AXIAL PITCH ORGANIZATION IN
PENDERECKI'S A CAPPELLA WORKS

by

JONATHAN ROBERT GOHEEN

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Department of **Music**

The University of British Columbia

Vancouver, Canada

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Abstract

The language of Krzysztof Penderecki's *a cappella* music has changed dramatically. At the beginning of his career, his adoption of avant-garde compositional methods resulted in a complex, eclectic musical language that he maintained and developed until the late 1970's. His music after that, however, took on a very different surface. Gone were serialist techniques in favor of a much more diatonic music producing a strong modality and focus, and so there seems to be a clear stylistic division between his early and late works.

However, as this study will show, a closer examination reveals the seeds of his later music in his modernist works. Within the dense chromatic surface of the early music, accented pitches acquire focus through durational, dynamic, or registral accent. In the later works, there are also clear focal pitches, often acting as the roots of traditional harmonic sonorities. However the overall organization of these focal roots is non-traditional.

Drawing on the axis tonality theories of Ernő Lendvai, which describes Bartók's harmonic practice, this paper will show how the focus pitches in both the early and late works can be heard as organized about a tonic. It appears that Penderecki developed a hierarchy of pitch in which the tonic and its T6-related pc were considered as part of an enlarged tonic set, later including the T3 and T9-related pcs as well. Despite the substantial changes in his musical language, axial methods of organization occur throughout his choral works.
# Table of Contents

Abstract ii

Table of Contents iii

List of Examples iv

List of Figures vi

Introduction 1

Historical Context and Overview 2

Early-Period Works:

*Psalm XXX* 11

*Stabat Mater* 21

*Miserere* 29

*Sicut Locutus Est* 40

Recent Works:

*Agnus Dei* 45

*Song of Cherubim* 52

*Veni Creator* 60

Conclusion 69

Bibliography 71
List of Examples

Psalm XXX

2.1: Mm. 1-4: Opening Row Statement  
2.2: Complete Movement  
2.3: Mm. 1-3: Durationally Accented Pitches  
2.4: Final Chord and Axial Rearrangement  
2.5: Mm. 5-10: Row Statements Interrupted by Cadences  
2.6: Harmonic Events Supporting a Binary Form  
2.7a, b: Mm. 12-13: Rhythmic Simplification

Stabat Mater

3.1: M. 1: Opening Melody  
3.2: Metric Scansion of Opening Line  
3.3: Mm. 16-20: Emphasis on {A, E, B}  
3.4: M. 86: B5-C3 Cluster  
3.5: M. 88: F5-D4 Cluster  
3.6: Expansion about D and A (transposed to same register)

Miserere

4.1: Source Row  
4.2: Row Octachord Linear Illustration  
4.3: Mm. 1-5: Opening Chromatic Tetrachord  
4.4: Mm. 9-12: Interpretation of Voice-leading  
4.5: Mm. 21-24: Eb Triadic Outline  
4.6: Mm. 24-37: Accent on Subdominant and Dominant pcs  
4.7: Mm. 38-43: Voice Leading Wedge  
4.8: Mm. 21-4, 42-5: Comparison of Triadic Support and Registral Shift  
4.9: Reduction of the Complete Movement
Sicut Locutus Est

5.1: Reduction of Attacks and Sustained Pitches 40
5.2: Axis-Harmony Elements 43
5.3: Arpeggiation of C Major 44

Agnus Dei

6.1: Mm. 1-2: Triadic Outlines 45
6.2: Mm. 13-17: Passing Dissonances 46
6.3: Mm. 28-35: Focus on Subdominant Collection 47
6.4: Mm. 72-73: Climax Chord 49
6.5: M. 72: Actual Sounding Pitches 49

Song of Cherubim

7.1: Mm. 1-2: Reduction 52
7.2: M. 1: Triadic Focus on Bb Minor 53
7.3: M. 1 (cont’d): Second Phrase Peak at E and G 54
7.4: Mm. 11-15: G Minor Focus 55
7.5: Mm. 48-50.1: Verticalization of Axis Collection 56
7.6: M. 68: Dominant Arpeggiation 58
7.7: Focal Pitches and Axis Inclusion 59

Veni Creator

8.1: Mm. 1-8: G and C#/Db Accentuation 60
8.2: Mm. 18-20: Contraction Toward G 61
8.3: Mm. 21-23: Accent on E and Other Axis-Related PCs 62
8.4: Mm. 35: Minor Third Pairs 62
8.5: M. 50: Focus on {D, F, Ab, Cb} 63
8.6: Mm. 40-41: Eb4-A3 Cluster 63
8.7: Mm. 70-78: Eb Melody 64
8.8: Mm. 116-End 65
8.9: Mm. 60-63 67
8.10: M. 61: Pitch Arrangement Around Eb 67
List of Figures

Overview

1.1: S-T-D Relationships about C 7
1.2: Axis Set about C 8
1.3: Symmetric Arrangement about C-F# Axis 8

Stabat Mater

3.1: Outline of Large Scale Sectional Divisions 21

Agnus Dei

6.1: Moments of Triadic Clarity 47
6.2: M. 72: Symmetric Arrangement of Chord 50
6.3: M. 72: Circular Axis Representation 50

Song of Cherubim

7.1: Focal Roots in Mm. 1-41 55
7.2: Focal PCs in Mm. 42-62 57

Veni Creator

8.1: Symmetrical Arrangement of Focal pcs 68
Introduction

The language of Krzysztof Penderecki’s *a cappella* music has changed dramatically. At the beginning of his career, his adoption of avant-garde compositional methods resulted in a complex, eclectic musical language that he maintained and developed until the late 1970's. His music after that, however, took on a very different surface. Gone were serialist techniques in favor of what Robinson describes as a “dramatic and passionate idiom which owes much to the influence of post-Wagnerian chromaticism” (1983, p. 7). This “post-modal romanticism” appears to have little in common with the modernism that created his fame and popularity, and so there seems to be a clear stylistic division between his early and late works.

However, as this study will show, a closer examination reveals the seeds of his later music in his modernist works. Within the dense chromatic surface of the early music, accented pitches acquire focus through durational, dynamic, or registral accent. In some cases, pitches are made focal as the roots of such traditional tonal sonorities as a triad. This paper will show how the focus pitches can be heard as organized hierarchically about a tonic. In his later music, despite the significant change in musical language, similar methods of pitch organization occur on both local and global scales.
Historical Context and Overview

This discussion will begin with a biographical sketch of the composer and a summary of the possible influences on his methods of organizing pitch, followed by a brief description of the choral works. It will then conclude with a synopsis of some theories applicable to Penderecki’s use of tonal centers.

Krzysztof Penderecki was born in 1933 in Debica, Poland. Although no one in his family was a professional musician, the household was very musical: at home his father and uncles often performed small chamber works for strings (Schwinger 1989, 16). Krzysztof studied the violin and later, after the Second World War, played in an orchestra. He also studied composition, and ceased his study of the violin in 1955 to concentrate solely on his own writing (Schwinger 1989, 18).

Poland’s composers at the time were stifled by years of censorship that had begun with the Nazi occupation. The end of World War II did not immediately improve the situation. The new Stalinist government restricted any access to contemporary music, and forced Polish artists to endorse Communist values of “social realism” in their compositions (Ates 1969, 34). One composer whose music succeeded in this restrictive atmosphere was Béla Bartók. The significant role of folk music in his composition was interpreted as a glorification of the proletariat, so his music was held up as an example for young composers. These included Penderecki, who wrote several student works emulating Bartók’s style, specifically two string quartets and the *Miniatures* for clarinet and piano (Ates 1973, 38). Schwinger asserts (1989, 19) that these early studies reflect Penderecki’s admiration of Bartók’s harmony and rhythm.
Censorship disappeared with Khruschev’s rejection of the Stalinists in 1956. The new Polish government that arose lifted the restrictions, allowing contemporary avant-garde music into the country (Ates 1973, 38). This influx encompassed many new styles, including the twelve-tone and atonal music of the Second Viennese School, the post-war experimentation of the Darmstadt School, the rhythmic innovations of Stravinsky, and many others. These contemporary styles and sounds were rapidly assimilated by the young Penderecki. Rather than accepting the ideological doctrines of any particular system, however, he simply availed himself of the varieties of new musical language.

These modernist influences converged with a concern for sonority and texture that was shared by many contemporary Polish composers (Rappoport). For Penderecki, this sonoristic influence manifested itself in the architecturalism of his compositional style. In planning a work, he did not first consider melodic or harmonic thematic elements. Instead, he visualized the overall sound shape in terms of register, attack density, and texture. He then would translate these ideas into symbolic drawings using overlapping boxes and wedges to represent the musical shape (Ates 1973, 38-40). It was only later in the creative process that pitched elements were incorporated and organized.

As we shall see, Penderecki’s formal pitch designs seem quite consistent with his upbringing and education. Although some of his musical choices are constrained by considerations of serialism, his choices of pitch structure and center are based on both traditional harmony and Bartók’s harmonic practice. The body of this discussion will be concerned with how these criteria for pitch organization are mapped onto the textural plan and help create the form.
This thesis will focus on Penderecki’s sacred *a cappella* choral works for several reasons. The first is that they are a clearly delineated, homogeneous body of works. Although Penderecki’s musical language has changed significantly during the course of this career, there are numerous aural resemblances between the older and more recent choral works. These similarities are brought into focus even more by the common goal of these works, which is the setting of a sacred text. The composer admits that such text demands a more serious treatment than other subject material (Robinson 1983, 13), rendering inappropriate the unusual effects that typify his more experimental instrumental and electronic genres. The practical reality of choral performance necessitates that these works often be simpler as well. In contrast to their instrumental counterparts, voices have a limited ability to produce long notes, and are also more limited in range. Most relevant to Penderecki’s music is that it is more difficult for a choir to produce a cluster of different, closely spaced pitches that it is for an instrumental ensemble. This forces the composer to distill the musical materials, which results in a more transparent pitch organization.

The choral works studied here span three decades. The first is a slow movement taken from the *Psalms of David*, completed in 1958. While the *Psalms* as a whole display many influences of Stravinsky’s rhythm and instrumentation, the *a cappella* movement, *Psalm XXX*, is a compact four-voice serial experiment that alludes to traditional styles and to tonality. Schwinger (1989, 192), for instance, observes that Penderecki sets the first row form in a manner ‘recalling Gregorian chant’, and that he later uses fugal technique.

In contrast to *Psalm XXX*, *Stabat Mater* is a large, independent work for a 48-part choir, but it too incorporates traditional elements. Its opening motive has been likened to
Gregorian chant by both Schwinger (1989, 198) and Schuler (457). It continues through several episodes and eventually returns to the opening motive, now treated in imitation. The work concludes with an extended, dramatic cluster that resolves to a brilliant D-major chord.

