the catalyst for the development of Harvey's approach to structural depth, and provided the rationale for his approach, primarily as a means by which he could join the various influences identified above into a coherent ideal. Harvey acknowledges the importance of Steiner, and the Inner Light trilogy is one work dedicated in his honour. However, I believe that while in time Eastern religious practices became more important to
Harvey, a number of Steiner tenets can be shown to have underpinned his compositional aesthetic for this mid-period – and this will be explored through their relationship to the key themes that have arisen out of the discourse.

**Schenkerian layers and structural depth**

Before discussing the specific themes it is appropriate to consider the relevance of Schenkerian layers, as Harvey viewed it, to the discussion of structural depth. At the beginning of this chapter reference was made to why Harvey looked to High Modernism as a possible solution to understanding where the equivalent to Schenkerian layers might be in contemporary music. He suggested that on hearing a work a number of times these might be revealed - ‘surely you should constantly find new levels that are coherent, all nested one above the other, implicated in the music as it unfolds?’ (Whittall, 1999, p.8). This thinking was gaining some momentum in the United States, indicative perhaps, as Griffiths suggests of a ‘postwar distrust of irrational genius (whose effects had been witnessed)’ (Griffiths, 2010). This was especially the case for Babbitt, as Griffiths observed:

> If tonal masterpieces could be shown to be full of structure unsuspected of the naive listener, it might well be possible that consciously evolved serial structure, though not identifiable by the unaided ear, would nevertheless contribute to music being perceived as homogenous and purposeful (Griffiths, 2010, p.67).

As was discussed in Chapter 7, Harvey was to find Babbitt’s total serialism ‘too intellectual’ and ‘too dependent on learning’. He was unable to identify the structural depth he was searching for: ‘It didn’t take into account the natural impulses of musical perception, how we connect and what we perceive, sufficiently into account’ (Whittall, 1999, p.9).

Harvey moved on quickly from total serialism as a possible solution, and was to only write one piece of music, *Time-points*, that might be considered strongly influenced by ideas of Babbitt. He was soon considering ideas espoused by Stockhausen and Messiaen – including global time and the ‘aspect of music as space’ (Whittall, 1999, p.9). However, some of the ideas suggested by Schenkerian philosophies had, I believe, taken hold, and were to have an important influence on his continued search for structural depth.
It was not, in my opinion, the specific types of hierarchical levels and layers revealed through Schenkerian analysis of tonal music that interested Harvey, but more the opportunities that this type of thinking might offer a purposeful and coherent interpretation of non-tonal music.

Schenker considered concepts of ‘unity’ and ‘organicism’ to be fundamental to his theory of hierarchical musical space. Unity within a work needed to embrace both surface identity – i.e. what is immediately apparent to the listener in terms of activity or meaning – and that which is beneath the surface – i.e. the internal workings:

It would seem that one of the crucial goals of hierarchical music theory is to weld the surface of a musical work into a seamless totality – to provide it with structural identity (Fink, 1999, p.106).

The concern with some contemporary music (especially that considered postmodernist) was that this ‘surface’ was becoming increasingly detached from the inner structure, and was becoming the primary medium for meaning – what Fink described as music that ‘exalts surface and flouts depth’ (Fink, 1999, p.103). This is, I believe, central to Harvey’s approach, in that he desired to present a unity that facilitated a total integration of the hidden interiority (background) and the surface (foreground) – something akin to that he felt was evident in classical music.

Also of interest to Harvey was the idea of ‘organicism’ – the idea that growth has a fundamental purpose, and leads to a specific outcome. This is often connected to the idea of simple elements (i.e. cells) being part of a larger whole (i.e. body). There are parallels with Steiner’s views on the study of science and nature in this regard as will be discussed below. What Harvey hoped to achieve was a unity, achieved through structural depth, that embraced musical elements (i.e. pitch, harmony and timbre), and that was fully integrated with musical meaning or narrative. The central precepts of Harvey’s opinions on these ideas can be traced back to a few years before he went to Princeton. In Music and Inspiration, which in its first form was his 1964 doctoral thesis, Harvey provides some insight into his views on the importance of order to unity:

The link between unity and order is obvious: music cannot be unified if it is not ordered. Unity implies something more: not only that the elements of
the work are logically consistent and connected, but also a more profound sense that each contributes to a single whole, and that the effect of each part is in proportion with and subordinate to the requirements of that whole (Harvey, 1999b, p.138).

Through the use of a carefully constructed structural system Harvey was able to bring together various ideas and themes within a unified whole. However, this unity was achieved not through a hierarchical system suitable for tonal music, but one suitable for non-tonal music as will be shown below. Elements of his methodology, and its evolution, are evident in a number of mid-period works, with Madonna of Winter and Spring representing a pinnacle of achievement in this regard. Analysis of compositional sketches and the score showed the extent to which the structural system governed activity – there is very little in terms of variation or new material introduced. His approach to achieving this type of total integration was to use a plural of unities, i.e. identifiable unity within different musical elements that can be further linked into a coherent whole.

