Modality and Chromaticism
in the Madrigals of
Don Carlo Gesualdo

Volume I of II

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Abstract

Don Carlo Gesualdo, Prince of Venosa, (1566–1613) is celebrated for his idiosyncratic use of chromaticism. Yet, the harmony of Gesualdo's madrigals evades modal rules and his chromatic style has perplexed analysts. This thesis reappraises the modal and chromatic features in his madrigals and expands on their significance by employing pitch-class set theory analysis to enhance a more traditional modal approach. Whilst analysis of the music through modal features and pitch-class set theory may appear to use contradictory analytical methods, the two can complement each other through the recognition of certain interval patterns regarded as significant by cinquecento music theorists. Ultimately, this analytical technique provides a language with which to articulate the modal and chromatic processes occurring in his music. In order to consolidate the results of the analyses, elements of compositional process are delineated and explored in the dissection of the madrigal '"Io parto" e non più dissi.'

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1. An accompanying CD contains the audio examples (Track 01–06) in Chapter 7; it can be found in a pocket bound to the back cover of Volume II. The track listing is found on page 166.

2. The audio examples can also be found online at: http://josephknowles.com /modality-chromaticism-madrigals-don-carlo-gesualdo/. A Spotify playlist is available on this site listing recordings of all the music referred to in the thesis; this provides a free and legal method of listening.

Acknowledgements

Author's Declaration

During the preparation of this thesis several publications have been prepared, which although do not reproduce the text of the thesis, draw on the material presented here:

'Gesualdo, Composer of the Twentieth Century.' In *Critical Music Historiography: Probing Canons, Ideologies and Institutions,* edited by Vesa Kurkela and Markus Mantere, 239–250. Aldershot: Ashgate, 2015.

'Chromaticism in the Gesualdo's Madrigal "Mercè grido piangendo."' In *Reappraising the Seicento: Composition, Dissemination, Assimilation*, edited by Joseph Knowles, Andrew Cheetham and Jonathan Wainwright, 15–42. Newcastle: Cambridge Scholars Publishing: 2014.

'Eroticism in Gesualdo's Madrigal "Sparge la morte."' *The Musicology Review* 8 (2013): 20–37.

This thesis has not previously been submitted for a degree at the University of York nor any other university.

Introduction

Don Carlo Gesualdo, Prince of Venosa (1566–1613), is celebrated for his idiosyncratic use of chromaticism. However, the unique nature of his compositional language, compared with that of his contemporaries, has meant that analysts and musicologists have struggled to find a vocabulary with which to elucidate Gesualdo's compositional processes. There is an inability of the music theory of Gesualdo's day to explain his chromaticism and modern analytical approaches that disregard the subtleties of sixteenth-century music theory are in danger of being anachronistic. This thesis bridges the gap between the two: it contains both a reappraisal of the modal nature of Gesualdo's music and a pitch-class set theoretical analysis. Whilst analysis of the modal features and pitch-class set theory may appear to be contradictory analytical models, the two can be used to complement each other through the recognition of several interval patterns regarded as significant by *cinquecento* music theorists.

Music theory during Gesualdo's lifetime was in a state of flux. The Medieval system of modes, which was developed over the previous centuries, had evolved to categorise the ever more complex polyphony of the Renaissance period, which it achieved with varying degrees of success. Another invention of the Medieval period, the hexachord, was still employed as an aid to sight singing, but over the centuries its application became ever more complex and began to accumulate extramusical meaning. Although the basic tenets of these systems remained part of music pedagogy in Gesualdo's lifetime, defining the role of modes in polyphony became more and more of an academic exercise, as did the application of hexachords. Indeed, not even the actual number of modes could be agreed upon. This inability to describe the music with contemporary theories has led some modern scholars to devise new methods of categorising modal polyphony: for example, Harold Powers' system of tonal types[1] and with such unusual harmonic passages found in the music of Gesualdo, it is easier to relieve the music of the modal system altogether. However, the music still retains modal features despite idiomatic use by Gesualdo.

Compounding the matter further, the chromaticism in Gesualdo's madrigals often defies explanation in terms of modality. To provide a language for these non-modal features

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[1] Harold S. Powers, 'Tonal Types and Modal Categories in Renaissance Polyphony,' *Journal of the American Musicological Society* 34 (1981): 428–470.

and relate them to patterns used in contemporary theories, a pitch-class set theoretical analysis can be employed. In addition to identifying the non-modal features it can also recognise modal patterns when they are not used within harmonic areas associated with the mode. By relating the interval structure of Gesualdo's madrigals to distinct tetrachordal patterns acknowledged by *cinquecento* theorists, pitch-class set theory becomes a tool for the recognition of note patterns and for discerning the relationship of the interval structure of passages within a piece to each other. Although the technique may at first appear anachronistic, it does not seek to demonstrate that Gesualdo consciously composed using pitch-class sets; it is a tool for objectively recognising the connections and disparities between different passages in the music. In turn, set theory can relate these to the three tetrachordal patterns that formed the basis of music theory, according to the Ancient Greeks. These tetrachordal patterns will be considered by examining the work of Nicola Vicentino (1511–c.1576), with whom Gesualdo was connected through his relationship with Vicentino's student, Luzzasco Luzzaschi (1545?–1607). The three patterns derive from the division of the perfect fourth into three genera. First, the diatonic, consisting of a semitone and two equal whole tones. Second, the chromatic, splitting the fourth into two unequal semitones and a minor third. Finally, the enharmonic genus comprises two unequal microtones and a major third.

The issue of anachronism is always relevant to analysis, especially so for Gesualdo and when using an analytical method developed for atonal music of the twentieth century. Many early analysts, such as Ferdinand Keiner and George Marshall, conceived Gesualdo's harmonic language as highly complex but tonal, such as that found in the operas of Richard Wagner (1813–1883), which would have been inconceivable to Gesualdo when what is now known as 'tonality' was in its infancy.[2] Instead, Gesualdo's music must be approached as much as possible using terminology he would have understood. Pitch-class set theory, whilst it may seem a world apart from the *cinquecento*, can, if used objectively, aid the analyst through the identification of patterns present in the music. It is crucial, however, that it does not lead to an anachronistic conclusion, for if it did it would surely fail as an analytical technique.

The greatest dichotomy between modality and set theory is the use of hierarchical pitch

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[2] Ferdinand Keiner, *Die Madrigale Gesualdos von Venosa* (Leipzig: Breitkopf & Härtel, 1914) and George Ruffin Marshall, 'The Harmonic Laws in the Madrigals of Carlo Gesualdo' (Ph.D diss., New York University, 1955).

structures in the mode, whereas set theory considers all pitches equal in twelve-note equal temperament. This necessitates two things: first, for pitch-class set theory to be used only in conjunction with a modal analysis, and second, a discussion of temperament. A fundamental step in this discourse is the determination that the analysis is score-based, and therefore of compositional process, not an aural analysis of performance. Compositional procedure will form a central part of the discussion and provide a means of reaching a conclusion. In turn this affects the relevance of temperament to the analysis, which whilst remaining an important feature, is more pertinent to a performance-based analysis.

Accommodating these two theories is achieved by examining the results of each analytical method from the perspective of the other. If the interval structure of a particular passage is revealed to be entirely modal through a set-theoretical analysis, but a modal analysis portrays the music to be harmonically outside of the mode, then in the analytical commentary conclusions will be drawn about this passage that would not have been made taking each analytical method separately. In this case the pitch-class set theory would be able to identify homogeneity or disparity in interval structure within the modal sections and the piece as a whole, allowing greater depth to the analysis.

As this thesis incorporates modern analytical methods within a historically-informed analysis of early music, its structure has been laid out such that a reader familiar with only one (or neither) of these aspects can follow the argument. This has required the insertion of a chapter in which several analytical methods are explained fully, albeit with specific reference to Gesualdo's music. The reader who is well versed in these theories may wish to skip this section and proceed straight to the analysis. The thesis has therefore been laid out as follows:

Chapter 1 reviews the existing literature on Gesualdo, probing the relationship of this thesis to the work of other scholars. Much study has been dedicated to Gesualdo's music over the past few years, including daring analyses built on the solid foundations of previous generations of scholars, of whom Glenn Watkins in the most prominent with his seminal book *Gesualdo: The man and his music*.[3] Examining the literature in this way will allow the gaps in the understanding of Gesualdo's music to be exposed and

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[3] Glenn Watkins, *Gesualdo: the Man and His Music* (London: Oxford University Press, 1973).

the role of this thesis in filling them to be delineated.

Chapter 2 provides an introduction to the analytical techniques employed in the thesis. Hexachordal and modal theory will be discussed first in a manner that is tailored to Gesualdo's music. This will set out the basics for the discussion on modality in Chapter 3, which in turn is expanded upon in the ensuing analytical chapters. Then, the facets of pitch-class set theory used in this thesis will be explained. This is based on Allen Forte's *The Structure of Atonal Music* and *Harmonic Organisation in the Rite of Spring*.[4] Although set theory will be applied in a different manner than it would be to twentieth-century music, the reader who is fluent with Forte's methods may wish to skip this section.

Taking the modal aspects first, Chapter 3 will examine how Gesualdo used mode in composition. This can be elucidated using pitch-class set theory and will build on the outline of modal theory relative to Gesualdo in Chapter 2. Chapter 4 posits an understanding of Gesualdo's chromaticism using interval structures fundamental to the *cinquecento* understanding of music theory, aided through set theory. To demonstrate how the analytical methods and theories discussed in Chapters 2 to 4 operate within entire compositions, four detailed case studies, including one motet for the purposes of comparison, will be considered in Chapter 5.

Ultimately, if any analysis is successful it will further the understanding of the music and not just describe the processes at work, but also infer the reasoning as to why they are taking place. Therefore, in order to draw this thesis to a conclusion, elements of a hypothetical compositional process will be proposed in Chapter 6. This will demonstrate how the processes described in the analytical chapters will actually allow the construction of an entire madrigal. Through the dissection of the aptly titled '"Io parto", e non più dissi' (literally: '"I leave" and I said no more'), this process permits the thesis to solidify its conclusions. The need to discuss temperament becomes apparent during the analytical chapters. Not only does it have an influence on Gesualdo's harmonic language, but pitch-class set theory relies on equal temperament. However, as the analysis is of compositional process and not of performance, temperament is not a central component of the conclusions. Instead, Appendix VI details how different

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[4] Allen Forte, *The Structure of Atonal Music* (New Haven and London: Yale University Press, 1977); *The Harmonic Organization of The Rite of Spring* (New Haven and London: Yale University Press, 1978).

temperaments can be applied to the madrigal '"Io parto", e non più dissi.'

Gesualdo's extant compositions are almost exclusively for five or six unaccompanied voices: six books of madrigals for five voices, a book of motets for five voices, an incomplete book of motets for six voices and his largest work, a responsory for the Tenebrae services of Holy Week for six voices. The chromaticism Gesualdo uses in his madrigals is more ostentatious, making it more suitable for analysis, whereas the chromaticism in the sacred music is subtler and arguably more refined; therefore, the scope of the present study will be limited to Gesualdo's madrigals. Nevertheless, as a point of comparison, a small portion of sacred music will be considered, which will demonstrate that it is best explored after examination of the madrigals due to the similar, but more discreet, processes occurring. Yet, these limitations allow further research using the models and hypotheses in this thesis: the comparison of Gesualdo's chromaticism to other composers and the authorship of an attributed keyboard piece can be examined. Curious references made to chromatic keyboard instruments in Gesualdo's household make fertile ground for future scholarship. The chromatic patterns explored in the present study have the potential to reveal connections between Gesualdo and other composers, piecing together a picture of musical life in Gesualdo's rumoured *camerata*.

It has been necessary to implement several conventions in the writing of this thesis. Unless stated, all translations are the author's own. Madrigal numbering is referred to using two numbers separated by a comma within brackets; the first number, a Roman numeral, refers to the book of madrigals for five voices in which the madrigal can be found and the second, an Arabic numeral, refers to its number within the book. All of the musical examples for the madrigals have been transcribed from the 1613 Edition by Molinaro[5] in conjunction with Wilhelm Weismann's edition for Deutscher Verlag.[6] Due to the large number of tables and musical examples, especially in Chapters 5 and 6, these have been printed as appendices in Volume II so they can be consulted at the

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[5] Carlo Gesualdo, *Partitura delli sei libri de'madrigali a cinque voci,* ed. Simone Molinaro (Genoa: Giuseppe Pavoni, 1613). Accessed online via imslp.org: http://imslp.org/wiki/Madrigals ,_Books_1-6_(Gesualdo,_Carlo), uploaded August 8, 2009 by the Museo Internazionale e Biblioteca della Musica di Bologna.

[6] Carlo Gesualdo, *Sämtliche Werke* Vols. I–X, ed. Glenn Watkins and Wilhelm Weismann, (Leipzig: Deutscher Verlag für Musik, 1963–1990).

same time as the analysis.

Chapter 1
Analysing Gesualdo

Since the turn of the twentieth century, Gesualdo's idiosyncratic compositional language has attracted a rich literature as scholars explored the processes in his music and its potential relationship to his turbulent biography. Often these studies are characteristic of musicological trends of the age in which they were written; yet they make a valuable contribution to the understanding of his music. In order to put this study into context and to demonstrate how it can aid comprehension of Gesualdo's music, a survey of the existing literature will form the basis of the present chapter. Consequently, the relevance of the analytical method used in this study and its relationship to previous publications will be outlined, in addition to defining the scope of the thesis.

After Gesualdo's death in 1613, his music continued to be performed and printed in Italy. In Rome, the court of Queen Christina of Sweden (1626–1689) kept his music alive, his madrigals 'pleased the … Queen […] more than anything else.'[1] She encouraged others to write madrigals in imitation of Gesualdo, including Alessandro Scarlatti. As late as 1706, Archangelo Spagna cited Gesualdo's madrigals as being influential in the development of opera.[2] Even in the civil war court of Charles I in Oxford his madrigals may have been performed.[3] However, by the late eighteenth century tastes had changed. Charles Burney, in his *General History of Music* (1789), expresses this best: 'there is more confusion in the general effect than in the Music of any other composer of madrigals with whose works I am acquainted. His original harmony … is difficult to discover … And as to his *modulation*, it is so far from being the sweetest conceivable,

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[1] Mario Fabbri, *Alessandro Scarlatti e il principe Ferdinando de'Maedici* (Florence: Olsckhi, 1961), 83–84. Quoted from: Michaelangelo Rossi, *The Madrigals of Michaelangelo Rossi,* ed. Brian Mann (Chicago: University of Chicago Press, 2003), 9.

[2] Archangelo Spagna *Oratorii overo Melodrammi* (Rome, 1706). Quoted from: Cecil Gray and Philip Heseltine, *Carlo Gesualdo Musician and Murderer* (New York: The Dial Press, 1926), 89.

[3] Andrew Cheetham and Joseph Knowles, 'Introduction' in *Reappraising the Seicento: Composition, Dissemination, Assimilation*, ed. Andrew Cheetham, Joseph Knowles and Jonathan Wainwright (Newcastle: Cambridge Scholars Press, 2014), 3.

that, to me, it seems forced, affected, and disgusting.'[4]

Gesualdo's music was never entirely forgotten;[5] however, it was not until the end of the nineteenth century and in Germany that his music was considered in musicological discussion. There were still no scores available to these early musicologists save those printed in the seventeenth century. The availability and reliability of editions has played an important role in the study of Gesualdo's music and, therefore, are a suitable departure point for a literature review, before exploring the early German studies of his work.

Scores

After its first publication in 1594, Gesualdo's first book of madrigals was reprinted five times, the last edition in 1617. His other books, too, were all reissued, though the later books did not undergo as many reprints; the sixth book, for example, was reprinted only once in 1616.[6] This may be a result of the beginning of the decline in popularity of the madrigal or the smaller market for Gesualdo's madrigals due to their difficulty or distaste for his later, more chromatic, offerings. Mutio Effrem published a collection of Gesualdo's madrigals for six voices in 1626. This was the last seventeenth-century publication of his music; only the Quintus part is extant.

Gesualdo's sacred music, two motet collections and a responsory for the Tenebrae services of Holy Week, was printed only once. The two motet collections, one for six voices and one for five, both marked 'liber primus,' were printed in 1603. If a second collection for either of these books was printed it has not survived and the six-voice collection is missing two partbooks. The *Responsoria et alia ad Officium Hebdomadae Sancte spectantia sex vocibus* was printed in Naples by Carlino in 1611 and, like the motets, was not in print again until the twentieth century.

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[4] Burney, Charles, *A General History of Music* first published 1789, quoted from 1955 reprint of 1935 edition (New York: Dover Publications, 1955), 180. Online copy accessed November 9, 2011, http://www.scribd.com/doc/37240175/Burney-a-General-History-of-Music-1935.

[5] A survey of the literature from 1613 until 1926 is written by Cecil Gray in: Gray and Heseltine, *Carlo Gesualdo*, 86–91.

[6] A full list is available in: Glenn Watkins, *Gesualdo: The man and his music* (London: Oxford University Press, 1973), 322–323.

In 1613 the Genoese publisher Simone Molinaro printed all six books of Gesualdo's madrigals in score, which was atypical of the period; *Tutti i madrigali di Cipriano di Rore a4*, printed in 1577, is the only comparable publication.[7] To have a complete collection in score represents the importance of Gesualdo's madrigals to other musicians of his era. Although there are small discrepancies between copies,[8] it provides a reliable primary source for the music.[9]

In 1957–1958 the madrigals were printed in score for the Instituto Italiano per la Storia della Musica, edited by Annibale Bizzelli.[10] Only a year later the publication of Gesualdo's entire works was begun by Deutscher Verlag für Musik. Completed in 1982, it took a more critical approach than the Bizzelli edition and incorporated Gesualdo's sacred works with a volume of addenda, which included an instrumental gagliarde, several canzone from other collections, a keyboard piece attributed to Gesualdo and a facsimile of the surviving partbook of the 1626 collection.[11] Wilhelm Weismann edited the madrigals from Molinaro's 1613 edition and Glenn Watkins edited the motets. For the first time since the early *seicento,* all of Gesualdo's music was in print, readily available in a scholarly edition, to scholars and performers alike.

Marking the four centuries since Gesualdo's death, the Istituto Italiano di Studi Gesualdiani established 'La Stamperia del Principe' in Gesualdo to produce a critical

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[7] Watkins, *Gesualdo*, 168.

[8] Maria Caraci Vela and Antonio Delfino, 'Introduzione: L'edizioni di Simone Molinaro (1613)' in *Carlo Gesualdo Madrigali a cinque voci Libro Quinto – Libro Sesto Edizione Critica,* ed. Maria Caraci Vela and Antonio Delfino (Gesualdo: La Stamperia del principe, 2013), x–xii.

[9] The Biblioteca Musicale di Bologna has digitised their copy and made it available online; this digital copy has been used for the basis of all the examples in this thesis: Carlo Gesualdo, *Partitura delli sei libri de'madrigali a cinque voci,* ed. Simone Molinaro (Genoa: Giuseppe Pavoni, 1613). Accessed online via imslp.org: http://imslp.org/wiki/Madrigals,_Books_1-6_(Gesualdo,_Carlo), uploaded August 8, 2009 by the Museo Internazionale e Biblioteca della Musica di Bologna. Catalogue page available at http://www.bibliotecamusica.it/cmbm/scripts/gaspari/scheda.asp?id=7390.

[10] Carlo Gesualdo, *Madrigali,* ed. Francesco Vatelli (Rome: Insituto Italiano per la storia della musica, 1956). The exact date of publication is not clear, the Royal College of Music library catalogue lists the date of publication as c. 1942. The date cited in the text is taken from the 'Introduzione' from the critical edition cited in footnote 8.

[11] Gesualdo di Venosa, *Sämtliche Werke* in 10 Vols. ed. Wilhelm Weismann and Glen Watkins (Leipzig: Deutcher Verlag für Musik, 1959–1983).

edition of the fifth and sixth books of madrigals. Unlike the Weismann edition, the part books were used as sources alongside Molinaro's 1613 edition and the collection has a lengthy preface examining these sources in detail. The fifth book was edited by Maria Caraci Vela and the sixth by Antonio Delfino; they are accompanied by the texts of the madrigals edited by Nicola Panizza and an essay by Francesco Saggio.[12] It is an invaluable resource, especially for the conscientious study of the sources, the results of which are disseminated in the lengthy introduction, and it has been consulted in the preparation of examples for this thesis.[13]

Two of Gesualdo's works are not included in any modern edition: a motet published in 1585 and three ricercate published in 1586. The first of these is found in Stefano Felis' *Liber secundus motectorum*, composed for five, six and eight voices and printed by Gardano in Venice. One five voice motet of this collection is marked 'Illustris. Don Caroli Gesualdi' and can be found in Appendix V in Volume II. The three ricercate of 1586 are printed in Giovanni de Macque's *Ricercate e canzoni francese* of which only the Tenor part (of a total four voices) is extant.

Early Studies

Knowledge of Gesualdo's music did not completely disappear throughout the centuries between his death and the first musicological monograph on his music in 1914, although the references are somewhat scant until the turn of the twentieth century.[14] In Germany, musicological studies incorporated Gesualdo's music,[15] which cumulated in Ferninand Keiner's monograph *Die Madrigale Gesualdos von Venosa* in 1914. Keiner opens with

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[12] Carlo Gesualdo, *Carlo Gesualdo Madrigali a cinque voci Libro Quinto – Libro Sesto Edizione Critica,* ed. Maria Caraci Vela and Antonio Delfino (Gesualdo: La Stamperia del principe, 2013).

[13] A complete edition is also undergoing preparation by Bärenreiter Verlag (announced in November 2013 in Milan—this was reported aurally to the author and the website with details of this event has been taken offline as of February 2014). However, it is not clear whether this critical edition is part of the same project or not.

[14] Gray & Heseltine's Bibliographical Appendix is an excellent source for references to Gesualdo over these years. See: Appendix 2 'References to Gesualdo by his Contemporaries,' Appendix 3 'Modern Reprints of Gesualdo's Works' and Appendix 4 'Modern Books Relating to Gesualdo and his Works,' *Carlo Gesualdo*, 134–138.

[15] See Appendix 4 of ibid., 138.

the Prince's biography, before a detailed analysis of his music. Although the work is now known to contain many factual inaccuracies, the model set out in his biography became the basis for subsequent studies that would expand and correct the details as scholarship progressed. Keiner recognises that Gesualdo's madrigals are composed in the modal system; however, without the musicological studies available to later generations of scholars, he was unable to develop a more historically informed approach to his analysis and he therefore used tonal language such as 'secondary dominant' to describe the processes he saw in the music.[16] Such language is not wrong *per se*, yet the use of tonal language projects onto the music the understanding of a system that had not been developed.

Reading into Gesualdo's music processes that they saw in their own, musicians of the early twentieth century began to see parallels with themselves. Although this was the result of the projection of tonal language onto the music, there are similarities in the compositional process employed by Gesualdo and the composers of the twentieth century, [17] as well as uncanny resemblances between harmonic movement in Gesualdo's madrigals and Wagner's operas.[18] Hugo Leichtentritt expresses this attitude in his 1915 article 'The Renaissance Attitude Towards Music':

> '[Gesualdo's] six books of madrigals are among the greatest curiosities of musical literature. Their harmony is so unusual, even eccentric, that it could not be appreciated before the 20th century, because it surpassed in strangeness anything that had been produced up to our own age. Only at present, in the age of Richard Strauss, Debussy, Scriabine, Busoni, can one see that this great impressionist Gesualdo is akin to these modern masters, their brother. He is three centuries ahead of his time in his novel and extremely daring use of tonality or rather lack of tonality, his bewildering manner of modulation, his fine sense of colour in harmony—somewhat like

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[16] Ferinand Keiner, *Die Madrigale Gesualdos von Venosa* (Leipzig: Breitkopf und Härtel, 1914), 36.

[17] Joseph Knowles, 'Gesualdo, Composer of the Twentieth Century' in *Critical Music Historiography: Probing Canons, Ideologies and Institutions* (Aldershot: Ashgate, 2015): 239–250.

[18] Gray & Heseltine, *Carlo Gesualdo,* 121.

Leonardo da Vinci, who in his sketches anticipated a good many modern ideas in engineering, mechanics, navigation, etc.'[19]

The sentiments expressed by Leichentritt continued to be repeated throughout the twentieth century; musicians saw Gesualdo as operating independently of the musical culture of his day. This idea of the 'eccentric genius' has always appealed to artistic minds, though it is an interpretation of Gesualdo's music that does not bear careful scrutiny. Cecil Gray and Philip Heseltine were the first scholars to publish a work that showed sensitivity towards the musical culture of the late *cinquecento* and early *seicento*, dispensing with the idea that Gesualdo was 'three centuries ahead of his time.' Following Keiner's monograph, *Carlo Gesualdo, Musician and Murderer* begins with a biography of Gesualdo's life by Cecil Gray and finishes with a discussion of the music by Philip Heseltine.

Gray and Heseltine's book set out the most accurate biographical information available to them at the time, combined with an intelligent review of Gesualdo's music; in doing so it established a biography on Gesualdo that would inform scholars of the next generation, building on the work of Keiner. Sandwiched between these well-informed, erudite chapters, is a disturbing (perhaps even facetious) chapter by Cecil Gray entitled 'Carlo Gesualdo Considered as a Murderer' in which he appraises 'the merits and faults of Don Carlo's achievement as a murderer'[20] concluding 'Gesualdo's eminence in the art of murder is no less than it is in the art of music, and that his achievement in both spheres has been unduly and undeservedly neglected.'[21] It is a pity that this chapter overshadows Gray's well-research biography and Heseltine's illuminating discussion of the madrigals.

In contrast to Gray, Heseltine considered Gesualdo not as an artisan murderer and 'by no means an isolated person of eccentric genius, but rather the fine flower of a school of daringly imaginative experimental composers.'[22] He begins his essay with a review of the literature on Gesualdo's music, before offering his own analyses.[23] Although he

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[19] Hugo Leichtentritt, 'The Renaissance Attitude towards Music,' *The Musical Quarterly* 1 (1915): 604–622, 615.

[20] Gray and Heseltine, *Carlo Gesualdo*, 63.

[21] ibid., 74.

[22] ibid., 77–78

[23] ibid., 86–91.

does make comparisons to composers such as Wagner and Delius, he begins his essay with a warning against anachronisms, which neither he nor later theorists fully took into account:

> How do we listen to old music and how much of its import can we assimilate, unsullied by extraneous associations? We cannot listen ear to ear with its contemporary hearers. […] We should have to forget all the subsequent music, and, with the aid of theoretical treatises, so distort our natural mentality that all the cumbersome machinery prescribed by the text-books would have to be brought into action before we could re-think a passage with a sixteenth century mind […] The appearance of a D flat would be fraught with hazardous potentialities and an excursion into B major and adventure into the heart of an unknown country. […] [The modern adult] is therefore prone to make constant comparison in his [*sic*] mind between the music of the past and that of his own day, unconsciously or, worse, even deliberately seeking in it anticipations of later phrases of the art. But this is an aesthetic fallacy.[24]

Leichtentritt is, arguably, guilty of Heseltine's 'aesthetic fallacy,' anticipating in Gesualdo artistic qualities three centuries ahead of his time. Yet Heseltine, whilst acknowledging the impossibility of hearing Gesualdo in the same way it was heard in his own day, recognises the danger of disregarding the subtleties of *cinquecento* theory in amplifying the effects of anachronism. To Heseltine, awareness of contemporary music practices enhances the drama in the music. This awareness remains pertinent to all analysts too; his comments are still relevant for avoiding the trap of 'aesthetic fallacy.'

Analyses

In 1955 George Ruffin Marshall submitted a PhD dissertation to New York University entitled 'The Harmonic Laws in the Madrigals of Carlo Gesualdo.'[25] Opening with a biographical outline of Gesualdo's life and a critique of existing literature, Marshall moves onto a discussion of keyboard temperament and its implications. He then proceeds to examine Gesualdo's use of harmony and chromaticism. Whilst Marshall

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[24] ibid., 92–93.

[25] George Ruffin Marshall, 'The Harmonic Laws in the Madrigals of Carlo Gesualdo' (Ph.D diss., New York University, 1955).

makes many salient points about Gesualdo's use of harmony, he, too, falls into the same trap as Keiner and uses several anachronisms. For example, in discussing Gesualdo's 'harmonic material,' he describes German sixths; yet, he does go some way towards expressing the inability of the language to describe the musical processes:

> We would expect to find some examples of augmented sixth chords in Gesualdo's madrigals, and we are not disappointed. In *Io pur respiro* (VI, 10) the 'German' sixth makes its appearance. (See example 49, where A♭ =G♯.) The second statement of *Deh morte* shows that he did not give eighteenth-nineteenth century meaning to what was to be known as the German sixth chord, since at that point the characteristic interval appears as a diminished third (E♭ =D♯) owing to the contrapuntal movement rather than to an inversion of the chord. What we see in the example is the definitely harmonic stress of an intense interval that was to play a great role during the period of major-minor harmony.[26]

Through this analysis, Marshall is attempting to deconstruct Gesualdo's compositional technique; yet his success is limited by his anachronistic approach. Nevertheless, in describing Gesualdo's use of harmonic language, Marshall makes many useful comments, for example outlining Gesualdo's use of root chords, dissonance and rhythm to highlight harmonic features. Despite brief anachronisms, such as in the example above and the occasional tendency to use tonal language, his comments are of value. He does not dismiss the idea of mode, but discusses it alongside perceived tonal features. In describing Gesualdo's chromaticism, however, the same cannot be said and the terminology belongs to a different age:

> [Gesualdo's] Chromatic technique may be divided into six categories: (1) Cadential alteration, (2) Secondary dominants, (3) Modulation, (4) Modal changes, (5) Non-dominant alterations, and (6) Chromatic non-harmonic tones.

Notwithstanding, Marshall's dissertation was an important stepping-stone in the understanding of Gesualdo's music. Seven years later Edward E. Lowinsky published *Tonality and Atonality in Sixteenth-Century Music* in which he describes the chromaticism found in music of the latter half of the sixteenth century as 'phenomena that cannot be understood either in terms of the old modality or in those of the newly

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[26] ibid., 64.

emerging tonality, phenomena that are best described as "triadic atonality."[27] Rather than viewing the chromatic progressions in terms of the categories described by Marshall, he views the chromaticism as a result of major or minor triads that can be built on any pitch of the twelve note scale and consequently suggesting incongruity in the harmonic organisation of the music:

> If we compare beginning and ending [*sic*] of *Languisce al fin* from Gesualdo's fifth book of madrigals—one of the less radical chromatic madrigals—we find no more than the faintest traces of tonal definition. The piece hovers somewhere between E major, E minor, Phrygian and A minor. Not a single authentic cadence appears in the work. To cancel in each phrase the tonal implications of the preceding phrase, to create a state of tortured suspense, to refuse the searching mind any place to rest—these are the most definite tendencies discoverable. Constant alternation between major and minor intervals, continued shifts of the harmonic center, and complete chromatization of the scale (it takes Gesualdo no more than seven measures to present all twelve tones)—these are the chief means of attaining that tonal instability which Gesualdo needed to express the turmoil of his inner world.[28]

Lowinsky's 'triadic atonality' concentrates on identifying the means through which Gesualdo aims for 'tonal instability,' instead of searching for the 'faintest traces of tonal definition.' He overlooks, therefore, Gesualdo's ability to include a tonal focus amidst the 'turmoil of his inner world,' a feat which requires great command of harmonic organisation and fluency with the modal system, the only large scale tonal device available to composers in his time.[29]

Eric Chafe rejects Lowinsky's 'triadic atonality' as the reason for the 'instability' of Gesualdo's compositional voice. For example, when considering the opening of 'Moro lasso,' to him, the contemporary

> listener of today hears the opening chordal sonorities of Gesualdo's 'Moro lasso' … as a provocative, unsettling, and disruptive event—just as did the listener of the seventeenth century—because Gesualdo's musical gesture

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[27] Edward E. Lowinsky, *Tonality and Atonality in Sixteenth Century Music* (Berkeley and Los Angeles: University of California Press, 1962), 39.

[28] ibid., 43.

[29] Tonal organisation is discussed in: Harold S. Powers, 'Tonal Types and Modal Categories in Renaissance Polyphony,' *Journal of the American Musicological Society* 34 (1981): 428–70, 429.

stands outside the framework of what the music of his time as well as ours deems a causal or logical sequence. In this work as in many others Gesualdo provides a constant shifting back and forth between this highly chromatic style and the more normal diatonic harmonies of the age as if to aid the listener in measuring the dissonance at the beginning of the madrigal. Yet if the piece were written entirely in the style of 'triadic atonality' it would remain jarring from beginning to end, as other pieces in this style do.[30]

Chafe recognises that there is an underlying degree of control in Gesualdo's compositional procedure. He identifies how Gesualdo combines 'diatonic harmonies of the age' with those outside a 'causal or logical sequence.' Through the analyses of this thesis, the underlying diatonic modal harmonies will perform a crucial role, especially through their interval structure, which will be revealed through the set theoretical analysis. This method can also find structure to the progressions described by Lowinsky as 'traidic atonality' and by Chafe as 'disruptive.'

Mannerism

Mannerism is a term most associated with the visual arts that through the work of scholars in the 1960s and 1970s began to be associated with musical classifications,[31] stemming from the use of the word 'maniera' by artists and musicians of the sixteenth century.[32] Although the definition of 'maniera' did not remain constant through the sixteenth and seventeenth centuries, from the latter half of the *cinquecento* 'maniera' denoted 'hollow virtuosity, of graces carried to precious or capricious extremes.'[33] It is easy to see how the term became associated with the music of Gesualdo and scholarship on his music in the 1970s focused on his role as a Mannerist composer. Nevertheless, '[t]here is remarkably little agreement about what the word "mannerism" means'[34] and, as critiquing the relevance or efficacy of the term to Gesualdo's music is beyond the scope of this study, the following paragraphs will demonstrate how the term revealed new perspectives on his music.

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[30] Eric T. Chafe, *Monteverdi's Tonal Language* (New York: Schirmer, 1992), 3.

[31] Denis Arnold and Tim Carter, 'Mannerism,' *Oxford Music Online*, accessed March 15, 2015.

[32] Iain Fenlon, 'Review: Mannerism?' *The Musical Times* 122 (1981), 243.

[33] Don Harran, 'Mannerism in the Cinquecento Madrigal?' *The Musical Quarterly* 55 (1969), 523.

[34] Fenlon, 'Review: Mannerism?', 243.

In the beginning of the decade Ludwig Finscher published his essay 'Gesualdos Ätonalität und das Problem des musikalischen Manierismus.'[35] However, Maria Rika Maniates' book *Mannerism in Italian Music and Culture, 1530–1630* is the most comprehensive musicological study of this trend. For her, 'Gesualdo represents the mannerist love of excessive distortion and stylization in an unmistakable way.' The goals of exploring music from the perspective of Mannerism are different from those of the present study. Yet, the study of individual's 'maniera' (which can be loosely translated as 'style') allows for particular elements of a composer's language to be explored in detail, which in Gesualdo's case focuses on his chromaticism and harmonic progressions.

> As far as chromaticism is concerned, scholars agree that Gesualdo's personal audacities stem from the isolation and new function of semitonal relationships between vertical progressions. For example, G–G♯ can produce E♭ major and E major triads. This specific instance is important inasmuch as the roots are a semitone apart, and motion from one to the other entails three linear semitones. […] Another method is to connect a four-note chord and a triad whose roots are a tritone apart. The latter type of progression produces three linear semitones and three linear tritones at the same time. […] Gesualdo's small-scale chromaticism—that is, from chord to chord—tends to rely on progressions that involve two or thee linear semitones. Thus, it is correct to conclude that semitonal motion, the theoretical basis of Vicentino's chromatic genus, finds its apotheosis in Gesualdo's *maniera*.[36]

The recognition of the sixteenth-century theorist Nicola Vicentino's (1511–c.1576) chromatic genus as the source of Gesualdo's chromaticism is significant; however, Maniates does not perceive the connection between the entire interval structure of the chromatic genus and the construction of Gesualdo's chromaticism in his linear and vertical writing as a whole. This results, as Maniates describes, in 'considerable disagreement as to the exact technicalities that constitute his *maniera*.'[37] This

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[35] Ludwig Finscher, 'Gesualdos "Atonalität" Und Das Problem Des Musikalischen Manierismus,' *Archiv Für Musikwissenschaft* 29 (1972): 1–16.

[36] Maria Rika Maniates, *Mannerism in Italian Music and Culture 1530–1630* (Manchester: Manchester University Press, 1979), 392–393.

[37] ibid., 391.

connection is fundamental to understanding Gesualdo's chromaticism and will be the subject of Chapter 4. For Maniates then, Mannerism may, arguably, aid in the construction and identification of historiographical canon, but it does not necessarily further the understanding of Gesualdo's compositional procedure and the role of the chromatic genus.