A few years after its first performance, Stabat Mater was incorporated into a larger work, the Passion According to St. Luke. The motives from Stabat Mater are used throughout the Passion, providing thematic unity. Another a cappella movement from this work will also be studied, the Miserere, a highly chromatic serial movement with several tone clusters based on the BACH motive embedded within the row.

Penderecki created his most complex choral music in 1974 with the Magnificat. The work is scored for a 48-part chorus, full orchestra, and seven male soloists. Sicut Locutus Est, the only unaccompanied movement, is not quite so grand: it is limited to sixteen choral parts that have almost no melodic activity. Instead, the musical process is a textural buildup of pc density. It begins with one pitch class, A♭, to which more pitch classes are slowly added until the climax, after which the tones slowly disappear, leaving behind a single pc, G.

Representative of Penderecki's later stylistic period are three choral works: Agnus Dei, Song of Cherubim, and Veni Creator. All are written for eight-voice mixed chorus, and were conceived as independent pieces. Agnus Dei was written in 1981 for the memory of Cardinal Stefan Wyszkński, Primate of Poland, and was later incorporated into the Polish Requiem. The movement has a clear F minor focus, although there are some unusual harmonic departures, particularly a huge dissonant chord at the climax of the work.

1 Apropos of this piece, Penderecki said, “I came to the place where I really could not go any further because of the musical language; all the complex polyphony became so complicated.” (Robinson 1983, 7).
Song of Cherubim was written in 1986 to honour Mstislav Rostropovich’s sixtieth birthday. The text is Russian Orthodox, making it the only non-Latin work in this study. Large sections of the work are triadic and several of the lines have a clear modality, but the progression of roots and focal pcs is not functional in terms of traditional harmony.

The last work to be examined here is Veni Creator, completed in 1987. The work was composed in gratitude to the University of Madrid, which had bestowed an honourary doctorate on the composer (Tomaszewski, 27). The work has two different pitch centers, G and D, that are important at different times in the work. Although they are elaborated and expanded in very different manners, the ending combines the two.

This brief overview of Penderecki’s a cappella music suggests that it can best be understood by analyzing pitch structure both with non-tonal and tonal theory. To date, however, little thorough analysis of this music has been done. Robinson and Winold’s major study of the St. Luke Passion (1983) provides insight into the serial construction of the work by listing its two source rows. However, their analysis does not closely describe Penderecki’s application of these row forms, much less consider the purpose of the particular row-form combinations. Schwinger’s studies of the works (1989) also suffer from generality; while they deal with the whole of Penderecki’s oeuvre, they discuss little of the music in detail. Schuler’s article, as its title suggests, describes several individual moments in the Passion which sound strongly tonal, but does not link these instances in any fashion. The first volume of a recently inaugurated series, Studies in Penderecki (1998), provides a chronicle of the composer’s stylistic evolution, but the articles are not of an analytical nature. These studies narrate the compositional events, and do not confront the formal function of the pitch
characteristics. Similarly, Delisi’s DMA Dissertation, while addressing the choral literature, is a sequential description of events in each work, highlighting Penderecki’s vocal innovations.

Fortunately there are some models of pc organization that can serve as a basis for a close analysis of pitch structure. Given the influence of Bartók on Penderecki’s generation, it seems reasonable to turn first to theories of tonality in the Hungarian composer’s music. Foremost among these is Ernő Lendvai’s tonal axis system. He claimed that Bartók expanded the concept of tonal center to include more than one pc, that specifically a “tonic” in Bartók’s music must be understood both as the primary pc and as a collection of related pcs, a (0369)-type pc group. Consider first the twelve pitch classes arranged in a circle of fifths, as shown in Fig. 1.1 (Lendvai, 2-3). Adjacent pitch classes are related as the roots of sub-dominant (S), tonic (T), and dominant (D) harmonies. Extending this ordered triple of root relations around the circle of fifths assigns one function to each pitch class.

Figure 1.1: S-T-D Relationships about C

Lendvai groups these pcs by label to create three sets of four pitch classes. Each set contains the initial pc (e.g. C, F, or G), the T6-related pc a tritone away from it, called the “counterpole”, and also the pcs a minor third above and below it. Harmonic function is
expressed by any member of a collection: for example, “tonic” is expressed by any or all of the four pitch classes. This creates two orthogonal axes, the primary axis connecting the tonic and its counterpole, and the secondary axis between the two mediant pitches, as shown on Fig 1.2.

**Figure 1.2: Axis Set about C**

![Diagram of Axis Set about C](image)

It is important to note, however, that these pitch classes are not treated as equal: the primary pc expresses tonic most strongly, then the counterpole, and most weakly the two subsidiary pitches.

Relating the tonic axis set to the other two, Lendvai discusses the symmetry between the subdominant and dominant axis members about the tonic axis (13-14). As Fig. 1.3 shows, both the pcs related by perfect fifth and semitone to a given tonic, C, fall within the same axis set, i.e. the dominant axis above, and the subdominant below.

**Figure 1.3: Symmetric Arrangement about C-F# Axis**

![Diagram of Symmetric Arrangement about C-F# Axis](image)

On the basis of standard tonal practice, Lendvai treats the perfect fifth as the interval which provides the strongest harmonic implication. However the minor second has a similar, albeit
weaker harmonic connection. Lendvai points out (14) that the dominant and subdominant pcs shown in Fig. 1.3 provide a strong harmonic connection between the C tonic and the F# counterpole. This is because the traditional tonal subdominant and dominant scale degrees of one pole surround the opposite pole, i.e. F# is bounded by C’s subdominant F and dominant G, and vice versa. Thus the T6-related counterpole is equidistant not only from its own traditional dominant and subdominant pc, but from the tonic’s as well. Therefore, these boundary pcs can both direct toward and focus upon a particular pole, investing a significant harmonic function in the interval of a minor second.

The relations described by Lendvai thus far treat the tonic and its counterpole as equivalent: “A pole is always interchangeable with its counterpole without any change in its function.” (4). However he does suggest that there is an important distinction between the two. Indeed, he writes:

The pole-counterpole relationship is the most fundamental structural principle in Bartók’s music, in respect to both small and large forms. Already the inner form of Bluebeard’s Castle was conceived in pole-counterpole tensions. [emphasis added] (4)

It difficult to reconcile the last line of this excerpt with his earlier statement; to create a “tension”, there must be some functional differentiation between the two poles, requiring some method to differentiate the tonic from the counterpole.

More recent scholarship has questioned the functionality Lendvai attributes to the system. Paul Wilson’s study on Bartók (1992) outlines “five distinct functional behaviors” (35) present in tonal music: tonic, dominant, subdominant, dominant preparation, and tonic substitution. He argues that Bartók’s music is not consistent in how it establishes relationships between pcs. Instead, functionality is dependent on the particular context. Wilson admits,
however, that simpler harmonic processes are very active in the Hungarian’s works. Specifically, a rudimentary tonality exists in the creation of and eventual resolution to a goal tone, the effective “tonic” for a particular passage or movement (34). In addition to these tonics, the presence of a structural dominant-function pc a tritone distant from the tonic can be asserted in some works. As evidence, Wilson cites Bartók’s analysis of the *Fifth String Quartet*:

Bartók states: “The first theme has two principal degrees: B♭ (tonic) and E (dominant like) [sic]; the beginning, middle part, and end of the movement produce the following tonalities: B♭, E, and B♭♯.” (37)

Thus, he argues that the counterpole can serve as a dominant-function pc, not a tonic substitute as Lendvai would have it.

The work of these Bartók scholars has the potential to both clarify and complicate the interpretation of pc relationships in Penderecki’s music. Lendvai’s axial theory assigns functional equivalence to T3 or T6 related focal pcs, and attributes S or D functions in a context-independent way. Wilson’s work, however, suggests that harmonic function is more contextually dependent, and treats the pc a tritone from the tonic as having a potentially different function. The appropriateness of each of these conceptions to particular works by Penderecki is best evaluated after a thorough examination of the music.

In my analytical discussion, Lendvai’s tonic (T), dominant (D), and subdominant (S) will be used to refer to the various axis set relations. When traditional tonal relations are ascribed to the music, standard Roman numerals will accompany the analysis. This study will seek to establish and clarify the pitch relationships present in the choral literature, and will proceed chronologically, beginning with one of Penderecki’s first works, the *Psalms of David*. 
Psalm XXX
From the Psalms of David

Beginning with the early works, this study will observe and interpret the various pitch structures present in Penderecki’s choral music. In Psalm XXX, pitch structure is organized serially, but also exhibits an overall tonality through a mixture of fifth relations and axial symmetry. Underneath the dodecaphonic surface, tonic and dominant regions emerge, each established in part by an expanded axis pc set incorporating both the focal pc, its tritone counterpole, and pcs that act as local dominant and subdominant to the focal pitch. This collection forms an (0127)-type tetrachord, which serves to delineate the formal plan.

Summary of Segmentation and Row Structure

The alto opening states the row:

Example 2.1: Mm. 1-4: Opening Row Statement

The first nine intervals in this presentation of the row are small, limited to major and minor seconds or minor thirds, while the last two intervals are larger leaps, a perfect fourth and a tritone. This change of intervallic content distinguishes the end of the series. Ex. 2.2 displays the entire movement, complete with annotations.
Example 2.2: Complete Movement

T0: < 4, 2, 3, 5, 6, 9, 8, e, t, 0, 7, 1 >  
T7: < e, 9, t, 0, 1, 4, 3, 6, 5, 7, 2, 8 >  
T8I: < 4, 6, 5, 3, 2, e, 0, 9, t, 8, 1, 7 >  
T3I: < e, 1, 0, t, 9, 6, 7, 4, 5, 3, 8, 2 >

Row Statements Interrupted by Cadences

T0 Cont'd: e  
T8I Cont'd:  
T3I cont'd:  
T3I Cont'd: 6, 7, 4, 5, 3, 8  
T8I cont'd: 7 >

Echo of T0
Of the 48 possible row forms, Psalm XXX presents only four: T0, T8I, T7, and T3I. As the piece unfolds, it becomes clear that the row forms beginning on the same pc are paired together, i.e., T0 and T8I on E, and T7 and T3I on B. The result is an accentuation on the first pc of the row, when the paired voices begin together. Penderecki's rhythmicization of the opening row form also supports an E tonality by a durational emphasis on particular pitch classes: the four longest pitches are, in order, E4, F#4, B4, and C5, as highlighted in Ex. 2.3.

Example 2.3: Mm. 1-3: Durationally Accented Pitches

The E and B are heard as modally significant scale degrees in E, the tonic and dominant, whose priority is such that the long C5 is heard as 6 in E. The intervening pitches do little to weaken the key due to their limited duration. On the contrary, the two pcs notated as metrically accented, Eb and G#, actually support the E mode, acting as the raised seventh and third scale degrees respectively.