Unity

Within Madonna of Winter and Spring, concepts of unity are evident in the harmonic, melodic and timbral material. These plural unities are, in turn, part of a larger coherent model that links these musical elements to each other, and importantly to the narrative. It is the use of a structured approach to the design and implementation of these musical elements that provides the unit. Each of these musical elements, and their relevance to Madonna of Winter and Spring, and earlier influential works by Harvey, has been the focus of discussion in the previous chapters.

Harmonic Material

Chapter 5 examined Harvey’s use of axial symmetry as a system by which to define all harmonic material within Madonna of Winter and Spring. In Chapter 3, it was shown that Harvey had used this technique in a number of earlier works, including Round the Star and Back, the Inner Light trilogy, Passion and Resurrection and Bhakti. It appealed to Harvey for its ability to liberate the bass from its gravitational pull on harmony, and suggest ‘floating’ transcendental meaning. Despite its potential to suggest metaphysical states, even atonal music in Harvey’s view, was not freed from
this rooted presence - ‘my ear suspects that in such music the bass is still struggling at the bottom, alienated and bearing an enormous tension of dislocated dissonance’ (Harvey, 1982, p.3).

The system Harvey used was based closely on techniques used by Webern, Bartók and Messiaen where a symmetrical vertical aggregate of pitches is constructed around an axis. As shown in Chapter 5, each Space was strictly defined in terms of its construction, and their implementation in Madonna of Winter and Spring true to the compositional sketches. By implementing a strict ordered system of mirrored intervals he was able to create a number of different harmonic Spaces around the same axis, thereby providing each Space with its own harmonic identity. The use of 12-note aggregates immediately on either side of the axis ensured that any sense of hierarchy or tonal character was avoided. Each Space was, in effect, its own unified element – whether presented in its entirety (i.e. as at the beginning of “Conflict”) or in a simpler form of select notes to accompany thematic material (i.e. as the Second Thematic Phase in “Conflict”).

The use of a limited set of intervals for each Space provided the composer with a set of tonal harmonic equivalents, which could be used to suggest harmonic progression or movement – analogous perhaps with Schenker’s Ursatz or fundamental structure. Likewise, there are parallels with concepts of organicism through the use of the single axis (i.e. seed) from which vertical aggregates build (or grow).

The analysis of “Conflict” undertaken in Chapter 9 revealed a clear underlying structure for the use of the harmonic material and the harmony suggested by the use of particular themes. Typically this was revealed through the sequential presentation of the Spaces, either across a few bars (i.e. at the opening) or over a longer period (i.e. during the First Thematic Phase). The use of an ascending/descending scale of semitone intervals (as discussed in Chapter 5) to define the initial intervals on either side of the axis link these Spaces together forming a ‘family’ of related harmonic material. The progression is ultimately resolved through the use of the F axis for Space 7. In Harvey’s use of a scalar progression, and a point of resolution or objective one can see similarities with Schenker’s concept of
Urline or fundamental line. The opportunity to present a horizontal harmonic unity was important to Harvey in how a listener might respond to the work as they search for the experience of wholeness:

As one moves through a piece one knows well, one tastes the delicious flavour of unity (if the piece encourages it); one is moving and moved, yet also still, part of a promised harmony. At the end, the profound satisfaction of a mysterious insight possesses one (Harvey, 1999a, p.32).

There is unity, therefore, of the harmonic material, both in a vertical and horizontal sense. These plural unities are also linked to the thematic, timbral and narrative material as will be shown below.

**Thematic Material**

Harvey considered his interest in thematic workings, and memorable melodies, as very much against post-modernist thinking with its ‘pattern as continuum rather than articulated melody’ (Harvey, 1986b, p.431). As discussed in Chapter 4 he had used melodic chains in an earlier work, *Ritual Melodies*. This particular work had used a harmonic series (based on G0) for the pitch elements of the melody – analogous to the use of a tonal harmonic framework. For *Madonna of Winter and Spring* he used the harmonic Spaces as the source for all pitch material within the Themes – the nature of the relationship of which was discussed in Chapter 6. This allied the thematic material closely to the harmonic material thereby linking the unities present in each into a single unity. As with the harmonic material the unities can be described in terms of both vertical and horizontal relationship. Each monophonic theme was carefully constructed from the pitches of a specific Space or Spaces, and the notes and rests laid out to such a design that neighbouring themes could slot together to form a new monophonic melody. The mechanics of this were looked at in some detail in Chapter 6.