Another scholar who dealt with the question of mannerism in Gesualdo's music is Glenn Watkins. Published in 1973, *Gesualdo: The man and his music* is a ground-breaking work in Gesualdo scholarship. Divided into two halves, one dealing with his biography and the other with his music, Watkins considers 'The Question of Mannerism' in his opening discussion on the music. Entering the debate on Mannerism in music taking place during the 1970s, Watkins places Gesualdo at the point of music history 'leading from the central movement of the Renaissance, while standing somewhat apart from it; and moving toward, but stopping short of, the Baroque.'[38] This may help to contextualise Gesualdo with other composers and greater artistic notions of the period, but it does not aid the present discourse on the application of modality and chromaticism.

In the opening section of his book, 'The Man,' Watkins provides a comprehensive and detailed examination of Gesualdo's life. Translating primary sources, he brings together a comprehensive narrative that goes into much more detail than Keiner or Gray. Although scholarship has uncovered more details in the forty years since the book's publication, this biography is still largely accurate.

However, of more significance to the present study is Watkins' analysis of Gesualdo's music. He devotes an entire chapter to the subject of 'Text and Form,' in which he analyses the relationship between the structure of madrigal text and musical form, including the contraction of texts to suit musical structure. In this he states 'Gesualdo is not unique in his textual habits, other well-known composers grafting and abbreviating texts to their taste.'[39] His analysis excels at identifying patterns within Gesualdo's counterpoint and voice leading, as well as making statistical comparisons with other composers and comparing other madrigalists' settings of similar texts.[40] Watkins appraises all of Gesualdo's output, beginning with the first two books of madrigals:

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[38] Watkins, *Gesualdo*, 97.

[39] ibid., 131.

[40] ibid., 140–148.

To be sure, Venosa's early madrigals do more than establish evidence of his control of a traditional contrapuntal language, but in light of the greater harmonic orientation of many of his later works, it is especially important for us to note the sureness of the craft in order to comprehend his ultimate posture. There can be no question that Gesualdo knew and had studied the classic masters extensively, and in spite of a few traits which are openly personal, the care he exercised in voice-leading reveals a composer well versed in the traditions of contrapuntal practice.[41]

This analysis then continues through the third and fourth books of madrigals, before identifying stylistic elements present in the first and second books that reoccur in the fifth and sixth:

While the ravishing harmonic element of Gesualdo's last books is of such force that it tends to overshadow their contrapuntal aspect, there is no doubt a presence of a genuine, essentially diatonic contrapuntal style, used principally as a foil to the more adventurous harmonic sections. Paradoxically, however, the harmonic sections themselves are frequently most readily explained in terms of contrapuntal procedures.[42]

Watkins also provides an analysis of Gesualdo's use of dissonance, concluding:

Ample precedent for the use of unprepared dissonances had already been established, however, in a flourishing *seconda prattica.* Vincenzo Galilei's unpublished counterpoint treatise of 1588 provides perhaps the clearest contemporary statement concerning the use of dissonance. Here he claims the validity for expressive purposes of a wide range of suspension figures, tritone movements, inflected resolutions, accented and unprepared dissonances. […] There is nothing to indicate that Gesualdo knew this treatise, but he assuredly knew the music which kindled its spirit.[43]

Watkins tackles the issues of the harmonic sequences directly and identifies patterns, as well as organisation, to their placement. Yet, he does not systematically attempt to tie these interval structures to the chromatic patterns described by Vicentino, despite acknowledging him as an influence. He concludes his discussion on chromaticism in

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[41] ibid., 134.

[42] ibid., 183.

[43] ibid., 182–183.

Gesualdo's madrigals as follows:

> In all, the range and subtlety of Gesualdo's chromatic art is without any real precedent. Individually most of his fanciful notions may have been anticipated by other madrigalists, but through the sheer concentration of these ideas, poised and balanced in the most fragile way, Gesualdo forged a language which juxtaposed the chromatic with the diatonic in a variety and intensity not matched by any of his predecessors. Neither the intrepid Caimo, the youthful Lasso, nor the audacious Vicentino exploited the idiom much beyond the illustration of a theoretical idea. […] The originality and boldness of Gesualdo's chromatic style is also intimately connected with matters of harmonic progression and inversion characteristics. How this is so remains to be discussed.[44]

It is of note, for it will become relevant in Chapter 4, that Vicentino claimed to have written many madrigals and motets in the 'audacious' style to which Watkins refers; but, they have not survived. This thesis will attempt to identify how Gesualdo 'forged a language which juxtaposed the chromatic with the diatonic' and establish its origins, as well as a practical method of deployment in composition. Although Watkins discusses the role of a tonal centre in Gesualdo's madrigals, he shies away from a direct confrontation with the topic of mode in the madrigals. This, too, will form a central role in this thesis.

Watkins concludes his monograph by examining Gesualdo's relationships with other composers. However, this subject is worthy of a book in itself and the discourse is necessarily brief. Keith Larson examines the subject in greater detail, at least with respect to Neapolitan composers, in his thesis 'The Unaccompanied Madrigal in Naples 1536–1654.'[45] Not only does he supply new biographical detail on Gesualdo, including a date of birth, but he also writes detailed biographies of Gesualdo's contemporaries with analyses of their music. Although Larson provides the starting block, much research still remains to be done into the relationship between the music of Gesualdo and his peers, particularly with respect to the compositional process of their chromaticism.

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[44] ibid., 201.

[45] Keith Larson, 'The Unaccompanied Madrigal in Naples from 1536 to 1654' (PhD diss., Harvard University, 1985).

In recent years the number of studies dedicated to Gesualdo has swelled. Watkins published a further volume on Gesualdo, *The Gesualdo Hex*, which updates his biography and discusses his reception in the twentieth century, particularly Stravinsky's infatuation with his music.[46] Two collections of essays have been published in Italy in the past decade, comprising of papers from recent conferences.[47] However, Italian scholarship has focused on various biographical aspects and numerous book have been published that describe Gesualdo's life in detail.[48] Lorenzo Bianconi's *Grove Music Online* article is also informative, bringing his biography up-to-date in English and covering various aspects of the music; by the nature of the format, however, space does not allow for a detailed analysis of Gesualdo's music.[49]

Broader Analyses

Lionel Pike describes the manner in which composers of the latter half of the sixteenth- and early seventeenth-century used hexachords. His book *Hexachords in Late-Renaissance Music* demonstrates a practical method for employing the hexachord in compositional procedure.[50] These can be either as simple solmisation or more complex techniques such as *inganno* or the use of word painting through hexachord colour. Whilst Pike's theories have not gone unchallenged,[51] they represent a functional

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[46] Glenn Watkins, *The Gesualdo Hex* (London: W W Norton & Company, 2010).

[47] Luisa Curinga ed., *La musica del Principe Studi e prospettive per Carlo Gesualdo* (Lucca: Liberia Musicale Italiana, 2008). None of the essays relate to aspects of Gesualdo's music pertinent to this thesis.

[48] Annibale Cogliano, *Carlo Gesualdo omicida fra storia e mito* (Napoli: Edizioni Scientifiche Italiane, 2006); *Carlo Gesualdo Il Principe, l'amante, la strega* (Napoli: Edizioni Scientifiche Italiane, 2004); Orsola Tarantino Fraternali and Kathy Toma, *Gesualdo da Venosa Fasti dimenticati di un principe del Rinascimento* (Venosa: Luciano de Venzia, 2009); Antonio Vaccaro *Carlo Gesualdo Principe di Venosa L'uomo e i tempi* (Venosa: Osanna Edizioni, 2005); Walter Scudero, *Piangete, o grazie, e voi piangete, o amori* (Edizioni Giuseppe Laterza, n.d.).

[49] Lorenzo Bianconi, 'Gesualdo, Carlo, Prince of Venosa, Count of Conza,' *Grove Music Online,* (Accessed November 29, 2012)*.*

[50] Lionel Pike, *Hexachords in Late-Renaissance Music* (Aldershot: Ashgate, 1998).

[51] Stefano Mengozzi, 'Review of Lionel Pike, Hexachords in Late-Renaissance Music,' *The Online Journal of the Society for Music Theory*, (1998), accessed January 24, 2013, http://www.mtosmt.org/issues/mto.98.4.3/mto.98.4.3.mengozzi.html. Although Mengozzi makes a credible argument, it is likely that by the late sixteenth century the modes had come to obtain

method of including hexachords in analysis of 'late-Renaissance' music that differs from earlier medieval understandings of the hexachord. Pike analyses Gesualdo's use of hexachords in the final cadence of 'Moro lasso'[52] and also provides examples of Gesualdo's use of *inganno*.

Although Anne Smith's *The Performance of 16th-Century Music: Learning from the Theorists* 'is intended for practical musicians,'[53] she provides practical advice for the analyst too. Especially relevant for this thesis is her explanation of hexachords and modes, which has been drawn upon in Chapter 2 of this thesis. She expounds a method for the modern performer to apply the nuances of sixteenth-century music theory. Yet this is still pertinent to the analyses of this thesis. For example, she identifies cadences as being 'frequently inaudible in performances of 16th-century polyphony.' Therefore, she devotes a chapter to the identification and articulation of cadences. Identifying and recognising the importance of cadences and their cadential pitches is crucial to the understanding of Gesualdo's use of mode in this thesis.

Eric Chafe established a new method of analysis of *Monteverdi's Tonal Language.*[54] Chafe aims to build an analytical framework that uses terminology of music theorists contemporary with Monteverdi, expanding on their definitions to relate to other aspects of the music. For example, he views hexachords not just as sight-singing mnemonics, but also as harmonic regions, made of harmonies built on the six degrees of the hexachord. This can be applied to some of Gesualdo's madrigals, especially those of Books I and II; however, it breaks down in the chromatic passages of his later madrigals.

Frans Wiering establishes an understanding of modal theory suitable for polyphony in *The Language of the Modes: Studies in the History of Polyphonic Music.*[55] Each chapter

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some extramusical characteristics. The hexachord labels 'hard' and 'soft' or 'durus' and 'molle' may have originally denoted the shape of the sign for B♭ and B♮, but they originate from the verbs 'durare' (to harden/make hard/become stern) and 'mollire' (to soften/mitigate/tame). It would be probable that late *cinquecento* composers were aware of this and would make the connections when setting text to music.

[52] Pike, *Hexachords,* 90–92.

[53] Anne Smith, *The Performance of 16th-Century Music: Learning from the Theorists* (Oxford: Oxford University Press, 2011), ix.

[54] Chafe, *Monteverdi's Tonal Language.*

[55] Frans Wiering, *The Language of the Modes: Studies in the History of Polyphonic Music* (Oxford: Routledge, 2001), ix.

of *The Language of the Modes* is a self-contained study, examining various aspects of polyphonic modality. The first, 'Modality: An Introduction to the Terminology and Concepts' is the most important to this thesis, as Wiering provides 'a survey of the key concepts and terminology of modality,'[56] which are fundamental in establishing a language for Gesualdo's use of the modes in Chapters 2 and 3. This is solidified in his second chapter, which examines evidence for polyphonic modality in textual and musical sources. Documenting aspects of the origins of polyphonic modal theory in Medieval treatises, the popularity of polyphonic modality and their differing uses across Europe is explored in the remaining chapters.

Wiering uses as his main source for a species-derived perception of the modes Marchetto of Padua's treatise *Lucidarium in arte musice plane* (1318), who in turn worked from Boethius *De institutione musica* (c.500). He combines this with a sixteenth-century perspective from Glarean's *Dodecachordon* and from the seventeenth century the work of Athanasius Kircher. No two theorists agreed entirely with each other:

> Even today there is no consensus as to what "modes" are. One purpose of this chapter is therefore to establish a common ground, by means of a survey of the key concepts and terminology of modality.[57]

Wiering's polyphonic modality is compatible with the understanding of the modes given by Vicentino, which will also be examined in Chapters 2 and 3.

Nicola Vicentino

During an intermittent three-year residence in the northern Italian city of Ferrara, the musicians Gesualdo had the opportunity to meet had a profound effect on his compositional language. Ferrara had been, since the middle of the sixteenth century known for chromatic experimentation, and was where, under the patronage of Duke Ercole d'Este, the music theorist Nicola Vicentino (1511–c.1576) developed a method of restoring the Ancient Greek system of scales to contemporary practice.[58] Through

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[56] ibid., 2.

[57] ibid., 2.

[58] Denis Arnold and Tim Carter, 'Vicentino, Nicola,' in *Grove Music Online*, accessed March 4, 2015, http://www.oxfordmusiconline.com/subscriber/article/opr/t114/e7131.

Luzzasco Luzzaschi (1545?–1607), whose 'authority was equal to that of the court *maestro di* cappella'[59] and who was fluent with Vicentino's methods,[60] Gesualdo would have come into direct contact with Vicentino's theories of chromaticism.

Inspired by the Platonic notion that music could engender ethos and pathos in the listener[61] and perhaps even such stories as Orpheus taming the wild beasts with his lyre and Odysseus and the Sirens,[62] Vicentino wanted to produce these effects in his own music. After deciding that simply recreating Greek music was not sufficient, as instead the effects were achieved through novelty, he set about finding a way in which Ancient Greek music theory could be incorporated into contemporary practice.

At the heart of Ancient Greek music theory is the division of the perfect fourth into three genera, from which scales were derived. First, the diatonic genus, divides the fourth into a semitone and two tones; second, the chromatic, into two unequal semitones and a minor third; third, the enharmonic, into two unequal microtones and a major third. Instead of building the Ancient Greek scales from these units, Vicentino constructed modes, thereby restoring the genera to contemporary theory.

In 1551 Vicentino lost a public debate with the Portuguese theorist Vicente Lusitano; he argued that contemporary music was written in a mixture of all three genera, whereas Lusitano made the case that contemporary music existed solely in the diatonic. Four years after he lost the debate, Vicentino published his treatise on the genera *L'antica musica ridotta alla moderna prattica*, which not only countered Lusitano's arguments, but demonstrated a practical way to compose and perform musical in all three genera, including the construction of the *archicembalo* (or 'super-harpsichord') to provide accompaniment. The manner in which Vicentino answers the debate with Lusitano is explored by Timothy R. McKinney in his article 'Point/counterpoint:

[59] Edmond Strainchamps, 'Luzzaschi, Luzzasco,' in *Grove Music Online,* accessed March 6, 2015, http://www.oxfordmusiconline.com /subscriber/article/grove/music/17234.

[60] See Chapter 4, page 88.

[61] Harold S. Powers, 'Tonal Types and Modal Categories in Renaissance Polyphony,' *Journal of the American Musicological Society* 34 (1981): 431.

[62] 'Greek Music,' last modified March 30, 2012, http://public.wsu.edu/~delahoyd/mythology/ greek.music.html.

Vicentino's musical rebuttal to Lusitano.'[63]

Vicentino's treatise is based on classical sources (mostly Boethius) and his own methods of composition derived from the genera, which he demonstrates how to restore to modern music. He divides the book into two halves examining first musical theory and then musical practice. However, Vicentino's understanding and reading of his classical sources is often wrong or confused, leading to inconsistencies in the text.

In 1963 Henry Kaufmann published the article 'Vicentino and the Greek Genera,' which he begins by warning the reader: 'Vicentino has been greatly maligned for his lack of understanding of ancient Greek theory. True as these accusations may be, it should be remembered, however that the purpose of his famous treatise, *L'antica musica…,* was not to offer a scientific exposition of Greek theoretical concepts but to adapt or "reduce" them to contemporary 16th-century practice.'[64] Kaufmann continues to examine the methods through which Gesualdo achieves this.

In 1996, Maria Rika Maniates published an English translation of *L'antica musica* with an introduction and notes, making the treatise much more accessible to scholars.[65] The introduction sets the treatise into a historical context and describes the processes Vicentino uses in great detail, attempting to resolve his inconsistencies; this has been drawn upon in both the discussion of Vicentino methods for chromatic composition in Chapter 4 and the discussion of temperament in Chapter 6. However, as noted by Stefano Mengozzi, there are a few misunderstandings in the translation and therefore, for clarity, any quotations are accompanied by Vicentino's original.[66]

Modern Analytical Methods

Peter Schubert delineates the issues facing the modern-day analyst attempting to avoid

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[63] Timothy R McKinney, 'Point/Counterpoint: Vicentino's Musical Rebuttal to Lusitano,' *Early Music* 33 (2005): 393–412.

[64] Henry W. Kaufmann, 'Vicentino and the Greek Genera,' *Journal of the American Musicological Society* 16 (1963): 325–346.

[65] Nicola Vicentino, *Ancient Music Adopted to Modern Practice*, trans. Maria Rika Maniates (New Haven and London: Yale University, 1996).

[66] Stefano Mengozzi, 'Review Ancient Music Adapted to Modern Practice. By Nicola Vicentino. Translated by Maria Rika Maniates,' *Notes* 54 (1997), 499–500.

anachronisms in his article 'Authentic Analysis.'[67] In this article, he discusses 'the current fashion for "authentic analysis." This is a style that uses as much as possible ideas drawn from contemporaneous writings on music, eschewing more recent ideas. The problem with this approach is that we have no original thinkers.'[68] Schubert's comments resonate with those of Heseltine; not only does the listener have to disregard four centuries of musical history, but they have to understand how contemporary musicians understood the music of their time. For Schubert, the 'original thinker' would, therefore, be one who could understand the music in its own time and place, which is impossible to replicate in analysis. Nevertheless, this should not be a reason to dispense with analysis altogether: it is rather a recognition of its limitations. When considering the music of Gesualdo, the issue is complicated by the lack of written materials about his music and his circle, such that determining their original thoughts is impossible. However, as Schubert notes, the ability to analyse music from a purely historical context, making continuous references to contemporaneous treatises, changes the nature of the task:

> Introducing the ideas of Lorenzo Penna into his edition of Legrenzi, Stephen Bonta writes: 'A far better method, however, is to approach the continuo with the eyes and ears of the seventeenth-century performer.' And in a provocative article David Schulenberg offers a critique of Schenkerian analyses of early polyphony, calling for the 'sympathetic and creative reading of the Renaissance theorists themselves.' These authors offer information from the treatises as replacements or alternatives for the anachronistic notions of the triad, the root progression, prolongation and the like.

> What are they getting at? Are writings contemporaneous with a given repertoire privileged for the analysis of that repertoire? What is the nature of the privilege? If these authors (who can be called historicists) are right that the music had been misread for so long, how can they be sure that the treatises can be read correctly? Isn't the problem of interpretation merely pushed to another place? The question to be examined here is not what

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[67] Peter Schubert, 'Authentic Analysis,' *The Journal of Musicology* 12 (1994): 3–18.
[68] ibid., 3.

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analysis is, or whether we can experience music as people now dead did, but how to use treatise in reconstructing the ideas in music of the past.[69]

Therefore, avoiding terms like 'the triad, the root progression, prolongation, and the like,' does not necessarily lead to a more 'authentic analysis' or a more historically informed one, instead it shifts the focus to the interpretation of treatises to describe the processes in the music, a method that is not without problems in itself. Through the application of Schenkerian analysis of early music,[70] which has parallels with the use of pitch-class set theory, Saul Novack has shown 'the presence of triadic tonality in both sacred and secular music well before the fourteenth century.'[71] In defending his use of Schenkerian analysis of Medieval plainchant, he writes:

> As musicians, theorists and musicologists, we have a great desire to understand the history of musical structure. If we are to concern ourselves with the evolution and history of triadic tonality from the earliest prolongation of simple tones, which tools are we to employ? What has traditional musicology offered us? Shall we depend on descriptions of modes, sometimes several operating simultaneously in accordance with the limited views of contemporaneous theorists? …[72]

Using solely modal theory on Gesualdo's madrigals, would reveal the deficiencies of the modal system in describing music of its period. Furthermore, the analyst may also fail to notice certain facets of the music. For example, Karol Berger, in his analysis of Lassus' *Prophetiae Sibyllarum*, employs Schenkerian analysis to determine the piece's tonal coherence. Concluding, he remarks:

> Thus, the encounter of old music and Schenkerian theory may prove profitable for both sides. On the one hand, the theory makes music historians sensitive to certain aspects of music (such as structural layer or long-range

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[69] Schubert, 'Authentic Analysis,' 3–4.

[70] An example of Schenkerian theory being applied to contemporaneous music with Gesualdo can be found in: Felix Salzer, 'Heinrich Schenker and Historical Research: Monteverdi's Madrigal *Oimè, se tanto amante*' in *Aspects of Schenkerian Theory,* ed. David Beach (New Haven and London: Yale University Press, 1983): 135–152.

[71] Saul Novak, 'The Analysis of Pre-Baroque Music' in *Aspects of Schenkerian Theory*, ed. David Beach, 120.

[72] ibid., 132.

voice-leading) which they are likely to overlook otherwise; on the other hand, the application of Schenkerian analytical techniques to music for which they were not originally devised reveals certain basic methodological problems in the theory itself.[73]

There are limitations, then, in the application of modern analytical methods on music composed centuries before their conception and the same is true in the application of pitch-class set theory to the music of Gesualdo. In the same way that Schenkerian analysis reveals 'structural layer or long range voice leading,' set theory reveals aspects of the music that may otherwise be overlooked: distinctive interval patterns relating to the genera, displacement of particular interval structures and the use of certain intervals to set specific words. Furthermore, like Schenkerian analysis, its application also reveals 'methodological problems,' significantly the inability to allow for temperament and expressive tuning and a lack of distinction for tonal hierarchies.

Schubert, discussing the use of modern analytical techniques, cites Christopher Hatch and David Bernstein, who posit criteria for judging the value of an analysis that is not undertaken using historical processes:

> If analysis has to be validated on other than historical or systematic grounds, perhaps elementary and practical tests would suffice. A set of queries might be put to each analysis. Does it tell us something about the piece that we did not know before? Is that 'something' a recognizably important component in the piece? Does the analysis explain anomalies? Does it provide intellectual justification for what we have already felt about the piece? And does it use a method that can be fruitfully applied to other pieces?[74]

These questions can also serve to judge the present analysis of Gesualdo's modality and chromaticism. Four centuries having passed since the music was composed inevitably leads to a degree of anachronism in any analysis. New relationships are created with the music; yet, if the analyst has an awareness of this, they can employ

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[73] Karol Berger, 'Tonality and Atonality in the Prologue to Orlando Di Lasso's "Prophetiae Sibyllarum:" Some Methodological Problems in Analysis of Sixteenth-Century Music,' *The Musical Quarterly* 66 (1980): 484–504, 504.

[74] Christopher Hatch and David Bernstein eds., *Music Theory and the Exploration of the Past* (Chicago: University of Chicago Press, 1993), 4. Quoted from: Schubert, 'Authentic Analysis,' 17.

techniques that are objective and do not project elements onto the music that are not there, satisfying the criteria of Hatch and Bernstein. Thus, pitch-class set theory can describe Gesualdo's use of interval structure; it does not use language that he was familiar with, yet it elucidates his command of a particular aspect of compositional technique. Likewise, viewing Gesualdo's harmonies in terms of triads, using vocabulary such as 'major' or 'minor' triad and chord inversions, does not ascribe to the music features that are not present, but labels aspects for which sixteenth-century theorists did not have the terminology.

Chafe's harmonic analysis of Monteverdi avoids anachronism by expansion of sixteenth-century theories of the hexachord to include harmonic implications. However, this does not account for the chromaticism in Gesualdo's madrigals and by Chafe's own admission, 'It would exceed the scope of this book to undertake the presentation of a detailed tonal theory for even the first half of the seventeenth century.'[75] Therefore, to fully reveal Gesualdo' compositional processes it is necessary to explore aspects of the music not comprehensively discussed by sixteenth- and seventeenth-century theorists. In this thesis, interval structure will form a central component of analysis to probe how patterns described by contemporaneous theorists as being the origin of Ancient Greek music manifest themselves in Gesualdo's madrigals. For this to occur, pitch-class set theory provides the relevant mechanism to objectively identify these patterns.

The incompatibility of sixteenth-century theories to describe the processes in Gesualdo's music has led to a plethora of modern analytical techniques being applied. Martin Zenck has undertaken an analysis of 'Moro lasso' from the 'perspectives of trans-epochal hermeneutics.'[76] It takes as its starting point the transfer of:

> Gesualdo's vocal technique, his dealing with the human voice and his phonetic way of composing—this means breaking up of the text of the madrigal into its smallest units of phonemes, the cries of pain represented in

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[75] Chafe, *Monteverdi's Tonal Language*, xiv.

[76] Martin Zenck, 'Gesualdissimo. Zur transepochalen Affinität des späten 20. Jahrhunderts zum Manierismus des frühen 17. Jahrhunderts. Klaus Hubers Skizzen zu den "Lamentationes sacrae et profanae ad responsoria Iesualdi,"' in *Transformationen. Zum Werk von Klaus Huber*, ed. Jörn Peter Hiekel and Patrick Müller (Mainz: Edition Neue Zeitschrift Für Musik, 2013), 75–108.

the interjection "ahi"—into the current form of textual composition of the late twentieth century.[77]

Other analytical methods were proposed in November 2013 at the University of York's international 'Gesualdo 400th Anniversary Conference' to mark the quarter-centenary of Gesualdo's death.[78] Although the conference explored all aspects of Gesualdo's music, several analytical papers presented new approaches to both the sacred and secular music. Andrew Chung successfully demonstrated the values of a transformational analysis of 'O vos omnes' 1603, combined with the triadic theory espoused by Johannes Lippius, and uses his analysis to place the motet within a Counter-Reformational context.[79] John Milsom undertook a forensic analysis of *Ne reminiscaris Domine* (1585) and *Peccantem me quotidie* (1603), demonstrating how both were 'partly composed outwards from small polyphonic cells.'[80] Timothy Chenette examined Gesualdo's *Responsoria* and its 'consistent approaches to harmonic voice-leading across different sections within a piece, and underlying melodic lines—underlying plans that do not require a pitch hierarchy.'[81]

The conductor and composer James Wood, keynote speaker at the conference, has undertaken a detailed 'analysis towards reconstruction' of Gesualdo's *Sacrae Cantiones* for six voices, for which he has recomposed the missing Sextus and Bassus parts.[82] This exhaustive analysis covers counterpoint, text setting, melody, harmony

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[77] Taken from the abstract of the above chapter, kindly supplied by Prof. Zenck.

[78] For details see the conference website: 'Gesualdo 400th Anniversary Conference,' last modified October 25, 2013, http://www.york.ac.uk/music/conferences/gesualdo/.

[79] Andrew Chung, 'Gesualdo's *O vos omnes* (1603): Triads, Transformations and a Counter-Reformational Hermeneutics' (paper presented at the Gesualdo 400th Anniversary Conference, University of York, November 23–24, 2013).

[80] John Milsom, 'Composing with Gesualdo: what forensic analysis can tell us' (paper presented at the Gesualdo 400th Anniversary Conference, University of York, November 23–24, 2013).

[81] Timothy Chenette, 'Order Within Disorder: What Kinds of Underlying Tonal Plans Can We Find in Gesualdo's Tenebrae Responsories?' (paper presented at the Gesualdo 400th Anniversary Conference, University of York, November 23–24, 2013).

[82] Taken from the abstract of: James Wood, 'On reconstructing Gesualdo's *Sacrae Cantiones Liber secundus* [*sic*]' (paper presented at the Gesualdo 400th Anniversary Conference, University of York, November 23–24, 2013). Both books of Sacrae Cantiones are described as 'Liber primus,' one for five voices, the other for six.

and rhythm.[83] Wood has recorded his results with his ensemble Vocalconsort Berlin.[84] Hugh Keyte has also reconstructed several of these motets, though he has not published them, nor written about them.[85]

Modality and Chromaticism

In developing the analytical method used in this thesis, specific objectives were considered in order for the analyses to answer the criteria of Hatch and Bernstein. The first is to identify how Gesualdo employs modes as part of his compositional process. The second is to examine the origins of Gesualdo's chromaticism in the compositional theories of Vicentino and establish how he incorporated them into the compositional procedure of his madrigals. Both of these aims are 'recognizably important' and will reveal 'something about the piece we did not know before.'[86] They will be achieved through the examination of interval structure, using pitch-class set theory, aided by, and sympathetic towards, *cinquecento* music theory. This methodology will be able to answer anomalies, be suitable for application to other pieces and 'provide intellectual justification for what we have already felt about the piece.'[87]

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[83] James Wood, 'Gesualdo: *Sacrae Cantiones II* An analysis towards reconstruction,' last modified October 2013, http://www.choroi.net/Gesualdo-Introduction.pdf.

[84] Carlo Gesualdo, 'Sacrae Cantiones Liber Secundus' *Vocalconsort Berlin,* dir. James Wood (Harmonia Mundi, 2013). Accessed via iTunes Music Store.

[85] Keyte's reconstruction of 'Illumina nos' was performed at the *Gesualdo 400th Anniversary Conference*, University of York, 2013.

[86] Hatch and Bernstein, quoted from: Schubert, 'Authentic Analysis,' 17.

[87] ibid.

Chapter 2
Theoretical Background

In order to make the present thesis accessible for both the historical musicologist and modern analyst, this chapter will provide an explanation of the theories used in the ensuing analyses. This is not a critique of these methods, but instead explains how they operate with specific reference to Gesualdo's music.

Hexachords

A hexachord is a pattern of six ascending notes, used from the Medieval period to assist sight-singing and name the gamut of notes available in music theory. Its distinguishing feature is its interval pattern: tone, tone, semitone, tone, tone. Each note is given a label or symbol to aid the performer when pitching a particular note, much like its modern-day derivative tonic sol-fa, which is still used to teach sight-singing; however, there are only six solmisation symbols in place of seven solfège syllables. The symbols given to each note in ascending order are 'ut,' 're,' 'mi,' 'fa,' 'sol' and 'la.' All the intervals of the hexachord are tones except the central semitone 'mi' – 'fa'; thus this semitone becomes the defining feature of the hexachord in relation to where it lies in terms of absolute pitch.

As a melody moves out of the notes of a single hexachord a technique known as 'mutation' allows a performer to move from a hexachord attached to one set of pitches to one attached to a different set of pitches. There are three different pitch collections that a hexachord can occupy and when combined they make the entire range of notes available to the singer, the gamut: the complete complement of notes theoretically possible. The gamut is described by the three hexachords using the following process.

The gamut starts with the lowest pitch available, Γ (gamma ut), or what would be described today as the G on the bottom line of the bass clef. To this pitch is attached the first note of a hexachord, which in turn describes a further five pitches. This hexachord is known as the 'hard' or '*durum*' hexachord. In this thesis the solmisation symbols for notes in the hard hexachord will be written in capital letters thus: UT, RE,

ME, etc...[1] Although this was not actual practice, this will make the analyses easier to follow. This hexachord solmises the notes Γ (G), A, B, C, D, E as can be seen on Appendix I printed in Volume II.

There is a rule given by Guido of Arezzo to all hexachords: 'a note above la is always fa.'[2] In other words, every interval above a hexachord must be a semitone. If there are only seven notes in the melody, then the note above the hexachord is simply solmised as 'la.' To sing the octave Γ (G) to G the 'fa supra la' rule is also invoked by mutating to a hexachord whose 'mi – fa' interval has to be located at the top of the hard hexachord, overlapping the 'la – fa.' This second hexachord is called the 'natural' or '*naturale*' hexachord and will be written using lower case letters. To sing this octave the singer must mutate from the hard hexachord to the natural such that the 'FA' of the hard becomes the 'ut' of the natural and then the 'LA' of the hard becomes the 'mi' of the natural giving the interval of a semitone above the hexachord. The natural hexachord solmises the notes c, d, e, f, g and a as can be seen on Appendix I.

There is one further hexachord whose 'mi – fa' lies above the natural hexachord. This is the 'soft' or '*molle*' hexachord. As the 'mi – fa' becomes the semitone above A, the soft hexachord includes a B♭. This hexachord can also been seen on the Appendix I solmising the notes *f, g, a, b♭, c, d* and is written using italics.

Note names can be described not just in terms of the letters that notes are given today, but also by their position within the hexachords. For example: 'a la mi re' is so called because it is an a, solmised la in the natural hexachord, *mi* in the soft hexachord and RE in the hard hexachord: hence a *la* mi RE. Notes that occur within the gamut are known as *musica recta*.

In contrast, *musica ficta* (literally: false or feigned notes) describes notes outside of *musica recta*. One common occurrence is the use of E♭, this however can often be sung as 'fa supra la' or solmised using the soft hexachord transposed onto a B♭.[3] Where

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[1] This method is used by Lionel Pike in: Lionel Pike, *Hexachords in Late-Renaissance Music* (Brookfield: Ashgate, 1998), 15.

[2] 'una nota supra la sempre est candendum fa,' ibid., 33.

[3] Anne Smith, *The Performance of 16th-Century Music: Learning from the Theorists* (New York: Oxford University Press, 2011), 43.

sharps appear as raised notes at cadences, these *ficta* are sung using the same solmisation symbol as their natural counterpart.[4]

Hexachords can also be used for compositional effect; the central semitone describes not only the hexachord's position within the gamut, but also the manner in which the notes are sung:

> Each [hexachord] begins with a soft sound on ut, goes on to an average one on re, continues further to a harder, clearer sonority on mi before relaxing into the softness of a fa. And with that fa, the same sequence begins again, moving up through an average sound on sol to conclude with a hard la. This means that within the ascending melodic line, there is an increase of tension of line up to the half-tone step, at which point one relaxes into the fa, only to start building up the tension again as one moves through sol to la.

> Although the question always arises of what it means to sing a hard or soft sound, there actually seems to be a general unspoken agreement on the subject. […] it is not a question of the absolute hardness or softness of individual notes and certainly not of their volume, but rather of their sound quality in relation to one another.[5]

Therefore, the hexachord can be used as an aid for the singers and a means of expression in composition and performance. However, its distinctive interval structure will also play a role in the case studies of Chapter 5.

Mode

Origins of the Modes

Originating in the eighth and ninth centuries, the modal system was devised by Carolingian monks to categorise plainchant. In the Catholic liturgy psalms were preceded and followed by antiphons. By categorising the psalms and antiphons by their final note, range of pitch (called the *ambitus*) and melodic patterns, antiphons and

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[4] ibid., 36–7.

[5] ibid., 28–29.

psalms could be matched together.[6] The antiphons were grouped first according to their final note D, E, F or G and then by the *ambitus* of the melody. If the melody moved mostly above the final, the mode was considered 'authentic'; if it moved an equal distance above and below the final, it was considered 'plagal.' Therefore, there were eight modes, defined by final and *ambitus* with melodic formulas attached.[7]

A hierarchy of pitches exists within the mode. The final is crucial to the modal definition; however, modes were permitted to finish on an alternative final, called the 'differentiae' and the number acknowledged varied from theorist to theorist. [8] Categorising problematic melodies led to the fifth being accepted as an alternative ending to the mode and became known as the 'affinales' or 'confinales.'[9] The note in the mode on which the psalm was recited or held, the tenor, was also a significant pitch of the mode. Another note was the 'repercussio,' a note that appeared frequently within a melody, usually the fifth above the final in authentic modes and a fourth in plagal modes, this was also used as a substitute for the tenor.[10] Table 2.1 shows the eight modes used in the Medieval church for Gregorian repertory with their *ambitus*, final and tenor.[11]

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[6] Frans Wiering, *The Language of the Modes: Studies in the History of Polyphonic Modality* (New York: Routledge, 2001), 2.

[7] ibid., 2–3.

[8] Some modes have up to twenty permitted, see: ibid., 4–5.

[9] ibid., 5.

[10] ibid.

[11] ibid.

Table 2.1 Table of Modes with Finals and Tenors

Mode	Ambitus	Final	Psalm Tone / Tenor
1 (Dorian)	Authentic	d	a
2 (Hypodorian)	Plagal	d	f
3 (Phrygian)	Authentic	e	c'
4 (Hypophrygian)	Plagal	e	a
5 (Lydian)	Authentic	f	c'
6 (Hypolydian)	Plagal	f	a
7 (Mixolydian)	Authentic	g	d'
8 (Hypomixolydian)	Plagal	g	c'

This modal system categorised the monophonic Gregorian repertory. From the thirteenth century theorists had made attempts to apply modes to polyphony, yet the concept of a 'polyphonic modal theory' was a product of the sixteenth century.[12]

Humanism

Although the modal system developed in the eighth and ninth centuries, becoming consolidated in the eleventh century,[13] music theorists of the Middle Ages discovered similarities between their modes and those described by Boethius in his *De institutione musica* (c. 500). From their (often misguided) understanding of Boethius, they appropriated elements of Ancient Greek and Roman theory into their understanding of the modes. Boethius describes a 'Greater Perfect System,' a two-octave scale in which the octave occurs eight times with seven different patterns (or species) of tones and semitones. Whilst Boethius used this as a system of transposition, Medieval theorists saw these octave species as being able to describe the melodic content of the church

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[12] ibid., 1.