The pc series <C5, G4, C#4> concludes the first phrase with the two large intervals completing the row form. The sustained final C# produces a rhythmic cadence, and thus a phrase ending, at the row's conclusion, and associates the distinctive final interval, the tritone leap, with closure.

Beginning in m. 5, the basses reiterate the preceding alto line, but in the inversion that begins on E, T8I, reinforcing the tonic. The inversion is exact until m. 6, where a change in the contour and rhythm occur. This difference is concealed, however, by the stretto entry of
the sopranos and tenors singing T7 and T3I respectively. The B that begins these row forms may be heard as the dominant scale degree with respect to the E. The succession of entries therefore alludes to the exposition of a fugue. Further endorsing this suggestion of tonality are the two pcs immediately preceding the B’s, B♭3 and C#4, in the bass and alto respectively. While not concurrent, enharmonically, as {A#, C#}, and in the context of an implied E tonic, this dyad produces a passing secondary dominant, V/V, that harmonically prepares the dominant ‘answer’ of the soprano and tenor entrance.

In mm. 9-10, the phrase endings in the soprano and tenor do not coincide with the row ending, as Ex. 2.2 shows. The two rows are eventually completed, but only after a substantial pause. The tenors, for example, resume T3I after two full measures, dissociating the A3 at the phrase ending from its later reiteration. Seeing how clearly the work is derived from, and dependent upon, the row series, it would seem that these conflicts between the endings of the phrase and row pcs are significant, and that the three pcs concluding the bass, tenor, and soprano phrases, {G, A♭, A}, should be kept in mind as a possibly significant collection.

The sopranos’ ending G4 in m. 9 overlaps with the next entrances to create an {E, G} dyad, refreshing the overall E tonality. The altos and basses then state T0 and T8I again, but the completion of the aggregate is interrupted again by a cadence in m. 11, produced by dwelling on a repeated chord and by the cessation of melodic activity. Preceding this cadence, the soprano falls a tritone, D5-G#4, which recalls the melodic cadence, coinciding with the end of the row, in mm. 3-4.

The second half of the psalm presents a fugue-like exposition similar to the first half, but more compactly. The bass entrance in m. 12 is answered by the tenors after only two
beats, much sooner than in the opening entries. The basses’ G3 and E3, coupled with the 
tenors’ B3, imply an E minor triad that recalls the harmony of the first half. Then they move 
through several other implied harmonies to end on a held perfect fifth, G3-D4. Through this 
phrase the row forms are treated more freely: the two series continuing from m. 11, T3I and 
T8I, switch irregularly between the two voices. Also continued from m. 11, order numbers 5 
and 6 of T0, the altos’ A4-G#4 (m. 14), waver in dissonant ninths above the G3 bass, 
weakening the acoustic solidity of the underlying perfect fifth. To conclude the movement, the 
last five pcs of T0 are sung by the sopranos, whose C4 and G4 are echoed by the tenors and 
alts respectively. This provides a strong sense of closure by recalling previous endings and 
by completing the row form.

Analysis of PC Organization and Inclusion

The preceding summary of the row activity describes all the pitch content of the work, 
except for one important event: the final bass note. That D3 does not complete any of the row 
forms, as the only form left incomplete was T8I in m. 7. One possible explanation (as 
suggested in mm. 15-16 of Ex. 2.2) is that the final D is an octave displacement of the D4 held 
in the tenor from m. 13. This sort of repetition occurred once before in mm. 9-11, where the 
A3 abandoned in m. 9 was picked up again in the same voice in m. 11. In the later passage, 
however, the D is in a different voice and register. Its prominence, coupled with its lack of 
row membership, motivates a re-evaluation of the pc structure in the movement.

The vertical structure created by the addition of this D3 to the \{C4, G4, D♭5\} 
sustained from the soprano line is an (0127)-type tetrachord. From an axial perspective, this is
a G-rooted set incorporating both the C# counterpole and the subdominant and dominant scale degrees, C and D. The stronger harmonic function of the C-G and G-D perfect fifth designates the G as having a tonic root function, rather than the weaker semitone connection created with the counterpole. Ex. 2.4 illustrates this structure with both the actual pitches, and in a compact voicing.

Example 2.4: Final Chord and Axial Rearrangement

![Example 2.4: Final Chord and Axial Rearrangement](image)

Similar to the symmetric arrangement in Fig. 1.3, the apparently extra D3 can be understood in this context as a dominant-function counterweight to the C subdominant tone, necessary to establish a balanced symmetry around the G-C# axis in the G-tonic chord. Thus, the addition of the D/S pair acts to clarify the tonic axis within the chromatic context.

The chord complex from mm. 14-15 can be seen from a similar perspective. It is true that the \{G, D\} fifth, taken by itself, seems to have a clear G root, but the role of G as a destination, and local tonic, is clouded by the two other perfect fifths, \{E, B\} and \{Eb, Bb\}, preceding it. An important factor in the texture, which also affects the interpretation of the \{G, D\}, is the alto melody. The higher register and repetition of the A4-G#4 in this line accentuates these two pcs. If the altos' A4 resolved as a standard ninth to a G\#4, it would produce a strong focus on G. Instead, its G# resolution forces the G-containing fifth to sound unstable. Considering the whole collection, the G, D, A, and G# create a (0127) tetrachord.
related to the final chord by T7. Assuming that the last chord is heard as a strong tonic arrival, this pitch collection acts as its dominant.

The focus on (0127) collections also explains the truncation of the row statements in mm. 7-9, circled in Ex. 2.5.

**Example 2.5: Mm: 5-10: Row Statements Interrupted by Cadences**

As noted earlier, the pcs that end each voice are A♭, A, and G. Together with the D focal bass in m. 11, they form yet another D-rooted (0127) tetrachord, that is, the A♭ is the counterpole to D, and G and A are the subdominant and dominant scale degrees respectively.

If the (0127) structures are understood in this manner to indicate chord roots, then it seems plausible to conceive of the whole work in a tonal binary form, [T-D / D-T]. At critical points in the form, certain pcs are suggested as having root importance, and all can be assigned to the T or D axial sets with respect to a global tonic of G. Within the first measures, E is established by the modal emphasis of the setting, by the entrances on E and B, and to the allusions to its V and V/V, as discussed earlier. The axis system includes E and G in the same tonic axis set: \{G, B♭, D♭, E\}. Accordingly, E can be heard to represent G, just as the relative minor sometimes substitutes for the tonic in more traditional tonal theory. After the E
focus, the first major cadence and harmonic destination of the first half is the V in m. 11, realized as a D 5/3 chord with an added #4.

The second half can represent a D-T return. Beginning with a brief reiteration of the E tonality in the first half, the phrase returns to the D-rooted chord already explained in mm. 14-15, moving toward the final G (0127) structure, as summarized in Ex. 2.6.

**Example 2.6: Harmonic Events Supporting a Binary Form**

![Harmonic Events Diagram](image)

To sum up the analysis thus far: in the first half an expanded tonic harmony is presented indirectly by the substitution of a common axis member, E, which is elaborated by its own dominant. This is followed by a large-scale harmonic change ending on the dominant, D, of the global tonic. The second half, after a brief return to the E, clearly establishes a harmonic movement from the dominant (0127) chord back to the G tonic.

One question remains, however: What is the purpose of the unprecedented switching of the row forms between the vocal lines in mm. 12-13, as discussed in connection to Ex. 2.2? A possible answer is suggested by Ex. 2.7, which presents a rhythmic simplification of this passage, and analyzes the dyads as members of rooted harmonies.

**Example 2.7 a, b: Mm. 12-13: Rhythmic Simplification**

![Rhythmic Simplification Diagram](image)

Roots: E C F Eb Bb Eb V IV I ?
b. Suggested vs. Actual Progression in m. 13

Ex. 2.7a displays the root movement: m. 12 moves from E minor to C major, ending on F
cmajor. The progression suggested in m. 13 first creates a sense of Eb major with the
\{Eb, Bb\} simultaneity. The next dyad, \{Ab, Bb\}, suggests a change of harmony to a dominant
seventh of Eb, strongly implying that the Ab will resolve to G. Before it does, however, the
tenors leap to Db. In the Eb context this is best understood as V/IV, in which the Db would
be paired with the presumed G, forming a tritone demanding the suggested inward resolution
shown in Ex. 2.7b. As shown in the actual progression, however, the following D\# in the
tenor can be heard as resolving the enharmonically equivalent tritone, \{G, C#\}. In such a
resolution, D is tonic, and the G persisting in the bass takes on an unresolved quality
incompatible with hearing it as a root, despite the fifth it forms with D.

This phrase further inclines the listener to hear the G-D-A-G# complex as creating a D
chord. It alters the perception of the fifth such that one focuses on the D in mm. 14-15 as a
root, while the G is heard as a suspension. It also creates a strong similarity to the earlier D#4
cadence: if the G in m. 13 were to resolve as a suspension to F#, the same pcs would be
produced as m. 11. Comparing the last chords in Ex. 2.7b’s Suggested versus Actual
Progression makes clear the implicit axial equivalence: a D sonority has been substituted for
the anticipated Ab. This reflects the organizational differences between the first half’s
prolongation of an E modality via traditional third and fifth relations in the first half, and the
replacement of this kind of tonicity by the second half's symmetrical structures. This tritone substitution assists the movement's change of system toward an explicitly axial method.

Summary

While the first half is clear in its progression from an E tonality toward a strong D-rooted chord, the tonality of the second half is much more ambiguous. Axis-tonality theory helps identify a function for the final chord, and its dominant transposition. The substantial emphasis on G and E establishes part of the tonic \{G, B\#, C\#, E\} collection. Additionally, the counterpole, C\#, is made important by its position as the final element of T0, and thus as the cadential pc in both mm. 4-5 and mm. 17-18, acting as a focal pitch. The harmonic function of the chords that create tonal form is established by the formation of a tonic axis of tritone-related pcs, which is clarified by the presence of the subdominant and dominant pcs a perfect fifth from the tonic. A vestige of traditional form is also shared by the next work in the study, the Stabat Mater.
Stabat Mater

The large-scale tonal plan of Stabat Mater is a progression from dominant to tonic axis harmonies. What is intriguing about this simple structure is how these pcs are elaborated. Contrary to a traditional prolongational model, where a key center is established by variegated progressions that include subordinate harmonies, the tonic and dominant here are focal for large sections of the work, and are expanded in very different fashions. On a smaller scale, some analytical problems are posed by the lack of melodic or harmonic connections between successive sections, but an analysis of axis pc relations will reveal the internal consistencies in these sectional transitions.

Movement Summary

The work divides into five sections, A-B-A'-C-A":

Figure 3.1: Outline of Large Scale Sectional Divisions

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>A'</th>
<th>C</th>
<th>A&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>mm. 1-27</td>
<td>mm. 28-55</td>
<td>mm. 56-86</td>
<td>mm. 86-89</td>
<td>mm. 90-117</td>
</tr>
</tbody>
</table>

A recurring melodic motive associates the A sections, while B and C are distinguished by a significant textural change incorporating whispered or spoken text.

