C H A P T E R 3

The Modal Gamut in the Sixteenth and Early Seventeenth Centuries

I. Introductory Remarks

In this chapter we will trace the origins of eleven pitch-class tonality in the modally inflected music of the sixteenth century, particularly in the works of the Mannerist composers, beginning with Cipriano de Rore, through to the works of Orlando de Lasso.[1] These composers consciously sought to express ever more highly emotional poetry (both secular and sacred) through their interpretation of the Greek diatonic and chromatic genera. The chapter then continues with a detailed discussion of selected madrigals by Claudio Monteverdi, whose music is emblematic of the evolving modal language of the early to middle seventeenth century

[1]Parts of this chapter were previously published in: Henry Burnett, "A New Theory of Hexachord Modulation in the Late Sixteenth and Early Seventeenth Centuries," *International Journal of Musicology*, 8/1999,115-175. However, since writing that article, we find that our interpretation of the music in relation to our theory has changed drastically. Therefore this present chapter supercedes all analytical discussions contained in the previous article.

The inexhaustible diversity and richness of the harmonic style that typifies the music of these influential composers, and that of the early to middle seventeenth century in general, would seem to militate against the formation of a unified theory appropriate to this music. Part of the problem lies in the very nature of the music itself, which seems, on the surface at least, to be forever fluctuating between a chromatically extended modal system and an emerging "key-centered" diatonic one; the two systems often, even deliberately, work in opposition, even within the same composition. Such ambiguity of harmonic language often results in anachronistic analyses whose mixture of modal and key-centered terminology is an expedience that is at best an uneasy alliance of two quite different theoretical constructs. Some modern-day theorists have even gone so far as to discard the modal element altogether in favor of a purely tonal, Schenkerian graphic approach that attempts to equate the music on a par with the key-centered

tonality of the eighteenth century.[2]

Undoubtedly, each of these various analytical approaches have something to offer, but none seems to confront the music in a way that both respects the music's integrity as a composition of its own time and place, and, at the same time, is meaningful to modern-day theorists. We believe, on the other hand, that the theory we offer is entirely compatible with constructs known to composers and theorists alike during the sixteenth and seventeenth centuries; specifically, one that is based on hexachordal modulations of eleven pitch-class areas. Further, we believe that a precise understanding of modal hexachordal gamut modulation, that is, the shift from one eleven pitch-class gamut to another, will explicate our explanation of similar operations in the tonal and even the atonal music of later centuries.

---

[2]There are not many in-depth harmonic analyses of Monteverdi's music, nor of his contemporaries, beyond the purely descriptive. Wherever they exist, the musical discussion tends, more often than not, to support other more literary and/or poetic concerns. For example, John Whenham, "Five acts: one action," in *Claudio Monteverdi: Orfeo,* John Whenham, ed. (Cambridge Opera Handbooks, 1986), 42-77, employs an anachronistic modal-key-centered terminology (that is., referring to modes as if they were keys in the modern sense – e.g., G minor instead of G dorian) in discussing the harmonic plan of the opera. Jeffery Kurtzmand does likewise in his "A Taxonomic and Affective Analysis of Monteverdi's "Hor che'l ciel e la terra," *Music Analysis*, 12/2 (1993), 169-196. The same is true for Gary Tomlinson, *Monteverdi and the End of the Renaissance* (Los Angeles, 1987). At the other extreme are the few Schenkerian analyses that have appeared recently and which seem to follow the pioneering efforts of the late Felix Salzer. See Salzer's "Heinrich Schenker and Historical Research: Monteverdi's Madrigal *Oimè, se tanto amate*," in David Beach, ed., *Aspects of Schenkerian Theory* (New Haven & London, 1983) 135-52; and David Gagné, "Monteverdi's *Ohimè dov'è il mio ben* and the Romanesca," *The Music Forum*, 6 (New York, 1987), 61-92.