[13] Harold S. Powers, 'Tonal Types and Modal Categories in Renaissance Polyphony,' *Journal of the American Musicological Society* 34 (1981): 428.

modes.[14] Reconciling the seven octave species with the eight modes led to the division of the octave (diapason) into a species of fourth (diatessaron) and a species of fifth (diapente). There were three possible species of fourth and four species of fifth defined by the location of the semitone in each, see Examples 2.1 and 2.2. Authentic modes could then be defined as having the diapente ascend from the final and the diatessaron ascending from the diapente, whilst plagal modes had the diatessaron ascend to the final and the diapente ascend from the final, as shown in Example 2.3. Using each combination of diapente and diatessaron meant that the seven octave species were used twice, giving fourteen modes. From these the Hyperaeolian, mode 13, and Hyperphrygian, mode 14, were discarded, both containing the tritone f–b. This allowed the number of modes to be expanded from eight to twelve. Example 2.4 demonstrates how, in the twelve-mode system, the species of diapente and diatessaron make up the twelve modes: the brackets above the notes indicate the species of fifth in the octave species and the brackets below the species of fourth.

Example 2.1 The Three Species of Fourth

Example 2.2 The Four Species of Fifth
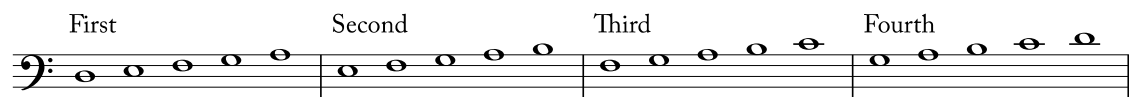
Example 2.3 The Seven Species of Octave

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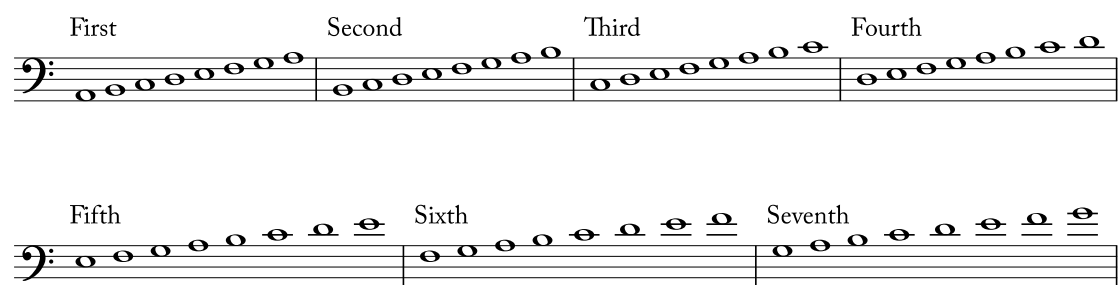
[14] Wiering, *The Language of the Modes*, 6.

Example 2.4 The Twelve Modes and their Component Species.
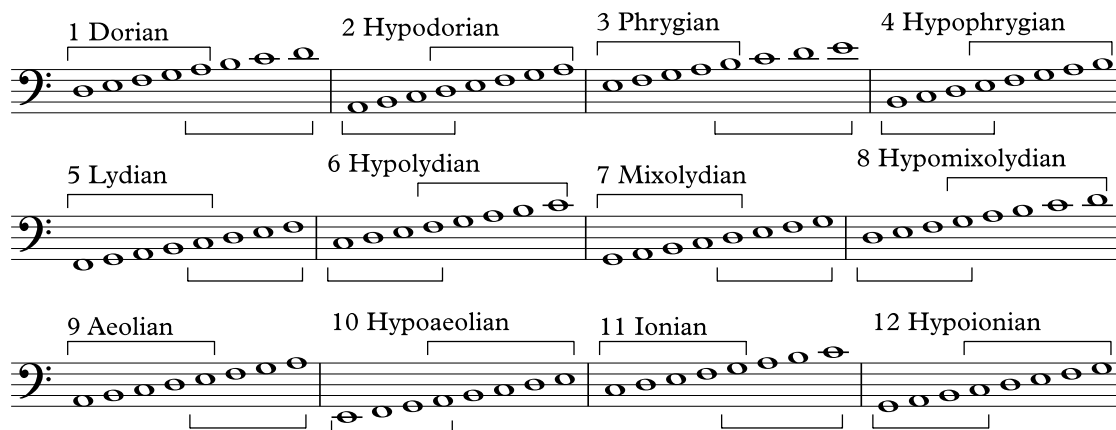
Dodecachordon (1547) by Heinrich Glarean (1488–1563) was the first treatise to adopt the twelve modes. His reading of Classical sources led to the introduction of the Classical names of the modes.[15] 'Complementary modes,' those that share the same final, are given the same name, except the plagal modes which are given the prefix 'hypo-' (below); this was not universally accepted and other theorists, for example Gioseffo Zarlino, continued to number the modes.

The fundamental difference between the eight- and twelve-mode systems is found in the third and fourth modes. In the eight-mode system the differentia is found on A, which derives from the psalm-tone of the mode in liturgical use. In the twelve-mode system the differentia is on B, at the conjunction of the diapente and diatessaron.

Despite being aware of Glarean's twelve-mode system, Vicentino insists on there only being eight modes, the additional four being formed from 'false fourths and fifths.'[16] Gesualdo has not left any writing to indicate whether or not he adopted the extra four modes. Although it has been argued that the fifth and sixth books of madrigals have been printed in according to tonal type suggestive of twelve modes,[17] it is still possible to view the madrigals as composed in the octomodal system accepted by Vicentino, as will be demonstrated.

Another aspect of Ancient modality explored by sixteenth-century theorists, though only

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[15] Powers, *Tonal Types and Modal Categories*, 434.

[16] Vicentino, *Ancient Music Adapted to Modern Practice,* 140.

[17] Maria Caraci Vela and Antonio Delfino, introduction to *Madrigali a cinque voci: libro quinto – libro sesto,* by Carlo Gesualdo (Gesualdo: La stamparia del principe, 2013), xxix.

in secular music, was the Platonic concept of the modes being able to induce ethos and pathos in the listener.[18] 'The idea that music could express various moral qualities, and perhaps even produce them,'[19] inspired Vicentino to develop ways of incorporating Ancient practice into contemporary music to revive these effects in modern musical practice. Modal ethos could therefore embody extramusical meaning for the composer, adding an extra layer of expression to their music. When describing the modes in *L'antica musica* he describes the qualities of the mode and their origins; for example, he writes of mode one:

> The first mode, then, is of an agreeable and devout nature, and it seems more virtuous than wanton. This mode was very honored by the Dorian people who sang their songs in praise of great deeds in it. For this reason Boethius and other philosophers called it the Dorian mode after these people.[20]

Application of Modes to Polyphony

Sacred polyphonic music often used a plainchant melody as a *cantus firmus* in the Tenor and, therefore, one part of the polyphony could be categorised modally.**[21]** In 1525 Pietro Aaron made the first systematic attempt to demonstrate that modality was an

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[18] Powers, *Tonal Types and Modal Categories*, 431.

[19] Douglas D. Feaver, 'Review: Ethos and Education in Greek Music: The Evidence of Poetry and Philosophy by Warren D. Anderson,' *The American Journal of Philology* 89 (1968), 472.

[20] Maniates notes that Boethius does not give an ethnic origin to the Dorian mode, only the Lydian and Phrygian. Translation: Maniates, *Ancient Music*, 140. Vicentino, *L'antica musica ridotta alla moderna prattica,* (Rome: Antonio Barre, 1555), [44v]: 'Il primo modo adunque sarà di natura piacevole et divoto, & havrà più dell'onesto che del lascivo; Questo Modo è stato molto celebrato, da i popoli Dorij, i quali cantavano lor lode, & suoi gran fatti, con questo primo modo, (che Boetio, & altri Filosofi lo domandano Modo Dorico) detto da i sopra detti popoli.' Accessed via: 'L'antica Musica Ridotta Alla Moderna Prattica (Vicentino, Nicola) - IMSLP/Petrucci Music Library: Free Public Domain Sheet Music,' accessed August 11, 2014, http://imslp.org/wiki/L'antica_musica_ridotta_alla_moderna_prattica_-(Vicentino,_Nicola), this is a scan of the copy held in the Bayerische Staatsbibliothek, the original record can be found at: https://opacplus.bsb-muenchen.de/metaopac/search?oclcno=13564668.

[21] Smith, *The Performance of 16th-Century Music,* 89.

inherent property of polyphony when he published his *Trattato della natura et cognitione di tutti gli tuoni de canto figurato.*[22] As Harold Powers remarks, the polyphonic modes, like those of the Gregorian repertory, were originally used as means of categorisation; however, throughout the sixteenth century composers began to see them as compositional structures:

> It is only during the period when modal theory was first beginning self-consciously to be assimilated to polyphony—say from Aaron (1525) to Gallus Dressler (1561 and later)—that the repertory itself begins to provide hard evidence of a systematic interest on the part of composers and editors in the question of 'modality,' an interest as self-conscious as that of the theorists. And this evidence, too, tends to indicate that 'modes' were originally thought of more as *a posteriori* categories for grouping items in a repertory than *a priori* pre-compositional choices or assumptions.[23]

Melodic formulas, cadential notes and finals can easily be appropriated from monophony to polyphony; ambitus, however, is more problematic.[24] Often, individual voices within a polyphonic piece contain either the authentic or plagal version of a mode; for example the Cantus and Tenor could be composed in mode 1, whilst the Altus and Bassus mode 2. Authentic and plagal modal pairs are known as 'complementary' modes and in these mixed mode pieces, the mode was said to be that of the Tenor. Whilst the individual voice parts may be constructed of complementary modes, a difference between an authentic and plagal composition may still be discerned; Frans Wiering remarks: in a 'plagal composition the interval species of all voice parts are lower with respect to the final than in an authentic one, and that there is thus some audible difference between them.'[25]

Having a wide choice of clefs and tending to avoid ledger lines, it was inevitable that musicians of the sixteenth century began to associate *ambitus* with the choice of clefs and by consequence specific clefs with particular modes. There were two different types of clefs used: standard, in which the highest voice was notated with a C1 clef and the Bassus with an F4, or *chiavetti* (high clefs), where the highest voice used G2 and the

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[22] Powers, *Tonal Types and Modal Categories*, 433.

[23] ibid., 435.

[24] Wiering, *The Language of the Modes,* 10.

[25] ibid.

Bassus F3. Powers observed that: 'The contrast of high versus low clefs represents the authentic vs plagal *ambitus* feature of the traditional modal scheme. […] But individual modes can be represented polyphonically also.'[26]

The choice of clefs, combined with the signature (*cantus durus* or *cantus mollis*) and the 'root' of the final chord is defined by Powers as 'tonal type'; it is notated ♮-g2-A, where the natural indicates *cantus durus*, the g2 the highest clef and the A the final. Powers argues that tonal type was used as means of categorisation by sixteenth-century printers and that, when employed by composers, mode, 'the only available large scale organisation theory,'[27] was:

> all bound up in sixteenth-century musical culture, not only as a living doctrine
> of the music of the church and a heritage from the Middle Ages, but also as
> a musical construct being experimented with by members of the culture, from
> both humanistic and traditional points of view; it is thoroughly 'emic' and
> requires study on its own terms, as well as in relation to any music with which
> it may be connected.[28]

Gesualdo's madrigals were published categorised by their tonal types. Table 2.2 shows the order in which the madrigals appear in the fifth and sixth books with respect to tonal type.

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[26] Powers, *Tonal Types and Modal Categories*, 437.

[27] ibid., 429.

[28] ibid., 439.

Table 2.2 Tonal Type in Gesualdo's 5th and 6th Books of Madrigals.[29]

Tonal Type	Book V	Book VI
♭ – g2 – G/g	1-4, 21	1-3, 23
♮ – g2 – d	—	4, 5
♭ – c1 – G	5-7	—
♮ – c1 – E	8, 9	6, 7
♮ – g2 – e	10, 11	8-10
♮ – g2 – f	—	11, 12
♮ – g2 – G/g	12, 13	13, 14
♭ – c1 – d	14	—
♮ – g2 – A/a	—	15-17
♮ – g2 – A	15, 16	—
♮ – c1 – A (17 c)	17-19	—
♭ – g2 – f	20	18, 19
♮ – g2 – c	—	20-22

However, simply because Gesualdo's madrigals are ordered according to their tonal type, which in turn is representative of the mode, does not mean that he used them as a compositional framework, only that his printer organised them in this manner. To determine if Gesualdo used modes as an *a priori* compositional device requires examination of how modes operate within polyphony and how theorists described their importance to the composer.

As stated in the Introduction and Chapter 1, Nicola Vicentino's *L'antica musica ridotta alla moderna prattica* (1555) will be used as the template for exploring Gesualdo's use

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[29] Adapted from: Vela and Delfino, *Madrigali a cinque voci*, xxix.

of modality. Therefore, the twelve categories of tonal type in Table 2.2 are representative of the octomodal system. As there are no pieces composed in mode 6, the first seven types listed are illustrative of the eight modes. Of the remaining four the A final pieces fall under the category of mode 3 with an A final and of mode 5 (with or without transposition).[30]

Cadences

Comparing the structure of a composition to the art of architecture, Vicentino describes the *fabbrica della compositione*.[31] As an architect gives structure to the fabric of a building, a composer must give structure to the fabric of their composition; this is achieved through cadences. A composition's internal harmonic structure is governed by cadences and modes. Having a hierarchical pitch structure, modes can be used as a tool to provide a large-scale organisational framework. Vicentino describes the cadence by equating it to speech:

> The cadence was invented to show (whenever it appears in compositions) that composers mean to denote the final falling-off at the conclusion of speaking or, in other words, the ending of the composition itself. And because the syncope, tied as it is, has this effect (seeming to fall thus conclude a speech), it is called a cadence.[32]

Vicentino and his contemporary theorists present the composition student with numerous model cadences to study and deploy in their own compositions in their respective treatises. However, as Frans Weiring writes, the polyphonic cadence has a

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[30] Vela and Delfino see instead the table as representing all twelve modes, expect mode 6, which Gesualdo did not use in the Fifth and Sixth Books of Madrigals.

[31] Nicola Vicentino, *L'antica musica ridotta alla moderna prattica*, 47[v].

[32] Translation by Maria Rika Maniates: Nicola Vicentino, *Ancient Music Adapted to Modern Practice* (New Haven and London, Yale University Press, 1996), 161–162. Vicentino, *L'antica musica,* [51r]: 'La cadentia è stata ritrovata per dimostrare (quando nelle compositioni appare) che vuole significare di far cadere il fine della conclusione del parlare, ò di fare il fine d'essa compositione: & per tal ragione, perche la sincopa fa tal effetto à quel modo legata è stato detto cadentia, quasi che cade & che conclude il parlare; imperò che alcuni Compositori non considerano la cagione, perche sia stata ritrovata.'

simple defining melodic formula:

> based on a two-part framework, in which an imperfect consonance is resolved to a perfect one. In the 'classical' cadence, this is a major sixth moving to an octave. Usually a dissonance is added; cadences with no dissonance are generally considered weak.

> The progression in the upper voice is called *clausula cantizans,* the one in the lower voice *clausula tenorizans*, after the voices in which they usually occur.[33]

Different bass patterns are associated with this progression; however, Wiering regards a genuine polyphonic cadence where there is *clausula cantizans* and a dissonance.[34] The note that the cadence is based upon is that approached by the *clausula cantizans* and need not necessarily be the note in the bass. Wiering's definition of a polyphonic cadence will be followed in this thesis.

Within each mode, there are several notes onto which the music may cadence. In the octomodal system these are based on the notes significant to the Gregorian repertory: the final, psalm-tones and perhaps the confinale, differentiae and repercussio. [35] Different theorists accepted different tones, including the four modes added by Glarean.[36] Zarlino, for example, admits a cadence on the final, third and fifth degree of all the modes. To discover which degrees of the mode were significant to Gesualdo it is necessary to examine his music. However, in practice it is possible that the modal model afforded composers the freedom to accept different cadential pitches based on whether the music was sacred, secular or even through compositional licence.

Regardless of whether the modes are viewed as tools for composition or categorisation, they would be limited in scope if they did not permit cadences *fuori del tuono,* outside

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[33] Wiering, *The Language of the Modes,* 12.

[34] ibid., 13.

[35] Smith, *The Performance of 16th-Century Music*, 94: 'cadential points normal for the mode that were similar to but not identical with those of the affiliated psalm-tone.'

[36] See: Smith, 'Appendix: Modal Characteristics,' *The Performance of 16th-Century Music*, 165–231 and Tim Carter, *Music in Late Renaissance and Early Baroque Italy* (Portland: Batsford, 1992), 54–55.

the mode. Therefore, just as a diapente or diatessaron from a foreign mode may be introduced, so too may foreign cadential pitches. Vicentino describes this process:

> In tempered and mixed polyphony, many cadences occur outside the main limits of the tones or modes, and these cadences are placed in the midst of the course of a composition. For instance, when a composer has provided the principal cadential points for a composition, he [*sic*] may then write other cadences from other modes between these points. He must, however, proceed gracefully: that is to say, if somewhat beforehand he proceeds in good order to reach the cadence outside the mode, then this cadence will not seem strange to the listener when the singers reach it. If a composer proceeds in the way, he can devise any kind of cadence whatsoever outside any mode.
>
> The principal limits of a mode fall on the first and last note of its fifth and fourth. When writing, composers should bear in mind that (as the Philosopher [Aristotle] says) nature cannot tolerate excessive things; for example, man cannot be always laughing, nor always weeping, nor always running, nor always resting. On the contrary, because moderate things endure, you must select a middle course between extremes to reach a desired goal. Similarly, composers lay out a refined unfolding, with varied cadences from other modes carefully planned so as not to seem outlandish, as was said above.[37]

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[37] Translation: Maniates, *Ancient Music,* 173–174. Vicentino, *L'antica musica,* [55r]: 'Nei toni ò Modi de canti figurati participati & misti, s'usano molte cadentie fuori de i loro termini principali, le quali si compangano nel mezzo del procedere delle compositioni, in essempio. quando il Compositore havrà dato i termini principali delle cadentie alle compositioni. Allhora quello potrà fra quei termini comporre altre cadentie d'altri toni, ma con bel modo procederà, cioè che un poco di lotano, si proceda con buon'ordine à ritrovar, quella cadentia ch'egli vorrà fare fuori di tono, & quando il cantante s'accosterà à quella, che la non paia strano all'oditore, et se'l Compositore procederà in questo ordine, egli potrà comporre ogni sorte di cadentie fuori di ogni sorte de toni. Hora questi principali termini saranno nel principio & nel fine della sua quinta, & della sua quarta, & nella compositione, il compositore avvertirà (secondo che dice il Filosofo) che la natura non può patire le cose estreme, in essempio, l'huomo non può sempre ridere, ne sempre piangere, ne sempre correre, ne sempre starsi, ma perche le cose moderate durano, perciò, nel procedere in tutte le cose si dèpiglare, una mediocrità, per poter venire al desiato fine, con il mezzo delle parti, che dimezano, l'una & l'altra estremità, hora similmente si comporrà un bel procedere con varie cadentie d'altri

From Vicentino's instructions, it is possible to deduce several points about how cadential pitches were used. First, cadences from outside the mode may be used, subject to the judgement of the composers. Second, Vicentino regarded the cadential pitches of the mode as the final, fourth degree and fifth degree. Third, the cadential pitches of the modes can be used as an *a proiri* expressive compositional device and not just an *a posteriori* categorisation.

Gesualdo's Use of the Modes

In Chapter 3, Gesualdo's use of the modes as a compositional device will be discussed and then Chapter 4 will demonstrate how, according to Vicentino's rules, he introduces chromaticism into this model. However, it is worthwhile considering here the three main uses of the modes for Gesualdo:

1. As a formal construct, the cadential pitches of the mode providing structure in the compositional process.

2. As a vehicle for the extramusical connotations, 'ethos,' associated with the mode.

3. By moving the music away from the regular cadential pitches to those from other modes (or even cadential pitches outside of *musica recta)* the drama of the madrigal text can be expressed, the regular cadential pitches of the mode and the final in particular serving as a point of release.

These three uses of the mode are all described by Vicentino in *L'antica musica*. The excerpt quoted above demonstrated the importance given by Vicentino to the modal cadential pitches in giving structure to the *fabbrica della compositione*. Vicentino's regard for the extramusical connotations of the mode is expressed in Book III of *L'antica musica*: for each of the eight modes he gives a description of the particular emotions the ancients associated with them and what sentiments were suitable for setting by contemporary practitioners. Vicentino describes the first and third uses of the mode through analogy to architecture, painting and the technique of perspective:

> The most important foundation a composer must have in mind is this: he [*sic*] should consider what he plans to build his composition on, in keeping with

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Modi con bel ordine acciò non paiano strane, come disopra s'hà detto, & l'ordine di dette, saranno qui sottoposte come ne gli essempi si veggono.'

words, be they sacred or on another subject. The foundation of this building is the selection of a tone or mode suitable to the words or to another idea. On that foundation, then, he will use his judgement to measure well and to draw over this good foundation the lines of the fourths and fifths of the chosen mode, which lines are the columns that support the building of the composition and its boundaries. Even though the fourths and fifths of other modes may be placed between them, these do no harm to this edifice when they are disposed and matched gracefully in a few locations in the middle of the work.

It is with such architectural variety that composers adorn the building of their composition, as do good architects, who dazzle the vision of men with their refined manner of using the lines of the triangle [Vicentino is alluding to perspective]. For with the latter they paint the façade of some lovely palace or other in such a way that it seems to the onlooker to be far away from him, though it is not, since it is painted close to the vision of the person looking at such a picture. This allusion comes from knowing how to match colors with lines.[38]

Yet ultimately, for Vicentino (and Gesualdo), whilst the mode is an important compositional device, in secular music the words must at all times take precedence:

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[38] Translation: Maniates, *Ancient Music,* 149–150. Vicentino, *L'antica musica,* [47v]: 'Il maggior fondamento che dè havere il Compositore sarà questo, che riguarderà sopra di che vorra fabricare la sua compositione. secondo le parole, ò Ecclesiastiche. ò d'altro sugetto, et il fondamento di detta fabrica sarà che eleggerà un tono, o un modo, che sarà in propostio, delle parole, o sia d'altra fantasia, & sopra quel fondamento misurerà bene suo giuditio, & tirerà le linee delle quarte & delle quinte d'esso tono, sopra il buono, fondamento, lequali saranno le colonne che terranno in piedi la fabrica della compositione; & de suoi termini, quantunque fra queste quarte, & quinte si riponesse le quarte & le quinte d'altri Modi. Queste non saranno danno à essa fabrica quando quelle saranno, in alcuni luoghi disposte, & con bel modo accompagnate nel mezzo di detta compositione, che con la varietà di quella Architettura, ornerà la fabrica della compositione, come fanno i buoni Architetti, che con bel modo di procedere con le linee del Triangulo fanno abbagliar la vista à gli huomini, & con quelle fanno parere, una facciata di qualche bel Palazzo, che sarà dipinta molto appresso alla vista, di colui che guarderà tal pittura & à quello, essa li parerà molto lontana & non sarà. Questa apparentia avviene da il modo di sapere accompagnare i colori, con le linee.'

The composer's sole obligation is to animate the words and, with harmony, to represent their passions—now harsh, now sweet, now cheerful, now sad—in accordance with their subject matter. This is why every bad leap and every poor consonance, depending on their effects, may be used to set the words. As a consequence, on such words you may write any sort of leap or harmony, abandon the mode, and govern yourself by the subject matter of the vernacular words.[39]

Pitch-Class Set Theory Analysis

Although pitch-class set theory was devised for the analysis of twentieth-century music, it has facets that can be used in the analysis of Gesualdo's chromaticism and also to identify modal patterns; he consistently uses interval structures that yield to this analytical method. Modal and chromatic interval patterns are a cornerstone of his compositional technique; the ability to identify and label these is indispensable to the analyst, for which pitch-class set theory is an appropriate tool.

In using an analytical method formulated for atonal music on compositions of the late-sixteenth and early-seventeenth century, caution must be taken to ensure that it is not used anachronistically and arrive at spurious conclusions. Therefore, the analysis must engage primarily with modal concerns, the set theory enhancing the analysis by the identification of interval structure.

The principle difference between pitch-class set theory and modal theory is the hierarchies of pitches used within a modal composition, whereas set theory considers all notes equal. Therefore, absolute pitch values become a constituent part of any analysis. Consequently, whilst set theory can be used to enhance a modal analysis, if considered by itself it would be inappropriate.

Modal theory also gains from the introduction of a set-theoretical analysis; the

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[39] Translation: Maniates, *Ancient Music*, 150*.* Vicentino, *L'antica musica,* [48r]: '[il Compositore] sarà solamente obligato à dar'l'anima, à quella parole, & conl'Armonia di mostrare le sue passioni, quando aspre, & quando dolci, & quando allegre, & quando meste, & secondo il loro suggietto; & da qui si caverà la ragione, che ogni mal grado, con cattiva consonanza, sopra le parole si potrà usare, secondo i loro effetti, adunque sopra tali parole si potrà comporre ogni sorte de gradi, & di armonia, & andar fuore di Tono & reggersi secondo il suggietto delle parole Volgari.'

placement of the semitone in the modal diapente and diatessaron creates distinctive diatonic interval patterns that are indicative of the mode. As set theory analysis allows these patterns to be identified independent of pitch, these patterns can be recognised in passages whose pitches are in harmonic areas foreign to the mode. Thus, through examination of how Gesualdo composed with these structures, it allows a deeper understanding of the compositional processes behind Gesualdo's chromatic passages, distinguishing between those that were conceived modally from those conceived chromatically.

Developed for the analysis of atonal music from the twentieth century, pitch-class set theory is applied in a slightly different manner on sixteenth-century counterpoint. The following description of set theory is tailored towards Gesualdo's music and covers all the relevant aspects needed for the analysis in this thesis. It is adapted from Alan Forte's *The Structure of Atonal Music* and *The Harmonic Organisation of the Rite of Spring* in consultation with Ian Bent's article in the *New Grove Handbooks in Music: Analysis.*[40] For a more detailed description, the reader should consult these three sources. Several extra conventions have also been adopted to best demonstrate how set theory interacts with modal theory.

Harmonies in tonal music are described using adjectives such as major, minor, diminished etc., but in atonal music no such language exists. Instead, set theory can provide a similar terminology to groups of notes with reference to their interval content. Whilst this approach is often criticised for being too mathematical, it reveals compositional patterns present in the music and provides a tool for their nomenclature. Used carefully, alongside more traditional analytical methods, it can provide a useful insight and avoid the dangers of anachronisms. Gesualdo did not think in terms of set theory; however, it provides a language to describe elements of his compositions and of his compositional procedure.[41]

Pitch-class set theory analysis relies on twelve-tone equal temperament and numbers

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[40] Allen Forte, *Structure of Atonal Music* (New Haven: Yale University Press, 1974); *The Harmonic Organization of the Rite of Spring* (La Vergne: Yale University Press, 1978); Ian Bent, 'Set-theory Analysis,' *The New Grove Handbooks in Music Analysis* (London: Macmillan Press, 1987), 100–108.

[41] This will form the basis of the conclusion, see Chapter 6.

the twelve notes from 0 to 11.[42] Regardless of the octave at which they sound, all pitches of the same note are given the same number. Therefore, set theory refers to 'pitch class' and not absolute pitch; accordingly there are twelve pitch classes, one for each pitch of twelve-tone equal temperament. These pitch classes can be arranged into 'pitch-class sets' that label the harmony much in the same way as the chord labels describe tonal harmony. These pitch-class sets do not refer to absolute note values, but to relative interval patterns. Therefore, the numbers of the pitch-classes of the isolated group of notes are adjusted such that the first pitch class is always zero and the relative interval pattern can be recognised regardless of absolute pitch values.

Whilst temperament will be discussed at length in Chapter 6, it is worth considering briefly here. Unaccompanied singers, for whom Gesualdo's madrigals were written, have the freedom to intone intervals, in particular based on hexachord quality, even if singing within the framework of a particular temperament. In consequence, tuning will vary between performers and performances. As such, if temperament were taken into account, every performance would require its own analysis. It becomes necessary, therefore, to "draw a line in the sand" to enable analysis of the music to take place. Equal temperament is a suitable compromise; as a lutenist, Gesualdo would have been aware of equal temperament as a possible tuning system[43] and may have even composed his polyphony at the lute, as Palestrina was known to have done.[44]

The interval make-up of the pitch-class sets can be identified using the following procedure. First, several notes must be isolated for analysis: this could be a chord or a melodic fragment, maybe even a whole melody; these notes are known as the 'pitch collection' or 'pitch combination.' In the music of Gesualdo, this is most likely to be the notes of a particular line of text. Often he divides his music into phrases manageable by the singer in one breath and these make suitable pitch collections. Once the pitch collection has been chosen, the process of reducing the notes to a pitch-class set can begin. All the notes of the pitch collection should be transposed such that they are all in the same octave. Then the pitch classes for every note of the pitch collection are

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[42] The implications of using equal temperament will be discussed in Chapter 6 and in Appendix VI.

[43] Smith, *The Performance of 16th-Century Music,* 49–50.

[44] Jessie Ann Owens, *Composers at Work: The Craft of Musical Composition, 1450–1600* (New York: Oxford University Press, 1996), 294–296.

notated (using C = 0, C♯/D♭ = 1, D = 2 etc.) and written in ascending order. By moving the notes up the octave, in other words adding 12 to the pitch-class set, the numbers should be arranged into the tightest possible formation. If numbers higher than eleven are needed at this stage, this does not affect the final result; by adding twelve to the pitch class the same pitch class is retained (i.e. C = 12, C♯/D♭ = 13, D = 14 etc.) and this value will be altered in the next step by subtraction to return them to their proper value. Now the numbers are stacked as close to each other as possible, they are arranged in 'normal form.' After the normal form is established, it is 'transposed' down to zero by the value of the first pitch class to become a pitch-class set in 'prime form.' In other words, the first pitch class in a prime form is always 0. Two hundred and eight unique prime forms are possible and they have all been catalogued and labelled by Allen Forte.[45] Their names are given in the form of two numbers separated by a hyphen. The first number indicates how many notes are in the set and the second the number of the set in Forte's index.

An example of the process will now be given from 'Se la mia morte brami' (Book VI, 1), Example 2.5.

Example 2.5 'Se la mia morte brami' (VI, 1) Tenor bb. 7–9.

First the notes for the particular pitch-class set have been isolated: in this case, the phrase 'Se la mia morte brami', the notes of the pitch collection have been marked using the bracket above the stave. In this instance the notes are already in their tightest possible formation and no re-arrangements have to be made.[46] Starting with the lowest note, A, pitch class 9 (when C = 0), the notes are then numbered upwards by the number of semitones between them, as can be seen on Example 2.6.

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[45] Forte, 'Appendix 1 Prime Forms and Vectors of Pitch-Class Sets,' *The Structure of Atonal Music,* 179.

[46] Most of the sets encountered in Gesualdo's music do not need much rearranging. For examples that do, see: Ian Bent, *New Grove Handbook*, 100–108.

Example 2.6 Example of Pitch-Class Numbering.
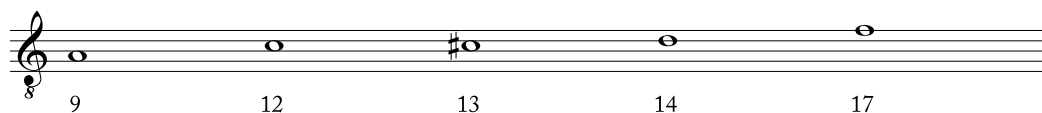
To make a prime form, the number 9 is subtracted from all the pitch classes 9,12,13,14,17, such that the first number becomes zero, making the prime form [0,3,4,5,8], in which the relationship between the pitch classes is clearer. Looking up this combination in Forte's index will reveal the set to be designated 5-Z37. The five indicates the number of pitch classes, the 37 the combination of tones and the 'Z' a property peculiar to some sets, which is explained below. Prime forms are always indicated through the use of square brackets. It is possible to undertake this process through the use of a computer algorithm; in the analyses in this thesis the program 'Prime Form Calculator' from composerstools.com has been used.[47]

Once the pitch-class sets have been established, their use lies in their comparison and this can be achieved in a variety of ways. Pitch collections that can be reduced to the same pitch-class set are said to be 'equivalent.' When the intervals of a pitch-class set are rotated and/or transposed they retain their equivalence. Similarly, when the intervals are inverted, equivalence is retained.

Pitch-class sets have another descriptor called an 'interval vector.' This simply counts the number of times each interval occurs within each pitch-class set and is written as a group of six numbers within square brackets. The first number is the number of minor seconds in the pitch-class set, the second the number of major seconds, the third the number of minor thirds, etc. For example, the interval vector of pitch-class set 4-8 [0,1,5,6], is written thus: [200121]. In other words, it has two semitones, one major third, two fourths and one diminished fifth. Such notation is useful for showing the characteristic make-up of a particular set; 'It carries, as it were, the genetic code of that set.'[48] It is possible for two pitch-class sets to contain different pitch classes yet still have the same interval vector. Such as can be seen in Example 2.7; it is taken from one of the case studies in Chapter 5: 'Tribulationem et dolorem' from the first book of *Sacrae Cantiones*. Below are two phrases from the Bassus that are Z pairs.

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[47] 'Prime Form Calculator,' last modified 2004, http://composertools.com/Tools/PCSets/-setfinder.html.

[48] Bent, *New Grove Handbook,* 104.

Example 2.7 'Tribulationem et dolorem inveni' Bassus bb. 5–10 and 18–22.

The sets 6-Z47 [0,1,2,4,7,9] and 6-Z25 [0,1,3,5,6,8] have different pitch-class sets but both have the interval vector [233241].

If one set contains intervals that are found in a larger set, for example the 4-11 [0,1,3,5] set contains all of the intervals of the 5-24 [0,1,3,5,7] set, then the larger set is said to be a 'superset' of the smaller 'subset.' The intervals in the subset may be 'transposed' by the addition of a number to make a subset. For example the 4-4 [0,1,2,5] set is a subset of the 5-Z37 [0,3,4,5,8]; the 4-4 set is 'transposed' by the addition of 3 to the prime form to give [3,4,5,8] and can therefore be shown as a subset of the 5-Z37.

Recognition of modal patterns requires several additional notational conventions. For example, there are three species of fourth, which are labelled with the prime form 4-10 [0,2,3,5] and 4-11 [0,1,3,5] on Example 2.8.

Example 2.8 The Species of Fourth and Fifth Labelled Using Set Theory.

Using this notation it is not possible to distinguish between the second and third species of fourth. The interval pattern of the third species is an inversion of the second and it is possible to denote this in set theory with the addition of a B to the pitch-class set label. In this nomenclature the first species of fourth is labelled 4-10 [0,2,3,5], the second 4-11 [0,1,3,5] and the third 4-11B [0,2,4,5]. Similarly, the first species of fifth takes the prime form 5-23 [0,2,3,5,7], the second 5-24 [0,1,3,5,7], but the third and fourth are both inversions of the 5-23, 5-23B [0,2,4,5,7]. These are all shown on Example 2.8.

However, as larger sets are analysed, more possible combinations exist: there are seven octave species that are all labelled using the prime form 7-35 [0,1,3,5,6,8,10]. Therefore, to distinguish between the octave species, a different nomenclature is employed. In order to demonstrate where these species exist displaced from their usual pitches, the interval patterns must illustrate relative, not absolute, pitches. These patterns will be written in curly brackets {} and will be accompanied by the name of the pitch class set. For example, the first octave species, A-a, see Example 2.9, has the interval pattern: tone-semitone-tone-tone-semitone-tone-tone. This would be labelled 7-35 {0,2,3,5,7,8,10}, denoting that it forms the pitch-class set 7-35 and has the interval pattern {0,2,3,5,7,8,10}. The second octave species has the pattern of the 7-35 set and is therefore labelled 7-35 [0,1,3,5,6,8,10], using square brackets.

Example 2.9 The Species of Octave Labelled Using Set Theory.

Aesthetic Ideals of Set Theory

Pitch-class set theory is used in this thesis as a method for identifying interval patterns within the music, not to pursue aesthetic ideals. John Paul Ito writes in his lecture notes on set theory: 'It is first and foremost a labelling system. It makes no claims about music itself, but it does make some claims about the basic materials of music, and those claims are objectively, mathematically true, like geometry.'[49] The aim of this thesis is to examine the interval patterns used in Gesualdo's compositional process, not to argue for a particular aesthetic judgement on his music. Whilst some scholars argue that set theory is a tool for this, it is not the intention of this thesis to make such conclusions. Set theory will be used only in an analytical context.

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[49] John Paul Ito, 'Lecture Notes of Pitch-Class Set Theory' given at Carnegie Mellon University, last modified 2010, http://www.contrib.andrew.cmu.edu/~johnito/music_theory/20thC/-LectureNotes/1-SetClasses.pdf.

Chapter 3

Modality

Building on the exposition of modal theory given in the previous chapter, the present chapter explores how Gesualdo employs modality in his compositional technique. The combination of a modal and set-theoretical analysis will also be detailed, demonstrating its efficacy in bringing greater understanding to Gesualdo's compositional process.