Ex. 3.1 shows the opening, which introduces the melodic motive of the three A sections.

1For a more complete description of the series of events in Stabat Mater, both Robinson (1983, 15-16) and Schwinger (1989, 197-200) have excellent summaries.
Example 3.1: M. 1: Opening Melody

Immediately afterwards, the basses enter and hold an extended drone, A2, that has apparently little in common with the melody. Other pitches are added around this sustained A, resulting in a narrow chromatic cluster within the basses and tenors.

An abrupt textural change signifies the beginning of the B section, replacing the cluster with a sparse imitative polyphony. The voices proceed with intermittent entrances on successively varying pcs, often related by semitone, and are concluded by a rhythmic canon on C#, using both voiced and unvoiced syllables.

The A’ section treats the original melody in imitation. Answering the altos’ incipit, the tenors begin a contour inversion of the main motive, but compress its first interval to a semitone. This half-step becomes an independent motivic cell later in the work. Near the end of the section, the attack density increases until the lines are cut short by a huge 48-pitch cluster sung by all three choirs.

This cluster elides the end of A’ with the start of the C section. Here the voices speak text together, only to be interrupted by a tone cluster. Continuing onward and ending the section, the voices split the text into a three-part canon.

The final A” section again reprises the opening melody with the half-step countermotive. The concluding phrase is long and extended, beginning with a D drone, around which more voices are slowly added. Each sings the falling half-step motive on a
different pc, resulting in a sustained texture of near-complete pc saturation. On the final word, “gloria”, this sound mass shifts to a bright D major chord, a pitch structure difficult to reconcile with the preceding dissonant material.

**Analysis of PC Relationships and Cohesion**

This brief sketch raises several analytical questions: What provides connection and continuity? Do the cluster chords and areas of high pitch density have any harmonic function? Are there any key relationships between non-adjacent sections? How does Penderecki elaborate a particular pc? These issues will be addressed in the following discussion.

An initial problem surfaces in hearing a pc connection between the opening tune and the following A-drone, and also in identifying the key relationships between the opening and the two later iterations of the tune, both of which begin on D. To understand these, first consider the first measure’s pc content: \{A_b, B_b, C_b\}. Of these three pcs, the A_b is prominent because of its location as the first sounding pc. Further, as the melody progresses, each new word begins on this pitch class, giving it a textual importance. However, the focus of the tune is B_b. The rhythm of the melody is largely responsible for this focus; while apparently unmetered, it actually creates a 2/4 meter with regular durational accents on the B_b, as illustrated in Ex. 3.2.

**Example 3.2: Metric Scansion of Opening Line**
Thus, while $A_b$ has a strong textual emphasis, $B_b$ has durational and metric accents, making both pcs important. We shall see that they are both significant locally and globally.

Locally, the $A_b$ and $B_b$ can be understood to prepare for the following pc focus on $A$. Recall that in *Psalm XXX*, Penderecki used (0127)-type tetrachords as structural harmonies, each containing two tritone-related members of an axis set plus subdominant- and dominant-function pcs. Here the $A_b$ and $B_b$ can be similarly understood as the subdominant and dominant to the axis collection including $E_b$ and $A$. As such they can move, according to Fig. 1.3, either by fifth or semitone. The latter resolution wedges toward the new focal pitch, $A$, as if $A_b$ and $B_b$ were its leading tone and upper leading tone (flattened second scale degree).

Globally, the $A_b$ and $B_b$ may be understood in relation to later statements of the opening melody and the tonal hierarchy they create. Both statements begin on $D$ and, in connection with other passages we shall soon consider, help establish and maintain focus on $D$ as the global tonic. In retrospect we may understand the opening focus on $A$ as establishing $V$ of the eventual tonic. The $A_b$ incipit, since it belongs to the same axis set as $D$, could be heard as a tonic opening, but in light of the goal presence of $B_b$, and the resolution of $B_b$ and $A_b$ to $A$, and considering that the duration of the melody is so brief in comparison to the extended focus on $A$, the $A_b$ is better understood on a relatively superficial level as an embellishment of the structural dominant $A$.

This structurally important pc, $A$, is expanded in a very different manner in the A and B sections. After m. 2, the $A2$ drone persists as a strong referential pitch long after the bass parts diverge in m. 15. As Ex. 3.3 shows, the pc boundaries of the following cluster form an $A$-rooted chord based on fifths $\{A, E, B\}$. 
The B section that follows does not actually perpetuate A as the focal pc. Instead it is conspicuously absent: the imitative material in the passage includes all pitch classes except A. The omission does not, of course, directly accent the A, but it does heighten the anticipation of its return. Instead, Penderecki frames the section by the other two members of the A major triad. It begins in m. 28 with the sustained E in the sopranos. Instead of returning to A however, Penderecki ends the section on C#. Retrospectively, this can be heard as the transformation of the \{A, E, B\} heard in Ex. 3.3 into a dominant triad, a 2-3 resolution. This binds the A and B sections into a harmonic unity, and also prepares the D-centricity of the upcoming A’ section by its dominant triad and leading tone.

After an imitative passage beginning on D, the A’ section ends in a colossal 48-note cluster chord, illustrated in Ex. 3.4. The sudden appearance of this huge quartal cluster is surprising and markedly different from anything else in the movement; although the perfect fourths within each part recall the construction of the earlier bass-tenor cluster from mm. 20-27, any sense of specific intervallic content is obliterated by the sheer density of this chord.
The only perceptible pcs are those at the registral extremes of the sound mass.

**Example 3.4: M. 86: B5-C3 Cluster**

The lowest pitch C3 and the highest pitch B5 are, respectively, members of the A and D axis collections. Another D-focus is present in the intra-choir extremes: A5 is an upper bound for one of the three choirs and D3 is a lower bound for another. To the extent that these pcs are made audible by the physical separation of the choirs, these registral bounds perpetuate the D-rooted basis of the section.

As the section proceeds, the D’s importance becomes clearer. The cluster at m. 88 is transparently derived from the D triad: the chromatic cluster’s boundaries are the tonic D4 and
its minor third, F₅, shown in Ex. 3.5.

Example 3.5: M. 88: F₅-D₄ Cluster

These two examples show how, aside from their purely textural effect, Penderecki’s sound masses may actually function tonally.

After a brief imitative tutti recalling the principal thematic material, the final A” section begins by increasing focus on the global tonic by means of a pulsing alto drone on D₄. As this pedal tone continues, more voices enter singing the descending half-step countertheme: first the sopranos above (m. 98), and then the male voices below (m. 100). The resulting elaboration symmetrically fans out from the central pc, that is, D is surrounded by the Eb/E♭, and C#/C♯, as shown in Ex. 3.6.

Example 3.6: Expansion about D and A (transposed to same register)
The A is similarly surrounded. The third basses' fall from A3 to a sustained A♭3, over which the tenors enter on G♭3, recalling the men’s sustained minor second dyad below the drone D in m. 100. This is followed by the second altos' B♭4-B♭4. The A-A♭-G and the B-B♭ produce a chromatic elaboration around the central A. Thus, the cluster develops by surrounding root and fifth of the D triad.

Despite the focus on D and A, the complete D triad is thus far unstated. Indeed, F and F♯, the two possible thirds for the D trichord, are the last pcs to enter. F appears prominently in the second sopranos in m. 112, and concludes the work by gliding up to F♯ in the “gloria” D-major chord, delaying its resolution to the end of the work. Despite the surprising shift of sonority to the major triad, it can nevertheless be recognized that the phrase builds toward some chordal manifestation of D.

Summary
While Penderecki uses a very traditional tonal plan, that of moving from the dominant to the tonic, his elaboration procedures are anything but traditional. Individual large scale triads are delayed and physically separated so that the members are not coincident. For instance, the initial A drone is part of an extended buildup of an A major triad that occupies the first 55 measures. Further, these triadic elements are immersed in a dense pitch space, and so need to be highlighted in exceptional ways, either as the bounds of tone clusters, or as the centers of a symmetrical pc set, as exhibited at the conclusion of this work. These procedures are retained in the later works, but they will be seen to be organized increasingly on axis pc principles, rather than the more traditional V-I exhibited here.
Grouping and organization by inclusion in axis sets is a key feature in the Miserere, another movement in the Passion According to St. Luke. A shift in focus from one pole to another guides its large-scale pitch structure. D# and A govern the first and second halves, respectively, and are made focal both by frequency of repetition and by registral accent. As in Psalm XXX, these two "tonic" pitches are supported by their subdominant and dominant scale degrees. The subsidiary pcs both expand the local pitch center and effect the transition from pole to pole.

Row Analysis

While Miserere locally exhibits a serial pitch organization, the identification of the row forms only stimulates more questions about tonality and formal organization because the various row subdivisions emphasize either a single pc or triad. One of the two series found in the Passion generates most of the movement’s pitch content. It is illustrated in Ex. 4.1.

Example 4.1: Source Row

One structural feature of this row is especially pertinent to the form of the movement. A natural subdivision of the row occurs at the distinctive tritone leap in the middle of the
series, forming two (012345) hexachords. Yet Penderecki splits the row just prior to the final tetrachord, producing two thematic fragments of unequal size.

The smaller is, of course, the BACH motive, which serves as the principal thematic element of the work. It appears in several guises -- not only in prime form, but also inverted and retrograded. Later in the movement, Penderecki disregards the ordering of the motive and only maintains its (0123)-type structure. This chromatic tetrachord becomes an important harmonic event, and Penderecki subdivides each voice type into four, so that it can simultaneously sing the whole tetrachord. The resulting chromatic texture makes a pitch hierarchy difficult to ascertain. What one does hear, however, is the temporal accent on the initial and final pcs due to their position, causing these pcs to influence focus during a particular time-span.

The beginning of the row, although it too is a chromatic octachord, has significant tonicizing potential. When the row pcs are realized in order within the same octave, they create two chromatic lines diverging from the incipit:

**Example 4.2: Row Octachord Linear Illustration**

![Example 4.2: Row Octachord Linear Illustration](image)

The voice-leading in this arrangement emphasizes the first, sixth and eighth notes of the row series as the beginning or destination of a melodic stream. Depending on the particular form of the row, the combination of these three pcs produces either a minor or major triad. Subject to influences of duration, register, or texture, then, the octachord can accent a triad. On the
other hand, if this motive is heard in retrograde, it produces a strong funnelling toward the final pitch as the goal of both lines. Interactions with other row forms, however, can have very different effects, as will be seen in the following analysis.