The relevance to the discussion here is that a unity in a vertical space is observed. This can be seen at Bars 53-57 in the creation of Theme A+B through the interaction of Theme A in the Flute and Clarinet and Theme B in the Strings (see example 4 in Chapter 6). Further vertical unity is evident where a large number of themes are presented concurrently – as seen at Bars 111-118. The use of thematic material in this form, what Harvey referred to as ‘texture fodder’ (Harvey, 1986b), was to create an ‘oscillating
foreground/background shifting quality, the strands, all equal, being now perceptible in the weave, now merged into a larger whole’ (Harvey, 1986b, p.431). By using a melodic chain structure, whereby one melody effectively flows into the next, unity is also present in a horizontal space. Additionally, by referencing the harmonic Spaces in sequence throughout the construction of the themes, with a return to Space 1 evident in the 20th Theme (J+A) Harvey creates a way to effectively unify all the themes within one extended theme.

Timbral Material

Within Madonna of Winter and Spring different types of timbral unity can be identified - both in terms of thematic and harmonic material. As with thematic and harmonic material this is observed in both vertical and horizontal planes. As shown in Chapter 8, the relationship and dialogue between acoustic and electronic timbres is carefully structured. Decisions based on the different types of timbre used, the number of performers, and performance instruction are all based on ensuring that timbral variation works within a specific framework. For example, piano and harp timbres are often extended timbrally by similar acoustic instrument types such as pitched percussion. These particular sounds are further enhanced through use of synthesised equivalents (i.e. prepared piano type sound), or treated using ring modulator. This provides a continuum from a simple acoustic instrument to a more timbrally complex sound, often subject to diffusion. These work within carefully demarcated boundaries that ensure that the sounds remain connected through a vertical unity. Harvey’s preference for synthesisers, and electronic treatment, rather than the use of magnetic tape further indicated the importance with which the composer considered a sound’s physical origin, and how it was perceived by the listener. Harvey had used tape for a number of earlier works, including the Inner Light trilogy, Mortuos Plango and Bhakti, but around the time of Madonna of Winter and Spring he was beginning to show a preference for live electronics as was discussed in Chapter 7. For Madonna of Winter and Spring he wanted sounds to be conceptually as pure as possible to maintain a believable sense of unity - the use of sounds on tape might have introduced timbres too disconnected from the acoustic sounds.
Harvey also achieves a sense of timbral unity across a horizontal plane. This is evident through timbral treatment of sounds, both acoustic and electronic, across time. For example, the variation of timbre through the use of mutes within a single timbral group, percussive performance technique such as scraping, and diffusion treatment such as panning all facilitate the linear presentation of material in a extended or enhanced timbral form. It is also evident in the use of reverberation to catch an orchestral moment and freeze it for an extended period of time.

Harvey has used the terms ‘fusion' and ‘fission’ in discussion relating to his use of timbre, as was discussed in Chapter 7. Stockhausen's influence is evident here, though such works as *Gesang der Jünglinge*. Both terms imply unity – either as a mechanism for deconstructing a whole into its parts, or merging elements into a whole.

**Narrative**

Underpinning all the musical activity described above is the narrative. For the work to have the coherence Harvey desired the narrative needed to be integrated completely into the structure of the work – not just as a disconnected 'surface', to use Schenkerian terminology. Chapter 9 considered the importance of narrative within his compositional aesthetic, and the extent to which narrative dictated musical activity. Its influence was shown, in Chapter 9, to permeate every aspect of the work, and at a macro and micro level. The large-scale form of the work, through its four sections, was shown to be clearly influenced by the metaphorical meditative journey. Harvey's structured and restrained use of timbre and instrumentation reflected different aspects of 'spirit', and the 'Feminine', with electronics used to present this numinosity at its most intense. In “Conflict” discourse between thematic material presented the encounter between different ‘Masculine' ideas occupying the mind of a meditative individual. The harmonic Spaces, and their progression reflected this meditative journey – with the sequence leading ultimately to Space 7. On a smaller or micro scale the use of axial symmetry and vertical aggregates reflect the idea of a ‘pure’ and ‘floating’ sound free from the gravity of bass – and a unified whole - a construction of its parts.
Key to the effectiveness of dialogue and unity in *Madonna of Winter and Spring* was the concept of ambiguity, a concept that Harvey had explored in a number of earlier works including *Ritual Melodies, Bhakti* and *Mortuos Plango, Vivos Voco*. Harvey's use of this concept in *Madonna of Winter and Spring* was discussed in Chapter 8. He recognised that to consider unity one had to first portray ambiguity – as he put it 'Unity contains ambiguity' (Harvey, 1999a, p.32). To reinforce his point, he referred to a quote from Albert Low, the Canadian philosopher and Zen master - "Music does not express emotions. Emotion is the response to ambiguity, the multiplicity of Unity" (Harvey, 1999a, p.32). This ambiguity is evident throughout the structure of the work. However, can ambiguity be considered compatible with a hierarchical structure?