The Motet 'Ne reminiscaris Domine delicta nostra'

Printed in Venice in 1585, nine years before the first book of madrigals, Stefano Felis' *Liber secundus motectorum* contains the earliest complete piece by Gesualdo, suggesting he may have tutored him. The score, found in Appendix V, demonstrates that by the age of nineteen Gesualdo had already established a solid grounding in contrapuntal technique and mode.

'Ne reminiscaris domine delicta nostra' is composed in mode 3. All of the voices enter in canon on either the final, E, or the psalm tone of mode 4, A, although the Cantus sings the 'delicta nostra' motif, before entering with the 'Ne reminiscaris Domine' subject in on a G. John Milsom has shown through a process he calls 'forensic analysis' that the opening mostly consists of strict canon, whereas in the latter half of the piece the parts become more independent.[1] Strict canon is atypical in Gesualdo's later music, supporting the hypothesis that this motet is a student piece. The cadential pitches used are those of the psalm tones of the third and fourth modes, A and C respectively, and as the canon becomes looser the music cadences *fuori del tuono,* as shown on Table 3.1. The unprepared dissonance in bar 28 is an indication of his later style, but this only occurs once in the motet. There is no chromaticism in the motet either; a feature that will be present in small amounts in the first book of madrigals. The motet, therefore, demonstrates that Gesualdo was well-educated and proficient in the art of writing polyphony according to the fashion of the time.

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[1] John Milsom, 'Composing with Gesualdo: what forensic analysis can tell us,' (paper given at the *Gesualdo 400th Anniversary Conference*, University of York, November 23–24, 2013).

Table 3.1 Cadential Plan of 'Ne reminiscaris Domine delicta nostra.'

Bar Number	Text	Cadential Pitch
13	delicta nostra	A
19	parentum nostrorum	C
25	delicta nostra/ parentum nostrorum	D
29	parentum nostrorum / neque vindictam	G
34	peccatis nostris	C
41	peccatis nostris	G
43-46	de peccatis nostris	E

Modal Theory in Practice

Large-Scale Pitch Organisation

As discussed in the previous chapter, there are three main ways in which Gesualdo uses the hierarchy of pitches within the mode. The first of these is the use of the hierarchical pitches as a large-scale organisational structure. Through the use of the mode's cadential pitches and the interval structure of the diapente and diatessaron, a sense of 'home' or 'tonal focus' can be established. Modes were the only large-scale organisational scheme available to composers of the sixteenth century;[2] therefore it was no surprise to discover Gesualdo was using them for structural effect. Once the mode has been exposed, the harmony can paint the drama in the madrigal text by moving to cadential pitches outside of the mode and using species of fourth and fifth from other modes. Where the mode needs to be ingrained for structural reasons, for example, the beginning or the end of the madrigal, other devices can be used to depict emotion in the madrigal text.

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[2] Harold S. Powers, 'Tonal Types and Modal Categories in Renaissance Polyphony,' *Journal of the American Musicological Society* 34 (1981): 429.

The two-part madrigal 'Io tacerò' (IV, 3&4) demonstrates this well. It is composed in mode 1 transposed and frequently uses the 'mi supra la' rule to produce a semitone above a soft hexachord to provide a flattened sixth, E♭, and portray the sombre mood of the madrigal. The opening phrase 'Io tacerò, ma nel silenzio mio' (I will be silent, but in my silence) is written in a low tessitura with the Cantus tacet and the harmonies staying within the region of the transposed mode 1 in the B♭ hexachord (see example 3.1). Through the ensuing lines of the madrigal 'La lagrime e i sospiri / Diranno i miei martiri' (My tears and sighs / Will tell of my torment) the madrigal remains within the harmonic region established in the opening phrase, with regular cadential pitches: for example, onto B♭ at the end of the first phrase, B♭ in bar 7 and G in bar 9.

Example 3.1 'Io tacerò' (IV, 3&4) bb. 1–3.

From bar 9 the text is repeated and although initially the harmonic material is the same, there are some crucial differences. The motivic material of the opening phrase is duplicated in the repetition, though with a different voicing, and the music stays in the same harmonic area in which it opened; however, it does not cadence. The phrase 'Ma se averrà ch'io mora' (But if I should die), as seen on Example 3.2, follows the repetition of the first two lines of text; here, the mention of death has heightened the intensity of the drama. Before, the speaker stoically suffered in silence, but now he is histrionically contemplating death. The music represents this; the harmony is flung through a rising semitone in the Cantus onto an E major harmony, the phrase finishing with an A major harmony.

Example 3.2 'Io tacerò' bb. 18–22.

The separation of the E major harmony from mode 1 has two profound consequences: first, it intensifies the torment of the speaker by distancing the harmony from the established tonal focus of the mode; second, the distance in the harmony separates the speaker's present state in the text from their fears, establishing a hexachord whose 'mi' exists where there had been 'fa.' The effect is intensified by the use of dissonance; in bars 18-19 there are two suspensions, one in the Quintus and one in the Cantus, and on the phrase 'Ma se averrà ch'io mora' there is a suspension in the Altus. The final line

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of text 'Griderà poi per me la morte ancora' (Death shall cry out for me again) restores the madrigal's tonal focus, returning to the harmonic region of the opening phrase. The final two lines are repeated and the texture is re-voiced for five voices; the passage is also transposed down a fifth and the word 'mora' is set by the harmonies A major and D major. Although this is not as far removed as the previous iteration, the A major harmony is still alien to the world of Dorian with a flattened sixth. The D major harmony provides a 'pivot' back to mode 1 and the final phrase remains in this harmonic region, bringing the *prima parte* to a close on the fourth degree of the mode, C.

In the *seconda parte* Gesualdo uses a similar technique. The text does not permit distant harmony to describe the word death, as it appears at the end of the piece and therefore the madrigal would be unable to close on the modal final. Therefore, he uses distant harmonies to illustrate the word 'cele' (concealed), as seen on Example 3.3:

Invan dunque, o crudele,	In vain therefore, o cruel,
Vuoi che'l mio duol e'l tuo rigor si cele,	You want that my pain and your harshness be concealed,
Poi che mia cruda sorte	Then my cruel fate
Dà la voce silenzio ed a la morte.	Gives voice to silence and to death.

Example 3.3 'Invan dunque, o crudele,' (IV, 4) bb. 5–8.

Instead, the remoteness of the A major harmony separates the word from the remainder of the *seconda parte*. It is also the most emotionally intense phrase, as the 'cruel fate

that gives voice to silence and death' is caused by the concealment. The harmony does not travel as far from the 'tonal focus' as it does in the *prima parte*, but the effect is the same. The final line is repeated several times and although it initially mixes flattened and natural sixths, by the final iteration it has returned to its grounding in the transposed mode 1 with flattened sixths, closing the madrigal on the modal final.

Modal Ethos

Modes also carried extramusical connotations. *Cinquecento* theorists ascribed to them two sets of qualities that they were suitable for expressing: first, those employed by contemporary musicians and, second, those they believed were used by the Ancients. Despite the theorists disagreeing about which modes were best suitable for portraying different moods,[3] when choosing one for a composition the meaning of the text influences the decision, such that it may further the text's meaning. Vicentino, alongside many other *cinquecento* theorists, describes the effects that the Ancients ascribed to the modes and the emotions they were suitable for expressing in contemporary music. Recalling, for example, from Chapter 2, he says of mode 1:

> The first mode, then, is of an agreeable and devout nature, and it seems more virtuous than wanton. This mode was very honored by the Dorian people who sang their songs in praise of great deeds in it. For this reason Boethius and other philosophers called it the Dorian mode after this people.[4]

Pitch-Class Set Theory and Modal Theory

Pitch-class set theory can enhance a modal analysis by examining the interval structures relevant to the mode and determining their presence in the music. By recognising these interval structures it is possible to determine if the music is modal, modal in interval structure but in a harmonic region outside of that usually employed in the mode, or if the modal interval structure has been replaced entirely, for example, with chromaticism. Therefore, set theory can distinguish modality from chromaticism and

[3] Anne Smith, 'Appendix: Modal Characteristics,' *The Performance of 16th-Century Music: Learning from the Theorists* (New York: Oxford University Press, 2011), 165–231.

[4] Nicola Vicentino, *Ancient Music Adopted to Modern Practice*, trans. Maria Rika Maniates, (New Haven: Yale University Press, 1996), 140. Original on page 55, footnote 20.

assist in defining chromaticism. In this chapter, the focus will be on how a set theoretical analysis can identify modal features in Gesualdo's madrigals.

According to *cinquecento* music theory treatises, the modal system developed from Ancient Greek music and the Ancient Greeks' division of the fourth into a diatonic tetrachord, consisting of two semitones and a tone. Through extending the tetrachord by a further tone, a diatonic fifth was created. The semitone could appear in any position within the diatonic fourth or fifth, creating three species of fourth and four species of fifth. These could then be combined to produce seven octave species, which in turn formed the basis of the modes (Example 3.4). These were discussed in the previous chapter; however, their interval structure plays a significant role in a set-theoretical analysis of modal music.

Example 3.4 The Species of Diatonic Fourths, Fifths and Octaves.[5]

The three species of diatonic fouth
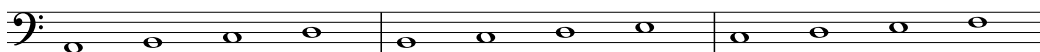
The four species of diatonic fifth

The seven octave species

Depending on the theorist, there were eight or twelve modes made from the octave species. Consequently each mode was the combination of a diatonic fourth or diatessaron ('through four') and a diatonic fifth or diapente ('through five'). As stated in Chapter 2, the placement of these within the mode determines whether the mode is plagal or authentic. The interval patterns of the diapente and diatessaron, individually and combined to form the octave species, form the interval patterns crucial to modal

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[5] Adapted from: Vicentino, *Ancient Music Adopted to Modern Practice*, 137–139.

analysis with set theory.

As can be seen in example 3.5 there are two possible prime forms for the diapente and diatessaron. The diapente can either be a 5-23 [0,2,3,5,7] or 5-24 [0,1,3,5,7] set and the diatessaron can either be a 4-10 [0,2,3,5] or 4-11 [0,1,3,5] set. It can be noted that the 4-10 is a subset of the 5-23 and the 4-11 a subset of the 5-24.

Example 3.5 The Species of Diatonic Fourths and Fifths, Labelled Using Set Theory.

In the excerpt from 'Tribulationem et dolorem' (*Sacrae Cantiones a*5 Book I), Example 3.6, a demonstration of these modal sets can be seen.[6] The passage from bars 40–44 'misericors' is the only chromatic one in the motet, which is otherwise diatonic and composed in mode 3 with an A final. After the chromatic passage, Gesualdo immediately returns to diatonic intervals, grounding the listener in familiar territory, not through the pitches from the modal hierarchy, but through the use of interval structures. The Altus and Bassus enter with a 4-11 set, prime form of the second species of fourth or the diatessaron of mode 3, then the Quintus with the 6-9 set, a superset of 5-23 set, the first species of fifth (the extra note being the F♯), followed by the 5-24 set or diapente of mode 3 in the Cantus, an inversion of the second species of fifth and finally the Tenor with the Aeolian first species of fifth, the 5-23 set, entering on the modal final. In this manner Gesualdo has used the interval structures, not pitches, to restore the mode.

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[6] Transcribed from: Carlo Gesualdo, *Sacrae cantiones für fünf Stimmen*, ed. Glenn Watkins, (Leipzig, Deutscher Verlag für Musik, 1990).

Example 3.6 'Tribulationem et dolorem inveni' from *Sacrae Cantiones a5* bb. 40–49. CQATB.

Reducing the sets to their prime form allows for easy comparison of their intervallic content and for the recognition of subsets and supersets. However, there are occasions where identification of the individual species is important. In these instances, the pitch collections can be identified and adjusted such that the first value is zero, to represent a relative interval pattern without reducing the set to its smallest possible form. This process was described in Chapter 2 and is notated using curly brackets or the addition of 'B' to the name of a set to denote an inversion. It is also possible to identify the

species as inversions of the prime forms; these have been annotated on Example 3.7.

Example 3.7 The Species of Diatonic Fourths and Fifths Labelled Using Set Theory and Showing Inversions.

The three species of diatonic fourth

4-10 [0,2,3,5]   4-11 [0,1,3,5]   4-11B [0,2,4,5]

The four species of diatonic fifth

5-23 [0,2,3,5,7]   5-24 [0,1,3,5,7]

5-24B [0,2,4,6,7]   5-23B [0,2,4,5,7]

The pitch-class set containing all seven degrees of the mode can be a useful tool for determining which phrases of the music are modally constructed, which have chromatic inflections and which are chromatically constructed. Chromatic constructions will be dealt with in the following chapter, here only the first two will be examined. As all the modes contain all the seven white notes, when all seven degrees are counted they make the same seven-note-pitch-class set, 7-35 [0,1,3,5,6,8,10]. This modal superset can be plotted in a table to show how the different sets relate to the mode. This is illustrated through an example, the madrigal 'Amor, pace non chero,' which will also allow all the set theoretical techniques to be demonstrated.

Whilst reducing all the octave species and modes to the same pitch-class set to the same interval pattern (and one that at first suggests a white note pattern on B) may at first seem counter-intuitive for a modal analysis, there is a value to doing this. Pitch-class sets are relative interval patterns and do not indicate attachment to any particular note or any melodic pattern. Reducing the pitch collections to the prime form ensures that the intervals are in the tightest possible combination; this allows the relationships of the sets to each other to be examined independent of pitch and melodic direction. For example, an ascending voice may rise through the notes G, B and D, giving the pitch collection {0,4,7}, but how should it be compared against a descending voice through the same notes? Counting upwards goes against the melodic direction, whilst descending gives the pitch collection {0,3,7}. The prime form is a neat solution to this problem, which also allows these patterns to be identified regardless of their absolute pitches.

It is beneficial to be able to identify specific modal patterns where they occur. Using the curly bracket notation outlined in Chapter 2, it is possible to describe these patterns in the analytical commentary. However, on the tables comparing all the sets in the madrigals, the prime form provides the best means of comparison. An example of this process can be found in the analysis of 'Amor, pace non chero' below.

Hexachords

Hexachords were developed as an aid to sight-singing and as a mnemonic aid for performers. Fundamental to sixteenth-century music pedagogy, their distinctive interval pattern plays an important role in the interval structure of the music. The prime form of the set describing the hexachord, Example 3.8, follows the interval pattern of the pitch collection {0,2,4,5,7,9}; it cannot be re-arranged to form a more compact prime form. It is very closely related to the modal set 7-35, which has one additional semitone. Consequently, its interval structure is indicative of a modal structure and vice-versa.

Example 3.8 The Hexachord Annotated Using Set Theory.

6-32 [0,2,4,5,7,9]
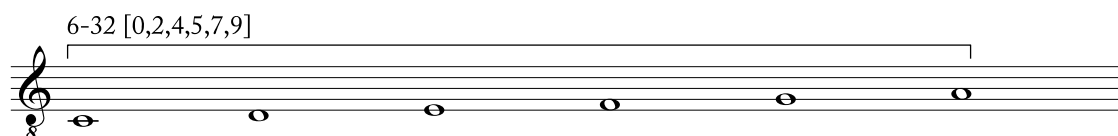
'Amor, pace non chero'

'Amor, pace non chero' (I, 9) is composed in mode 7 and throughout the majority of the madrigal Gesualdo keeps its interval structures within the confines of the mode. The madrigal is printed in Appendix II in Volume II. Mode 7 was said by Artusi to be 'suited to words which suggest threats, anger and upsets' and by Cerreto and Vicentino to be 'proud' and 'cheerful.'[7] Therefore mode 7 can be said to be a suitable choice for the simple but declamatory words. Pride is certainly an issue for the speaker, who rejects 'usbergo' (armour) and a 'scudo' (shield) in favour of his 'petto ignudo' (naked breast), this also adds to the semantic field of threats and anger as the speaker does not choose to make 'pace' (peace) with the 'guerriero' (warrior).

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[7] Quoted from: Tim Carter, *Music in Late Renaissance and Early Baroque Italy* (Portland: Batsford, 1992), 54–55.

Amor, pace non chero,	Love, I don't ask for peace,
Non chieggo usbergo o scudo,	I don't ask for armour or a shield,
Ma contro al petto ignudo	But against my naked breast
S'ella medica sia, sia tu guerriero.	If she is the doctor, you are the warrior.

To enable a pitch-class set theoretical analysis of the madrigal, a choice has to be made about the pitch combinations selected for analysis. Gesualdo writes his madrigals in short phrases that follow the lines of the text and these provide suitable divisions for the sets; the individual voice parts of these divisions provide the sets for the analysis. This allows the intervals Gesualdo uses in his voice leading to be examined in relation to external note patterns and to the movement of the other parts, both in that individual phrase and throughout the madrigal. This gives precedence to the horizontal rather than vertical aspect of the music, which is for the most part triadic, and will be discussed further later. However, in certain places it is profitable to examine larger structures than span voice parts and/or phrases and this will be done in the analytical commentary. The division of the sets in the madrigal 'Amor, pace non chero' is annotated on Appendix II Example 1 (Volume II). These are then collated into a table showing their prime forms in Appendix II Table 1 (also in Volume II).

Example 3.9 Annotated Mode 7.

Mode 7 is comprised of the modal diapente 5-23 [0,2,3,5,7] and the diatessaron 4-10 [0,2,3,5]. Together they make the same set as all the modes, the 7-35 [0,1,3,5,6,8,10] (Example 3.9). The diapente can also be notated as 5-23B [0,2,4,5,7]. By demonstrating how all of the sets in the madrigal relate to the 7-35 set, it is possible to see which have

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a diatonic, and therefore modal, interval structure. Appendix II Table 2 (Volume II) illustrates the relationship between the sets of the madrigal and the 7-35 modal set and the text. In the first column the text and location of the set is given, followed by the label of its prime form in the second. In the twelve columns labelled 0 to 11 the prime form of the set is given in such a manner that it demonstrates how it is (or is not) a subset of the 7-35 modal set. In order to aid this process, the intervals of the 7-35 have been shaded and pitch classes that correlate with those of the 7-35 set have been placed in bold. 'Transposition' of some of the sets is required, though as these are relative intervals and no actual pitch movement has taken place, therefore not all of the zeros in the pitch-class sets align. Sets that are perfect subsets of the 7-35 set are labelled in red as 'Modal' in the notes column. Sets that have one extra note due to the chromatic alterations permitted have been labelled in orange as having one 'Extra note.' Where there are two or more adjacent semitones, they have been labelled with italics so they can be easily identified.

As an example of how the table operates, it can be seen that the set 5-27 [0,1,3,5,8] is a subset of 7-35 [0,1,3,5,6,8,10] through its placement below the 7-35 superset. Being a perfect subset, all the pitch classes fall in columns that denote the 7-35 set, all are listed in bold and the label 'Modal' is given in red in the notes column. A more complex example is the 6-9 [0,1,2,3,5,7] set. The set does not fit perfectly into the modal set 7-35 because of the pitch class 2. However, without this 2 (or as a 5-24 [0,1,3,5,7] set) the 6-9 set is a subset of 7-35. Consequently, the pitch classes that align with the 7-35 interval structure are bold and the 2 is left unaltered. The label 'Extra note' is added to the notes column in orange and then the chromatic run [0,1,2,3] is placed in italics.

Although some pitch classes can be placed in the table in several different ways and form subsets of the modal diapente and diatessaron, by placing the sets in such a table it is very easy to identify where Gesualdo is leaving modal confines and using other interval structures to construct his music. This is more evident in his later madrigals; in 'Amor, pace non chero' only one set, the 3-1 [0,1,2] , does not have a modal structure, hinting at the chromaticism in his later madrigals. Only two other sets, the 6-9 and 5-Z37, are not perfect subsets of the 7-35 set, but these are the result of alterations permitted within modal rules, as shown below.

Example 3.10 'Amor, pace non chero' Quintus bb. 11–12.

sia, me – di - ca sia, sia tu guer - rie - ro, sia tu guer-rie – ro, Ma

The 6-9 [0,1,2,3,5,7] set in the Quintus bars 11-12, Example 3.10, contains a C♯ as the voice leads to a D major triad on the fifth degree of the mode. This C♯ is a result of *ficta* and if naturalised would make the set 5-23 [0,2,3,5,7], which is the modal diapente. Another instance of this is found in the Tenor in bars 8 to 10, example 3.11. The C♯ is again acting as *ficta* as a leading note onto the fifth-degree triad on the third beat of bar 9. If the C♯ were naturalised, instead of the 5-Z37 [0,3,4,5,8] set, the passage would describe a 4-26 [0,3,5,8] set, which is modal.

Example 3.11 'Amor, pace non chero' Tenor bb. 8–10.

do, o scu – do Ma con - tro al pet-to i - gnu - do S'el - la me

'Amor, pace non chero' is firmly rooted in mode 7. This is evident in the interval structures, which at this stage of his compositional output have not yet taken on the exploratory character that can be seen in the later madrigals. The cadential pitches of the madrigal are all regular (according to Vicentino):[8] the first onto C in bar 4, then F in bar 8, a Phrygian cadence onto A in bar 9, D in bar 12, G in bar 13, D in bar 16 and finally onto G in bar 17. It can therefore been seen, through pitch and interval structure, that Gesualdo does not depart from the mode.

Using the prime form to compare the sets not only allows for an easy comparison, such as that found in Appendix II Table 2, but it also permits the sets to be compared independent of melodic direction. Nevertheless, it is important to note where the diapente and diatessaron of the mode occur in the same inversions as those found in the mode. When comparing these sets the pitches need to be considered as if ascending through the octave species of the mode; this ensures consistency and the easy recognition of intervals important to the mode.

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[8] Vicentino permits cadences on G,C,d,a,f. See: Smith, *The Performance of 16th-Century Music*, 206.

The diatessaron of mode 7 does not appear as a set by itself, but only as a subset of others; these are shown on Table 3.1. The diapente is also important and occurs as an individual pitch-class set both attached to its actual pitches of the mode, for example in the Quintus bars 15-16, or attached to other pitches, such as in the Cantus bar 14. Table 3.2 shows the instances of the 5-23B in the madrigal along with their super- and subsets.

Table 3.1 Table Showing Supersets and Subsets of 4-10 [0,2,3,5].

Set Name	Prime Form	Location
7-35	[0,1,3,5,6,8,10]	Altus bb. 11–12
6-33	[0,2,3,5,7]	Quintus bb.13–15
6-9	[0,1,2,3,5,7]	Quintus bb. 11–12
5-23	[0,2,3,5,7]	Quintus bb. 8–10
		Cantus bb. 10–11
		Tenor bb. 10–11
		Bassus bb. 10–11
		Bassus bb. 11–12
		Cantus bb. 13–15
		Tenor bb. 13–15
		Bassus bb. 13–15
		Quintus bb. 15–16
		Bassus bb.15–16
		Tenor bb. 16–18
		Bassus bb. 16-18
3-7	[0,2,5]	Bassus bb. 4–5
		Cantus bb. 11–12
		Altus bb. 15–16
3-2	[0,1,3]	Altus bb. 8–10

Table 3.2 Table Showing Superset and Subsets of 5-23B [0,2,4,5,7].

Set Name	Prime Form	Location
7-35	[0,1,3,5,6,8,10]	Altus bb. 11–12
4-23	[0,2,5,7]	Cantus bb. 5–8
4-22	[0,2,4,7]	Tenor bb. 15–16
3-9	[0,2,7]	Tenor bb.12–13
3-7	[0,2,5]	Bassus bb.4–5
		Cantus bb. 11–12
		Altus bb. 15–16
3-6	[0,2,4]	Altus bb. 7–9
3-2	[0,1,3]	Altus bb. 8–10

From these two tables, the importance of the interval structure of these two interval patterns, one the subset of the other, is clearly discernible. Without the basic interval pattern of the semitone and two tones (half of a hexachordal pattern) the music would not have a diatonic modal structure. The identification of modal interval structures in this manner is crucial to differentiating them from chromatic structures, which will be explored in the following chapter.

Only the beginnings of Gesualdo's chromaticism can be seen in this madrigal. The 3-1 [0,1,2] set is the only chromatic set. This chromaticism allows the dramatic opening harmonic move from a G major triad to an E major by the chromatic movement from G to G♯ in the Quintus. However, it is possible to rationalise this as a permitted alteration within modal parameters as the G♯ provides a leading tone onto the A minor harmony on the word 'non.' Nevertheless, this move is notable and in chromatic movements like these the genesis of Gesualdo's later style can be found. This particular chromatic moment is in a rhythmically slower phrase and is contrasted with the faster moving 'Non cheggio usbergo o scudo,' a feature to be seen in the later madrigals.

Set theoretical analysis plays an important role for discerning how Gesualdo used mode in his compositions. A closer analysis of the techniques discussed in the chapter will be undertaken during several case studies alongside a more detailed modal consideration of the music. However, it is important first to understand how these techniques work in the chromatic passages of Gesualdo's music.

Chapter 4

Chromaticism

In Gesualdo's first and second books of madrigals, published 1594, and even in the motet composed in 1585, there is a tendency towards the use of semitonal movement. However, throughout the third and fourth books from 1595 and 1596 this chromatic technique begins to develop into the rich and expressive language found in the fifth and sixth books. His use of chromaticism throughout his compositional output is carefully controlled: only passages with slow moving rhythms use chromaticism, those involving faster rhythmic movement are diatonic in nature. Diatonic passages provide a tonal focus for the music and their juxtaposition against chromatic passages heightens the effect of the chromaticism.

Irrespective of whether the fifth and sixth books were written just after the fourth in 1596 or fifteen years later, closer to their publication date of 1611, there is a continuous development in compositional style from the first and second books, to the third, then fourth, into the fifth and sixth books. Had he not visited Ferrara, Gesualdo may have established his chromatic technique independently in Naples, however, it was under the aegis of the Ferrarese court that Gesualdo's chromaticism matured. Between the years of 1594 and 1596, Gesualdo made three visits to Ferrara, where his third and fourth books were published; his fifth, sixth and even seventh book of madrigals may also have a connection with the court.[1] Throughout the sixteenth century, the Este family had maintained and developed Ferrara's importance as a musical centre. Cecil Gray describes Ferrara during Gesualdo's time there as:

> the most cultured, enlightened, and splendid city in the whole of Italy. Indeed, one might say that Ferrara dominated the closing period of the Renaissance in Italy, as Florence dominated its early stages; the Medici were the wet-nurses, the Estensi were the undertakers.[2]

A proponent of chromaticism, Vicentino had strong connections with the Ferrarese court

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[1] Luzzasco Luzzaschi, *Complete Unaccompanied Madrigals*, ed. Anthony Newcomb (A-R Editions: Madison, Wisconsin, 2003), xv.

[2] Cecil Gray and Philip Heseltine, *Carlo Gesualdo, Prince of Venosa, Musician and Murderer* (J Curwen & Sons: London, 1926), 43.

as an employee of Cardinal Ippolito d'Este, brother to Duke Ercole II. Reading of the fabled extra-musical properties which Ancient Greek music was said to have had on ancient audiences, Vicentino set about attempting to restore these qualities in modern music.[3] Yet Vicentino believed that these effects could only be achieved through novelty, so he found a method of appropriating ancient musical theory into contemporary practice. His understanding of Greek theory was often wrong;[4] however, the results of this process created a set of unique compositional theories that laid the foundation for the creation of a new harmonic language. In 1551, after losing a public debate on the subject of Ancient Greek theories with the Portuguese theorist, Vicente Lusitano, Vicentino began writing a treatise that not only defended his interpretation of ancient music theory, but also explained his new compositional practices at length. Four years later, *L'antica musica ridotta alla modera prattica (*Ancient Music Adopted to Modern Practice*)* was published.[5]

In *L'antica musica* Vicentino describes an *archicembalo*, a 'super-harpsichord' capable of playing Vicentino's compositions after the music of the Ancient Greeks. These compositions required the use of microtones and therefore the *archicembalo* was constructed of two manuals to provide extra notes, not for juxtaposing timbres, but to divide the octave into thirty-one unequal parts. Unlike other similar instruments of the time, the *archicembalo* did not act solely as a demonstration piece, instead serving a practical purpose in training and accompanying voices.

Although Vicentino died c.1576 in Milan, twenty years before Gesualdo arrived in Ferrara, his music lived on under the fingers of the leading musician at the Ferrarese court, Luzzaschi. Vicentino and Luzzaschi spent time together there and clearly Vicentino taught Luzzaschi his theories for Hercole Bottrigari in his treatise *Il Desiderio* (published in 1594) confirmed that Luzzaschi still kept the *archicembalo* in use:

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[3] As Aristotle describes in his *Politics*: music can induce specific emotions and music played during a child's youth can even affect their adult personality. Other more legendary effects include Apollo taming the wild beasts with his music and it was even told that Hermes built Thebes by moving stones with his golden lyre.

[4] Henry W. Kaufmann, 'Vicentino and the Greek Genera,' *Journal of the American Musicological Society* 16 (1963): 325.

[5] Nicola Vicentino, *Ancient Music Adapted to Modern Practice,* trans. Maria Rika Maniates (New Haven: Yale University Press, 1997)*.*

Gratioso: If I said, that this instrument, when it is played ought to make a new sound and render a new harmony to the ears, the touching of it ought to make a new sight for the eyes.

Alemanno: It cannot be said otherwise, in this and that effect, particularly when Luzzasco, principal organist of his Highness, handles it very delicately in several compositions composed by him for this instrument only.[6]

Therefore, Luzzaschi was not only fluent with Vicentino's theories, but he also put them to use composing for the *archicembalo* providing a conduit through which Vicentino's theories could have been explained to Gesualdo if he was not already aware of *L'antica musica.*

The Greek Genera

The division of the diatessaron, or perfect fourth, was principal to the construction of Ancient Greek modes. When Vicentino started applying this theory to contemporary practice, the diatessaron was a suitable departure point. According to Vicentino's analysis, the Greeks divided the fourth in three different ways.[7] These divisions are known as genera (of which the singular is genus). The first genus is 'diatonic.' The diatonic genus (or 'tetrachord,' as it is a pattern of four notes) is divided into two tones and a semitone. The second division is called 'chromatic' and divides the fourth into a

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[6] Hercole Bottrigari, *Il Desiderio* (Bologna: Gioambattista Bellagamba, 1599), 41. Accessed online via books.google.co.uk, on May 21, 2015, https://books.google.co.uk/books ?id=Nww5AAAAIAAJ. The book takes the form of a dialogue between Gratioso and Alemanno. 'Gratioso: Se ho detto, che questo strumento, mentre è sonato, debbe fare un nuovo udire, et render una nuova Armonia alle orecchie: nell' esser egli tasteggiato, debbe anco fare una nuova vista à gli occhi. Alemanno: Non si può dire altramente, et in questo, et in quello effetto: et massimamente nell Armonia all' hora che il Luzzasco Organista principale di sua Altezza, lo maneggia molto dilicatamente, con alcune compositioni di Musica fatte da lui à questo proposito solo.'

[7] Given here is a summary of Vicentino's theories as described in *L'antica musica*. Ancient Greek theory in the Renaissance contained many inconsistencies and does not in all cases agree with contemporary theories on Ancient Greek music. For further discussion of Vicentino and Greek theory see: Kaufmann, 'Vicentino and the Greek Genera.'

major semitone, minor semitone and minor third. A further division named 'enharmonic'[8] exists and the enharmonic diatessaron is divided into two microtones of unequal size and a major third.[9] These are shown on Example 4.1.

Example 4.1 The Three Genera, the dot in the enharmonic genus indicates the raising of the note by an enharmonic minor diesis.
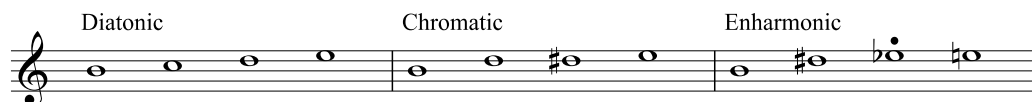
Of crucial importance to Vicentino's theories, and the subsequent analysis of Gesualdo's compositional technique, is the ability of the intervals within the fourth to appear in any order, creating three species of fourth for each genus. For example, the intervals with the diatonic fourth may appear as T – T – S, T – S – T or S – T – T. Vicentino then set about extending the diatessaron of each genus to a diapente (fifth). In the same way that the modal system was constructed using the three diatonic species of fourths and four diatonic species of fifths, Vicentino used the combination of chromatic species of fourths and fifths to create chromatic modes. Likewise, an enharmonic fifth species combined with an enharmonic fourth species would allow the creation of enharmonic modes. The diatonic diapente is so created by the addition of a tone to the diatessaron. The chromatic diapente is an extension of the diatessaron by adding a major and a minor semitone and the enharmonic diatessaron is extended by four microtones to give the enharmonic diapente.[10] Thus by combining these instances of diapente and diatessaron, Vicentino created both plagal and authentic modes in each of the three genera. The species of chromatic fourths and fifths are shown on Example 4.2, together with the octave species they can combine to make.

[8] To avoid confusion when referring to 'enharmonic equivalents' the whole term shall be used, otherwise the term 'enharmonic' refers to characteristics of the enharmonic genus.

[9] The first microtone is a minor enharmonic diesis (2/5 of a semitone) and a major enharmonic diesis (twice the size of a minor enharmonic diesis).

[10] Two of these are major enharmonic diesises, and two are minor enharmonic diesises.

Example 4.2 Species of Chromatic Fourth, Fifth and Octave

The three species of chromatic fourth
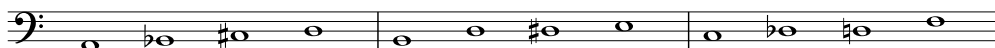
The four species of chromatic fifth

The seven species of chromatic octave
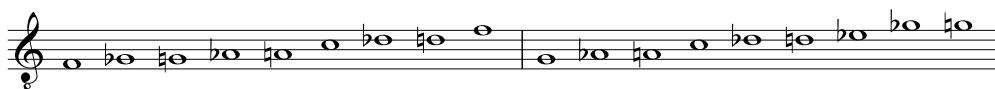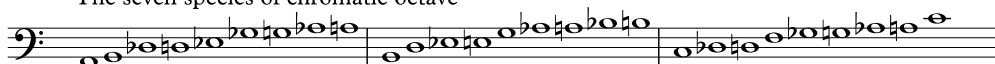
From the octave species Vicentino derives eight chromatic modes; however, the process by which he creates the modes, by substituting the diatonic species for chromatic species, is more significant than the modes themselves. This is a technique known as 'displacement,'[11] which aids the rationalisation of the genera into polyphonic practice. If intervals from one tetrachord are used within another tetrachord, the characteristics of the first tetrachord are 'transmuted' onto the second.[12] For example, if in the diatonic tetrachord (T – T – S) one of the tones is split into two semitones, to give the interval pattern T – S – S – S (or any other possible combination) the diatonic genus is imbued with qualities of the chromatic genus and thus known as 'spetie Cromatica Diatonicamente posta' (chromatic species diatonically placed).[13]

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[11] Kaufmann, 'Vicentino and the Greek Genera,' 339.

[12] Ibid., 339.

[13] ibid., 339.

Example 4.3 Vicentino's Chromatic Modes[14]

In 1551 Vicentino lost the aforementioned public debate with Lusitano, who argued that a composition could exist only in the diatonic genus, whereas Vicentino argued that the genera within a composition could be mixed.[15] The crux of his argument was that when an interval foreign to the diatonic genus occurred, it showed the qualities of another genus. For example, a minor third or succession of semitones indicated 'spetie

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[14] Compiled from: Vicentino, *Ancient Music Adopted to Modern Practice*, 190–193.

[15] Timothy R. McKinney, 'Point/Counterpoint: Vicentino's Musical Rebuttal to Lusitano,' *Early Music* 33 (2005): 393–411.

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Cromatica Diatonicamente posta' if not the chromatic genus itself.[16] Likewise, a major third indicated the presence of the enharmonic genus.

In an attempt to justify his position and demonstrate his methods of incorporating chromatic and enharmonic species into modern practice, Vicentino wrote a series of pieces, each one using only one of the three genera and included them in *L'antica musica*. From these pieces some of his tetrachordal compositional practice can be deduced. Within in each voice part only intervals of the particular genus are used. For example, in the diatonic genus, only tones and semitones are employed. However, Vicentino allows freedom of movement either side of a rest, the parts do not necessarily enter in imitation at intervals within the genus and the intervals are not applied vertically, the harmony being mostly triadic.

'Hierusalem, Hierusalem, convertere ad dominum deum tuum'

To introduce his readers to a composition in the chromatic genus, Vicentino wrote a 'Demonstration of the Chromatic Genus and Its Species, Composed for Five Voices,'[17] the motet 'Hierusalem, Hierusalem, convertere ad dominum deum tuum,' Example 4.4.[18] The motif of this piece is a chromatic tetrachord, which enters in imitation in all five parts as Vicentino states in his preceding explanation:

> This composition is completely chromatic, without any mixture from other genera. It begins with the chromatic genus, and all the other parts reply in fugue, one after the other. These fugues are beautifully varied, for one part begins the genus with the two semitones followed by the incomposite trihemitone [minor third], whereas the other part replies in the reverse, starting with the incomposite trihemitone followed by the two semitones.[19]

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[16] Ibid., 339.