Analysis of Pitch Organization

Suggestions of tonality by the segmentation of the row are essential to the form of the movement, as can be seen from the opening tetrachord. The basses sing the first four pcs of RT3, the BACH motive in transposed retrograde: <D#, E, C#, D>, slowly building an (0123) cluster:

Example 4.3: Mm. 1-5: Opening Chromatic Tetrachord

The beginning accent on the D# makes it focal within the cluster, and the focus is reinforced by the repeat of the figure starting in m. 5. In m. 6 the tenors sing the final tetrachord of T0, <B♭, A, C, B>, but reiterate the first pitch to end the phrase on B♭3 in m. 10. The first B♭3 sounds (enharmonically) as a fifth above the D#, acoustically reinforcing the focus on E♭ as tonic. The tenors return to the B♭, however, which is not called for within the serial
context. Displacing the B♭, it provides additional support for the Eb focus by concluding on the root-reinforcing perfect fifth.

The following alto line, which states the first octachord of T0, maintains the Eb tonicity. Its first dyad, <E₄, Eb₄>, sounds above the tenors’ <B♭, Bb>, and, because of the melodic parallelism and implied bass, the E acts as an appoggiatura F♭ to the Eb. This weakens the importance of the first pitch, and so denies the octachord’s potential to outline a triad, as was suggested by Ex. 4.2. Instead, both parts can be heard as a double b9-8 / b6-5 suspension over an Eb (D#) bass, thereby emphasizing the second pc of T0. A harmonic interpretation of the voice-leading at this entrance and the following music is shown in Ex. 4.4.

Example 4.4: Mm. 9-12: Interpretation of Voice-leading

The phrase exhibits a tonal digression within the key of Eb similar to Psalm XXX’s m. 13: beginning on the tonic, it passes by the dominant triad en route to a cadence on the subdominant. After the appoggiatura to Eb at the end of m.9, the alto voice becomes a polyphonic melody, which is interpreted in Ex. 4.4 as two concurrent linear streams. The upper line continues upward through F₄ to F#₄ (Gb), while the lower sustains the Eb₄ until m. 10. The 4-3 suspension over the B♭₃ resolves with the Eb₄ to D₄ motion, suggesting a
parallel resolution of the b6-5 (Gb-F). What results is a significant, albeit brief, arrival and focus on a B♭-rooted chord. In m. 11 the chromatic alto descent to D♭4 shifts the triad to minor while the upper voice continues upward to G4, suggesting the vii6 of A♭. The G-D♭ tritone resolves traditionally to the altos’ A♭4 in m.12, and to C4(5) in the children’s chorus at the end of the phrase, m. 13. The basses’ reiteration of RT3 at the beginning of the next segment (m. 14) enharmonically completes the implied A♭ triad with its third member, D# (E♭). It is notable that the phrase ending does not correspond with the octachord ending -- the children’s C is a pc not contained in the serial structure, but it works tonally to produce a very strong cadence to the subdominant. Thus this introductory segment focuses on the pitch class D#/E♭, and supports it by a traditional voice-leading progression highlighting the dominant and subdominant triads, B♭ and A♭. Through this emphasis on the tonic, dominant, and subdominant pcs, Penderecki suggests tonality within the dodecaphonic context.

After the return to D#3 in m. 14, the voice-leading finally outlines an E♭ major triad, as illustrated in Ex. 4.5.

**Example 4.5: Mm. 21-24: E♭ Triadic Outline**

![Example 4.5: Mm. 21-24: E♭ Triadic Outline](image)

Both the alto and bass voices conform to Ex. 4.2, whereby each creates two divergent chromatic lines. Specifically, the altos begin T11I on G4. The upper stream rises to B♭4
while the lower descends to Eb⁴ in m. 24. Altogether, these terminal pcs form an Eb major triad. The basses similarly unfold T₁, and so treat the pcs of the D minor triad as termini. The F is not focused on, however, because the bass is masked due to its later entry and overlap with the tenors. Thus, instead of an accented D triad, other pcs are emphasized that support the upper voice. At the end of m. 22, for instance, the bass Eb³ forms a very distinctive perfect fifth with the upper voice Bb⁴, reinforcing the Eb triad amidst the dissonant counterpoint.

Near the end of the phrase the A counterpole and its subsidiary pcs appear, beginning with the {D₃, E₄} simultaneity. These pitches, the dominant and subdominant of A, are texturally accented: one is the lowest pitch, and the other is the terminus of a pronounced tritone leap. They foreshadow the upcoming focus on A not only in the next measure, but in the second half as well. The cadence sets Eb⁴ in the alto over the bass A₃, juxtaposing the two poles to initiate the transition from one to another.

Rather than abruptly changing pitch focus, however, this transition (mm. 24-28, as shown in Ex. 4.6) is achieved by moving from the subordinate pitch classes of Eb to the analogous pcs of A. These dominant and subdominant pcs comprise the first and last dyads in the phrase; that is, the row forms in the tenor and bass are chosen such that {A♭, B♭} begins and {D, E} concludes. The location of this exchange of focus corresponds with the exact midpoint of the movement.

Up to this point, Eb was established by a tonal progression significantly incorporating Bb and A♭ major triads. In the second half there is an equally strong focus on A through its dominant and subdominant pcs, E and D. The difference is that they are not established
triadically. Instead, they are featured as registral extremes. For instance, after the transitional
phase cadences in m.28, the basses’ E is transferred into the high register in the children’s
chorus. This E5 becomes focal by beginning the passage uncontested, and by its persisting as
the highest pitch of a chromatic sound mass, as shown in Ex. 4.6.

**Example 4.6: Mm. 24-37: Accent on Subdominant and Dominant PCs**

The D is focused on in a different fashion. It ends the top voice in the transitional
phrase in m. 28, and then returns much later as the beginning of the bass phrase in m. 35,
which is texturally and registraley dissociated from the preceding static sound cluster. The line
starts on D3 and ascends to A3, producing a focus on those pcs (Schuler, 458). The result of
the passage is that the basses’ final A is supported symmetrically by two fifths: it is the root of
the fifth it makes with the high E5, and it is the goal of the basses’ chromatic ascent from D3.

In the following phrase, mm. 38-43 (Ex. 4.7), Eb is reestablished as an important pc.
The highly focal A3 that concludes the previous passage maintains precedence as it is repeated
and extended beyond m. 37. The subsequent first tenor line (mm. 40-42) states the retrograde
of first octachord of the row, so, as was suggested earlier, it wedges chromatically toward the final tone, as illustrated in the example.

**Example 4.7: Mm. 38-43: Voice Leading Wedge**

Increasing the interaction between poles, the second tenors sing T11I, rhythmicized such that the first tenors' destination E♭4 of m. 42 occurs over the second tenors' A3, the same pitches that were sounded together at m. 24. This focus on E♭ does not undermine the second half's A centrality because it is so brief -- the altos resume A4 immediately afterward. The second tenors' octachord is unusual because it is stopped just short of completion. While the line should terminate on a B♭, Penderecki concludes the phrase early, on C4. This C is a secondary pc within the E♭ / A axis set, \{E♭, G♭, A, C\}, and underlines the axis set organization by extending pc focus to other elements of the collection.

Ex. 4.8 shows that as a series of pitches, the following phrase, mm. 42-45, is a transposition of mm. 21-24 up a whole tone. However the rhythm of the lines, and so the resulting vertical intervals, are different. The bass part in m. 22 supported the E♭ triadic focus of the alto line by reaching E♭3 at the same time as the B♭4 in the alto. However in the corresponding place in mm. 43 (c.f. (1) in the example) the alto II does not dwell on F, and so
does not support the alto focus on \{F, A, C\}. Instead it quickly descends to E3.

**Example 4.8: Mm. 21-24, 42-45: Comparison of Triadic Support and Registral Shift**

Another difference exists (c.f. (2) in the example) between the phrase endings. As noted at the end of Ex. 4.8, between the end of m. 24 and the subsequent men's entrance there is a clear melodic break in the upper line -- a leap of a fourth and a change of voice parts. The change in register and voicing distinguishes the \{E♭, A\} and \{A♭, B♭\} dyads. In contrast, mm. 45-46 have no significant changes, other than the duration, to articulate a phrase ending and new beginning. Instead, the pitches simply descend chromatically from the \{B, F\} pair to the \{B♭, E\} pair, weakening the impact of the former and strengthening the arrival of the latter. This elides the phrase ending with the beginning of the next phrase and increases the accent on the \{B♭, E\} dyad. The second altos' durational focus at m. 43 on the low E3, rather than the F3, also supports hearing the \{B♭, E\} dyad as the most important in the passage. The preparation and emphasis of these pcs may be heard as pointing to their role as part of a structurally important harmony. E and B♭ belong to the dominant axis set, and so may be heard as
preparing for a resolution to the concluding tonic.

The final phrase begins with the high C5, recalling m. 13 where the same pitch formed the third of an Ab triad. Now, however, Ab is absent, and the C is heard as a minor third over the final A2. Although the C and A are not simultaneous, their connection is possible because of the C5's superior position and duration. As the work concludes, the voice-leading produces another whole tone simultaneity, {B♭3, G♯3}, when the BACH motive is heard for the last time in retrograde. It recalls the opening of Stabat Mater, and similarly resolves inward to complete the melodic motive. Thus Miserere ends on an uncontested tonic A2, the counterpole of the beginning.

Summary

The slow shift from one pole to the other in the {D♯, A, C, F♯} tonic collection is summarized in Ex. 4.9.

Example 4.9: Reduction of the Complete Movement

The presentation of the dominant and subdominant scale degrees help to establish focus for each tonic pc. Thus, not only are the D♯/E♭ and A focal in their respective domains, but A♭ and B♭, and D and E, are specifically emphasized within each region. These auxiliary pitches
are highlighted very differently in each case. The first half of the work presents A♭ and B♭ as roots of major triads in the midst of a tonal progression. The second half does not triadically establish the D and E, but accentuates them registrally. There does not, however, seem to be a differentiation of dominant and subdominant function, since Penderecki presents these pitch classes in unordered pairs. Instead, they clarify the local tonic by their symmetrical arrangement around it, a process shared by the next work to be studied, *Sicut Locutus Est*. 
Sicut Locutus Est
from The Magnificat

Sicut Locutus Est is dissimilar to other works in this study insofar as it has virtually no melodic content: with few exceptions, once a voice enters, it sustains its initial pitch until it ends. Instead of melody, musical interest is provided by a gradual buildup of pcs, eventually producing a very dense cluster. Nevertheless, the work still displays some aspects of axis-derived pitch organization like that of the earlier works, and also accents pcs important to the Magnificat as a whole. This axis organization is manifested within the densely packed pitch space by the specific ordering of pc entries, and by register.

Movement Summary

Overall, the tonal focus of the work moves from A♭ to G. These pcs are not related by a tritone, so they cannot be heard as representing the same tonic in the axis relation, as occurred in Miserere. They can, however, be understood as the beginning and end of a progression from a member of the dominant axis set {D, F, A♭, B} to the tonic axis set {G, B♭, D♭, E}. Ex. 5.1 illustrates the attacks and sustained pitches responsible for the slow pc buildup through the course of the movement.