Harvey's use of a structured system that impacts on a micro level and a macro level implies 'depth' of activity. The scope of this depth has been the focus of discussion in the preceding chapters – the construction of the harmonic Spaces, the design of the thematic material, the strategy for timbre and instrumentation, the use of electronics, and the narrative approach – can all be considered in terms of functioning at many different layers or levels within the structure. However, rather than Schenker's hierarchical system, an interchangeable background and foreground is evident. Thematic material emerges from the background, harmonic material takes a foreground presence through electronic treatment, feminine 'spirit' is present though 'hidden' at the opening, but is manifest in the foreground later in the work. For Harvey, as with narrative, ambiguity needed to influence all aspects of the work's structure.

His interest in Schenker though goes beyond the development of an analytical model, as this revealing extract from Harvey's *In Quest of Spirit* demonstrates:

> It is interesting to note that the thinker who has come to be known as a revealer of Western tonal music's unity in complexity in the most fundamental way, Heinrich Schenker, had an important guide in scientific writings: specifically, those of Goethe – who wrote "to separate the unified, to unite the separated, is the life of nature. This is the eternal ... inhaling and exhaling of the world in which we live, breathe and exist." Goethe's famous vision of the prototypical Urphänomen was a spiritual, yet at the same time real - "with-my-own-eyes"- aperçu: a flash of insight that came
after long contemplation of types of plant or animal or mineral (Harvey, 1999a, p.25).

Harvey saw a connection between this ‘process’ and Schenker’s ‘vision of fundamental unity in music’ (Harvey, 1999a, p.25). The above citation is also revealing it that it links Schenker with Goethe, and therefore with Steiner.

Steiner

The influence of Steiner on Harvey’s compositional aesthetic has been referred to at various points throughout this thesis, and in particular in Chapter 7 in relation to his approaches to instrumentation and electronics. Through his writings Steiner introduced the composer to a number of key themes and ideas that enabled Harvey to bring together key concepts that underpinned his work, and explained their relevance within a coherent whole. Early in his career Harvey had incorporated metaphysical ideas into his work, e.g. *Four images After Yeats, Transformations of ‘Love Bade me Welcome’*. However, these were probably considered by Harvey as ‘surface’ narratives at best – the metaphysical ideas did not permeate into the inner musical structure. Steiner’s concepts of inner nature of sound, and references to accessing windows to ‘wonderful worlds’ provided a way to reconcile the various musical techniques, such as axial symmetry, and use of electronics, with these concepts. Steiner’s views on understanding the nature of sound and unity, by starting with ‘the generality and finish with the detail’ (Whittall, 1999, p.14) provided Harvey with a rationale for resolving musical and metaphysical ideas within a single model. This was important to Harvey, as a musical structure on its own was meaningless:

A command of musical structure must be allied to the human qualities of curiosity, restlessness, ambition. A composer must aspire to take his music beyond the mundane, to communicate a grander, more profound vision, he must search for the ideal, both in life and in music (Harvey, 1999b, p.143).

The quote is significant because it identifies the importance Harvey attached to activities ‘in life’ as relevant to his ambitions as a composer. The idea of unity is ‘not merely an aesthetic preference it is a moral imperative’ (Harvey, 1999b, p.142). So many aspects of Harvey’s life, his upbringing, character, approach to understanding, exploring, investigating, a willingness to experience new ideas, his serious interest in meditative practice (a daily
routine for him), all had important resonance for his compositional aesthetic – especially that which might be unconscious experience:

The importance of unconscious inspiration, in guiding the composer’s path from idea to realization, is central. The role of the unconscious, therefore, can never be usurped; however, it can be modified. A composer's inspiration is significantly affected by his experiences of life, and by his relationship with the outside world: these factors mark the unconscious, and through it, the finished piece of music (Harvey, 1999b, p.36).

The unity in *Madonna of Winter and Spring* went beyond an immediately perceivable unity - its objective was to communicate something far greater and more universal – which, through its structural depth, perfected through a number of preceding works, and through the composer’s unconscious inspiration - it achieved.

The unity of the work has a resonance all of its own. Its echo, caught by our soul, sounds nearer and nearer. Thus the consummated work spreads abroad to be communicated and finally flows back toward its source. The cycle, then is closed. And that is how music comes to reveal itself as a form of communion with our fellow man – and with the Supreme Being.

Stravinsky in the Poetics (Stravinsky et al., 1970), quoted in (Harvey, 1999b, p.143).
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