[17] Ibid., 222.

[18] Vicentino does not name the parts, so they shall be described in descending order, eg. First, second, third…

[19] Vicentino, *Ancient Music Adapted to Modern Practice*, 222–223. Vicentino, *L'antica musica ridotta alla moderna prattica,* 70[v]: 'et detta compositione sarà tutta Cromatica, senza alcuni mistione d'altri Generi, & incominciarà il Genere Cromatico, & tutte l'altre parti responderanno in fuga doppò l'altra per l'istesso Genere con bella varietà di fuga, che una

The importance Vicentino gives to the different order of intervals within the tetrachord is important, for it will be shown that they appear in any order in the tetrachords found in Gesualdo's music. After the series of canonical entries ending at bar 13, Vicentino concentrates on using intervals from the chromatic genus, fourths, minor thirds, semitones and their inversions (though not strictly), rather than on the intervallic pattern within the fourth.

Example 4.4 Opening of 'Hierusalem, Hierusalem, convertere ad dominum deum tuum.'[20]

The use of the chromatic genus in 'Hierusalem' does not stand much scrutiny. There is a tone between the first notes of the entries of the first and second parts, an interval alien to the chromatic genus. Notes either side of rests do not necessarily keep to the intervals of the chromatic genus and Vicentino uses intervals such as minor sixths,

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parte incomincierà il Genere, per i due semitone, & poi seguirà il triemitono incomposto, & l'altra parte risponderà alla riversa & incomincierà con il triemitono incomposto, & poi seguirà con due semitone come qui appareno.'

[20] Vicentino, *Ancient Music Adapted to Modern Practice*, 222.

another interval not found in the chromatic genus. Finally, as Vicentino moves away from the tetrachordal cells further into the composition, the part movements free up and although lines contain only intervals from the chromatic genus, certain phrases actually use diatonic tetrachords. For example in the Opening section of 'Hierusalem, Hierusalem, convertere ad dominum deum tuum'[21] the notes of the Cantus use the diatonic tetrachord G – A – B♭ – C (Example 4.5).

Example 4.5 Cantus of 'Hierusalem, Hierusalem, convertere ad dominum deum tuum' bb. 12–17.[22]
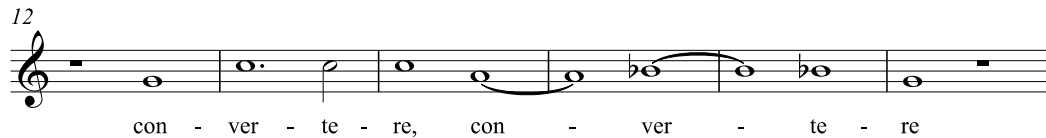
Despite these limitations, 'Hierusalem' is significant because it embraces the chromatic tetrachord as a musical motif that is successfully worked into a triadic harmony. Furthermore, Vicentino claims to have written many other pieces in this manner, no longer extant, but most likely still available to the Ferraese court whilst Gesualdo was present;[23] Vicentino selected the example of 'Hierusalem' for his treatise 'because it is a short work.'[24] It was a demonstration of new harmonies available through the use of the chromatic genus and in this sense Vicentino was successful.

Hercole Bottrigari's Chromatic Scales

Another theorist with strong connection to the Ferrarese court was Hercole Bottrigari. His description of chromatic scales has an affinity to some of the patterns found in Gesualdo and therefore a description of his system is of benefit to the present discussion.[25] Bottrigari had different aims to Vicentino; whereas Vicentino sought to

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[21] ibid.

[22] ibid.

[23] ibid.

[24] ibid.

[25] His treatise *Il Desiderio,* published in 1594, is an invaluable source of information on musical practices at the court of Duke Alfonso II. Like Vicentino, he was also interested in chromaticism and describes his own understanding of ancient Greek chromatic and enharmonic modes in *Il Desiderio* and in a further publication, *Il Melone et il Melone secondo,*

restore Ancient Greek genera to modern practice, Bottrigari strove to demonstrate how they were used by the Greeks, although he does attempt his own chromatic compositions.

In his treatise *Il Desiderio*, Bottrigari describes the following: as the diatonic system is made of diatonic tetrachords, so the chromatic system can be created using the chromatic genus. [26] In order not to overburden the reader with the names of a flurry of Greek scale divisions, only the results of this process will be described. The 'chromatic system' is a two-octave scale made of four chromatic tetrachords and a tone. This is shown on Example 4.6 after Bottrigari's own.

Example 4.6 The 'Perfect Disjunct Chromatic' System, As Described by Bottrigari.[27]

Perfect Disjunct Chromatic System

Here the scale is made of two chromatic tetrachords followed by a tone; Bottrigari does not show the final tone on his diagram. The placement of the tone after the two tetrachords in this manner is known as a disjunct scale in contrast to the conjunct scale, where three chromatic tetrachords are placed together and the highest chromatic tetrachord is surrounded by two tones. Again, Bottrigari does not show the final tone on his diagram, Example 4.7.

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published in 1602, also in Ferrara: Hercole Bottrigari, *Il Melone e Il Melone secondo*, facsimile, (Bologna: Forni, 1969).

[26] Hercole Bottrigari, *Il Desidero,* trans. Carol MacClintock (American Institute of Musicology: n.p., 1962), 33–39. Bottrigari cites Ptolemy and Euclid as his sources.

[27] Bottrigari, *Il Desiderio*, 37.

Example 4.7 The 'Conjunct Chromatic' System, As Described by Bottrigari.[28]

An important factor in the construction of Ancient Greek scales is that they can have a two-octave pattern. Gesualdo does not use the scales exactly as Bottrigari prescribes; however, he uses elements of their construction, namely building a one or two octave pattern out of tetrachords separated by tones, to build his own scales.

Constructing Gesualdo's Chromaticism

Gesualdo uses both the chromatic tetrachord and the chromatic systems to construct his chromaticism; but whereas Gesualdo uses them only in chromatic passages, Vicentino set out to compose entire pieces of music using his chromatic and enharmonic modes. The intervallic structure of the tetrachord often displaces that of the diatonic using a process Vicentino calls 'spetie Cromatica Diatonicamente posta' (chromatic species diatonically placed). However, it is also possible to see diatonic species chromatically placed and the combination of two chromatic diatessaron to create a melody; examples of these will be demonstrated below. All of these can be described using pitch-class set theory.

The simplest chromatic set, the x-1 set (where x is the number of notes in the set), or a sequence of three or more semitones, can also form part of the construction of a chromatic passage or provide a chromatic inflection in a modal passage, for example by the use of a chromatic passing note or through *ficta* alterations.

The chromatic diatessaron can appear within three different configurations or species: with the minor third after the two semitones, with the minor third before the two semitones and with the minor third between the two semitones. These three possible patterns are shown on Example 4.8 with their respective pitch-class sets marked.

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[28] ibid., 38.

Example 4.8 The Three Species of the Chromatic Diatessaron, shown with their pitch-class sets marked.
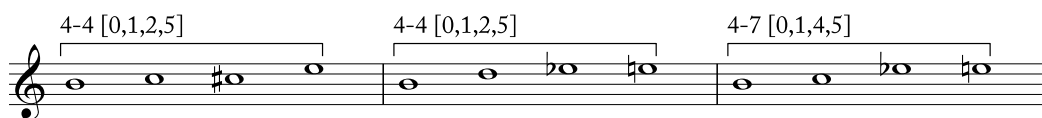
The three different permutations permit two closely related pitch-class sets: 4-4 [0,1,2,5] and 4-7 [0,1,4,5]. The second species can also be notated 4-4B [0,3,4,5] in instances where it is useful to compare the order of the intervals and not the prime form.

The 4-4 set plays an integral role in Gesualdo's chromaticism, along with the 4-7, in structuring chromatic passages and in all of them it can be found, often with subsets and semitonal movement in other parts. In the same way that placing all the sets within a piece into a table shows which sets are related to the mode, it also shows which sets defy modal explanation. It is then possible to show how they relate to the 4-4 set instead, although in reality this relationship is much freer than that of the modal sets with the modal supersets. This process is best seen through example and there will follow four detailed case studies that will demonstrate this in action. When discussing how interval structure is used in composition, set-theory analysis becomes a useful tool and indeed helps to elucidate how the interval structures in the chromatic passages relate to those in the modal passages, and to the piece as a whole.

Using the comparison of prime forms within a piece to the chromatic 4-4 set and modal 7-35 se, it is possible to provide several different categorisations for individual prime forms. In the previous chapter it was demonstrated how modally shaped sets form subsets of the 7-35 set and the same can be done with the 4-4 chromatic set. However, as the 4-4 set is much smaller than the 7-35, there are more supersets of the 4-4 set than subsets. Unlike the combination of the diatonic diapente and diatessaron in the creation of a mode, which leaves one possibility for a modally shaped set (i.e. all modes are described as 7-35), there are many possible sets for a chromatic mode; therefore, there is no large chromatic set. Another result of this, is that there are not as many possibilities for subsets to 'fit the shape' of the larger set and consequently sets are more likely to have correlations in their interval content, if not in overall shape: for example, having a run of consecutive semitones. A diagram arranged in this fashion will further demonstrate the usefulness of set theory in identifying interval structures relevant to the compositional structure of the madrigal and will accompany all the case studies of Chapter 5. By labelling sets according to structures revealed through set theory analysis, the process of identifying modality and chromaticism and their

respective functions will be easier.

Modal Sets are sets that have a shape that is a subset of the modal superset (7-35) and are diatonic in shape. They may not be attached to pitches associated with the mode, i.e. they could be displaced diatonic species, but they retain a diatonic shape.

Modal Sets with An Alteration are sets that fit the definition of a modal set, but have one additional note through modally permitted operations. These may include the raising of a third, a leading note or *ficta* alterations.

Chromatic Sets have more than one consecutive semitone and may take the form of subsets or supersets of the 4-4 or 4-7 set and often bear a strong relationship with it.

Hybrid Sets have qualities of both modal and chromatic sets. They are analogous to chromatic species diatonically placed.

Unclassified Sets do not fit any of the above classifications. As they rarely occur, they are discussed in the analytical commentary.

A set may fit more than one of these classifications and in this case the classification will be chosen according to the set's function and will be discussed in the analysis.

Chromatic Cadences

A diatonic cadence consists of two principle part movements: a *clausula cantizans*, which approaches the cadential pitch through a semitone; and a *clausula tenorizans,* which approaches the cadential pitch through a tone. However, where there is a chromatic species displacing the diatonic, the interval of a tone is no longer available. Consequently, the cadence will use intervals from the chromatic genus: the *clausula cantizans* is still a semitone, but the *clausula tenorizans* is a minor third. Gesualdo uses chromatic cadences constructed in this manner both where there are chromatic species diatonically placed (i.e. onto pitches within the mode) and chromatic species chromatically placed (i.e. onto cadential pitches outside *musica recta*).[29]

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[29] Vicentino describes chromatic cadences; however he does not construct them using a minor third, only a *clausula cantizans* and a dissonance. This is a demonstration of how Gesualdo is developing Vicentino's ideas. See: Vicentino, *Ancient Music Adopted to Modern Practice*, 194.

For example, in the madrigal '"Io parto" e non più dissi' (VI, 6) there is a chromatic cadence onto E in bar 15, Example 4.9. The Bassus descends onto the cadential pitch through a minor third, whilst the Tenor ascends through a minor third and a semitone. Both parts sing chromatic tetrachords: in the Tenor the pitches C, E♭ and E♮ form a tetrachord completed by the B in the Altus and in the Bassus only three notes are sung from the tetrachord A, G, G♯, E, although the G♯ is found in the chromatic movement in the Cantus.

Example 4.9 '"Io parto" e non più disse' bb. 13–15.

Another example is found in the madrigal 'S'io miro non moro' (V, 2). The final phrase is structured using intervals of the chromatic genus displacing those of the diatonic. The closing cadence is approached by an ascending semitone in the Cantus and a descending chromatic tetrachord onto the cadential pitch in the Altus, producing a chromatic cadence; see Example 4.10. However, there is a diatonic cadence in the Quintus. Gesualdo has used the two genera to create both a diatonic and chromatic cadence.

Example 4.10 'S'io miro non moro' bb. 27–30.

Chromaticism in Gesualdo's Madrigals

Of all Gesualdo's six complete books of madrigals, the four written after his first musical contact with the Ferrarese court show the development and mastery of his idiomatic chromaticism. All of this chromaticism can be linked to the pattern of notes in Vicentino's chromatic tetrachord. Other theorists discussed this division of the diatessaron too, but none used it as a melodic entity to the extent of Vicentino; and Gesualdo had the opportunity to learn these theories from Vicentino's pupil, Luzzaschi. Abandoning the impractical enharmonic genus, Gesualdo makes reference to the chromatic tetrachord in all his chromaticism; although Vicentino may have argued that this was necessary, the references to this specific pattern are clear and, despite the development of these being to a certain extent organic, they are also to a particular degree controlled. Set-Theory analysis also expounds the interval structures that underlie this process and helps elucidate the development of Gesualdo's chromaticism.

Development of the 4-4 Set as a Compositional Structure

Analysing the opening sections from three madrigals, one each from the fourth, fifth and sixth books, the development of the intervals in the 4-4 set as a compositional structure can be examined. The first of these is the opening to 'Moro, moro, e mentre sospiro' (I

die, I die, and whilst I sigh) from Book 4, number 12.

Example 4.11 'Moro, moro, e mentre sospiro' (IV, 12) bb. 1–3.

In these two opening bars over the text 'Moro, moro' (I die, I die), Example 4.11, Gesualdo has used almost exclusively intervals from the chromatic tetrachord. In the Cantus there are two ascending semitones; however, instead of an ascending minor third to make a chromatic tetrachord or 4-4 set, the voice descends a minor third to make a 4-1 [0,1,2,3] set. The tonal orientation of the madrigal is derived from mode 1: its final is G, and its principal cadences are on G, C, and D. In the opening two bars, the pedal note in the Quintus establishes this focus, while the other voices use intervals from the chromatic tetrachord. The Altus descends a semitone and rises a tone to make the chromatic 3-1 [0,1,2] set. Opening the madrigal is the descent of a minor third in the Tenor, which then descends another minor third making a 3-10 [0,3,6]. The Bassus underpins this by singing an ascending major third, perfect fourth and semitone, the latter two of which are found in the chromatic tetrachord.

In actuality, the octave species of the mode has been changed: in these two bars, the transposed Dorian mode has had its usual diatonic diapente and diatessaron replaced with a chromatic diapente and diatessaron. The key part is the Tenor, who sings the minor third in both the diapente and diatessaron. Therefore, instead of the modal diapente reading G, A, B♭, C, D and bridging the octave with the fourth D, E, F, G, it has been replaced by the chromatic diapente G, B♭, B♮, C, C♯, D and the chromatic

diatessaron D, E♭, E, G. This replacing of the diatonic diapente and diatessaron with chromatic ones to create a chromatic mode is a technique described by Vicentino, which Gesualdo is using here.

Example 4.12 The Transposed Dorian Mode, Shown with Chromatic and Diatonic Divisions.
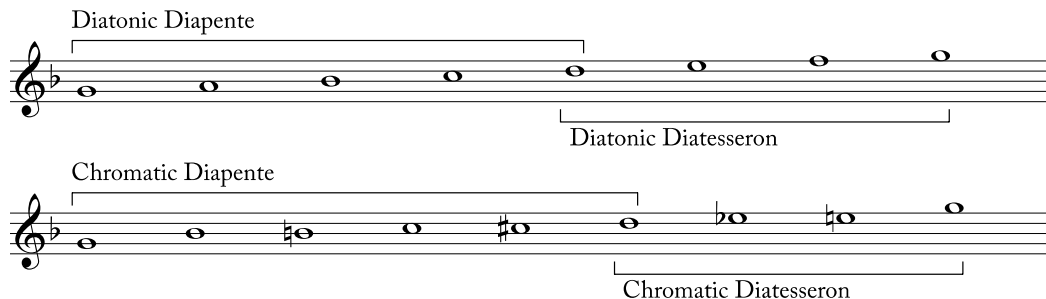
Starting with the G from the Tenor and ascending to its opening B♭, the mode continues upwards through B♭, B♮ and C in the Cantus, which might continue further upwards but has to descend to an A, a note not in the mode, but Gesualdo has to add the fifth note to the triad on the D major harmony so this move is unavoidable as the harmony returns to a traditional modal area. To compensate for this, Gesualdo has used an interval, a descending minor third, which characterises the mode. Instead, the Bassus sings a C two octaves lower than the Cantus and moves upwards to the C♯. Movement around the bottom of the chromatic diatessaron is provided in the Altus, who moves from E♭ to D and then to E♮ and with these notes the chromatic mode is complete. Only the aforementioned A and the raised third F♯ in the Quintus do not fit in this mode, they are needed to give the mode a triad on its fifth degree, which is not available in the chromatic mode and indicates that the music is becoming diatonic, which it does in the following passage 'e mentre sospiro.' This 'chromatic mode,' Example 4.12, is not one of Vicentino's eight chromatic modes;[30] however, it is constructed in the same manner using the combination of a chromatic diapente with a chromatic diatessaron, displacing a diatonic diapente and diatonic diatessaron. Therefore, Gesualdo is using Vicentino's ideas on chromaticism, but adapting them for his own purposes.

Another example of this is found in 'Mercè grido piangendo' (V, 11). At the end of the antepenultimate phrase 'Potessi dirti pria ch'io mora' (Let me say before I die) as the

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[30] Vicentino, *Ancient Music Adapted to Modern Practice*, 190–193; also see Example 4.3, page 88.

subject turns to death, Gesualdo makes use of chromaticism by moving the harmony from E minor to G♯ major. To facilitate this move, and the following transposed repetition, Gesualdo uses a chromatic mode instead of the mode 3.

At the beginning of bar 27 Gesualdo begins to use the chromatic mode. The mode, centred on G, uses the chromatic diapente G, G♯, A, C, C♯ and D and the chromatic diatessaron D, D♯, E and G. These are combined to make the octave species shown in Example 4.13.

Example 4.13 Chromatic Mode from 'Mercè grido piangendo.'

In the following example, 4.14, showing the phrase 'Potessi dirti pria ch'io mora,' the notes from this chromatic mode have been shown by their colouring in red.

Example 4.14 'Mercè grido piangendo' bb. 24–30. Notes from the chromatic mode coloured in red.

Although all the notes in this example from the chromatic mode are coloured in red, those from bars 27 to 29 are of real interest. This is where the vertical harmony is most obviously affected. The 4-4 set, the intervals of which define the chromatic mode, makes an important appearance in this passage. It defines not only the tetrachords that make up the chromatic mode, such as the 4-4 set in the Tenor bars 28 – 29, see Example 4.15, but also sets that include the B, the 4-4 set in the Altus bars 27 – 28. Although Phrygian pitches are retained, the intervallic makeup of the Phrygian mode has been replaced by that of the chromatic tetrachord or 4-4 set in the manner described by Vicentino. The only notes not to fall into the chromatic mode are the B and F (including E♯). The presence of these notes can be rationalised in two ways. First,

that the B in the Cantus and Altus in bar 27 is required to make a third with the G, a reminder that the previous section is modal and then the B in the Altus in bar 29 is a passing note. The F in the Quintus in bars 27 and 28 is also a passing note and the E♯ a result of raising the third in a cadence. Second, and more neatly, the Bs and Fs remain to define the Phrygian mode to which the madrigal is about to return, however chromatically.

Example 4.15 'Mercè grido piangendo' with Set-Theory Analysis bb. 25–29.

Another opening, that of 'Languisce al fin' (V, 10), Example 4.16, demonstrates further compositional use of the tetrachord.

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Example 4.16 'Languisce al fin' (V, 10) bb. 1–7.

Here, the opening gestures in the Cantus and Altus are constructed using two chromatic tetrachords. Descending a minor sixth, the Cantus then sings two descending semitones, which is imitated in turn by the Altus, who sings a descending minor sixth, semitone and minor third. Looking at the notes in a different way, if the first notes of the Cantus and Altus are exchanged then two chromatic tetrachords B, D, D♯, E and F♯, G, G♯ and B can be discerned. Gesualdo has mixed up the tetrachords to provide an

opening gesture based on the melodic unit of two chromatic tetrachords combined.[31] The combination of these two tetrachords also results in a disjunct chromatic mode.

As the gesture returns in bars 5 and 6, however, it is apparent that in the lower four parts the opening tetrachords have been combined to form another chromatic mode. The tetrachord B, D, D♯, E has been extended to the chromatic diapente B, D, D♯, E, F, F♯ and combined with the other tetrachord F♯, G, G♯, B and therefore all the notes in the lower four parts and opening gestures in 'Languisce al fin' originate in this mode. The Cantus in bars 5 to 7 sings another chromatic tetrachord this time with the intervals re-ordered. In total, Gesualdo has combined three tetrachords to create this chromatic passage.

'Se la mia morte brami,' Example 4.17, also opens with two chromatic tetrachords. In this instance, the tetrachords have been mixed up even more so than in in 'Mercè grido piangendo.' Instead of displacing the opening notes of two tetrachords, their notes are mixed together. Also, the tetrachords in this instance do not form part of a chromatic mode as they overlap. This madrigal will be examined in more detail in Chapter 5.

Example 4.17 'Se la mia morte brami' bb. 1–6.

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[31] This was also observed by Roland Jackson in: Roland Jackson, 'On Frescobaldi's Chromaticism and Its Background,' *The Musical Quarterly* 57 (1971): 255–269.

Combining the notes of the Cantus and Quintus on the opening phrase 'Se la mia morte brami' (If you yearn for my death) reveals two tetrachords D, E♭, E♮, G and F, A♭, A♮, B♭. The same notes are used when the Tenor and Bassus answer the Cantus and Quintus in bars 3 to 5 on the same phrase again using the tetrachordal structure. The interval structures of the 4-4 set also govern the intervallic make-up of the madrigal by a process that will be explained in greater detail in the next chapter, along with the chromatic modes used in its composition.

The unaltered chromatic tetrachord appears in full at the opening of another madrigal in the sixth book: 'Quel "no" crudel che la mia speme ancise' (That "no" that destroys my hope) (VI, 16), Example 4.18. Its use does not demonstrate a progression in the employment of the technique, such as that from 'Moro, moro' to 'Languisce al fin' to 'Se la mia morte brami,' but its continued presence demonstrates its importance. It is found in the Quintus in the first two bars and the first note of the third bar.

Example 4.18 'Quel "no" crudel che la mia speme ancise' bb. 1–3.

Although a strong case can be made for it consisting of two separate gestures, the rising minor third and rising semitone, and the fact that it results from the C♮ being raised within modal parameters to make a raised third in the harmony at the opening of bar 2, its very presence in such a prominent location substantiates the position of the chromatic tetrachord as an important compositional structure. Whether this part was composed first or if it results from other compositional processes, it further cements the tetrachord as intervallically significant.

Harmonic, Melodic and Compositional Use of the Chromatic Tetrachord in the Final Cadence of 'Mercè grido piangendo'

Using all the twelve pitches of equal temperament, the final cadence of 'Mercè grido piangendo,' Example 4.19, at first glance appears to be a serial composition of the twentieth century rather than a sixteenth-century composition in mode 3. On closer inspection, however, it can be shown to be a perfect example of how Gesualdo has brought together harmonic, melodic and compositional use of the chromatic tetrachord and pulled these elements together to create a cadence that reaffirms the mode at the end of the madrigal. This excerpt follows directly the previous example from 'Mercè grido piangendo.'

Example 4.19 Final Cadence of 'Mercè grido piangendo,' Annotated Using Set Theory. Second time bar is the same as the first with the addition of a breve to lengthen the final notes.

All of the parts use intervals from the 4-4 set. Semitonal movement is provided in the 4-1 and 6-1 sets; the minor thirds result not only from these purely chromatic sets but also the 3-2 sets. The tones in the passage are all the result of the movement of two semitones. Using almost exclusively the intervals of the semitone and minor third, Gesualdo keeps the harmony triadic throughout. Yet, the Bassus rises a fourth such that if the C♯ and D♯ were considered as chromatic passing notes it would pass through the diatessaron of mode 3 or 4-11 set. This gives the cadence direction as it moves towards a closing in mode 3 and in fact uses the rising semitone from D♯ to E to support a cadence onto the modal final. This placement of semitones within the diatonic diatessaron would be described by Vicentino as chromatic species diatonically placed.

As has been noted, the melodic movement in the parts is mostly by semitone or minor thirds. However, there is a melodic movement between the parts, which make a further use of the chromatic tetrachord or 4-4 and 4-7 sets. For example, the Bassus move upwards two semitones from B to C to C♯ is answered by the E in the Cantus making a chromatic tetrachord or 4-4 set. This happens again when the Bass moves from D to D♯ to E where it is answered once more by the Cantus, who repeats the E before singing the requisite minor third to complete the tetrachordal set. Some of these sets are more audible than others, the movement between the Bassus and Cantus being the most audible whereas the movement between the Altus and Bassus only audible once one is listening for it. All of these melodic tetrachords are shown on Example 4.20.

Example 4.20 Chromatic Tetrachords or 4-4 Sets in the Final Cadence of 'Mercè grido piangendo' Moving Between the Parts.

In this cadence Gesualdo has made modal use of the 4-4 set. It provides the intervals for the part movements, a melodic device for inter-part movement and through the chromatic ascent of a modal diatessaron, a harmonic focus and modal finish for the madrigal. Yet, displacing the diatonic interval structure with the chromatic species has also allowed him to create a chromatic cadence; the cadential pitch, E, is approached by a descending minor third in the Cantus and an ascending semitone in the Bassus.

Chromatic Tetrachord vs. 4-4 Set

The labelling of the chromatic tetrachord as a 4-4 set allows the importance of this interval structure to be scrutinised at different levels of abstraction. This will become clearer through the case studies in the following chapter. On the surface level, where there is an intact chromatic tetrachord quoted in the music, the label of chromatic tetrachord may seem more appropriate. However, as the structure becomes more complicated and the musical phrase contains a chromatic tetrachord combined with other notes, the label of 'superset' becomes useful. As the structures become more complicated, by the means of chromatic modes, the 4-4 set provides a link between structures in the set and the actual intervals used in individual voice parts. Furthermore, where there is chromaticism without chromatic modes the interval structure of the voices can be related to the 4-4 set and through larger sets, of which the 4-4 is a subset; they in turn, through set theory, can be identified with the mode. Making reference to Vicentino, chromaticism can exist in the form of the chromatic tetrachord (or species) or it can appear placed within the diatonic species, 'spetie Cromatica diatonicamente posta.' However, it is when the intervals of the chromatic tetrachord are still fundamental

to the construction of a passage, but neither of those definitions fit, that pitch-class set theory analysis reveals the function of the genera in the construction of the music.

Chapter 5

Case Studies

In the preceding two chapters Gesualdo's use of modal and chromatic techniques were both discussed. Here, through four detailed case studies, these theories and techniques will be put into practice, demonstrating how they can be applied to his music using the present analytical technique. Three madrigals have been selected and, although until now Gesualdo's sacred music has only briefly been discussed, this chapter also examines how these theories operate in one of his *Sacrae Cantiones* a5. The four case studies were chosen because they contain the features discussed in the previous two chapters. Taken from the Fifth and Sixth Books of Madrigals (1611) and the First Book of Motets for Five Voices (1603), they represent Gesualdo's publications after returning from Ferrara. However, as has been shown in the preceding chapters, there is a development in Gesualdo's compositional technique that reaches its maturity in these later publications and therefore they make more suitable case studies than the first four madrigal books. The *Responsoria* are not included here either, being beyond the scope of this study.[1]

Accompanying the case studies are a large number of excerpts and diagrams; where possible they have been placed in the text otherwise they have been printed in Volume II of this thesis. The following Figures are found in Volume II:

> Appendix III Example 1 – Score of 'Mercè grido piangendo'
> Appendix III Table 1 – Sets in 'Mercè grido piangendo'
> Appendix III Table 2 – Modal and Chromatic Sets in 'Mercè grido piangendo'
> Appendix III Example 2 – Score of 'Se la mia morte brami'
> Appendix III Table 3 – Sets in 'Se la mia morte brami'
> Appendix III Table 4 – Modal and Chromatic Sets in 'Se la mia morte brami'
> Appendix III Example 3 – Score of 'Moro lasso al mio duolo'
> Appendix III Table 5 – Sets in 'Moro lasso al mio duolo'
> Appendix III Table 6 – Modal and Chromatic Sets in 'Moro lasso al mio duolo'
> Appendix III Example 4 – Score of 'Tribulationem et dolorem'
> Appendix III Table 7 – Sets in 'Tribulationem et dolorem'

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[1] See the Introduction.

Case Study 1: 'Mercè grido piangendo'

'Mercè grido piangendo,' number eleven in Gesualdo's Fifth Book of Madrigals (1611), is the complaint of a lover. The text is split into two parts of four lines each. In the first, the speaker calls out for 'Mercy' and, after fainting, 'shall die therefore in silence.' The second half of the poem contrasts the melodramatic death of the speaker, with the literal death (though with sexual overtones) as the speaker calls out: 'let me say before I die: "I die."' The translation of the text is given below:

"Mercè," grido piangendo,	"Mercy," I cry weeping,
Ma chi m'ascolta?	But who hears me?
Ahi lasso, io vengo meno;	Alas, I faint;
Morrò dunque tacendo.	I will die therefore silently.
Deh, per pietade almeno,	Ah, for pity at least,
Dolce del cor tesoro,	Sweet treasure of my heart,
Potessi dirti pria	Let me say to you before
Ch'io mora "io moro!"	I die, "I die!"

The first stage in this analysis is to isolate the pitch combinations. In Gesualdo's madrigals, one line of text is often set to a distinct musical phrase with a clear division in the texture from its neighbouring passages; this is the case in 'Mercè grido piangendo.' As detailed in Appendix III Example 1, the sets have been isolated and their interval content labelled using Forte's nomenclature. In the phrase 'morrò dunque tacendo' and 'potessi dirti pria ch'io mora' subsets have been labelled for reasons that will become clear below. These sets have been collated in Appendix III Table 1 to show the location of the sets in the madrigal. This table has been annotated using the prime form of the sets in order that the relationship of the interval structures to each other may be better expressed.

Modal Qualities

Opening with a B major harmony and cadencing onto an E major harmony after the stepwise descent of a fifth in the Bassus, the first phrase confirms that the madrigal is composed in the third mode. Following the structure of the text, the madrigal is divided

into two parts, the second of which is repeated, and the mode helps add structure to this. The first part ends on the fourth degree of the mode, which has already been noted as an important degree in the mode 3, and, whilst the second opens with a triad on the second degree of the mode, it closes with a cadence onto the modal final.

Descending through the diapente of the third mode, 5-24 [0,1,3,5,7], the Bassus confirms the mode as it cadences onto an E, the final of the mode, at the end of the opening phrase. The diapente is only heard once; instead it is the mode's diatessaron that asserts the qualities of mode 3. The first occurrence of the diatessaron is heard in the Quintus in bars 10–11, where it asserts these qualities whilst the harmony is shifting its focus in the direction of one built on the fifth degree of the mode. The 4-11 set is also used not just at its absolute modal pitches, but also to express the interval structure of the modal diatessaron. In the Bassus of the following two iterations of the phrase 'Morrò dunque tacendo' its role is to keep an underlying sense of modal stability in harmonic regions outside those normally associated with the mode. This is a perfect example of a displaced diatonic species. Although the harmony moves away from the harmonic areas of mode 3 in these phrases, the 4-11 sets in the Bass bring the first section to a close on the fourth degree. This is a prominent note in the Phrygian mode, as it was often used to complete a triad on the fifth degree, which would otherwise be unavailable (without raising the triad's second degree from an F♮ to an F♯).

Established in the opening phrases of the madrigal, the modal identity is less apparent in the second half. Opening with a triad on the second degree, the first phrase, 'Deh, per pietade almeno,' cadences onto the third degree, which features prominently throughout this section. On the imitative entries of the phrase 'Dolce del cor tesoro' all parts except the Quintus enter on Es and Bs, once more indicative on the Phrygian. The phrase ends with an irregular cadential pitch of D, followed by iterations of 'Potessi dirti' before the madrigal dissolves into chromaticism at bar 28. Two chromatic cadences end the phrase 'pria ch'io mora,' one onto G♯ and then its repetition onto C♯. The final phrase, which is also chromatic, reaches a modal conclusion, the Bassus rising (albeit chromatically) through the modal diatesseron to the modal final on which the piece ends.

Appendix III Table 2 collates the sets used to set a particular line of text and demonstrates their relationship to each other, to the modal superset and the madrigal as a whole. The first table is labelled 'Modal Underlay' and shows the relationship of sets to the mode. In the column labelled 'Location' the text of a phrase and the bar

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numbers in which it occurs is notated. In the column 'Set' the prime forms used on the text in the 'Location' column are given. The third column shows the relationship of the prime form to the modal superset as follows: The twelve pitches are numbered 0–11 and those of the modal superset 7-35 [0,1,3,5,6,8,10] placed in bold and given a shaded background. Then, when the prime forms are placed below, it can be seen whether they form subsets of the modal set (and therefore have a diatonic modal shape) or not. Sets can form subsets of the 7-35 modal superset by being transposed; for example, the 3-7 [0,2,5] set contains a tone and a fourth, but placed directly below the 7-35 does not appear to be a subset. However, this pattern is in the 7-35 superset in the pitches [3,5,8] from its prime form [0,1,3,5,6,8,10]. Therefore the 3-7 set is placed below these values in the table. In the case of some larger sets they may even 'wrap around' and have some of the set displaced by an octave to better show its modal interval structure. This need to adjust the sets by moving them to the left on the diagram occurs frequently and for each reading and to better show the relationships, the sets are ordered first by the location of the 0 (rightmost first) and then by size (largest first).

The leftmost column, 'Notes,' describes the shape of the set and is colour coded. Sets that form perfect subsets of the modal superset are coloured red. Those that have a modal structure but with one extra note caused by the addition of a note with modal rules are coloured orange; this could be a raised third (+r3), a leading note (+ln), a chromatic passing (+pcn) or auxiliary note (+can). Sets chromatic in shape are labelled blue and hybrid sets, which have qualities of both modal and chromatic sets, purple. There are occasionally sets that fit neither shape and these are labelled 'Unclassified' and coloured green. Where there are two or more semitones in a set, resulting in chromaticism, these pitches have been set *in italics*.

Examining Appendix III Table 2, it is now clear which sections have a modal interval structure and which do not. Although the table does not represent absolute pitch values, and indeed some of the modally shaped sets use pitches alien to the mode (as they are diatonic species chromatically displaced), there is a relationship between the mode and these sets through their interval structure. The diatonic tetrachord forms the basis for the modal diatesseron and by extension the diapente and the mode itself. Expressed here in the prime form of the modal superset 7-35, the mode is an expression of the diatonic, juxtaposed against the chromatic, which relies on the intervals of two consecutive semitones. An example of this is the 4-11 set in bars 12-14; here, the descending fourth F♯ to C♯ is unusual in the third mode, yet its combination with the pitches D and E give it an interval structure intrinsic to the modal makeup of the piece.

It is easy to determine from Table 2 those parts of the piece which are modal in construction. After the chromaticism in the opening phrase, the music retains a modal interval structure until the text 'pria ch'io mora' in bar 26. The unclassified sets on the phrase 'pria ch'io mora,' 7-32 [0,1,3,4,6,8,9], are accounted for by the set reaching over a dramatic change in the harmony. Considering the word 'tacendo' separately from 'morrò dunque' would in fact make two perfect subsets of the modal set: 4-14 [0,2,3,7] and 3-7 [0,2,5], see Example 5.1.

Example 5.1 'Mercè grido piangendo' bb. 15–17.

It is, possible to view this modally as the phrase's only chromaticism is in the Quintus descent from the F♯, F♮, to E with a 6-Z46 set; this can be seen on Appendix III, Table 2. The 6-Z46 set is used by Gesualdo to marry chromatic and diatonic qualities as will be discussed below.

Another set used by Gesualdo to imbue chromatic qualities on modal passages is the 6-Z40. It is the only other set between the opening and final two phrases to have a chromatic quality. Consisting of four semitones, being a superset of the chromatic tetrachord and having a hybrid modal shape, it is no surprise that the 6-Z40 set plays a

crucial role in integrating chromatic inflections within a modal framework. In 'Mercè grido piangendo' it appears only once, although it will re-appear throughout the following analyses. In bars 22-24 the Tenor sings the 6-Z40 set; here, it results from the raising of the C♮ in bar 22 to a C♯ leading into the cadence in bar 24. This demonstrates the modal shape of the 6-Z40 set, in later analyses its chromatic function will be shown. The 6-Z46 set is closely related to the 6-Z40; its shape, however, does not allow it to be classed as a modal set, having its largest interval [0,9], not the modal [0,8] of the 6-Z40. A subset of the 6-Z46, the 4-2, is used to give the end of the phrase 'Morrò dunque tacendo' as it descends chromatically from B to A and the inclusion of the 4-2 as a subset of the 6-Z46 creates a hybrid set in one that would otherwise be modal.