Example 5.1: Reduction of Attacks and Sustained Pitches
Before the texture becomes saturated, some pc focus is evident. The work begins with a long Ab in the basses and altos, above which more pitches are added. The first, B♭4, reinforces the focus on Ab by sounding as its enharmonic minor third. It is held uncontested for an extended period, producing a strong focus on the {Ab, B} pair. The rate of new attacks slowly increases, beginning with the second basses' B♭3, which clouds the tonal implication of Ab minor.

The ambiguity produced by the B♭ is clarified somewhat by the next entry, an (012)-type trichord, {E4, F4, G♭4}, heard in the tenor II/i, alto II/i, and soprano I/ii at R1-2. The high tessitura of the tenors, in contrast to the women, makes the E4 especially prominent. The resulting chord complex thus briefly centers on this E, reinterpreting the {Ab, B} dyad as {G#, B}, the third and fifth of an E major triad. The other pitches, B♭3, and G♭4, act as unresolved second and raised fourth degrees above the implied E root.

The E-focus is fleeting, however, as the octave C3 and C4 entrance of the tenors and basses suddenly expands the lower register of the texture at R1. The result is that C3 becomes the primary pc element, a root underneath an increasingly dense set of pcs. Above it, the highest pitch to enter is C♯5, the peak of the movement.

As mentioned earlier, most voices state only one pitch apiece. However one significant change occurs at R2-3, where the bass I/ii and alto I/ii leap from C3 and D4 to G3 and G4 respectively, completing the aggregate. Although the G3 contracts the overall registral span, it is made focal both by the crescendo, the doubled attack, and the increased rhythmic activity. Further bolstering this pc is the alto II/ii movement to G4 in the following measure. Rhythmic drive continues to build at R2 with the regular quarter note pulse, reinforcing G as the focal
center. After this point, the pc content slowly recedes, while the G is maintained undisputed as the focal pitch class.

PC Analysis

The pc structure can be explained from two perspectives: one focusing on internal elements, and one relating *Sicut Locutus Est* to the whole *Magnificat*.

Locally the change in focus from A♭ to G is brought about not only by registral and metric accent, but also by its axis-harmony relations with previous prominent pcs. At R2-3, the C3 and D4 left by the bass and alto are the subdominant and dominant pcs with respect to the G tonic. We have seen in the previous works how these scale degrees can establish and highlight the tonic. Given the substantial number of sounding pcs here, the choice of C and D to precede the tonic may be best understood from this harmonic perspective.

Harmonic considerations also account for larger-scale pitch structure. Up until the entrance of the G, the two pcs with the longest duration and strongest focus are A♭ and C. As noted, C falls within the subdominant axis collection, \{C, E♭, G♭, A\}. The opening A♭ may be understood to represent the dominant collection, \{D, F, A♭, B\}, which is further supported by the also very prominent B♯. Therefore, not only local pitch change, but also all the most accented pcs preceding R2-3 prepare the tonic arrival by stating the subdominant and dominant axis sets.

C♯5, the T-6 related counterpole of the eventual tonic G, is both the highest pitch, and is the closest pitch attack preceding the G, indicating that it too prepares the tonic pc. Further, these two poles are accentuated because they form the registral boundaries of the cluster after
Ex. 5.2 summarizes axis harmony relations, including both the most accented, large-scale dominant and subdominant elements as well as the local C, C#, and D in their placement about G. As was found in the previously analyzed works, this complex forms an (0127) tetrachord indicating the tonic.

Example 5.2: Axis-Harmony Elements

Thus, while the work exhibits the (0127) tetrachord identifying the tonic, the presentation of the dominant pc is expanded: in contrast to the earlier works, other members of the dominant set substitute for this pc. This technique is found in his later music, as we shall see.

Relation to the Magnificat

The pitch organization of the movement also contributes to the general plan of the Magnificat, whose final harmonic destination is a C major triad. Specifically, Sicut Locutus Est foreshadows this goal in its progression of pc centers. The initial focal pcs, which descend in major thirds, A♭-E-C, are shown in Ex. 5.3 as a descending arpeggio. The overarching melodic activity shifting from A♭-G, thus can be heard as a b6-5 resolution above a C tonic triad.
Example 5.3: Arpeggiation of C Major

This interpretation explains the extreme emphasis on the low C, which seems greater than needed simply to establish the IV of G.

Therefore, dependent on the listener’s perspective, two interpretations of the pitch organization can be distinguished: the D-T progression from A♭-G that gives coherence to the movement itself, and the b6-5 interpretation of this pitch change in the C-major context of the entire Magnificat. These are not contradictory ideas. Perception of one or the other depends upon how one registers the significance of the low C arrival, which in context of the whole is stronger than when the movement is heard separately.

We have now seen several works in which axis organization is manifested between the tonic, its counterpole, and the dominant and subdominant pcs. In this work it occurred around the climax of the work. Despite a very different musical surface and idiom, a similar organization will be seen at the climax of Agnus Dei.
Agnus Dei

The vocal parts in Agnus Dei, as in much of Penderecki’s later music, are much more diatonic than those in the earlier works, producing a strong modality and focus. While this makes analysis more straightforward, several difficulties remain. Tone clusters and other highly chromatic simultaneities still occur, although less frequently, and their stark contrast to the surrounding material raises questions about continuity and consistency with the diatonic materials. Despite Penderecki’s shift from a serial / atonal language to a more diatonic vocabulary, a point of similarity exists insofar as both types of music have an axis system of pitch organization which structures both local and large-scale musical events.

Agnus Dei exhibits a clear F tonic within an increasingly chromatic music. The tonic is not supported by an axis set -- it is prolonged and accented by members of the F minor triad, \{F, A\textsubscript{b}, C\}. Nevertheless, the key is not developed and elaborated by progressions of other diatonic triads, as would be the case in more traditionally tonal music. In the opening phrase shown in Ex. 6.1, stepwise voice-leading outlines members of this triad. Some emphasis is placed on E\textsubscript{b} as well, but it is not a melodic goal -- the voices proceed to and from members of the F minor triad.

Example 6.1: Mm. 1-2: Triadic Outlines
Since most of the melodic activity is stepwise, the voices cross through the intervening pitch classes, resulting in intermediate non-triadic chords far removed from the tonic. Consider the simultaneities shown in Ex. 6.2

Example 6.2: Mm 13-17: Passing Dissonances

Several accented dissonances occur, such as the basses’s Db4 above the tenors’s focal C4 in m. 14. The latter half of the example has a series of dissonances that arise out of the melodic activity between the tonic pcs, {F, Ab, C}. These dissonances do not significantly destabilize F minor because the members of the triad are accented by their position in the lines (beginning and ending text phrases) and by metric position.

As the work progresses, the melodic intervals shrink to semitones. Although the lines are mostly still destined for tonic triad members, some parts terminate prior to those goals, and in such cases this chromatic voice-leading allows for unexpected resolutions to other dyads and triads. The work has a few such digressions, listed in Fig. 6.1. Some are elaborations of a clear triadic background, while others are more striking due to the contrast of the homophony they represent against the generally active texture.
Figure 6.1: Moments of Triadic Clarity

<table>
<thead>
<tr>
<th></th>
<th>m. 1</th>
<th>m. 21</th>
<th>m. 28</th>
<th>m. 32</th>
<th>m. 37</th>
<th>m. 58</th>
<th>m. 62</th>
<th>m. 75</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suggested Triad</td>
<td>Fm</td>
<td>Am</td>
<td>Gm</td>
<td>DbM</td>
<td>Fm</td>
<td>F#m</td>
<td>EbM</td>
<td>Fm</td>
</tr>
<tr>
<td>Axis Set</td>
<td>T</td>
<td>D</td>
<td>S</td>
<td>S</td>
<td>T</td>
<td>D</td>
<td>D</td>
<td>T</td>
</tr>
</tbody>
</table>

Considering this table, one may hear the work subdivided into two large sections and a coda, based on the return of the F minor tonic harmony. Within this large scale pattern two T-D motions are displayed, in m. 21 and 58, although each axis dominant collection is represented by different roots. After its opening progression, the rest of each section dwells on one axis set: S in the first half, and D in the second. The subdominant section is illustrated in Ex. 6.3.

Example 6.3: Mm. 28-35: Focus on Subdominant Collection
This excerpt shows several features pairing the two 4-measure phrases together. Not only are they textually linked, but the root focus is T6 related (G and Db), and the melody is T3 related between m. 28 and 32. Furthermore, although a stable G minor triad begins in m. 28, a Gº7 triad containing all the members of the subdominant set, plus D, concludes m. 28 and 29. Another axis emphasis is in the bass and alto lines in mm. 28-29 and 31-32, respectively, where each moves chromatically from C#/D♭ to G. Mm. 32-34 has a similar reflection of the axis collection caused from the T3 relationship: the melodic half step F-E produces another vertical axis dyad D♭-E.

Although mm. 58 and 62 do not have the same strong thematic and textual association, a similar harmonic root relationship exists insofar as they both represent the dominant axis region. There is an important difference between the two situations, however. In the earlier subdominant example, the music was leading back to F minor through a chromatic descent in the soprano, requiring a stabilization of the harmony. Here, the music intensifies in chromaticism in all voices, producing a series of simultaneous dissonant tetrachords, leading toward the work's climax.

The climactic vertical chord in mm. 72-73, in comparison to the rest of the work, is of an extraordinary pc density. Illustrated in Ex. 6.4, it is a broad sound mass of conflicting triads and thirds, containing eight pcs with multiple doublings. The scoring makes it appear to be a juxtaposition of two tertian chords, E-G-B-D-F♯ and F-A♭-(C)-E♭. However this description explains neither the chord's significance and relevance to the work, nor the absence of the C.
Example 6.4: Mm. 72-73: Climax Chord

Instead, treating the whole pitch collection as a single entity makes both the method of construction and the function transparent. Ex. 6.5 compresses all the sounding pitches onto one staff.

Example 6.5: M. 72: Actual Sounding Pitches

Fig 6.2 illustrates this chord’s cyclic construction around two centers of symmetry, B and F.
The B is surrounded on either side by a minor third gap followed by a chromatic heptachord. Seen another way, each F lies bounded by a tone cluster from D and A♭, with B a minor third beyond. Fig. 6.3 is a circular representation clarifying the relation of this collection to the tonic axis set.