The majority of the madrigal is, in interval structure, modal, framed at either end by chromaticism. This juxtaposition serves to intensify the chromaticism, for when it occurs it is even more striking. Although the sets may all be modal in structure, Gesualdo can place them outside of the harmonic regions defined by the mode in what could be termed diatonic species chromatically displaced. As discussed in Chapter 4, this technique is used by Gesualdo to increase the drama in the music; it is a different technique to chromaticism.

Chromatic Inflections

The semitone between the first and second degrees of the mode provides the basis for the semitones found in the 3-2, 3-3 and 3-4 sets, whose shapes litter the madrigal and play an important role in expressing the lover's pain on the phrase 'Ahi lasso' and as subsets on 'pria ch'io mora.' Only the 3-2 set survives as a subset into the final cadence, where the sets become entirely chromatic. Until then these sets colour the speaker's emotions and serve as points of imitation, especially at cadences.

Although semitones and minor thirds play a critical role in building harmonies that display the speaker's anguish, there are some sets that do not rely on either interval and instead use other techniques to illustrate the speaker's suffering. For example, the 3-9 set in the Cantus's opening cry 'Mercè grido' uses the rising interval of a fourth in a high tessitura to replicate the cry of the speaker. As discussed above, the 6-Z40 and 6-Z46 lend their respective pitch combinations qualities of chromaticism. Notably, it is the 6-Z46 that contains actual chromatic movement (the 6-Z40 here resulting from operations permitted in the mode) and this sets the phrase 'Morrò dunque tacendo.'

The 4-2 set appears in the subsequent phrase in the Tenor. Again it gives a chromatic inflection to the part movement. Unlike in the previous phrase, where it facilitates the harmonic movement of a third from B minor to G minor, it simply alters the chord from major to minor as it descends from E to D through an E♭. This mirrors the semitonal ascent in the Cantus at the beginning of bar 19 that results in the 4-6 set, which is modal in shape save for the added semitone.

Chromaticism

In a manner similar to the 'Modal Underlay' table on Appendix III, Table 2, the 'Chromatic Underlay' section shows the relationship of chromatic sets to each other. The table is formed with the consecutive semitones placed at the left and in place of the 7-35 modal superset providing the underlay, the chromatic 4-4 set is shown.

Viewing the table with a chromatic underlay, the location of the chromatically constructed passages in the madrigal become easily apparent. Despite operating within the mode, the opening phrase contains 3-1, 4-1 and one 4-2 sets, which within the part movement hints at the chromaticism that will close the madrigal. The two closing passages 'Potessi dirti pria ch'io mora "io moro"' have already been examined in detail in the previous chapter,[2] therefore a brief summary of the points raised will suffice here. The phrase 'pria ch'io mora' is constructed using a chromatic mode, made from displacing the diatonic diapente and diatesseron of the mode with a chromatic diapente and diatesseron. In describing death, the chromatic tetrachord is used once more as the intervallic construction moves towards one based on the chromatic tetrachord and, although Phrygian pitches are retained, the intervals of the Phrygian scale have been replaced by those of the chromatic tetrachord or 4-4 set. This move is intensified in the final cadence, which is made almost completely of chromatic sets and with melodic movement of the chromatic tetrachord between the parts.

In the phrase 'pria ch'io mora' there are two chromatic cadences, one onto the cadential pitch of G♯, followed by another onto C♯ when the phrase is repeated and transposed. This demonstrates how Gesualdo has used a chromatic mode to create cadences outside of *musica recta.* In bars 27-28 the Tenor approaches the G♯ by ascending a semitone from G♮. The G♯ in the Quintus is approached by a minor third from the B in

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[2] See page 104.

the Cantus, as the cadential movement moves between the parts. The Cantus ascends a semitone to give the triadic harmony a major third of B♯. In some instances, a diatonic cadence accompanies a chromatic; however, here only a chromatic cadence exists. The same movement occurs, albeit in different voice parts, when the phrase is repeated in bars 28-29.

Although certain rules were set out in the previous chapter to define shapes of sets, there is still a choice to be made. The 6-1 set in the Bass in the final cadence is chromatic, yet it also marks out a perfect fourth, in this instance from B to E, which has a modal function; it is, therefore, possible to view this as a 'chromatic species diatonically placed.' The same is true of the 3-1 set and 4-1 set: the 3-1 in the Quintus bars 1-3 does have a chromatic quality but also a modal shape as it results from the raising of a third. Even the 4-4 set itself has a modal shape with a perfect fourth and tone.

The 4-3 [0,1,3,4] set is unusual in shape, having two pairs of semitones a minor third apart (resulting with a tone in the middle). Where the 4-4 set does not feature at the surface level chromaticism, the 4-3 set often does. The intervals are similar, both have the opening semitone, the modal shape of the fourth is reduced to a major third and instead of two consecutive semitones, the semitones appear in pairs. In this case, it appears in the passage 'pria ch'io mora' and takes its shape from the raising of a G to G♯, the defining feature of the passage 'pria chio mora' in bar 28.

The 4-4 set, or chromatic tetrachord, operates at different levels of abstraction. Appearing as a unit with part movement, it is best expressed at a chromatic tetrachord. However, where it operates at a lower level in permeating the interval structures of larger sets it is best expressed as a 4-4 set. In 'Mercè grido piangendo' it operates at an intermediate level forming the basis for a chromatic mode in the phrase 'pria ch'io mora' and in the melodies between the parts in the phrase 'io moro.' In this final phrase it operates at a lower level too, providing the intervals for the final cadence, using the perfect fourth to provide a modal framework.

Case Study 2: 'Se la mia morte brami'

Opening Gesualdo's sixth book of madrigals, 'Se la mia morte brami' was published in 1611 in the same year as the fifth book. Typical of the texts Gesualdo sets, the madrigal is once more the complaint of a lover and also uses the conceit of death. The text and

translation of the madrigal are given below:

Se la mia morte brami,	If you yearn for my death,
Crudel, lieto ne moro	Cruel one, I die that death happily
E dopo morte ancor te solo adoro.	And after dying again I'll love you alone.
Ma se vuoi ch'io non t'ami,	But if you want me not to love you,
Ahi, che a pensarlo solo,	Alas to think that alone,
Il duol m'ancide e l'alma fugge a volo.	The pain kills me and my soul flees.

In the same manner as the previous case study, the pitch collections follow Gesualdo's own division of the phrases. These pitch collections are annotated on Appendix III, Example 2 and then collated into a table showing their prime forms on Appendix III, Table 3. Table 4 illustrates the relationship between the text, sets, modal superset and chromatic sets.

Modal Qualities

Like 'Mercè grido piangendo,' the text of 'Se la mia morte brami' is divided into two parts, this time of three lines each, with the second half repeated. The repeat markings in Appendix III, Example 2 are not original. The madrigal is composed in transposed mode 1 and the harmony is centred around the final, G. Although the opening is chromatic, the first three pitches, G, B flat and D, confirm the harmony is centred on G. The opening phrase closes with a cadence onto A in bar 6. Repeating the same melodic material transposed, the phrase 'Se la mia morte brami' cadences once more onto an A. Again, the cadence is Phrygian; however, the ascent by a tone has been exploded moving from the Quintus to the Cantus and displaced by an octave to give the Cantus top A, accentuating the violence on 'crudel.' Even more emphatic is the use of a rest in all the voice parts except the cadential movement in the Bassus. Relieving the tension, the following phrase 'lieto ne moro' cadences in a much less dramatic fashion onto D in bar 14. After chromatic movement on the phrase 'E dopo morte ancor,' the harmony settles onto C major (the fourth degree) bringing the first half of the madrigal to an end on the text 'te solo adoro.'

The second section opens and closes on the modal final. The declamatory statements 'Ma se vuoi ch'io non t'ami / Ahi, che a pensarlo solo' are set with a homophonic texture and sit within mode 1. Then following the chromaticism on 'Il duol m'ancide' and the chromatic cadences onto E then A, the final 'e l'alma fugge a volo' is set with an

appropriately fast and imitative texture. Here, the harmonies do not depart from the first mode and the focus of the listener is taken away from the harmony and directed towards the imitation between the voices.

Viewing the table of sets in the madrigal in relationship to their modal underlay, Appendix III Table 4, it can be seen that the majority of sets are modal or have an extra note through permitted modal operations. In fact, the chromaticism follows the semantic field of death; it occurs in the repeated opening phrase and in bars 14–19 with the text 'e dopo morte ancor.' A further chromatic set appears with the text 'il duol m'ancide.'

There are some sets that contain consecutive semitones and have a modal structure, but they cannot necessarily be called chromatic nor hybrid in shape. The first of these is the 5-Z36 set in the Tenor of bars 23–24. The resulting consecutive semitones arise from the raising of a third and do not provide a chromatic function here. The second is the 4-1 set in the Quintus bars 32–34. In the previous phrase it acted as a 4-1 set; yet here it results from the raising of a third making a leading tone into the following chord. Consequently, it is marked here as modal, whereas it has been marked hybrid in other circumstances. This demonstrates how some chromatic sets can be used in a chromatic, hybrid or modal fashion, uniting these passages and establishing the consistency in Gesualdo's compositional voice.

Chromaticism

Chromaticism occurs three times in the madrigal, first in the opening passage from bars 1–10 'Se la mia morte brami.' Both the Cantus and Quintus's opening lines use the intervals of the 6-Z40 set, which has already been used in a modal shape in 'Mercè grido piangendo.' Here, it is being used to create the chromatic movement on the ascending 'morte brami' (you yearn [for my] death) whilst retaining an overall modal shape. In bar 3, the Tenor and Bassus enter with a passage that imitates the initial entry, but with two differences. First, the Bassus keeps the initial opening pitch and ascending minor third from the Quintus, but then descends a fifth, as is found in the Cantus' part. Then, as he ascends chromatically over 'morte brami'; the shape of the 6-Z40 set is still retained. Second, the higher part enters first and instead of ascending a minor third, it ascends only a semitone before the descent of a perfect fourth, this time the interval from the Quintus. Next, instead of ascending chromatically over 'morte brami,' the music rises by a minor third and two semitones, the chromatic tetrachord and 4-4 set, whose structure underpins the 6-Z40 set and the closely related 6-14 set that describes this

line. In this instance the chromatic tetrachord is being used as a melodic device by itself and not as part of a larger interval structure.

Between the two opening instances of 'Se la mia morte brami' and its return in bar 7, there is a passage 'Crudel lieto ne moro' largely modal in nature, which by means of a Phrygian cadence, ends on the second degree of the mode, creating a five–one relationship with the next phrase that imitates the opening at a pitch a fifth higher. The modal nature of this passage, confirmed by even the modal 7-35 set in the Cantus and its juxtaposition between two chromatic passages, serves to highlight its own modality against the surrounding chromaticism.

As the Tenor enters in bar 7 in imitation of the opening phrase, it does so initially with the same intervals as the Quintus opening. However, the pattern changes on 'morte brami,' where once more the chromatic tetrachord is used in place of ascending semitones, resulting in the 5-Z37 set. A beat later in the Quintus the initial ascending minor third and descending fifth are heard, as in the Cantus' opening entry, but the pattern changes as the ascent on 'morte brami' is diatonic. The overall interval structure for the Quintus is still the 6-Z40 set. One beat after the Quintus, the Altus enters on an E and sings the same intervals heard in the Tenor entry in bar three. In this case however, the ascent on 'morte brami' is not through the chromatic tetrachord, but by semitones—making a closely related set to the 6-Z40 [0,1,2,3,5,8], the 6-Z38 [0,1,2,3,7,8]. In bar 9, the Cantus entry is a transposition up a perfect fifth of the Quintus in bar 1 and the Bassus two bars later that of the Cantus, until the 'morte brami' takes the shape of the chromatic tetrachord and does not ascend through semitones.

Gesualdo used two chromatic tetrachords with their notes spread across two parts to open the madrigal 'Languisce al fin.' The beginning of 'Se la mia morte brami' is an extension of that technique. The minor thirds that can be heard are not those of the tetrachords and unlike in 'Mercè grido piangendo' (or 'Languisce al fin') the tetrachords cannot be placed together so as to make a chromatic scale; instead they overlap. The Cantus and Quintus parts at the opening are both constructed of the tetrachords D, E♭, E♮, G and F, A♭, A♮, B♭. Together they combine to make an 8-6 [0,1,2,3,5,6,7,8] set, which is heard again when combining the 6-Z40 set of the Quintus and 6-Z38 of the Altus, a passage made of the tetrachords G, B♭, B♮, C and E, F, F♯, A. This is accompanied by a further tetrachord A, C, C♯, D in the Tenor and the combination of the latter two tetrachords hints towards a chromatic mode.

For the phrase 'E dopo morte ancor' (And after death again), Gesualdo uses not the

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intervals of the 4-4 set, but those of the 4-1 to create a chromatic line. This mostly resides at the top of the texture in the Altus and then the Cantus, under which the parts follow modal interval patterns. Here, the speaker is reflecting on the death described in the opening phrase and therefore it does not have the same emotional intensity. The chromaticism is confined to a 4-1 set in the Altus in bars 14–16 (and as a subset of the following 5-2 set) and in the Cantus in bars 17–18, and the hybrid set 7-23, which is modal in shape but contains a descending chromatic passage.

Gesualdo uses the chromatic tetrachord to move the harmony onto the fourth degree of the mode at the end of the first section in bar 19. The 5-21 set results from his use of a diminished fourth on the word 'adoro.' Yet the 5-21 set is a superset of the 4-7 set, in which the chromatic tetrachord contains the minor third between the semitones, demonstrating its connection to the chromatic species. At either side of this unit (B♮, C, G, A♭) is the interval of the major third or its enharmonic equivalent, the diminished fourth, even though the first G may be included in the tetrachord. This outcome does not result in the chromaticism being used audibly to describe death, but instead moves the harmony away from the flatter hexachordal and harmonic region of the preceeding phrase to a major harmony on the fourth degree with a perceived chromatic inflection on the A♭.

Example 5.2 'Se la mia morte brami' bb. 16–19.

Using the 4-1 set again, alongside both hybrid and modal sets, the final place where chromaticism occurs in the madrigal is accompanying the text 'Il duol m'ancide' (The pain kills me), again to accentuate death. The text here is too short to allow for longer hybrid sets, so instead Gesualdo uses a mixture of chromatic sets and modal sets. The 4-1 and 4-2 sets are used alongside the modal diatessaron 4-10 and a closely related 4-13 set to create tension without leaving completely the confines of mode 1.

The phrase ends with a chromatic cadence; in the first iteration the cadential pitch is E and in the second, A. In bar 26 the E is approached by an ascending semitone in the Altus and by a descending minor third in the Bassus. In the transposed repetition the ascending semitone to A is in the Tenor. Like the chromatic cadences in 'Mercè grido piangendo,' there is no diatonic cadential formula, only the chromatic. Gesualdo has, therefore, used the chromatic species diatonically placed to create a chromatic cadence.

In this madrigal, like in 'Mercè grido piangendo,' the 4-4 set is being used to create larger compositional structures. Two chromatic tetrachords are used to create the opening passage, although they are distorted so that their identity is not immediatley discrenable. This is a development of the idea that opens the madrigal 'Languisce al fin,' discussed in the previous chapter.[3] In terms of their interval structure, the 4-4 set is critical to all the entries of 'Se la mia morte brami' and this unity is expressed in the larger 8-6 sets. As the chromaticism returns on the phrase 'e dopo morte ancor,' the interval structure is reminiscent of the opening. However, in these two cases the chromatic tetrachord is operating at different levels of abstraction. In the first instance, it is a compositional unit used to create an opening motif and, although this is not apparent at the surface level to the listener, it is a conscious compositional process. In the second instance, the intervals are used in composition without explicitly quoting the tetrachord and the 4-4 set's intervals become important tools to the composer.

Case Study 3: 'Moro lasso al mio duolo'

'Moro lasso al mio duolo,' number seventeen of the sixth book of madrigals, is often cited as Gesualdo's masterpiece. Opening with an intense slow-moving harmonic progression, that Cecil Gray found reminiscent of the moment Wotan kisses Brünhilde to sleep in *Die Walküre*, the madrigal's slow passages contrast with fast imitative

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[3] See page 106.

polyphony. [4] It demonstrates, therefore, two aspects of Gesualdo's compositional procedure that through juxtaposition enhance his reputation as a composer of extreme chromaticism. Being the most recognised of Gesualdo's madrigals, it has already been analysed many times; nevertheless, there still remain aspects of the piece that are worthy of further examination using the present analytical method. Furthermore, as it exhibits these two parts of Gesualdo's compositional procedure, it will tie together many aspects of his composition discussed in the previous analysis. It is not, however, necessarily the most extreme example of his chromaticism.

Once more, the topic of the madrigal is the rejected love of the speaker, dying from the pain of spurned love, where death is being used as an allegory for sex.

Moro, lasso, al mio duolo	I die, alas, of my suffering,
E chi mi può dar vita,	And she who can give me life,
Ahi, che m'ancide e non vuol darmi aita!	Alas, kills me and does not want to give me help!
O dolorosa sorte,	O agonising fate,
Chi dar vita mi può,	She who can give me life,
Ahi, mi dà morte!	Alas, gives me death!

The text divides into two parts of three lines each. The first half is repeated; the second iteration transposed upwards by a fourth with various changes including re-voicing. Then 'O dolorosa sorte' is sung twice, the second time transposed upwards by a fifth with minor changes and different voicing. The final two lines are then repeated through the use of repeat markings, which are original.

As with the previous case studies, the pitch collections for analysis follow Gesualdo's own division of the phrases and are marked on Appendix III, Example 3 with the names of their sets. These are then compiled into the tables on Appendix III Table 5 and then Table 6 shows the relationship of these sets to the text, the modal superset and chromatic set.

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[4] Cecil Gray and Philip Heseltine, *Carlo Gesualdo Musician and Murderer* (New York: The Dial Press, 1926), 121.

Modal Qualities

For a madrigal renowned for demonstrating Gesualdo's chromatic language, a surprisingly high proportion of the madrigal is modal. Despite opening with a C♯ major harmony, the madrigal is composed in mode 3 with a final on A. The opening passage will, therefore, be considered under the 'Chromaticism' heading; yet, a few remarks are valuable here. Although the mode may not be discernible at the opening of the phrase, the harmony moves closer towards the tonal focus of the mode as it moves nearer to the cadential pitch of A in bar 3. The ensuing C harmony on 'E chi mi può dar vita' is striking after the movement through C♯ major and B major, but is in fact the reciting tone of mode 3.

Another prominent feature of the Cantus and Quintus entries in bar 3 is their rhythm. Contrasting the slow movement of the first three bars, of which the most defining feature to the listener is their harmony, the next phrase, 'E chi mi può dar vita' is fast and imitative. It sits happily in the mode 3 and its harmonic direction only becomes ambiguous at the final cadence, where all the parts save the Tenor drop out, making way for the next phrase in bar 10, which, like the first, will blur the harmonic clarity of the mode.

The contrast between the first and second phrases becomes a defining feature of the madrigal. Through repetition and transposition of the phrases, the juxtaposition of slow harmonically driven passages with fast modal imitation sets out the structure of the madrigal and makes the chromatic harmonies sound even more remote from the mode.

By examining Appendix III Table 6, compiled from the table of sets Table 5, and the position of the sets relative to the modal underlay, the juxtaposition between chromatic and modal sets is revealed. The opening phrase is constructed solely of Chromatic and Hybrid sets, whereas the second phrase is constructed of modal sets alone. It is possible to look further and see that there are relatively few chromatic or hybrid sets, such that they are even more striking where they appear. The small number of modal sets having alterations within modal parameters also serves to magnify this contrast.

Gesualdo splits the third line of the text into two halves and repeats the second half. Both of these phrases consist of entirely modally shaped sets, despite containing harmonic content exotic to the mode. Considering first 'Ahi, che m'ancide' (Alas, she kills me), bars 10–12, it is possible to see a modal shape to this phrase, disguised at either end by unusual harmonic shifts. On the second minim of bar 11 there is an E

harmony, which moves to the modal final A on the third minim, albeit with a suspension in the Cantus and Tenor. As they resolve the suspension, the Quintus raises the third. The A minor to major move never sounds completed; it is undermined by the E in the bass, which descends to a C♯ and it is onto this note that the harmony cadences. At the opening of the phrase, the modal cadence point of C from the previous phrase harmonises the E♭ in the Altus, which leaves the harmony ambiguous. When the Bass enters with a G, the Tenor drops out and then when the Bass descends to an E the Altus moves in contrary motion also to an E, ascending a single semitone. The Tenor re-enters with a B, a diminished fifth away from the E♭ a moment earlier, which although shocks the listener, signals the harmonies of the undermined modal core of the phrase. It is not possible to call this phrase chromatic as it does not contain two or more consecutive semitones and the sets are modal in shape; instead, it demonstrates how chromatic inflections can be used to warp the mode, through the use of the semitone and minor third.

From the C♯ major harmony, the second half of the third line begins with a B major harmony, still distant from the tonal focus of mode 3. The Cantus descends a semitone from a D♯ to D♮, changing the harmony from major to minor. Yet, despite being outside the harmonic area of the mode, the sets reveal that the interval structure of the phrase remains modal.

From bar 16, the first fifteen bars of material is transposed and repeated. As well as the musical lines being placed in different voice parts, there are other small changes to the music. The reiteration of 'Moro lasso al mio duolo' will be discussed in greater detail below. It opens in an F♯ major harmony, even more removed from the tonal focus of mode 3 than the C♯ major opening and does not cadence on D. However, the transposition up a fourth is typical of modal and hexachordal transposition. Therefore, Gesualdo is employing the same pitch relationships. The join between this and the following modal phrase is different. Instead of the Cantus and Quintus entering with the faster rhythm, the lower voices enter; this time faster, with quavers. Although not an exact transposition, this repetition of 'e chi mi può dar vita' is based very closely on the first and shares many characteristics. Its sets are completely modal in shape, contrasting with the previous material. Unlike its prior setting, it does not start or end on the third degree of the mode, but starts on the fourth and finishes on the sixth, a fourth higher than before. There is also no overlap between it and the following 'Ahi, che m'ancide,' which is repeated from bar 13 transposed down a tone with no further

alterations. Finishing with a B major harmony in bar 26, the transposition continues into the opening beats of the phrase 'e non vuol darmi aita.' Except for the altered rhythm in the Tenor, the first three crotchets are an exact transposition down a tone of the previous iteration. However, here the resulting A major chord does not sound like the tonal focus of the piece. Heading in the direction of mode 3, this phrase cadences on the third degree. It is then repeated verbatim. As revealed on Table 6, both these passages are modal in their interval construction.

In the second half of the text the music intensifies to represent the speaker's sentiment. The chromatic phrase 'O dolorosa sorte' opens on a C and proceeds to another modal cadence point, the fifth degree or E. The phrase is repeated and transposed; this time departing from the leading tone into an A minor harmony, but cadencing onto B major.

Entering the repeated section, the phrase 'Chi dar vita mi può' begins and ends on the fifth degree of the mode. Its structure is entirely modal, which emphasises the chromaticism in the final phrase. Through the first 'ahi, ma dà morte' in bars 34–35 to the final cadence, the music moves from a harmony on the fifth degree to a cadence from the fifth degree to the final. This modal outline frames the chromatic content that will be discussed below.

By examining Table 6 it is easy discernible how much of the madrigal uses modal interval structure. There are very few sets in addition that are modal and contain an extra note too. The first of these is the 4-3 set of 'o dolorosa sorte' in bars 31–33; this extra note is the result of raising the G♮ to G♯ to lead into the subsequent A minor harmony. The second also results from the inclusion of a leading tone and appears in the 4-Z15 set in bar 40. In this occurrence, it does not lead to the root of the harmony, but to the fifth, as it unexpectedly moves to a G minor harmony instead of the expected D harmony. One other set exists that is not chromatic and has a modal shape with one extra note: the 4-9 set in bars 40–42. This has a chromatic function and will be discussed below.

Chromaticism

Despite the unusual harmony of the opening passage 'Moro lasso,' there is a modal centre to the chromatic construction. At the surface level, this is visible in the cadence from the final of the mode, E, to the fourth, A, in bar 3 and in the preceding bar, where the harmony centres around the fourth degree, G. It is in the first bar, therefore, where the harmony is most striking; yet, even here the second chord of bar 3 is built on the

modal final, albeit in first inversion. The remoteness of the opening C♯ major harmony to the modal centre makes this opening seem all the more wild, especially when combined with the B major harmony later on the final semibreve of the bar.

The modal shapes of this passage are revealed in their interval structure. All the sets are 'Hybrid' and contain distinct modal patterns combined with a run of semitones, clearly visible in italics on Appendix III Table 6. All the sets are also supersets of the 4-4 set, which plays a significant compositional role, uniting the chromatic movement of the parts with a modal superstructure. This chromatic movement is manifested most distinctively in the Quintus and Bassus, whose descending parallel tenths outline the chromatic part of the passage, the first bar and the transition to the modal section in the harmony of bar 2.

Once again, the 4-4 set serves as an interim structure, uniting the chromatic surface with the modal superstructure and the chromaticism with the underlying compositional structure. Examining all the pitches that make up this passage reveals the following two-octave mode; the high D in the Quintus is left out as it is an expressive leap by the octave and not a change in harmony.

Example 5.3 Disjunct Two-Octave Chromatic Mode.
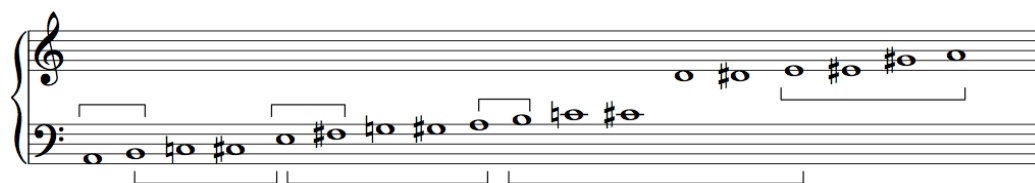
On this diagram the intervals of a tone have been marked with a bracket above the note and intervals of a fourth with a bracket below. Viewing the notes of the first three bars in this manner reveals another ancient Greek inspired mode. Recalling Bottrigari, another characteristic of Ancient Greek modes is that they can span two octaves; in this case a disjunct mode made of groups of two fourths seperated by tones. Centred on the note A, there is a tone before the first fourth, a chromatic tetrachord. The second fourth breaks the rule slightly in that it is a purely chromatic fourth, with one semitone missing, E♯ or F♮, making a further tone. Above this is another tone, as was found in the lower octave, and a purely chromatic fourth, between the same notes, B – E as in the lowest fourth. Completing the mode is a further fourth, which has the shape of the chromatic tetrachord, finishing on A.

Example 5.4 Chromatic Mode with Sets.

4-7 [0,1,4,5]

4-4 [0,1,2,5]   5-2 [0,1,2,3,5]   6-1 [0,1,2,3,4,5]

Examining this mode on which the passage is based using set theory, reveals the sets that appear in the individual parts. The sets made purely of semitones result in the consecutive semitones within the passage and the 4-4 set is a subset of all the sets in the first three bars of the madrigal. The 4-7 set manifests itself in its combination of intervals only. The shape of the 5-2 [0,1,2,3,5] set, with a tone breaking what would otherwise be chromatic, not only contains the notes of the Tenor part, making the Tenor's 6-8 a superset of the 5-2, but the 5-2 is also present in the Quintus, despite being at different pitches. The 5-2 set is of further siginificance, being a subset of the 6-Z46 in the Bassus. Its defining interval structure, a run of four consecutive semitones and a fourth, is an exaggeration of the chromatic tetrachord with three consecutive semitones and a fourth. By using this interval structure, combined with the framework of an Ancient Greek inspired two-octave mode, Gesualdo has created a cadence, striking beyond precedence, in a controlled manner, that is not only modal, but also chromatic, unified through the use of diatesseral units and a fundamental consistency in interval structure.

Pitch-class set theory is designed to operate within the limits of a twelve-note one octave system; however, in this circumstance, in which a two-octave scale is being discussed, it is still of value displaying the patterns within that scale. The ability of set theory to engage with these scales overlaps with the disscusion of temperament and this will be considered in the following chapter.

Undergoing several transformations, the phrase is repeated, beginning at bar 16. It is transposed upwards by a fourth and musical lines are revoiced into higher voices. The Cantus and Altus of the second iteration is a direct transposition upwards through a fourth of the Quintus and Tenor in the opening phrase. The opening Altus part appears in bars 16–18. However, as the cadence in bar 3 finishes on a minor harmony and the transposed phrase in bar 18 on a major, the Altus finishes on an F♯ and has an F♯ passing note in bar 17; if the phrase were a direct transposition of the original, then these would be F♮ and make a 5-2 set, rather than the modal 4-11. The Bass of the

opening phrase is an exact transposition into the Tenor of bars 16-18, except that the final note of the phrase is moved into the Bassus, for it cadences onto D.

Example 5.5 Chromatic Mode with Sets.
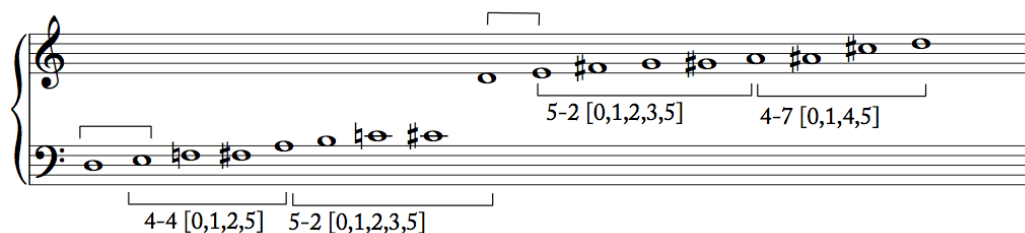
The mode from the opening cadence, Example 5.5, is not a perfect transposition upwards. Consequently, the disjunct chromatic scale now includes two 5-2 sets, but retains its overall shape.[5]

The 5-2 set also plays a significant role in the next instance of chromaticism, the phrase 'O dolorosa sorte.' It does not refer to death directly and thus not as intense as the passages that do, the 'sorte' (fate) refered to is that of the opening statement 'Moro lasso, al mio duolo' (I die, alas, of my suffering). The phrase is repeated twice, the second time transposed up a perfect fifth or down a perfect fourth, a common modal transposition, with minor alterations and re-voicing of the parts.

In each instance the upper three parts maintain the shape of the 5-2 set and ascend through a diatonic fourth in the first half of the line, before descending into the cadence with changes that incur the chromaticism; focusing on the first instance of the phrase, it can be shown how this is achieved. The harmony opens with a C in the Bassus, who

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[5] There is also another possible method of dissecting this scale. The upper octave can be divided into the modally shaped diatesseron and a chromatic fifth, a chromatic fourth extended by two semitones as prescribed by Vicentino.
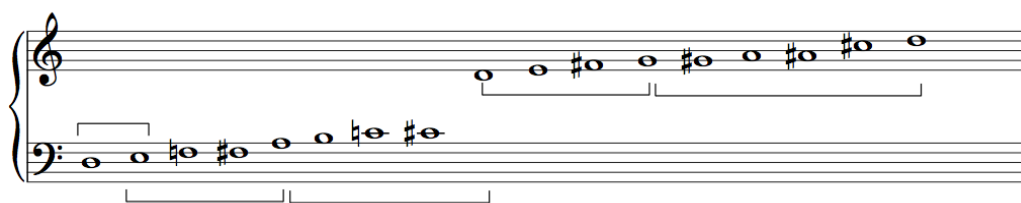
Although this might seem a more logical division, given the placement of the third diatesseron in the Quintus, it mixes conjuct and disjunct scales, as there is no tone in the upper octave. Besides, the first arrangement represents the significance of the 5-2 set in this passage.

ascends a tone as the Quintus and Altus join in a D minor triad. The Bassus continues to ascend through a fourth to F which the Quintus, Altus and Tenor, who enter in bar 30, imitate. Moving upwards by a fourth from the F, the Altus moves to a B♭, the root of the harmony on the third beat of bar 30. The harmony then resolves onto F on the fourth beat of the bar and in keeping within the modal shape of the 4-11 set, the Tenor descends by a tone, incurring the chromatic change of E♮ to E♭. On the first beat of bar 31, the upper parts continue to descend to another B♭ major harmony in second inversion, with a suspension in the Altus. The harmony does not, however, resolve onto another F major triad, but through a chromatic move upwards in the Quintus and the descent by a tone in the Bassus progresses onto an E major harmony. The shape of the 5-2 set in the Tenor, results from what can be termed 'ficta.' In the Altus, the 5-2 set complements the resolution onto a major triad, whilst the Quintus forms a genuine chromatic move, invoking a change of hexachord from the soft to the hard. Neverthless, the equivalent shape is of the 5-2 sets is of unifing significance, especially when compared with the chromaticism on 'Moro lasso, al mio duolo.' All three sets expose their diatonic superstructure before their chromatic interior, which is modally significant, as the phrase begins with a modal structure before a chromatic move.

In repeating the cadence, the Bassus part moves into the Tenor and has an alteration to the shape of the previous modal Bassus set due to the chromatic move upward into the phrase. The Altus and Tenor parts are then transposed upwards into the Cantus and Quintus parts respectively and the Quintus part transposed down a perfect fourth into the Altus.

The final instance of chromaticism occurs at the end of the piece, again accompanying words that describe death: 'ahi mi da morte,' (alas she gives me death). It is not as intense as the passage 'Moro lasso, al mio duolo,' but this is to be expected as the phrase translates as the first is describing the immediacy of death through the use of the first person present tense, where as the latter is using the third person in reference to death. Here, the chromaticism is achived by a variety of methods.

The motif of descending by a semitone or a tone, a further tone and then ascending by two semitones sets the text 'ahi, mi da morte' in the Cantus, Quintus and Altus entries and is responsible for the creation of the 4-1 and 4-2 sets in this passage. The motif also appears diatonically, i.e. without the chromatic passing note in the Cantus, Quintus and Tenor entries in bars 38, 39, and 41 respectively. The chromatic version of this motif returns in the Quintus entry of bar 40 and the chromatic passing note reappears

as the leading tone in the final cadence.

A further chromatically shaped set exists in the Cantus from bars 40–42. Here, this 5-8 set is caused by the inclusion of a D♯ and C♯ in an otherwise modally shaped passage. The D♯ is a particularly expressive lower auxiliary note, clashing with the E in the Bassus and Altus and A in the Quintus, but harmonising with the B in the Tenor. The C♯ is a raised third in the final chord, its approach from the E and its position at the top of the texture make it particular striking. This, along with the 4-1 and 4-2 sets, however, is chromaticism at the surface level. Instead, the dramatic nature of this cadence is played out in the underlying harmony.

From the opening of the repeated section until bar 38, the harmony has remained within that of mode 3, albeit with chromatic passing notes. In bar 38, however, the bass ascends a semitone to a C♯ and then makes a leap of a diminished fourth to F. Although, the harmony stays within the bounds of the third mode, it is an unsettling interval. The Tenor then mirrors this interval descending F to C♯, but in this instance the C♯ ascends a semitone to D, which is the expected progression from the A major harmony at the opening of bar 40. Instead, the resolution is eclipsed by the Bassus entering with a B♭, onto which the harmony settles in the final minim of the bar. The Bass then descends a perfect fifth to E♭, emphasised by the contrary motion with the Cantus. The ascent to an E♮ combined with the dissonance in the Tenor creates what today would be labelled as an augmented triad, resolving to E major and cadencing on A. This chromatic move in the Bassus is particularly striking when combined with the dissonance and the previous unsettled bass line. It alters the harmony from a major to a minor triad, a technique Gesualdo often uses. However, its placement in the Bassus and approach from a descending fifth, combined with the parallel chromatic movement in the Quintus, emphasise its effect in depicting the emotions in the text. The harmony in bar 41 moves from C minor with a seventh suspension in the Quintus to C major but with a raised fifth for chromatic expression (or can also be viewed as E with an unprepared suspension in the Tenor, both ways of looking at this is required) to E major at the opening of bar 42. This minor to major move has already been heard on the phrase 'Ahi, che m'ancide.'

Examining the table showing the chromatic underlay on Table 6 reveals homogeneity in the sets: they have a run of two of more consecutive semitones and all the hybrid sets have a modal shape and form subsets of the 4-4 set (except the 6-Z46), which underpins the chromaticism. There is only one set on an unclassifiable shape: the 4-9

set. This underpins one of the more unusual modal moments in the madrigal, which borders on the chromatic, but does in fact remain modal.