Thus the tonic axis collection provides the skeletal pitch classes: the primary branch, {F, B}, acts as the axis of symmetry, while the pcs of the secondary arm, {A♭, D}, delimit the cluster boundaries. The resulting complex represents the tonic most clearly in its axis form, but at the same time subjugates the F tonic pole between the A♭ bass and the B counterpole -- having no adjacent pcs, the B is made distinct, and is also the highest pitch. It is important to note that this climax cannot be explained in reference to relationships and pitch structures in the rest of the work; the minor third and tritone relationships embodied in the dense pitch collection are entirely absent from the rest of the movement, necessitating the axis interpretation.
Summary

*Agnus Dei*, despite its opponent organization about the F minor collection, incorporates the axis system. Within the work, the few clear triadic arrivals produce a meaningful harmonic organization only when their roots are heard to have an axis-harmony function. Furthermore, the structure of the climatic chord is far removed from the rest of the movement, but may be explained as a manifestation of the F tonic axis set. In the last two works to be studied, *Song of Cherubim* and *Veni Creator*, axis influences proliferate, producing coherence and continuity on both small and large scales of the work.
Song of Cherubim

*Song of Cherubim* is in many ways simpler than *Agnus Dei*, but it presents several analytical challenges. Although the texture is more triadic and diatonic, and opens and closes on the same pc, F, there is not a recurrent tonic such as in the previous work. Another analytical difficulty arises in pc continuity. The relationship of root or focal pitches from one section to the next has little in common with any traditional harmonic progression. Given the lack of a reiterated focal pc, and the tenuous nature of the harmonic connections, it is difficult to make sense of the pitch center succession. Again, the axis system offers a solution.

As was mentioned above, the movement commences and concludes on F. Ex. 7.1 outlines the first and final pitches of each phrase from mm. 1-2. The work begins with a melody departing from and returning to F4. Subsequently, the altos commence an F4 drone underneath similar melodic material, thereby sustaining the F, and establishing it as a destination. As the movement continues, the men sustain this F drone via an octave transfer to F3, which is reinforced by the low basses’ F2 interjection in m.2.

**Example 7.1: Mm. 1-2: Reduction**
A similar texture and F-focus is maintained from m. 63 to the end, providing closure, and further evidence of the pc's significance. It is for these reasons that F will be treated as a primitive tonic for the work. However F's potential role as a global tonic pc is undercut by the pitch material concurrent to the opening drone, which does not support F triadically or axially. Furthermore, the bulk of the work in between this brief opening and closing does not propagate an F focus. Instead, the other two axial groups, \{B♭, D♭, E, G\} and \{C, E♭, F♯, A\}, are responsible for generating and partitioning the pc structure. Thus, it will be seen that in lieu of a traditional tonic prolongation, Penderecki uses F to envelop the work, but produces the internal form by composing out the two other (non-tonic) axial sets.

Returning to the opening alto melody, a closer inspection supports a B♭ elaboration. Beyond the fact that the line both begins and ends on F4, it clearly accents members of a B♭ minor triad, as shown in Ex. 7.2

**Example 7.2: M.1: Triadic Focus on B♭ Minor**

The line peaks and hovers between B♭4 and D♭5 until it skips back to the initial pitch, F4. Through this the B♭ is made focal: it is elaborated by upper and lower neighbor tones, and is heard as the root of the two other important pitches in the phrase, F4 and D♭5. While the F4 is important as the first and final pitch of the phrase, it is not supported as a root. Rather it is subjugated into a dominant-like relationship to the focal B♭.

The second phrase, shown on the following page in Ex. 7.3, has a similar structure, but
expands the range upward to E♭5, and then G5. The E is the one noticeably non-diatonic pc within the B♭ minor key area, serving as the raised fourth degree. While not exact, the second phrase melodic peak from E to G is an approximate T6 transposition of the first phrase’s B♭ to D♭ peak. The contrast and similarity between these two phrases initiates a dialogue between the elements of the B♭ axis set, {B♭, D♭, E, G}, which continues through several sections.

**Example 7.3:** M. 1 (cont’d): Second Phrase Peak at E and G

M. 2 follows a similar arched melodic pattern, but repeats the A♭4 to D♭5 leap found in the first phrase, accenting these pcs. While the focus on B♭ persists, this accent on A♭ and D♭ suggests a subsidiary D♭ major triad. At the end of m. 10, other pcs are added to this B♭ minor-seventh mixture, making any root distinction unsure.

At this point of ambiguity, the music simply stops, only to continue with a radically different register, texture, and harmony. Beginning in m.11, the voices line up rhythmically to form a clear G minor triad simply elaborated with neighbor and passing tones, as Ex. 7.4 illustrates (on the following page). This phrase is part of a larger ternary section, mm. 11-32, in which the D minor tonality of the central part prolongs the G minor of the two outer parts. The section ends inconclusively on neighbor tones around the G triad, propelling the music forward.
Example 7.4: Mm. 11-15: G Minor Focus

Completely unexpected is the D♭ major chord that suddenly follows, subsequently supported as a local tonic by an A♭ major triad in m. 33. Although the A♭ is abandoned, the D♭ major continues, only to be joined by B♭ minor. The music proceeds with a motivic alternation between these two triads from mm. 36-41.

Thus far the music has had several textural and harmonic changes, but there have been no significant cadences. Despite some discontinuities, the phrases create one large group. Fig. 7.1 sketches the progression of triadic roots up to m. 41.

Figure 7.1: Focal Roots in Mm. 1-41

<table>
<thead>
<tr>
<th>m.1</th>
<th>m.2</th>
<th>m.11</th>
<th>m.33</th>
</tr>
</thead>
<tbody>
<tr>
<td>B♭</td>
<td>B♭ / D♭</td>
<td>G (D-G)</td>
<td>D♭ / B♭</td>
</tr>
</tbody>
</table>

These three main centers, B♭, D♭, and G, can be understood as building up an axis set around B♭, {B♭, D♭, E, G}. The only pc of the collection missing from Fig. 7.1 is the E, but it was already emphasized in the second phrase by its T6 relation to B♭. Thus, these first 41 measures produce one axially coherent group.
There is a change of rhythm and dynamics in m. 37, and the sequencing of this material (in m. 42) introduces C minor, a new axis collection. The sequence leads directly into a neighbor-tone melodic embellishment, mm. 46-47, analogous to mm. 11-15. The parallelism to the earlier passage’s G minor is reinforced by the unresolved ending of this phrase on a neighbor-tone chord, which deflects the cadence and drives the music onward.

Two other members of the C axis, Gb and A, appear immediately after as the registral bounds of m. 48: A4 and Gb5. In mm. 48-49, the basses state an octatonic scalar fragment, F2-Gb2-Ab2-A2, shown in Ex. 7.5.

Example 7.5: Mm. 48-50.1: Verticalization of Axis Collection

The importance of these pcs is stressed both by the bass doubling and the rhythmic coincidence of the upper voice attacks. At the end of m. 49, when the sopranos’ Ab5 resolves to Gb5, the remaining vertical collection is: \{A2, A3, C4, A4, D5, Eb5, Gb5\}. This completely presents the dominant C-axis collection, along with one additional pc, D, possibly to avoid the hackneyed sound of the diminished seventh chord.

Axial focus gathers as the phrase increases in chromaticism and attack density, leading
to the attacked A minor complex at m. 52. It has prominent As held in several voices, including the registral extremes. In the intervening pitch space, the essential melodic motion is stepwise to and from C and E. Although many other pcs are included in this collection, the members of the A minor triad are accentuated both metrically and registra lly. For example, although the first tenors accent G4 as their first pitch, it is heard as a passing tone between the second tenors’ A4, and the destination E4.

The A-minor collection lasts a full seven measures, at which time (m. 60) the full choral polyphony abruptly cuts out, leaving the tenors on a unison Eb4. The sudden monophonic texture of the tenors’ tune and the plain Eb minor diatonicism make this pc clearly focal. Further, it is heard as the root within the active homophony that sets the next text phrase in m. 62.

This concludes the work’s orbit about the C-axis collection; just as the first section elaborated and focused on the elements of the Bb axis set, mm. 42-62 deliberately exhausts the elements of the dominant set, {C, Eb, Gb, A}, as outlined in Fig. 7.2.

**Figure 7.2: Focal PCs in Mm. 42-62**

<table>
<thead>
<tr>
<th>m.42</th>
<th>m. 48/49</th>
<th>m. 54</th>
<th>m. 60</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>Gb-A (and C-Eb)</td>
<td>A</td>
<td>Eb</td>
</tr>
</tbody>
</table>

Coinciding with the final text “Alliluia,” m. 63 returns to the bass F2 evocative of the opening, above which sound Bb3, Eb4, and Ab4. The Eb is a reminder of the preceding section, while the other pcs represent the upcoming pc material. Here is the first arrival of an F axis collection, represented by three members; {F, Ab, B}. These overlap with the Eb as a
link between the two sections. Once again, this additional element also hides the diminished quality of the axis collection.

In this recapitulation Penderecki again juxtaposes axis sets. Just as the tonic F was highly present in the opening, but acting as the fifth of a B♭ triad, here the mixture of F tonic with the dominant collection also creates a non-tonic harmony. The dominant axis is perpetuated by the sopranos’ ascending third line F#4-G#4-A4 in m. 64 and 66, which is further expanded in m.68, where F#3, A3, C4, and E♭4 are accentuated durationally, as shown in Ex. 7.6.

**Example 7.6: M. 68: Dominant Arpeggiation**

These longer pitches above the F bass sound as an arpeggiated V♭9 (F-A-C-E♭-G♭) of B♭, which beckons the B♭ return in mm. 70-71. This B♭ reprise is motivated further by the phrase’s reintroduction of E4 and D♭4, two members of the subdominant axis collection, rounding the form in its recollection of the opening.

M. 70 quotes the melodic material of m. 38, and marks a brief return to the B♭ triad. This B♭-center is fleeting, however. Shortly afterwards the C diminished triad ending the phrase in m.71 reorients the collection to the dominant axis to prepare the ending. Again, members of the dominant axis are heard over the F bass. Now, however, rather than a
melodic presentation, the pitches are sustained, compressing two minor third pairs, \( \{F\#, A\} \) (dominant) and \( \{A_b, B\} \) (tonic), into a single cluster. The work concludes with a sustained \( F \) in four different octaves.

**Summary**

*Song of Cherubim* creates sectional pc unity by using successions of axially-related focal tones. Overall, the work subdivides into three: the opening section, which maintains the \( B_b \) collection above an \( F \) drone, a shorter middle section focusing on the dominant, and the final section, returning to the \( F \) drone, juxtaposed with elements of the \( C \) axis collection and its own axial set, as summarized in Ex. 7.7.

**Example 7.7: Focal Pitches and Axis Inclusion**

*Song of Cherubim*, despite its references to diatonic chant and triadic music, incorporates the axis system more systematically than Penderecki's earlier works. The minor third and tritone relationships heard in the earlier music here serve to create large-scale harmonic movement by substituting axis-related pcs for a traditional harmonic connection. This effectively partitions the work into distinct pc regions, something seen to an even greater extent in the last work treated in this study, *Veni Creator.*
**Veni Creator**

Like *Song of Cherubim*, *Veni Creator* partitions the large-scale pc structure by focusing on one axial collection. What is different is the much greater localized presence of axis sets. The work has two central pcs, G and D. Rather than relating traditionally as the roots of tonic and dominant triads, however, each is a distinct focal pitch whose axis set generates the pitch content for an entire section. Although these two pcs provide the primary material, the remaining axis collection, \{A, C, E_b, G_b\}, also factors significantly in the D-centric section.