Unlike 'Se la mia morte brami,' 'Moro lasso' does not use the chromatic tetrachord as a compositional motif; instead, its intervals are used to create more complex structures that define the chromaticism, namely the disjunct chromatic modes. On the simplest level, the text 'ahi, mi da morte' uses the adjacent semitones from the 4-4 set (and its superset, the 5-2 set, also significant in the madrigal) to modify the harmony and create unusual shifts within a modal context. Then the 5-2 set, an extension of the 4-4 by the inclusion of a semitone is found at the surface level setting the text 'o dolorosa sorte,' which refers to the death of the speaker after being scorned by his lover. At a deeper level of abstraction, the 5-2 set is important in describing the scales with the text 'Moro lasso al mio duolo' where it derives from the chromatic tetrachord, which appears in both 4-4 and 4-7 arrangements. The 5-2 set is, therefore, fundamental in this madrigal in bridging both modal elements with chromaticism, allowing chromaticism to exist in the framework of a modal interval structure.

Case Study 4: 'Tribulationem et dolorem inveni'

'Tribulationem et dolorem inveni' is the seventeenth motet in Gesualdo's 1603 collection for five voices. Note that the order of the voice parts differs from those of the madrigals, the Tenors being doubled instead of the Sopranos. The text and translation is given below:

Tribulationem et dolorem inveni	I fell into distress and sorrow,
et nomen Domini invocavi:	and I called upon the name of the Lord,
o Domine libera animam meam;	"O Lord save my soul!"
misericors Dominus et justus et Deus	Gracious is the Lord and just; our God is
noster miseretur.	merciful.[6]

Due to the nature of the text and the difference in form between the madrigal and the motet, Gesualdo's sacred music contains much more sustained polyphony than the secular. Whereas in the madrigals the texture is segmented into clearly defined phrases

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[6] Translation from: Gesualdo di Venosa, *Sacrae Cantiones für Fünf Stimmen,* ed. Glenn Watkins (Leipzig: Deutscher Verlag für Musik, 1990), 70.

in which each musical motif describes a specific line of poetry, the texture of the sacred music is much more sustained and cadences much less frequently. As a consequence, the lengths of the phrases are greater than in the madrigals and the relationship between the music and the text is altered. This has a bearing on the use of set-theory analysis on this motet. The overlapping phrases and small number of cadence points make constructing a table showing sets appearing simultaneously in different parts more difficult. Individual phrases have been used as pitch collections, just as in the madrigals, and because of their increased length they often form larger sets. In the table accompanying this analysis, care has been taken to show sets that sound at the same time in the same column. However, this was not always possible and caution should be used when viewing the table without the score; unlike in the madrigals where the phrases are often short and accompanying a line of text, hence it is easier to place the sets sounding together with each other in the table. The phrases are much longer and there are many that overlap causing their placement in the table not always to align. They will, however, be closely related with a particular text iteration and/or be in very close proximity.

Modal Qualities

Like 'Moro lasso al mio duolo,' the motet is written in the third mode with a final on A. Gesualdo often raises the F♮ to an F♯, changing the quality of the mode and occasionally introducing ambiguity in the modal identity. Following as closely as possible the same process as the madrigals, the sets used in the analysis were collated and like in the two previous case studies, the sets were organised into two tables in Appendix III Table 8 (derived from Table 7): one showing their relationship to the 7-35 modal set and another to the chromatic set 4-4.

For this sacred piece of music, the tables show a shift in the style of chromaticism used. Only one distinctly non-modal passage exists, that on the cry 'misericors, misericors' from bars 40–44. The remainder of the piece, though sometimes inflected by chromaticism, retains an audibly modal character, even if its specific identity is at times vague. There are some hybrid sets; these sets allow a modal character but with a chromatic inflection. Furthermore, a number of sets that are not perfect subsets of the 7-35 but contain an extra note are caused by the alteration of a modal note, such as an F♮ raised to an F♯, and then subsequently corrected. Viewing both the table of sets and the table of subsets in the madrigal, it can be seen that sets that are close to each other

in the music often are either the same or similar in their intervallic make up. Interval structure is significant in the development of material, so much so that even Z related pairs exist in the motet; these have been underlined on the table. Z-pairs contain the same intervals, but have a different pitch-class set. Essentially, they are made of the same intervals and so their presence is significant because it demonstrates the control of interval structure used by Gesualdo in composition.

Despite the initial opening in the Quintus, Altus and Cantus on the pitches A, E and A and their movement being within the third mode, there exists a strong element of modal ambiguity in the opening bars. As suggested by the points of entry, for the first four bars the parts remain in mode 3. In bar 5, however, the Altus moves to an F♯, raising the second degree of the mode, giving an inflection from mode 1. The Bassus entry on a low A at this time accentuates this raising of the second degree, emphasising the major sixth in place of the minor; Gesualdo is making it clear to the listener there is uncertainty in the nature of mode 3 in the piece. Yet, the F♯ lasts no longer than a crotchet and in bar 6 the Altus is already singing an F♮.

After this initial opening ambiguity, the phrases continue rolling into each other until the text 'o Domine' in bar 30. Throughout this extended opening passage there is continued use of the F♯, both as a chromatically altered 'leading' note and to provide modal ambiguity. For example, the Altus phrase 'et dolorem' from bars 17–21 ascends through F♯ and descends through F♮. Shortly after, in bar 21, the Bassus descends through the modal 5-23 pattern to an A and then descending further to an E, confirming the third mode. Here this cannot be called a cadence, but marks a change in the texture as the Bassus drops out and the Cantus and Altus enter with new material.

For the first time, at bars 29–30, the parts come together in homophony on the word 'invocavi.' Cadencing onto a G, this is an irregular cadence within the mode, but is used to bring the harmony to C, a regular cadence, on the text 'Domine' of bar 31. A chromatic inflection in the Quintus moves the harmony through major triads on E, A and D before the modality resumes and sets of in the direction of the soft hexachord from bar 36 into the next cadence at bar 40. The chromatic inflections resume in the Altus at the end of this phrase and it is followed by the chromatic passage 'misericors, misericors,' which lasts until bar 44.

After this passage, rather than re-establishing the qualities of mode 3 by the use of absolute pitch after the move from a B major harmony to a C major via E♭, Gesualdo

uses the interval structure of the modal diatessaron and diapente to 'restore order.'

Two 4-11 sets, the diatessaron of the ninth and third modes, enter in close imitation in the Altus and Bassus of bar 44. The Altus then enters with a 6-9 set, a superset of diapente of mode 3, 5-23 (made with the inclusion of a *ficta* F♯), and then a bar later the Tenor enters with a 5-23 set. In bar 45 the Cantus enters with a 5-24 set, describing the intervals of the diapente of mode 3. Each voice part sings a modal set immediately after the chromatic passage, yet none of these sets are tied to specific modal pitches.

The cry 'misericors, misericors' is the only completely chromatic passage in the motet, so this effect is seen only once. Afterwards pitch becomes more important modally, as opposed to interval pattern, and this highlights the limitations of set theory analysis on mode. Towards the final cadence the sets become freer from the modal sets and often have notes left out. For example, the 5-Z17 set in the Bassus at the closing cadence is almost the 4-11 set of mode 3, save that it has the 'leading' tone G♯ and is missing the seventh degree; it is, however, placed between pitches relevant to the third mode with an A final, namely G♯, A and E. Some parts are distorted by chromatic notes resulting from *musica ficta*, for example, the 6-14 set in the closing Cantus line is strongly related to the 5-23 set, placed specifically between the pitches A and E. A further two examples would be the 6-Z24 and 7-19 sets in the Tenor and Altus respectively.

From bar 44 to the end there are no chromatic alterations that do not comply with modal practice and the entire piece is brought to a close with a cadence onto A.

Hexachordal Qualities

Set-theory analysis can identify passages containing hexachords and passages based around their interval structure. In reality, the hexachord is largely modal in function. All hexachords form the pitch-class set 6-32 [0,2,4,5,7,9] and, as can be seen on the accompanying table, several passages describe this set exactly. In all instances of the 6-32 in the motet, it describes the hard hexachord. Solmisation, one of the primary functions of the hexachord, is not a feature of these occurrences, due largely to the limited number of vowel sounds in the text and the use of melisma. Instead, the hexachord is used as a solid construct to build a simple modal melody in which chromaticism does not feature.

Chromatic Qualities

'Tribulationem et dolorem inveni' contains only two chromatic moments. The first of these is from bar 30 to 34 over the text 'o Domine' and the second from the end of bar 40 to bar 44 on the text 'misericors.' The second chromatic moment is much more dramatic than the first.

The first chromatic move is built around the semitone step from G♮ to G♯ in the Quintus, whose phrase makes the set 4-6 [0,1,2,7]. Accompanying this chromatic move is a 4-1 set in the Tenor. Alongside the semitone, the fourth and fifth are important intervals in this passage, which is emphasised by the Cantus and Bassus, who share the same set of 4-23.

The second chromatic move, from the end of bar 40 to the middle of bar 44, is constructed from a different set of intervals that find their origin in the chromatic tetrachord or 4-4 [0,1,2,5] set. The set appears in the Altus of the preceding phrase but there it is serving a different function. Here, the 4-4 set is found in the Tenor, accompanied by its subset 3-4 [0,1,5] in the Altus. In the Cantus is the closely related 4-3 [0,1,3,4] set, which differs mostly by the lack of the perfect fourth. The Quintus and Bassus parts both use the 4-19 [0,1,4,8] set. The main feature of these parts is the movement by thirds. Both the major and minor third can be found in the 4-4 set and therefore every interval in this passage can be found to originate in its normal or inverted form in the 4-4 set. This is the only passage that cannot be described by modal harmony, the sets used in this passage do not have a modal interval structure instead their interval structure is described in terms of the chromatic tetrachord.

The chromatic tetrachord plays a further role in the motet; it plays a principal part of the make-up of the opening motif, which opens with an ascending minor third followed by two ascending tetrachords. This intervallic make up appears in sets continually and supersets of the 4-4 set are shaded blue on the table. Their presence throughout the motet exemplifies the importance of these intervals in the motet's thematic make-up.

The use of the 4-4 set in the opening motif also explains the large number of hybrid sets in the madrigal. These hybrid sets are often positioned differently within the modal table and chromatic table. This is to show how best they relate to the 7-35 modal set and 4-4 chromatic set and often require different positions to show this relationship. As the sets are hybrid, they contain both modal and chromatic qualities and, whilst these overlap to some extent, they are present in different parts of the set. Chromatic

alterations of notes also create large numbers of adjacent semitones within the sets.

Madrigal texts usually consist of a stanza of short lines and in setting them Gesualdo keeps this form; the music is divided into short, often contrasting, pithy phrases. When he uses the device of chromaticism, it tends to set single phrases. The motet does not have the same form; the text is usually in a verse form and is broken up into shorter units, even single words that are repeated many times within a sustained polyphonic texture. If a particular text were to be set with chromaticism, then it would require a much more sustained use than the few bars often set in the madrigal.

The text of 'Tribulation et dolorem inveni' is divided by Gesualdo into five sections, giving a symmetrical structure of Long-Short-Long-Short-Long. The two short phrases are: 'o Domine' (bars 30–34) and 'misericors' (bars 40-44). The latter of these employs chromaticism. Here, the chromaticism in employed in a structural role as well as painting the words. The two outer sections of sustained polyphony enclose these two shorter phrases, which themselves bookend the lighter rhythmically driven motif of 'libera animam meam.'

The detachment of the phrase 'misericors, misericors' from the surrounding overlapping polyphonic texture emphasises its chromaticism, but also demonstrates its similarity to that found in the madrigals. The influence of the chromatic interval structures used in the construction of this passage is much more subtle. This is demonstrated through Table 9. There are no chromatic sets, even the 4-4 operates as a hybrid. Many sets that do contain adjacent semitones are still modal in function but with an alteration permitted within modal parameters (for example, the 7-23 [0,*2,3,4,5*,7,9], 7-27 [*0,1,2*,4,5,7,9] or 6-9 [*0,1,2*,5,7], etc.).

Whilst the actual chromatic passage in the motet is constructed in a similar fashion to that of the madrigal, its influence on the surrounding passages is different to that of the madrigals because of the nature of the text. These differences can still be discerned through pitch-class set theory, which continues to highlight the importance of interval structure throughout Gesualdo's output.

Summary

Through the four case studies of this chapter, the role of interval structure in Gesualdo's compositional process has been explored. 'Mercè grido piangendo' demonstrates how the 4-4 set can be used to create a chromatic mode and be combined with modal theory

to create Gesualdo's idiosyncratic harmonic vocabulary, producing a remarkable final cadence. Exhibiting the melodic qualities of the chromatic tetrachord, 'Se la mia morte brami' expands on the technique of displacing two chromatic tetrachords to create a complex and expressive melody. In the madrigal 'Moro lasso,' Gesualdo uses curiously little chromaticism; yet through careful juxtaposition with modal harmonic language, he creates an affect that has earned the madrigal the reputation of his chromatic masterpiece. Finally, the analysis of 'Tribulationem et dolorem' has shown how the present analytical technique can be applied to Gesualdo's sacred music. In turn, this provides an appreciation of how Gesualdo uses interval structure to control the chromaticism and modality in his motets.

Chapter 6
Compositional Procedure

Through the four case studies of Chapter 5, different aspects of Gesualdo's use of modality and chromaticism have been explored. In order to bring these analyses to a conclusion in this Chapter, the madrigal '"Io parto" e non più dissi' will be dissected, not only to describe the compositional processes at work in the music, but also to infer the reasons why these are taking place, answering the criteria established in Chapter 1 for a successful analysis.[1] Although this process began in the case studies, temperament must be considered to evaluate the analyses further. Constructing a hypothetical compositional process for the madrigal can help determine whether Gesualdo's chromaticism is a product of modal substitution or if there are more complicated processes at work. Analysis of modal theory can determine how modes are used practically within a compositional model and reveal facets of the music overlooked by modern musicians. Through a dissection of the madrigal '"Io parto" e non più dissi' these implications can be brought to a conclusion and aspects of a hypothetical procedure delineated. However, before beginning, the issue of temperament, critical to a pitch-class set theoretical analysis, must be discussed.

Temperament

From Fontanelli's letters to Duke Alfonso II d'Este it is evident that Gesualdo performed his madrigals unaccompanied.[2] However, he was known to written vocal music for accompaniment[3] and it is impossible to rule out accompanied performance. Therefore, it is necessary to consider the implications of temperament both for unaccompanied voices and for voices accompanied by instruments.

When performing unaccompanied, singers will listen to each other and aim for just intonation (perfectly tuned thirds and fifths so that there are no beats). However, to sing

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[1] See Chapter 1, page 44.

[2] Anthony Newcomb, 'Carlo Gesualdo and A Musical Correspondence of 1594,' *The Musical Quarterly* 54 (1968): 416.

[3] ibid., 426.

all intervals in this manner would result in the music being unable to move between different harmonies or the pitch going either sharp or flat.[4] Instead certain notes, especially fifths, will have to be flattened slightly, or 'tempered' to avoid the choir singing either flat or sharp. Even if the choir is aiming to sing in a specific temperament, the singers will alter intervals to express the meaning to the text and thus tuning will vary between different groups of performers and between individual performances.

Accompaniment by tempered instruments will affect the tuning of the madrigals. A keyboard instrument, such as a cembalo, has fixed pitches the singers will be forced to match. This will help the performers temper their intervals so that the pitch will not flatten or sharpen, but does not necessarily restrict the madrigal to the harmonies available on the instrument. A skilled continuo player will know if his tempered intervals will match those of the singers and will leave out any thirds that may sound jarring; or example, if the madrigal requires a D♯ as the major third in a B major harmony and the keyboard instrument (without split keys) is tuned with an E♭, the third can simply be left out of the accompaniment.

Equal temperament was used in instruments of the *cinquecento*; viols and lutes, being fretted, could employ this system. As Mark Lindley writes '[w]ell before the end of the 16th century it became a commonplace of Italian musical writings that the use of equal temperament was normal for fretted instruments while keyboard instruments were tuned with unequal semitones.'[5] However, the pitch could still be altered by the performer by stretching the string against the fret. Bottrigari describes this practice in *Il Desiderio*, remarking that there are two types of instrument: 'entirely stable' and 'stable but alterable.'[6]

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[4] David Howard, 'Choirs and Temperaments,' (paper presented at the *Gesualdo 400th Anniversary* Conference, University of York, November 23–24, 2013).

[5] Mark Lindley, 'Temperaments,' in *Grove Music Online,* accessed February 14, 2015, http://www.oxfordmusiconline.com/subscriber/article/grove/music/27643.

[6] It takes the form of a dialogue between 'Gratioso Desiderio' and the master 'Alemanno Benelli.' Gratioso, who after hearing the *concerto grande* in Ferrara remarks: 'there where I had thought I would hear a celestial harmony I heard confusion rather than the contrary, accompanied by a discordance, which has offended me rather than given me pleasure.' Hercole Bottrigari, *Il Desiderio*, trans. Carol MacClintock. (N.p.: American Institute of Musicology, 1962), 13.

The stable instruments are those which, after they have been tuned by a conscientious Maestro, cannot be altered by any means. Such are Organs, Harpsichord, Spinets, Double Harps, and other similar instruments, which can produce only the pure diatonic scale which pleases most people, or seems to please them. The stable but alterable instruments are those which, after they have been tuned by the diligent player, can be changed, augmented or diminished in some degree, according to the good judgement of the player as he touches their frets a little higher or a little lower. This occurs with the Lute and Viol, even though they have the stability of their frets. The same thing happens with the wind instruments, such as traverse Flutes and curved Cornetts.[7]

For these alterations there can be no named temperament and they are left to the 'diligence' of the player. This presents a conundrum for the analyst as to how to incorporate the effects of differences in temperaments into the analysis. Even if the most 'just' solution were to be calculated, it is unlikely to be a reality in performance. Therefore, a compromise must be reached and equal temperament is a suitable solution. Equal temperament in itself is a compromise; however, as a lutenist, it was a concept Gesualdo was familiar with and it is known that others played his madrigals on the viol.[8] Also, being a compromise, equal temperament allows analysis to take place independent of any particular performance.[9]

Temperament and Pitch-Class Set Theory

Pitch-class set theory relies on equal temperament; the distances between the intervals must be uniform if their relative shapes are to be compared. In performance, however, even the twentieth-century music for which set theory was devised to analyse will deviate from the precise pitches of equal temperament. 'Diligent' musicians react to other performers in their ensemble and alter their pitches accordingly. Although this is a criticism often made against pitch-class set theory, many other analytical methods

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[7] ibid., 15.

[8] Glenn Watkins, *The Gesualdo Hex* (London: W W Norton & Company, 2010), 57.

[9] In fact, David Howard has proved that equal temperament is almost impossible to achieve without the use of computers, demonstrating the tendency of the human ear to aim towards just intervals. See footnote 4.

also fail to take account of the discrepancies in interval size resulting from changes in temperament. However, it is important to discern whether the analysis is of compositional process, and therefore of the score, or of a performance, where consideration of temperament is essential. Nevertheless, analysis (including the present method) must be a nuanced approach that balances many different considerations. Set theory may demonstrate that there is a fundamental difference in the constitution of the interval structure between Gesualdo's chromatic and modal passages, but as modal considerations must be taken into account alongside the set-theory analysis, so too must the incongruity of interval size. Through equal temperament and set theory it is possible to gain an insight into the compositional process of the madrigals and of contemporary theorists that influenced Gesualdo. The results of the analysis, like all score-based analyses, expose the compositional process and not a performance.

The diatonic genus is divided into a semitone and two tones of the same size; however, the chromatic genus is divided into two unequal semitones and a minor third. The larger of the semitones is known as 'major' and is the same size as that of the diatonic semitone whilst the minor is smaller. In turn there are two different categories of tone: 'major,' consisting of two major semitones, and 'minor,' the size of a major and a minor semitone. These affect the size of the third, such that minor third is the size of a perfect fourth minus a minor tone and the major third is the size of the fourth minus a major semitone, or the size of two major tones.[10] In practice, the major and minor semitones tend to appear together within the chromatic genus in Gesualdo's madrigals, although where they appear alongside diatonic intervals, their size is also affected; however, changes in harmony may require these intervals to be tempered. Through the concluding case study below, the mechanics of these intervals in Gesualdo's madrigals will be examined.

Vicentino's Archicembalo

Vicentino also sought to restore to contemporary practice the enharmonic genus, which divides the perfect fourth into a major third and two dieses.[11] These dieses are unequal,

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[10] Nicola Vicentino, *Ancient Music Adopted to Modern Practice*, trans. Maria Rika Maniates (New Haven and London: Yale University, 1996), xl.

[11] A diesis is one division smaller than a semitone. See Appendix VI.

one is 'major' and twice the size of the 'minor'; the major and minor diesis are collectively the size of a perfect fourth minus a major third (See Appendix VI in Volume II). In order to realise such intricate intervals in his music, Vicentino developed his archicembalo, described in Chapter 4. Far from being an extension of expressive tuning, the enharmonic genus extends the harmonic palette of the composer.[12] Gesualdo took an interest in this instrument in Ferrara and upon returning to Naples, Scipione Stella, who had accompanied Gesualdo, constructed his own archicembalo, which he called his 'Tricembalo.'[13] Another Neapolitan, Fabio Colonna, built his own enharmonic cembalo, the 'Sambuca Lincea,' which led Stella to accuse him of plagiarism. Colonna tuned his *Sambuca Lincea* into a thirty-one-note system of equal temperament; this permitted the only surviving so-called *circolatione* composition, written for Colonna's treatise by Ascaino Maione.[14] This piece opens with a G major harmony and 'modulates' through a cycle of fifths until it reaches C♭♭ major. In a thirty-one-note temperament C♭♭ is the enharmonic equivalent of A♯♯ and the cycle of fifths continues until the piece returns to G major and cadences onto C major.[15]

That there was interest in these chromatic and enharmonic genera and keyboards within Gesualdo's circle and within Naples, combined with the chromatic nature of Gesualdo's madrigals, suggests that Gesualdo himself was interested in these theories. In fact, Gesualdo's madrigals are a realisation of the chromatic genus at the limits of what is practically performable without specialised instruments. However, due to the esoteric nature of enharmonic music and the limited audience, publishing such enharmonic music for thirty-one-note temperament, requiring advanced notation such as the triple sharp (♯♯♯) would not have been a profitable affair. Therefore, the amount of extant enharmonic music from this period is severely limited.   Nevertheless, that Stella, Colonna and Maione were writing for this instrument, combined with the fashion

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[12] Jonathan Wild, 'The sonic world of Vicentino's 31-tone music,' (paper presented at *Medieval and Renaissance Music Conference*, Certaldo, July 4–7, 2013).

[13] Giovanni Battista Doni, *Compendio del Tratto de'Generi de Modi della Musica* (Rome, 1635), 20. Accessed via Google books, URL: https://play.google.com/store/books/details/Giovanni_Battista_Doni_Compendio_Del_Tratt ato_De_G.

[14] Patrizio Barbieri, *Enharmonic Instruments and Music* (Roma: Il Levante, 2008), 420 fn.

[15] ibid., 421–422.

for chromaticism inspired by Gesualdo in early seventeenth-century Naples, suggests that such compositions were influential. A letter by the Bolognese painter and music theorist Francesco Albani identified and translated by Patrizio Barbieri hints at the connection:

> I set about making instruments and made a lute and a harpsichord; and now I'm having made a harp [sic] with all its genera, diatonic, chromatic and enharmonic: something that has neither been done since nor invented. But since it is something new to the musicians of this century, I haven't yet been able to play them. It is a pity that Signor Alessandro [Piccinini] is no longer alive, for he claimed I would not succeed in doing anything, whereas Luzzasco had proved to succeed. Here in Naples the Prince of Venosa and Stella were among the first and they couldn't find it. If I return home, I would like to have an organ made like this.[16]

The connections between these composers and Gesualdo's court will be the subject of further research.

Vicentino's *archicembalo* dealt with some of the problems of keyboard temperament; allowing perfect meantone tuning in every key and the provision of just fifths. However, the move from one harmony to another often requires the tempering of intervals to avoid pitch shifting. [17] The *archicembalo* would lead to a fully realised continuo accompaniment and has the advantage of transposition into any key. If Gesualdo and/or members of his court were composing for the *archicembalo*, and given their interest in the instrument it seems probable that they were, then their compositions have not survived. Vicentino composed madrigals that were performable in any genera: the performers could sing the piece in the enharmonic genus, following the entire notation; ignore the enharmonic markings and sing it in the chromatic genus; or ignore all the accidentals and sing the madrigal in the diatonic genus.[18] It is possible, therefore, that chromatic music (perhaps even enharmonic music) survives but without its advanced notation.[19] The madrigal "'Io parto' e non più dissi' is an example of how Gesualdo uses the chromatic tuning available on the *archicembalo*; this shall be examined during the

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[16] ibid., 435. The letter is dated 7th December 1638.

[17] David Howard, 'Choirs and Temperaments.'

[18] Nicola Vicentino, *Ancient Music*, 211.

[19] Jonathan Wild, 'The sonic world of Vicentino's 31-tone music.'

madrigal's deconstruction and analysis.

'"Io parto" e non più dissi'

Deconstructing the madrigal '"Io parto" e non più dissi' (VI, 6) allows the implications of the analyses in the previous four case studies to be exposed and conclusions to be drawn on Gesualdo's use of chromaticism and modality. Thus, it will give an insight into how Gesualdo composed by establishing a compositional framework that includes interval structures derived from the chromatic tetrachord and reaffirm the modal theories established in Chapter 3.

The aim of this dissection is to bring to a conclusion the chromatic processes examined in the case study by demonstrating how they are relevant to Gesualdo's compositional procedure. However, due to the lack of manuscripts from this period (none of Gesualdo's have survived) little is known about the act of composition.[20] Fontanelli reports seeing Gesualdo compose:

> On many occasions I have been present during the act of composition and could, if I wished, relate many details to the good, and a few to the contrary. Neither the one nor the other appears necessary, however, since in this matter the middle way [neither praise nor blame] seems sufficient.[21]

Given that Gesualdo carried his music in score for study and that the six books of madrigals were also printed in score, it seems likely that he felt his music could be best appreciated in this format and therefore it seems a plausible medium for composition; this can only be speculation though it is worthwhile to remember that as a Prince, the cost of paper would have been irrelevant.[22] All attempts at a reconstruction of a compositional process are necessarily hypothetical and the following deconstruction is

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[20] For detail of the compositional process of sixteenth-century composers see: Jessie Ann Owens *Composers at Work* (Oxford: Oxford University Press, 1997). The subject has also been researched by John Milsom through 'Forensic Analysis' and was the subject of his paper: 'Composing with Gesualdo: what forensic analysis can tell us,' (paper given at the *Gesualdo 400th Anniversary Conference*, University of York, November 23–24, 2013).

[21] Anthony Newcomb, 'Carlo Gesualdo and A Musical Correspondence of 1594,' 424–425.

[22] Estimates place the cost of 24 sheets of paper in 1600 at the price of a workers daily wage. Owens, *Composers at Work*, 112.

not an attempt at the complete process; instead it aims to establish how the interval structures analysed in the previous chapters can be used practically in the compositional process.

Leaving his lover, the speaker in the madrigal's text is consumed with pain that deprives his 'heart of life.' However, upon hearing the laments of his lover Cloris, he returns 'to life at such pitiful tones.'

"Io parto" e non più dissi, che il dolore	"I leave," and I said no more, of the pain that
Privò di vita il core.	Deprived my heart of life.
Allor proruppe in pianto e disse Clori	Then Cloris burst into tears and said
Con interrotti omèi: "Dunque a i dolori	With interrupting sobs: "Therefore in pain
Io resto. Ah, non fia mai	I remain. Ah, may I never cease
Ch'io non languisca in dolorosi lai."	languishing in sorrowful laments."
Morto fui, vivo son, che i spirti spenti	I was dead, I live, for my extinguished spirit
Tornaro in vita a sì pietosi accenti.	Returned to life at such pitiful tones.

The text can be divided into three sections; the first is the opening two lines that set the scene for the second section, which is of the most emotional intensity as Cloris describes how she will 'never cease languishing in sorrowful laments.' Then, in the third section, the speaker is revived by his lover's remarks, for he realises she does actually love him.

Mode

As examined in Chapter 2, practical use of the mode is as a formal construct, to give the madrigal a coherent identity based on the modal pitch hierarchy. The three divisions of the text are reflected in the organisation of the madrigal's modal structure. Opening on the final of mode 3, E, the harmony moves onto the fifth degree of the mode at the end of the first phrase. Despite passing through an F♯ major harmony, the second line of text cadences onto the regular cadence point of G, bringing the first sentence and section to a close. The madrigal, after the chromaticism on 'proruppe in pianto,' returns to the modal final before introducing the voice of Cloris in bar 16. Therefore, in the first section of the text the harmony stays within that normally associated with mode 3, save

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for the move onto F♯ major to paint the word 'dolore.'

As the speaker is introduced in the second section, despite the chromaticism, the central pitches are significant to mode 3. The harmony of 'Allor' in bar 12 is rooted on the sixth degree. 'Proruppe in pianto' from bars 13–15 opens with an E, all the parts enter on notes from the triad of the modal final, E, G or B and it cadences chromatically onto the final. The harmony moves in the direction of softer hexachords for the chromaticism on 'in dolorosi lai.' Although containing chromaticism, the phrase 'e disse Clori' is centred around the pitch A, fundamental to mode 3. The following phrase 'Con interrotti omèi' focuses towards the fifth degree of the mode, before repeating the final chord up a tone on C♯. With this move onto C♯, the harmony moves out of mode 3 and moves with chromaticism through numerous harmonies without finding a tonal focus.

When Cloris begins to speak in bar 20, the music has moved away from the tonal focus associated with the third mode. Departing from the harmonic area of mode 3 adds tension to the emotions of the text and serves to differentiate the voices in the madrigal. The previous phrase ended on the fifth degree of the mode, before repeating the final 'omèi' up a tone on a C♯ major chord. Cloris begins to speak on an F♯ major harmony and moves through a repeated chromatic progression, before the phrase 'ch'io non languisca' returns the music to the harmony of the fifth degree. After arriving on the fifth degree in bar 25, the harmony moves in the direction of flatter hexachords and does not return to mode 3 until the speaker's voice returns in bars 28–29 on the phrase 'Morto fui.'

With the return of the speaker in the phrase 'Morto fui,' the harmony is returned, albeit chromatically, to the modal final for the third section of the text. Throughout the remainder of the madrigal, the harmony resides within harmonic area of mode 3. One brief departure from the mode 'a sì pietosi accenti' accentuates the pain of Cloris' laments through the use of an F♯ major harmony; it is also reminiscent of the harmony in which they were first heard in bar 21. The madrigal finishes with an unambiguous Phrygian cadence onto the modal final.

The rhetorical characteristics associated with the mode also match those of the text. Gesualdo's use of mode 3 for this purpose has already been explored through the case study of 'Mercè grido piangendo.' Zarlino describes mode 3 as 'tearful and full of

laments,' 'suited to lamentful words or subjects that contain sadness.' [23] These sentiments match those found in the madrigal's text. To the Ancient Greeks, the third mode had 'the nature of sparking the soul and inflaming it with anger and wrath, and of provoking lasciviousness and lust,'[24] thus expressing the lust for Cloris by the speaker, and therefore the sexual undertones of the madrigal.

Segmentation

The choice of pitch collection for each set is critical to a pitch-class set theoretical analysis. In choosing the pitch collections for this example (and the case studies) the divisions in the music were followed, taking into account rests between phrases, changes in texture and text. The segmentation of the sets, as in the case studies, mirrors the division of the music into phrases following Gesualdo's own divisions of the texture. However, in the madrigal '"Io parto" e non più dissi,' this has led to variance in the size of the sets. For example, in bar 12, 'Allor' is treated as an individual phrase because it is clearly distinct from the surrounding music, despite making a small set and in bars 15–16 'e disse Clori' is also isolated from the adjoining music. Larger sets result from longer imitative phrases, for example 'vivo son, che i spirti spenti'; however, in these larger sets the interval structure is more consistent. Consequently, the larger sets do not mask more intricate interval structures. The pitch collections have been annotated on the score of madrigal, Appendix IV Example 1 (printed in Volume II).

Dividing the music in this manner means that the sets do not include intervals that occur between the phrases. However, these divisions are best considered by examining the pitch structure relative to the absolute pitch values within the modal hierarchy. Where the interval structure from one phrase to another is significant it has been noted in the analytical commentary, if not in the accompanying tables. Although different methods could be employed in the choice of pitch collections, a successful analysis will reach the same conclusions, provided there is reasoning in the choice of sets. The present method, however, illustrates the use of interval structure within Gesualdo's voice-leading, the relationship of intervals to the text and can incorporate larger structures where they aid the analysis, integrating with modal considerations that concern

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[23] Gioseffo Zarlino, *On the Modes*, trans. Claude V. Palisca (New Haven and London: Yale University Press, 1983), 64.

[24] ibid.

absolute pitch values.

Vertical Sets

Despite the horizontal part movement yielding complex interval patterns, when considered vertically, Gesualdo's madrigals are mostly triadic and do not exhibit the interval structures used horizontally. Therefore, a pitch-class set theoretical analysis reveals mostly 3-11 sets when the harmonies are considered vertically. Dissonance produces different sets, though none of the chromatic interval structures that have been discussed. Furthermore, Gesualdo's most chromatic passages tend to be free of suspensions, or only make occasional use of them. Instead, larger interval structures, such as the pitch collection derived from the whole passage (such as those used above) reveal how the intervallic make-up of larger structures is important to the construction of the madrigal. In the case study 'Se la mia morte brami,' pitch collections spanning two parts were examined to discern how the combinations of sets were used to create motifs and how imitative parts used the same or similar interval structures.

Appendix IV Table 1 shows the prime forms of the pitch-class sets and where they appear in the madrigal. These have been collated in Appendix IV Table 2 to show how they relate to the modal superset, 7-35 (both of these figures are printed in Volume II). Many of the chromatic sets also have modal shapes and functions, consequently there are a large number of hybrid sets.

Modes and Pitch-Class Set Theory

In the opening phrase the Quintus moves chromatically upwards through a semitone, from F♮ to F♯, creating the chromatic set 4-1 [0,1,2,3]. Accompanying this chromatic move, the Altus moves upwards a semitone from D♮ to D♯, creating the third in the B major harmony on the fourth beat of bar 2, producing the chromatic set 4-4 [0,1,2,5]. The remaining parts are modal in shape and the phrase plays an important role in establishing the modality at the opening of the madrigal, especially in terms of pitch content.

The following phrase 'che il dolore' is modal in shape, except for the unusual move to an F♯ major harmony through semitone movement to notes outside the mode in the Cantus and Altus. Were it not for this chromaticism, the structure of the phrase would be entirely modal. Returning to the harmonic region of the third mode, the phrase 'Privò

di vita il core' is modal in construction. As the pitches of mode 3 are well-established in the music, which opens on the final and cadences onto the third degree, the intervallic content is quite free, certain notes are raised on ascent and lowered on descent. For example, this happens twice in the Quintus: a G♯ 'leads' into the A of bar 8, and is lowered to G♮ on the stepwise descent to E, then the F♯ 'leads' into the G in bar 9, which is naturalised on the stepwise descent to E in the same bar; this results in a modal set with two chromatic alterations and a run of five consecutive semitones that is in fact modal, 6-1 [0,1,2,3,4,5].

After the modally structured 'Allor' of bar 12, the interval structure of the madrigal becomes chromatic until bar 23, when, with the exception of the phrase 'in dolorosi lai' the interval structure of the madrigal becomes modal up to the end. At bar 23, the pitches are not those associated with the mode. Although the modal final is present in the fourth minim of bar 23 followed by an A minor harmony, the subsequent C♯ major harmony forbids the music to settle back into mode 3 as it heads towards the fifth degree. As the mode is not well-established in terms of absolute pitch values, the chromatic alterations do not make the music sound modal. In terms of pitch structure, however, the music is strictly diatonic and therefore this is an example of the diatonic species chromatically displaced; whilst the interval structure is modal, it does not necessarily follow pitches associated with the mode.

In bar 29, after a chromatic phrase, the music returns to modal structures until the end of the madrigal. The interval structures form perfect subsets of the 7-35 modal set until the final line, where the raising of the G♮ to G♯ in the final chord creates an extra note in the 6-Z24 [0,1,3,4,6,8], 8-26 [0,1,2,4,5,7,9,10] and 7-27 [0,1,2,4,5,7,9] sets. The penultimate phrase 'a sì pietosi accenti' is another example of the modal sets chromatically displaced to create a F♯ major harmony, provided by the raising of the third in the 3-3 set in the Cantus. Although the placement of the F♯ major harmony here mirrors the opening section, it is achieved not through chromatic alteration, as it was at the beginning, but by the displacement of modal structures.

The choice of mode is a decision to be made early in the compositional process. In order for the mode to carry extramusical connotations, the adoption of a mode is determined by the selection of the text, which, recalling Vicentino,[25] is also one of the

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[25] See Chapter 2, page 62.

first steps in the compositional process. In the case of '"Io parto" e non più dissi' the choosing of mode 3 allows its rhetorical meanings to align with those of the text. By choosing not to transpose the mode and through using low clefs, without any doubled voice parts (C1, C2, C3, C4, F4) Gesualdo allowed himself to write the melodic patterns within the framework of the modal pitch hierarchy so that they lie within the tessitura he desired for the particular voice parts.