**Descriptive Analysis**

*Veni Creator* opens on a G3 drone. The melody is continually drawn back to this focal pitch: above it the first tenors shift away to A_b 3, skip to B_b 3, and finally leap to D_b 4, all returning stepwise to G3. A sort of melodic palindrome occurs as the melody descends from the D_b 4; it lingers on the B_b and A_b so that the tune’s descent emphasizes the same pcs as the ascent. This melodic shape outlines the elements of a G diminished triad: \{G, B_b, D_b\}, along with the neighboring note A_b, as illustrated in the upper system of Ex. 8.1.

**Example 8.1: Mm. 1-8: G and C#/D_b Accentuation**
The bass answer comprises a fragmented, erratic line directed from G3 to the final C#3. Although having a very different character from the preceding tenor line, it has the same pc destination. Viewed as a pair, these initial lines focus not only on G, but also on the C# / Db counterpole because that pc forms the upper and lower registral boundaries of the music, embellished occasionally by a pitch a semitone higher or lower.

Ex. 8.2 shows a contraction of the registral boundaries at the section's conclusion (mm. 18-20).

Example 8.2: Mm. 18-20: Contraction toward G

Here there is an intense refocusing on the G as the central tone, first in the upper octave, G4, then shifting to the tenors' G3. To provide closure, this acts as a melodic retrograde of the opening, similar to mm. 3-4's descent to G3 via B♭ and A♭.

The music thus far has presented G, C#/Db, and, to a lesser extent, B♭ as the primary melodic tones, three of the four poles of the G-tonic axis set: {G, B♭, Db, E}. As in Song of Cherubim, the E is accented melodically, rather than being elaborated. In Ex. 8.3, E3 and 4 are shown to be the peak and local destination of mm. 21-23. After the brief initial accent on the A♭, this canon metrically accents B♭, Db, and particularly E as the goal of the segment, completing the G axis collection.
Example 8.3: Mm. 21-23: Accent on E and Other Axis-Related PCs

A contrapuntal section ensues, concluding on an octave D in the first tenors and basses at m.35. Immediately prior to this, the second tenors enter on G3, while the unison alto line subdivides into three pitches. Together, their four pcs form two minor third pairs: the first between the tenors’ G3 and the alto I/ii’s B♭4, and the second between the remaining altos’ A♭4 and B♭4, as summarized in Ex. 8.4.

Example 8.4: M. 35: Minor Third Pairs

These pairs are representative of the axis collections about G, \{G, B♭, D♭, E\}, and D, \{D, F, A♭, B\}. As in m. 63 of Song of Cherubim, an overlap between these two sets creates a harmonic transition at an important formal division in the text. Here, the changeover from the G axis focus to the next section’s D axis is accomplished by the intersection of sets. The registration of the two minor third pairs is significant insofar as it groups the A♭, B♭, and B♭ together in a high register. These form the primary motive in the upcoming section.

Mm. 37-102 are a manifestation of the D axis set, most clearly supported by the drone D3 held for 45 measures. The motivic fragment, <A♭, B♭, B♭/C♭>, comprising much of the melodic content, also supports this set, since the D-axis elements, A♭ and B, occupy its
registral extremes.

Just as occurred earlier with the E in m. 23, the fourth member of the axis collection arrives later. In m. 50 the three-note motive moves in parallel with its T6 relative, <D, E, F>. As shown in Ex. 8.5, the parallel tritones that result revolve around all four members of the region, clearly stating the axis set.

**Example 8.5:** M. 50: Focus on \{D, F, A\textsubscript{b}, C\textsubscript{b}\}

Harmonically unrelated are two reiterated tone clusters overlaid on this D axis backdrop. The first is shown in Ex. 8.6.

**Example 8.6:** Mm. 40-41: Eb\textsubscript{4}-A3 Cluster
The second is T3 related to the first: both span a tritone, the first ranging from A3 to E♭4 (mm.40-41 and m.44), and the second from C4 to G♭4 (mm. 52-53, 91, and 93-94). The rhythmicization within each of the parts, atypical of most tone clusters, gives the listener a greater awareness of the internal pc content. As in the sound masses of *Stabat Mater* and *Miserere*, however, the most significant pcs form the bounds of each, and together comprise the third axis set, {A, C, E♭, G♭}. The presentation emphasizes the highest pitch of the cluster because the drone supercedes the lowest cluster pitch as the registral boundary, giving stronger emphasis to the E♭ and G♭ pcs. Thus, Penderecki utilizes a prominent textural feature of his earlier works, the tone cluster, in a harmonically functional manner to establish the third axis collection.

However this third set is realized not only through the tone clusters. Between these clusters, a melodic figure emerges. Initially its pitch content is chromatic, but by mm. 70 it stabilizes to a diatonic collection, the first tetrachord of E♭ minor, as shown in the upper voice of Ex. 8.7.

**Example 8.7: Mm. 70-78: E♭ Melody**

![Example 8.7: Mm. 70-78: E♭ Melody](image-url)
This melody emphasizes Eb4 and Gb4, the same pcs that were accented as the crest of the tone clusters. The importance of these pcs, particularly Eb, will be revisited in the discussion surrounding the movement’s conclusion.

Example 8.8: Mm. 116-End
The close of the work (shown in Ex. 8.8) brings the opening pitch collection, \{G, B_b, D_b, E\}, into contact with the focal set of the second half of the work, \{D, F, A_b, B\}, by integrating pc content from both collections into the melodic lines. In mm. 116-119, the tenors' melody is an octatonic combination of the \{A_b, B_b, B\} of the D-section with the G and C\# so important to the opening. Continuing this overlap of collections, the sustained tones at the end of m.119 comprise a cluster with the same pc content as the transition between the axis sets in m.35, a juxtaposition of the two axis collections.

The final phrase, rather than simply intermingling the two sets, relates the two by transposition. At m.123 the women sing \{G4, A_b4, B_b4, B4, C#5\}, all of which are sustained. These held pitches find inclusion in either the G axis set (i.e. G, B_b and C#) or the D axis set (A_b and B). Within this line, the G is clearly focal; its elements form the registral envelope, beginning and ending the segment. The final tenor ascent, on the other hand, emphasizes the D collection. Its \{D4, E_b4, F4, G4, A_b4\} is a near exact transposition of the sopranos, except that it includes and sustains fewer pcs: only the members of the D axis, D, F, and A_b, are held, along with an additional E_b.

While it is fitting that the D axis set should be stressed due to its structural significance, the presence of the E_b demands explanation. It may be heard as the result of melodic parallelism: both the sopranos in m. 123, and the opening tenor line made the flatted second scale degree significant, and so the E_b represents the same scale degree in D. A deeper significance may be found in the earlier D-governed section where it was accented as both the upper bound of the first tone cluster in m. 40, and as the tonic of the countermelody.

The E_b also recalls another event we have not yet examined: the pitch collection in
mm. 61-3, shown in Ex. 8.9. It is a vertical collision of the elements of the D and G axis collections, which, along with Eb4, foreshadows the final collection in mm. 124-5. Like the F in the climax of Agnus Dei (discussed on pp. 48-50), the Eb’s centrality to the pitch structure becomes clear in m. 61.

**Example 8.9: Mm. 60-63**

The pitches emanate symmetrically from Eb, as shown in Ex. 8.10.

**Example 8.10: M. 61: Pitch Arrangement around Eb**

The symmetry is not exact due to the absence of the B♭3. Yet this is not surprising when one considers the chord’s location within the D-centric area; since the members of the D axis set take registral precedence, the lower B♭3 is avoided in favor of B♭3 and A♭4. Thus, while the Eb is hardly perceptible within the sound mass, Penderecki places it as a point of reflection between the two pc collections. This pc symmetry also explains the overall relationship between G and D, and the two subsidiary pcs within the D-section, Eb and G♭. Altogether
they create a symmetric (0145) collection, with an symmetrical center between E and F, shown in Fig. 8.1:

**Figure 8.1: Symmetrical Arrangement of Focal Pcs**

![Diagram](image)

The E and F were the last pcs arriving to complete their respective axis collections earlier in the work. This delayed pairing and symmetry illustrates an increase of the interrelationships between the different axis collections.

**Summary**

While Penderecki uses the axis system differently in this work, he does distinguish large sections by whether their pc content belongs to the G or D axis set. The pcs of the other set, \{A, C, E♭, G♭\} appear prominently so that their group identity is clear.
Conclusion

Given the radical stylistic shift in Penderecki’s music from the fifties to the eighties, one would not expect to find a compositional process common to all. The earlier modernist works incorporated many contemporary techniques of pitch organization, particularly serialism. Yet in this context, Penderecki still imposed a tonal focus and structure on his music. To control the potential pitch anarchy of dodecaphonic composition, however, he did not simply attempt to construct triads from the rows, as did some of his contemporaries. Instead it appears that a hierarchy of pitch developed, similar to Bartók’s harmonic practice of axis tonality, in which the tonic and its T6-related pc were considered as part of a tonic dyad. To help set off the tonic pc, he often added the dominant and subdominant around the counterpole, thereby forming an (0127)-type tetrachord. We observed several instances of such sets in the early works, most notably Psalm XXX, Miserere, and at the climax of Sicut Locutus Est.

In these pieces, the function of the primary axis and the (0127) complex is to point toward and establish the tonic pc. In the later works, most of which present a highly diatonic melodic content and easily recognizable triadic roots, the pc focus is much simpler, rendering such a construction unnecessary. However the succession of roots does not follow a tonal paradigm. Instead, progression derives from the root’s membership in a particular axis set -- a new usage of this collection. In both Song of Cherubim and Veni Creator, sectional distinction is created by restricting the roots in each section to one axis collection or the other. Besides controlling tonal form, the axis set infiltrates local events. For instance, the climax of Agnus Dei is hard to reconcile with its context, unless on explains it in terms of the F-axis collection.
Similar verticalized axis sets occur in the last two works, whose sectional transitions to different collections were mediated by an overlapping of the members.

Thus it seems that an axis system emphasizing tritone relationships, and, more generally, pitches with an (0369) intervallic relation, constitutes an organizational principle for pc content in Krzysztof Penderecki’s two major compositional periods. In the earlier compositions the system is a technique of creating a tonic focus on a particular pc, and in the later works it unifies the pitch material of large segments. Thus, notwithstanding the significant stylistic changes, axial considerations are an organizational principle throughout the corpus of Penderecki’s choral works.
Bibliography