From the use of the tonal hierarchy of mode 3 in '"Io parto" e non più dissi' it is clear that it played an important role in Gesualdo's compositional process. Yet, the extent to which Gesualdo used the mode as an *a priori* compositional device to plan the harmonic structure of the madrigal before composing the constituent phrases can only be speculation. Set theory can be used to determine which passages have been composed using modal structures that are chromatically placed and distinguish them from chromatically composed structures. The effect of these two is different and the absolute pitch values must be considered. For example it is possible to have a chromatic structure anchored around pitches of the mode, such as 'proruppe in pianto,' bars 13–15, which is centred around the note E, the modal final. This has a different effect to modally shaped passages chromatically displaced, for example 'ah non fia mai' and chromatic structures not centred on modal pitches, for instance 'Dunque a i dolori io resto.' These differences must be taken into account in determining the organisation of cadence points within the madrigal.

The Chromatic Tetrachord as a Melodic Unit

A cursory glance at Appendix IV Table 2 reveals that a large proportion of the chromaticism in '"Io parto" e non più dissi' relies on chromatic sets. As was seen in the opening phrase for example, the F♮ and F♯ can both exist in mode 3, but chromatic movement between the two is unidiomatic, as is to a lesser degree the movement in the Altus from D♮ to D♯, creating the first instance of the chromatic tetrachord appearing as a melodic unit in the madrigal. Both of these sets, however, have a modal function, complementing the modally shaped parts beneath. Examining the interval structure of the phrase as a whole confirms this to be the case.

Example 7.1 Pitch Collection of '"Io parto" e non piu dissi' bb.1–3.

In Example 7.1, the pitch collection of '"Io parto" e non piu dissi,' the lower octave is modal in shape and is confirmed by the structure of its intervals, which form a perfect subset of the 7-35 set, the 5-29 [0,1,3,6,8]. The upper part of the pitch collection consists of chromatic structures, the 4-4 set or chromatic tetrachord, and 4-1 set.

When considering the compositional process here, it seems unlikely that the pitch structure was devised first, inspired by the constituent units of Vicentino's chromaticism, and that the voice-leading was written to match the resulting 'chromatic mode.' However, the central tetrachord, the 4-4 set, forms a melodic unit in the Quintus and is the first building block of the phrase. The Bassus forms the root of all the harmonies and uses the same pitch classes, save the D♯, as the Altus; that these two parts were composed first is strengthened by the analysis of the temperament of this phrase (see below). The Quintus part, which rises chromatically, cements the harmonies of the phrase, which are filled out by the Tenor notes. A hypothetical reconstruction of the compositional process for this passage would therefore start with the chromatic tetrachord of the Altus, which sits between the fifth and first degrees of the mode. The melodic ascent through the tetrachord can be placed in counterpoint with the Bassus descent through the pitches, without the D♯, before ascending to an E an octave below the Altus. A descent back to the B allows the phrase to cadence with a suspension in the Altus, who descends a semitone to be a compound major third above the Bassus. The harmonies have now been fixed and the Quintus can ascend chromatically, joining the Altus suspension in bar 3; then, the Tenor part can be added to complete the harmony. Instead of Gesualdo writing the chromatic mode first, it is more probable that he was aware of its construction as he used tetrachordal units in composing the music, which would have resonance with the theories of Vicentino, who wrote his music in a similar manner.[26]

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[26] See the analysis of Vicentino's 'Hierusalem, Hierusalem,' page 93.

Chromaticism through the Substitution of Modal Pitches

The chromaticism in the following phrase, 'che il dolore,' is constructed using a different technique. Whilst the shape of the chromatic tetrachord is present in the Cantus' 5-2 set, it is not present with any prominence in the music, neither does it play a significant role when all the notes of the phrase are considered together as a pitch collection, Example 7.2. Instead, there is a chromatic movement at the end of the phrase in the Cantus and Altus, and the F♯ major harmony is achieved through the substitution of modal pitches with chromatic alterations. This substitution takes the form of the descent of a semitone in the Altus from D to C♯. The lower parts have a modal shape and their F♯ could have a modal function, leading into a G major harmony; however, this is not reached until the end of the following phrase. The Cantus A♯ is also the result of a semitone descent giving the harmony a major third.

Example 7.2 Pitches of 'che il dolore' bb. 4–6.

Chromatic Tetrachord Displacing Modal Structures

Making use of modal pitches, but with chromatic interval structures, the phrase 'proruppe in pianto' sees the re-emergence of the 4-4 set as a melodic unit in the Quintus entry. Appendix IV Table 2 reveals that the interval structure of the 4-4 is an important component of all of the sets used, with three out of the four sets making use of a minor sixth too. As noted above, the triad of E minor is significant in this phrase, all the parts enter on an E, G or B and it cadences onto E major, the chromaticism interspersed between these degrees.

Example 7.3 Pitch Collection of 'proruppe in pianto' bb. 13–15.

Example 7.3 shows how the chromatic tetrachord forms the heart of the pitch collection accompanied by other intervals that constitute its construction. The pattern in the lower pitches is also significant: a fifth consisting of a semitone and two minor thirds (instead of a fourth consisting of two semitones and a minor third), which also plays an important role in the construction of the madrigal.

Except for the Bassus, the chromatic tetrachord appears in each voice part as a constituent of a larger melodic unit. It is most distinctive in the Altus, who sings the set C, G, B♭, B, B, C accompanied by an E at either side, but it also appears in the Cantus in bar 15, with an extra note, F♯, in the Quintus and in the Tenor, although here the initial B is displaced by an octave and the tetrachordal pattern is interrupted by a G. Devising a hypothetical compositional procedure for this passage is fraught with difficulty because of the irregularity of the imitative answers. Nevertheless, because of the prominence of the chromatic tetrachord within the melodies, the choice of it as a compositional unit must have been made early within the compositional process.

A chromatic mode, with a leading G♯ in the Bassus, forms the basis of 'e disse Clori' in bars 16–17. The chromatic tetrachord appears again as melodic unit, this time in the Tenor as well as forming the heart of the pitch collection on which the passage is based. The fifth between the A and the E makes a 4-17 [0,3,4,7] set made of two minor thirds around a central semitone. Example 7.4 shows how they make up another Vicentino-inspired chromatic mode, like those seen in 'Mercè grido piangendo' or 'Moro lasso al mio duolo.' The two-note sets have been labelled in Appendix IV Table 2 as modal as they appear in the intervals of the 7-35 set, however, they also form subsets of the 4-4 set and could be classed as having a hybrid shape; as they are based around pitches of the harmony of the fourth degree of the mode, which is significant in the structure of the madrigal (see above), they have been counted as modal.

Example 7.4 Pitch Collection of 'e disse Clori' bb. 16–17.

In the subsequent phase 'Con interrotti omèi' there are no modally shaped sets. In the Quintus, the chromatic move from F♮ to F♯ reaffirms the chromatic tetrachord as a melodic unit, the cadence onto B major, the fifth degree of the mode, and the prevalence

of pitches significant in the hierarchy of mode 3, categorises the phrase as modal, despite having chromatic patterns displaced within its interval structure. Another hybrid set is formed in the Altus, again by movement from F♮ to F♯, however, this change occurs from the beginning to the end of the phrase. The uncategorised 'Other' sets result from the repetition of the 'omèi' at the end of the phrase, in which the harmony is transposed up a tone from B major to C♯ major; this accounts for the non-modal degrees in the 5-10 [0,1,3,4,6], 5-31 [0,1,3,6,9] and 4-21 [0,2,4,6] sets. In tonal music, the first two sets, especially the 5-31, bear a close resemblance to the dominant seventh, 4-28 [0,3,6,9], although they result from a different process. The 4-21 set in the Bassus is noteworthy because it creates a series of whole tones; this is a consequence of the modal substitution, yet it does create patterns familiar in twentieth-century composition, particularly when combined with the 5-31 set. As described above, this move separates the voice of the speaker from that of Cloris.

The chromaticism in this phrase is caused by the repetition of the final 'omèi' repeated a tone higher; there are several origins for this move in terms of compositional procedure. It can be seen as an example of modal substitution, transposition of the phrase or evidence of harmonic organisation in the construction of the madrigal. In reality, it is most likely a combination of all of these. The 4-4 set in the Quintus does not occur melodically and relies on the enharmonic equivalency of F♮ and E♯, therefore it is unlikely to be the initial building block of the phrase; nevertheless, its presence indicates the importance of this genus in constructing chromaticism.

The final chromatic phrases in the madrigal '"in dolorosi lai." / Morto fui,' are both constructed from chromatic modes; the 4-4 set chromatic tetrachord also takes on a melodic role. It is accompanied by a 4-1 set in the Quintus and the closely related 4-2 set in the Altus, which is a subset of the second species of chromatic fourth, or the 4-7 [0,1,4,5] set. The Tenor and Bassus both have a 3-4 [0,1,5] set, which is modal, but also forms a subset of the 4-4 and 4-7 sets. The C♯ in the Altus leads into the D, which forms a double suspension (akin to a 6/4 suspension) onto an A minor harmony and then the Cantus descends to an A♭, a chromatic move from the soft hexachord to the E♭ hexachord and the phrase cadences onto a B♭ harmony.[27] This combines

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[27] Although the use of the term 6/4 suspension may seem slightly anachronistic, for want of better terminology it is the easiest way to name the suspension and for the modern reader

chromaticism driven by hexachord mutation with chromaticism driven by interval structure. Example 7.5 illustrates how the lower half of the pitch collection resembles a modal shape, whilst the upper half consists of a purely chromatic fourth (made entirely of semitones) and a chromatic diatessaron. This mode is reminiscent of those described by Vicentino as 'spetie Chromatica diatonicamente posta' (chromatic species diatonically placed) and those used in 'Moro lasso al mio duolo.'

Example 7.5 Pitch Collection of 'in dolorosi lai' bb. 26–28.
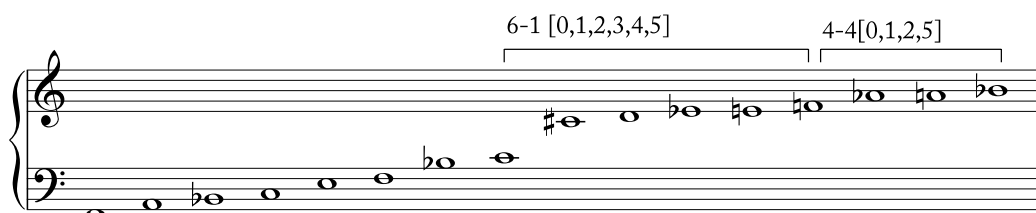
The chromatic tetrachord appears as a melodic unit in the Cantus in this phrase, with the same pitches used in the Bassus, without the A♭. The chromaticism also centres around a chromatic hexachord mutation from the soft to E♭ hexachord; this move is facilitated around the semitonal descent in the Cantus and therefore it is plausible that the Cantus and Bassus were conceived first, especially given the dissonance between the two parts being one of the most audible features of the phrase. The harmony is also in root position throughout. The chromaticism in the Altus is caused by the opening C♯ being raised according to modal rules, ascending into the dissonance on the D and returning to a C natural on a descent, again a common modal feature. The resulting pitch collection demonstrates that the chromaticism appears in the upper voices and has a structure reminiscent of Vicentino's chromatic modes.

Another chromatic mode forms the basis for the successive phrase 'Morto fui.' All of the sets are subsets of the 4-7 set. Through a chromatic move upwards from their initial notes, all of the voices ascend from an E♭ major harmony to E major via C minor. The result is movement by semitones, minor thirds and the composite of these two intervals, the major third. Example 7.6 reveals how this movement originates in a chromatic mode. The upper octave consists of two chromatic diapente, whilst the lower fifth consists of two minor thirds and a semitone, the same intervals used in the Bassus of the phrase 'prorrupe in pianto.'

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to comprehend.

Example 7.6 Pitch Collection of 'Morto fui' bb. 28–29.

Appendix IV Table 2 illustrates how the non-modal sets in the madrigal relate to the interval pattern of the chromatic tetrachord. Special circumstances dictated the shape of the 'other' sets, however, all of the non-modal sets contain at least two subsequent semitones and a tendency towards the chromatic tetrachord, mostly in the form of the 4-4 set, but also in the form of the 4-7 set. This demonstrates the importance of the chromatic tetrachord in the construction of the chromatic passages.

As with the other phrases in the madrigal that are composed of a chromatic mode, it is unlikely to be the departure point for the composition of the phrase; however, its presence was likely to be understood by Gesualdo as structured use of chromaticism. Essentially, the passage is constructed around the semitonal ascent of an E♭ major harmony to E major. This returns the harmony to the modal final and is part of the madrigal's harmonic organisation as it marks the beginning of the third division of the text. It could also be understood as a chromatic hexachord mutation from the E♭ hexachord, established in the preceding phrase, or B♭ hexachord (depending on whether the music mutates so that the chromatic mutation only skips one hexachord) to the natural, with a raised third. As either of these are valid, it is difficult to establish the compositional procedure for this phrase; yet, it is clear that the intervals of the chromatic tetrachord are crucial to the intervallic structure of the passage.

Chromaticism through Hexachord Mutations

Opening on an F♯ major harmony, rooted in the Bassus, the phrase '"Dunque a i dolori Io resto"' follows the Bassus descent through a series of first inversion triads. The intervals of the 5-31 [0,1,3,6,9] set that form the Bassus part are important to the chromatic tetrachord, though it is neither a subset nor superset; these are the semitone and two minor thirds, however they are separated by a tone. This allows the Cantus to sing a chromatic set 6-Z3 [*0,1,2,3*,5,6] and the Altus to sing a similarly chromatic 6-9 [*0,1,2,3*,5,7], however, this set retains a modal shape too, whereas the Quintus sings a

modally shaped 4-13 [0,1,3,6] set. By distorting the shape of the chromatic tetrachord, the outline of chromatic patterns are not visible in the phrase considered as a pitch combination, see Example 7.7. In fact, in twelve-note equal temperament, eleven pitches are used in this short one-and-a-half bar phrase.

Example 7.7 Pitch Collection of 'Dunque a i dolori Io resto' bb. 20–21.
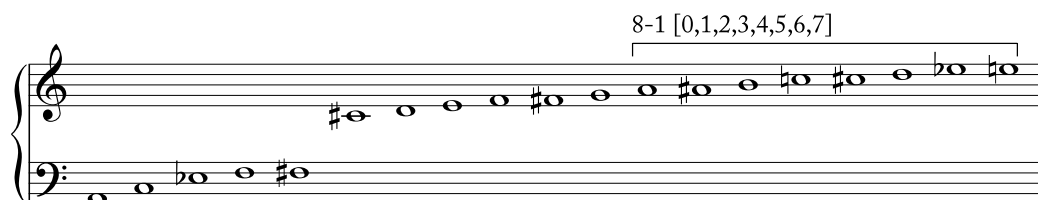
In the repetition of 'a i dolori Io resto,' bars 22–23, Gesualdo makes several changes that allows the lower three parts to form a modal interval structure, within the harmonic region of mode 3, whilst the highest part, the Quintus, forms a chromatic 6-1 set. The principal difference is the initial interval in the Bassus is augmented to a tone; the pattern of chord inversions remains the same.

In these two phrases the chromaticism operates differently to other passages as it does not rely as heavily upon the structure of the chromatic tetrachord. Instead, the chromaticism used is based around the mutation from the hard to the soft hexachord. In the first iteration of the phrase this appears in the mutation from the B♭ hexachord to the natural and in the second from the soft to hard. The pinnacle of the tension within the phrase occurs with the Cantus' chromatic move from E♭ to E♮. This type of chromaticism was recognised by the theorists of the day; Gesualdo's approach to harmony, however, is unusual and the F♯ major harmony, through ascending part movement, leads into the D minor harmony that approaches the C minor. The move to A minor is facilitated by the hexachord mutation and the descent through a minor third in the Bassus to A and in the Cantus to C♯ allows the opening harmony to return, albeit in a minor form, painting the static nature of the text 'Io resto' whilst including tortured harmonic movement. The repeat of the phrase is not as dramatic but it gives a brief indication of the madrigal's modality before the chromatically displaced diatonic structures of the lines 'Ah, non fia mia Ch'io non languisca.'

Example 7.8 Pitch Collection of the Repetition of the Phrase 'a i dolori Io resto' bb. 22–23.

Although the hexachords in the first iteration of 'Dunque a i dolori io resto' do not have the time to expose their associated harmonic areas, the chromatic mutation from the E♭ to the natural hexachord forms the core of this phrase. In terms of the tonal plan of the madrigal, the phrase is static, beginning and ending on an F♯ harmony. Therefore, when considering the compositional procedure, it is clear that the hexachord mutation was conceived first, the D minor harmony providing a bridge between this and the F♯ major, as ascends stepwise in the upper parts and descends chromatically in the Bassus. Then the tertiary move from C minor to A minor around the hexachord mutation is followed by a further descent of a minor third in the Bassus, creating four consecutive first inversion chords and returning the phrase to an F♯ harmony, now minor.

In the second iteration of the phrase, the hexachord mutation is transposed down a fourth. Leading into the mutation, Gesualdo uses an A minor harmony, but instead of a tertiary move in the harmony, it is approached from D, then G, major. After the mutation, the harmony has been altered to root position, returning the harmony to the modal final. Therefore, it is clear to see that this phrase was written to conform to a tonal plan for the madrigal. Altering the music for this repetition has also created a modal interval structure, with the chromaticism appearing only in the Quintus.

The Chromatic Tetrachord

Alongside the diatonic tetrachord, which is the origin for the modal structures in the madrigal, the chromatic tetrachord plays an important role in its interval structure. First, it displaces diatonic interval structures, allowing the construction of chromatic passages; the displacement observed in the figures show the pitch collections used in 'Io parto,' 'prorrupe in pianto,' 'e disse Clori,' 'Dunque a i dolori Io resto,' 'in dolorosi lai' and 'Morto fui.' Second, it occurs as melodic motif within the part movement, for example in the Altus opening phrase and in the Tenor 'e disse Clori' bars 16–17. Third, it appears as a melodic unit between phrases; this may or may not be a conscious compositional

decision, however, it demonstrates how the interval structure permeates the music at different levels of abstraction.

Temperament

According to the Ancient Greek theorists on whom Vicentino based his *L'antica musica*, the semitones within the chromatic tetrachord are not evenly sized. Within the madrigal '"Io parto" e non più dissi' the possibility for the tuning of these intervals exist; however, as this is a score-based analysis, examining compositional process and not one of performance, the issue of temperament is not a central component of the analysis.[28] Nevertheless, the tuning of these intervals requires comment and an example of the process will be given.

Vicentino does not specify interval sizes for the intervals of the genera; if these are to be practically applied, they need to be known. Maria Rika Maniates identifies these intervals in the introduction to the translation of *L'antica musica*:

> Vicentino's rules for composing in the genera, either pure or mixed, are easy to understand. How they work out in practice is more difficult to unravel. The inconsistency of Vicentino's description of tuning systems need not trouble us here, because the verification of intervals does not depend on choosing between the two tunings he confuses in his text. One may verify the admissibility of intervals by using the integer ratios of Ptolemy's diatonic syntonon tuning, espoused by Vicentino's critic Zarlino and known today as just intonation. In many places in his treatise Vicentino seems to have in mind the diatonic syntonon, for he names its ratios for the whole tone (10:9 and 9:8), minor third (6:5), major third (5:4), minor sixth (8:5), major sixth (5:3), as well as for the perfect fourth (4:3), perfect fifth (3:2), and octave (2:1). A ratio for the major semitone is not specified; however, it (16:15) can be extrapolated by subtracting the "sum" of the 10:9 and 9:8 whole tones from the fourth. As I pointed out earlier, Vicentino does not elucidate this tuning in a systematic manner, nor does he name it or its ancient expositor.[29]

Using the above intervals, combined with those of the chromatic genus, which are themselves derived from diatonic syntonon, this phrase can be sung in just intonation

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[28] This will be the subject of a future study.

[29] Maniates in introduction to: Vicentino, *Ancient Music*, xli.

without the need to temper any intervals to move from one harmony to another. This process is explained in detail in Appendix VI in Volume II, 'Analysis of Temperament in '"Io parto" e non più dissi.' Furthermore, there are four chromatic tetrachordal patterns that appear within the individual parts that contain all of the intervals of the chromatic tetrachord and the correct intonation of these intervals is required to achieve just intonation. This demonstrates that Gesualdo could employ it not only as a melodic device, or a tool in constructing his chromaticism, but also as a means of directing temperament.

Singing these phrases in chromatic tuning would require an *archicembalo*, as it is not possible using a meantone-tempered instrument. Also, it is difficult from individual partbooks to discern which semitones and tones are to be major or minor, it would require co-ordination, the use of a score or alternative notation to indicate the intended tuning; even then it would be difficult to achieve.[30] However, it demonstrates that the chromatic tetrachord is crucial to the construction of Gesualdo's madrigals and can sustain its interval structure when a chromatic tuning is applied.

Meantone temperament is so-called because it does not differentiate between the major and minor tone, but uses only the minor tone. Combined with a slightly narrow fifth (698 cents, compared with the just perfect fifth of 702), the temperament allows one harmony to modulate to another while preserving the just intonation of the thirds in certain keys. However, the tuning is a compromise as the subtleties of the major and minor semitones and tones are lost. A performance with a meantone-tempered instrument would render a chromatic performance impossible.

Equal temperament also dispenses with such subtleties. An unaccompanied choir would not sing in equal temperament unless accompanied by equally-tempered instruments. However, these instrumentalists will still alter their tunings in the manner Bottrigari describes in an attempt to approach just intonation. These complications affect analysis. A perfect performance in chromatic temperament would only be

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[30] It is possible, though speculation, that Gesualdo may have originally composed the madrigals with enharmonic notation such as Vicentino's. Vicentino composed his music so that it could be played in any genera and it is plausible that Gesualdo's madrigals are an example of this. Printing of such markings required extra diligence in the preparation of the press and new engravings for the extra symbols; such a costly undertaking is unlikely when the audience for such madrigals would have been small and the music circulated in manuscript.

achieved with an *archicembalo*; it would be an assumption if it were said that this is how Gesualdo performed his madrigals. Other contemporary performers would not have practiced this, as there is no such notation in the printed part books or score nor any report of them being sung in this manner. Meantone temperaments varied too and although there is a standard method of quarter-comma meantone, in practice it could vary between tuners. If a pitch-class set theory analysis were to be undertaken accounting for these intervals, and set theory can be modified for scales larger than twelve notes, the number of intervals would be so great as to cloud any conclusions. As equal temperament is a compromise of tuning, so too is it a compromise for analysis. However, it yields profitable results and the exact implications of tuning can still be factored into any conclusions. In the same way modal theory must be considered alongside pitch-class set theory, so too must any implications of tuning.

A rendition of the phrases in all three temperaments is provided on the accompanying audio CD or online.[31]

Table 6.1 Tuning Examples on the Accompanying CD.

Excerpt	Chromatic Tuning	Equal Temperament	Quarter-Comma Meantone[32]
'"Io parto' e non più dissi' bb. 1–3	Track 01	Track 02	Track 03
'proruppe in pianto' bb. 13–15	Track 04	Track 05	Track 06

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[31] 'Modality and Chromaticism in the Madrigals of Don Carlo Gesualdo,' last modified February 20, 2014, http://josephknowles.com/modality-chromaticism-madrigals-don-carlo-gesualdo/.

[32] In quarter-comma-meantone temperament, the notes E♭ and D♯ are not both available on an instrument with only twelve notes per octave; therefore to play this passage would require the use of split keys or the omission of one of the notes. In this realization E♭ is used. Because of the different tuning systems being based on different notes, the pitch varies slightly between examples.

Compositional Process

The unique nature of Gesualdo's music presents the analyst with many challenges; however, by combining different analytical techniques that maintain sensitivity to the subtleties and nuances of the modal nature of the music, an insight into Gesualdo's compositional process has been perceived. Anachronism is a potential pitfall in any analysis, although a certain degree is inherent in the nature of the activity and this can be used in a positive manner. An analysis is an interpretation that takes place in its own time and is the fusing of two different horizons. For example, a balance has to be struck: the nomenclature of 'major' and 'minor' triads was only beginning to develop in the late sixteenth century, yet they are present in the music and to avoid using the terminology would lead to a convoluted analysis. Likewise, pitch-class set theory is used to relate to specific aspects of *cinquecento* music theory, the diatonic and chromatic tetrachords. The result leads to an insight into Gesualdo's compositional process; it identifies how the chromatic tetrachord can be used to displace the diatonic, how chromatic modes are built, how specific intervals relate to particular texts and how Gesualdo displaces modal structures with harmonies exotic to the mode.

Any discussion of compositional procedure can only be speculation; little is known about composition in the *cinquecento* and early *seicento* due to the lack of manuscripts and even less is known about Gesualdo. However, analysis of '"Io parto" e non più dissi' has shown that the chromatic processes discovered through the case studies of Chapter 5 can have a practical use in composition. Understanding Gesualdo's use of chromaticism reveals its origins in the chromatic theories of Vicentino and demonstrates that Gesualdo was searching for new vehicles to add expression to his madrigals. Furthermore, understanding these processes allows for connections between Gesualdo and his peers to be made and for an examination of his music in terms of temperament, as was undertaken with two passages from 'Io parto.'

Pitch-Class Set Theory

Pitch-class set theory analysis has allowed the identification of interval structures used by Gesualdo in his compositional process; it can then relate these to important interval structures in the late sixteenth- and early seventeenth-century understanding of chromatic music theory. In addition, it permits a distinction between modally and chromatically composed passages in Gesualdo's madrigals and identifies chromatically

displaced modal structures.

Pitch-class set theory was developed for the analysis of atonal twentieth-century music; however, by identifying the interval patterns with structures derived from the diatonic and chromatic tetrachords, this approach can bridge the gap between *cinquecento* music theory and its application. Gesualdo's madrigals (and motets) are composed in modes, which have a hierarchical pitch structure; as set theory considers all pitches equal it cannot be used alone, nor has it been, but only in conjunction with other analytical considerations. Another limitation of set theory is its reliance upon twelve-tone equal temperament; however, for the reasons discussed above, all tunings are necessarily a compromise (except for passages where just intonation is possible when accompanied by an *archicembalo*) and therefore equal temperament is a suitable compromise for analysis.

Identification of the interval structures used allows for an insight in Gesualdo's compositional process; it demonstrates where the chromatic tetrachord has acted as a building block for individual part movements, chromatic movement and larger chromatic modes. The persistence of individual units, in particular the 4-4 set, demonstrates their importance to Gesualdo.

Modal vs Chromatic

Analysis of Gesualdo's music using modal theory and pitch-class set theory can determine a fundamental aspect of Gesualdo's compositional process: whether the chromaticism is the product of the alteration of modal pitches or if Gesualdo used a different method to construct his chromaticism. In some circumstances the former holds true, for example, at the end of the phrase 'che il dolore' from '"Io parto"'; however, there are passages that defy this explanation and examination of their interval structure is required to demonstrate their origins. In these passages, larger substitutions are taking place, not just of single notes, but units of chromatic fourths, fifths, and octaves define the interval structure of the mode. Whilst these chromatic passages may appear externally similar, and may too have a modal function, their construction is different at the intervallic level. This substitution of the diatonic genus with the chromatic one was a compositional process described by Vicentino as 'spetie Chromatica diatonicamente posta' to construct his chromatic music.[33] Gesualdo's first and second book of madrigals

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[33] Henry Kaufmann, 'Vicentino and the Greek Genera,' *Journal of the American Musicological*

already display the tendency towards chromatic composition; however, it was after his time in Ferrara, which gave him the opportunity to meet Vicentino's student, Luzzaschi, to engage with other musicians interested in chromaticism and to see the *archicembalo* demonstrate the genera, that these techniques appear in Gesualdo's music in different levels of complexity.

Conclusions

Modal Theory

Having explored Gesualdo's compositional procedure through the dissection of '"Io parto" e non più dissi' combined with the study of his compositional technique in the four preceding case studies, it is now possible to examine the success of these analyses against the two aims laid out in Chapter 1, alongside the criteria given by Hatch and Bernstein for a successful analysis.

The first aim was to examine how Gesualdo uses mode with a particular focus on intervals structure. With particular reference to the use of mode by Gesualdo in Chapter 4, throughout the four case studies of Chapter 5 and the dissection of '"Io parto" e non più dissi,' the role of modality has been explored. These analyses have demonstrated how the modes are not simply a means of classification and ordering publications in terms of tonal type, but have a practical role in the compositional process of Gesualdo's madrigals.

Although modal structures hold a large degree of freedom, with regards to their intervallic content, their properties are used by Gesualdo during the compositional process. The tonal hierarchy inherent to the mode, consisting of regular cadence points and other important degrees, allows Gesualdo to establish a 'tonal focus' and then depart from the harmonic area of the mode to create tension and differentiate distinct speakers. Gesualdo also uses the mode to portray its associated rhetorical meanings, both by contemporary theorists and by the Ancient Greeks (according to the *cinquecento* understanding). As some aspects of modal theory are not audible, including the rhetorical aspects of the mode, a score-based analysis has the advantage of revealing these features. Where the text may have a dual meaning, the extramusical

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Society 16 (1963): 339.

properties of the mode can also communicate this. Gesualdo was writing for a musically literate audience in Ferrara and he could converse with them upon the subtleties of his compositions. Furthermore, he both carried and published his music in score for others to study, indicating he wanted his music to stand up to not only aural, but also academic scrutiny. These techniques have been demonstrated through the four case studies and the dissection of '"Io parto" e non più dissi' in this chapter.

Chromaticism

The second aim was to examine the origin of Gesualdo's chromaticism in the works of Vicentino and establish how they were incorporated into his compositional procedure. Analysis of Gesualdo's music has shown that he employs chromaticism through several different means: modal substitution, the displacement of modal passages and the substitution of larger modal structures with intervals based on the chromatic tetrachord, all techniques described by Vicentino. Within the music there may be overlaps or the alteration of the techniques defined here, they are nevertheless useful in recapitulating the results of the analyses. Gesualdo's chromaticism can be defined by using the following categories:

- **Chromatic Passing Notes** — semitonal movement between two notes that are otherwise modal.
- **Alteration of a Harmony from Minor to Major** — this can occur within modal rules; however, Gesualdo will often place the minor and major harmonies of the same root adjacent to each other (instead of simply altering the third) creating semitonal movement between the thirds of these chords.
- **Substitution of Modal Pitches** — Often, this occurs at the end of an otherwise modally structured phrase to create a cadence onto an unexpected harmony. This results in sets that are modal, but with one extra note not caused by chromaticism, those categorised in the tables as 'Other.'
- **Displacement of Modal Structures** — By departing from the harmonic region associated with the mode, Gesualdo can illustrate the tension in the text of the madrigal. The resulting structures are not necessarily chromatic, their interval content can be diatonic, but they are displaced from the mode by a particular interval.
- **Hexachord Mutations** — The movement between two hexachords that are not adjacent, such as from the hard to the soft. This occurs in bar 21, where the Cantus moves from the B♭ to the natural hexachord and then in bars 22–23 from

the soft to hard, creating the chromatic movement from E♭ to E♮ and B♭ to B♮ respectively. It is possible to view this also as a chromatic passing note underpinned by chromatic interval structures as the hexachords do not have time to establish their identity.

- **Chromatic Tetrachord as a Melodic Unit** — This can occur simply by the chromatic tetrachord forming a melodic line by itself, as a unit in a larger motif, or combined with another chromatic tetrachord to create a larger motif or imitative entries.

- **Chromatic Tetrachord Displacing Modal Structures** — Instead of a single interval of the mode being chromatically displaced, larger structures, such as the modal diatessaron or diapente, can be replaced with a chromatic diatessaron or diapente, even creating a chromatic mode.

Analytical Method

To evaluate the success of the analytical methodology employed in this thesis, it is possible to return to the criteria of Hatch and Bernstein discussed in Chapter 1.[34] The first two questions should be considered together: 'Does it [the analysis] tell us something about the piece we did not know before? Is that "something" a recognizably important component in the piece?' [35] A pitch-class set theoretical analysis of Gesualdo's madrigals, sympathetic to modal theory, reveals coherence within the interval structures that gives an insight into the compositional procedure, revealing constructions that were heretofore unknown. In particular, that "something" is the chromatic tetrachord as described by Vicentino, which is recognisably important in the music, but the depths to which it permeates the interval structure of the madrigals is revealed only through this method of analysis.

Hatch and Bernstein's next question is: 'Does the analysis explain anomalies?'[36] Within the four case studies of Chapter 5 there are anomalous passages; however, pitch class

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[34] See Chapter 1, page 44.

[35] Christopher Hatch and David Bernstein eds., *Music Theory and the Exploration of the Past* (Chicago: University of Chicago Press, 1993), 4 quoted from: Peter Schubert, 'Authentic Analysis,' *The Journal of Musicology* 12 (1994): 17.

[36] ibid.

set theory has proven that where these do not follow the interval patterns precisely, there is still a dependence on particular intervals, allowing these anomalies to be successfully analysed. As the analytical method also takes into account modal theory, this will also account for when anomalies in the interval structure occur due to modal reasons.

'Does [the analysis] provide the intellectual justification for what we have already felt about the piece?'[37] The presence within the music of Vicentino's chromatic tetrachord is audible in particular passages of Gesualdo's madrigals and a brief analysis of some of the more chromatic passages reveals it to be on the surface level of the music. Therefore, the feeling of the presence of these chromatic structures is intellectually justified through a comprehensive analysis using pitch-class set theory that reveals them to be an invaluable unit within Gesualdo's compositional palette.

'[Does the analysis] use a method that can be fruitfully applied to other pieces?'[38] As a composer, Gesualdo influenced many musicians of the *seicento*, despite having few direct stylistic imitators.[39] The chromaticism of these few followers, namely Sigismondo d'India and Michealangelo Rossi, owes much to Gesualdo, but they are unique in their own ways. Gesualdo was similarly accountable for a wave of chromatic compositions not only by professional musicians but also 'amateur' composers of the nobility, his status as a Prince being responsible for amplifying this effect.[40] The analytical technique developed in this thesis has the potential to develop further insights into Gesualdo's music and that of his peers and successors. Although Gesualdo's sacred music was partially examined through the motet 'Tribulationem et dolorem,' there is scope too for further analysis of the motets and the six-voice *Responsoria* for the Tenebrae services of Holy Week.

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[37] ibid.

[38] ibid.

[39] Andrew Cheetham and Joseph Knowles, 'Introduction' in *Reappraising the Seicento: Composition, Dissemination, Assimilation,* ed. Andrew Cheetham, Joseph Knowles and Jonathan Wainwright (Newcastle: Cambridge Scholars Press, 2014), 3.

[40] Keith Larson lists the following Neapolitan madrigalists as strongly influenced by Gesualdo in *The Unaccompanied Madrigal in Naples,* 688–788: Giovanni de Macque, Pomponio Nenna, Francesco Genuino, Crescenzio Salzilli, Scipione Lacorcia, Agostino Agresta, Giuseppe Palazzotto-Tagliava, Antonio de Metrio and Giacomo Tropea.

Conclusion

Music theory during Gesualdo's lifetime was in a state of flux; *cinquecento* theorists could not agree on even basic principles of the modal system and chromaticism was explored by only a few theorists and composers in any great depth, never becoming part of the 'mainstream' of music pedagogy or practice. Therefore, it has been necessary to analyse the music to deduce how Gesualdo used modality and chromaticism. The basic tenets of these theories are easily identified, but to understand how they operate and form part of his compositional procedure requires close analysis. Pitch-class set theory analysis is a suitable tool for this, as it objectively recognises interval patterns regarded as significant by contemporaneous theorists and when combined with a reappraisal of the modal nature of the music, produces meaningful insights into the processes at work. The inability of contemporary theorists to describe Gesualdo's music has led to the employment of modern analytical techniques that allowed the analysis to focus on actual processes in the music (however informed by contemporaneous theoretical treatises). In addition to identifying the non-modal structures it also recognises modal patterns when they were not used within harmonic areas associated with the mode. By relating the interval structure of Gesualdo's madrigals to distinct tetrachordal patterns acknowledged by *cinquecento* theorists, pitch class set theory became a tool for the recognition of note patterns and for discerning the relationship of the interval structure of passages within a piece to each other.

Despite evading modal limits and employing intensely chromatic passages, it has been possible to delineate an analytical method to explain the processes in Gesualdo's music. Reappraising modal features combined with the objectivity of a pitch-class set theoretical analysis has provided a language with which to articulate the modal and chromatic processes occurring in his music. Consolidated through the dissection of '"Io parto" e non più dissi,' the analyses of this thesis have allowed a greater understanding of how modality and chromaticism function in Gesualdo's music, revealing aspects of his compositional process.

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