II. Sixteenth and early seventeenth century approaches to chromaticism and eleven pitch-class modality

Ever since the early eleventh century, when Guido of Arezzo described the total pitch universe of the eight church modes in terms of a gamut of overlapping hexachords, hexachords and modes were irrevocably linked as separate-but-equal functions within a harmonically fluid modal system that survived well into the seventeenth century. Originally Guido's gamut consisted only of two white-note hexachords on C and G, thus omitting B♭. However, it soon became apparent that a flat accidental, and consequently a flat hexachord on F, was necessary to avoid the tritone -- designated as the "diabolus in musica" by theorists of the late Middle Ages.[3]

Right from the start, then, hexachords – in particular, the *mi-fa* half step within their initial tetrachords – were necessary to explain pitch classes not found in the purely white-note octave species of the modes. Aside from the added B♭, derived from the *molle* hexachord, the gamut was expanded by inflected modal degrees needed to prepare the cadence, that is, the major sixth moving outward to the octave. Since B♭ was the only allowable flat within the natural gamut, the appearance of the next flat, E♭, also sung as *fa*, could only be explained as a transposition of the entire gamut down a fifth, there being no hexachord in the natural gamut

[3]The origin of Guido's hexachords as a system of deductions is fully explained in Karol Berger, *Musica Ficta: Theories of Accidental Inflections in Vocal Polyphony from Marchetto da Padova to Gioseffo Zarlino* (Cambridge, 1987): 2-11. Also, see Dolores Pesce, "B-Flat: Transposition or Transformation," *The Journal of Musicology*, IV/3 (1985-86): 330-349.

containing an E♭.[4] Starting with Willaert in Venice of the 1530s, composers began to investigate the potential of chromaticism as a musical expression of the emotionally laden poetry chosen for the texts of secular madrigals (and of some sacred motets, too). To accomplish this, it became increasingly necessary to adopt a procedure not only for moving by fifths in the flat direction, but for moving in fifths in the sharp direction as well, as often violent poetic conceits required wild flat and sharp juxtapositions. It became increasingly likely that the choice of notes in the flat direction would move beyond B♭ and E♭, including A♭ and even D♭ and beyond occasionally. The choice of notes in the sharp direction also continued beyond G♯ to D♯. However, signatures (meaning the *cantus*) remained confined to either *durus* (no accidentals), *mollis* (one flat) – or, more rarely, two flats – throughout the sixteenth century and into the first half of the seventeenth. The practice of indicating sharps as transpositions to the *durus* side of the fifths cycle began to appear only in the 1640s.

The chromatic expansion of the gamut was also due in part to the increased interest in the chromatic genus of the ancient Greeks. Pure theoretical modality had now to contend with a great many more chromatic inflections of diatonic pitches, introduced within a much smaller time span, than had ever been the case before. As a result, the older diatonic modal system metamorphosed into an *extended modal system* capable of supporting ever more overtly emotional texts.

Not surprisingly, a number of conservative theorists deplored what they thought to be the insidious encroachment of chromaticism into traditional modality. Ghiselin Danckerts, detailing

---

[4]Andrew Hughes, *Manuscript Accidentals: Ficta in Focus 1350-1450*, Musicological Studies and Documents 27: American Institute of Musicology (1972): 47-51.

the events and defending his position as judge in the famous Vicentino–Lusitano debates (Rome, 1551), emphatically states:

> I shall not leave out the account of the abuse that was introduced in our time, not many years ago, by certain greenhorn composers in composition of polyphonic works. Having scorn for all good laws, orders, and ancient rules (persuading themselves that with their new laws and rules they will take away the fame from other composers), they show that they do not know the orders of the authentic and plagal modes that have to be necessarily observed in diatonic compositions so as not to enter into disorders because of which everything goes to ruin, or if they know them they show that they do not want to observe them, busying themselves only with sharpening and flattening notes beyond their ordinary intonation ... They do it without giving any reason, except that they compose in such way in a new manner. They like to do it, since they see that also others do it, and thus, one blind man leading another, they all tumble down into the ditch.[5]

The inevitable result of introducing ever more varied pitch-class material into the diatonic mode was to weaken the power of the modal final to represent the sum of all its parts, and, consequently, to weaken pure modality as a viable theoretical system.

Consequently, the whole subject of modal definition, and how far that definition would

---

[5] Ghiselin Danckerts, *Trattato sopra una diffentia musicale*, c. 1560s, trans. Karol Berger as *Theories of Chromatic and Enharmonic Music in Late Sixteenth- Century Italy*, Studies in Musicology 10 (Ann Arbor, Michigan, 1976): 34.

accommodate modernist tendencies, became the subject of further heated debates among conservative theorists, progressive composers and enlightened aristocrats in northern Italy around the turn of the sixteenth century. The most famous of these, the Artusi–Monteverdi controversy, is perhaps the most germane to the present topic. Among the many contrapuntal solecisms Monteverdi is accused of having committed in his madrigals, Artusi mentions the fact that Monteverdi's setting of *Cruda Amarilli* (1600) contains more cadences in C (mode 12 according to Zarlino's classification) than in G, mode 7, the madrigal's final. In his *Discorso secondo musicale* (Venice, 1608), Artusi becomes quite explicit on the subject of modal purity:

> If Monteverdi wished to write a composition in a single mode (*Tono*) such as the First, he could not, because perforce there would be a mixture of modes. For when a composer constructs a piece in the First Mode, he must keep to the following order. The tenor should proceed or 'modulate' by way of the notes of the First natural Mode or whichever mode he intends to construct it in ... and the bass by way of its collateral [the plagal mode] as the tenor. The contralto regularly corresponds to the bass, but an octave higher. So all vocal compositions are mixtures of the authentic and plagal. But the mixtures of Monteverdi are not regular like these, but irregular. If he sets out to give one form to his composition, he ends up giving it another, because he exceeds the bounds of mixture. Therefore one may say that he throws the pumpkins in with the lanterns.[6]

---

[6]Cited in Claude V. Palisca, "The Artusi-Monteverdi Controversy," in *The New Monteverdi Companion*, ed. Denis Arnold and Nigel Forturne (Great Britain, 1985): 145.

Even more relevant are Vincenzo Galilei's comments in his *Il primo libro della prattica del contrapunto* (1591) regarding the modern tendency towards extended modality:

> [T]he best and most famous contrapuntists have used cadences on any step at all [of the mode] in their vocal compositions. Moreover ... the sure identification of the mode is derived from the last note in the bass. That this is true is obvious every time this last note is hidden from the sight of the person studying the piece ... With the eyes, therefore, and not with the ears, do modern practitioners know the modes of their pieces ... Moreover, take any modern vocal piece in whatever mode and remove or add one or two notes at the end to make it terminate in other notes than the previous ones (without going to extremes, though), and practitioners today will say that there has been a mutation of mode ... And when Zarlino too would wish to persuade me again of the simplicities he writes, saying that among our modes one has a quiet nature, another deprecatory, others querulous, excited, lascivious, cheerful, somnolent, tranquil or infuriated and others yet different natures and characters, and finally that the modes as practitioners use them today have the same capacities as those he mentioned the ancient modes possessed, I would answer, convinced by experience, which teaches us the contrary, that these are all tales intended to confuse dunderheads. If our practice retains the smallest part of these aptitudes it does not derive them from the mode or the final note or the harmonic and arithmetic divisions but from the way contrapuntists make the parts progress in any of the modes according to

what suits them best.[7]

From the above quotations, it would seem plausible to assume that the more progressive composers of the period did not limit their choice of auxiliary cadential areas only to those associated with any given mode; instead, these composers seemed to have been guided by some other harmonic imperative. Especially in the works of the greatest composers of the period, cadential arrivals were carefully planned, and were natural conditions of both text syntax and an innate desire to create a sense of large-scale form. Composers felt too constricted confining themselves to cadencing on the structurally significant pitch classes of the pure mode only; they obviously wanted enough freedom of expression to interpret musically the emotions occasioned by the Petrarchan-/Tasso-esque poetry of the period. The pursuit of a new freedom of expression could only be satisfied by an expanded chromatic vocabulary, one which quickly outgrew the limitations of the language of diatonic modality.

III. The Medieval Gamut and Three-Hexachord System Modulation

Figure 3.1 shows the evolution of the untransposed (or *naturalis*) Guidonian gamut from its linear inception in the eleventh century, as a pitch field of seven overlapping hexachords, to its final stage, beginning in the 1540s, as a harmonic system capable of functioning as a series of fifth-related triads supporting either a major or minor third. Starting at the top of the figure, the Guidonian gamut, although constructed entirely from hexachords, contains within its ambitus all

[7]Ibid.: 146.

the pitch classes necessary to formulate the eight (and eventually twelve) church modes, the authentic finals of which are indicated by the roman numerals in the figure. Within the *recta* gamut the only "accidental" allowed was B ♭ , for purposes discussed previously. The three original hexachords comprising the untransposed gamut are indicated next. These three hexachords form the three-hexachord system of the natural gamut with the hexachord on C *(naturale)* at its center. The hexachords on G (*durum*) and F (*molle*) are exact transpositions of the C hexachord, and are further related to the latter by their position a fifth above and a fifth below the C hexachord respectively. To simplify, the hexachord occupying the upper fifth position of any one system, regardless of transposition level, will herein be called the *dominant* hexachord; similarly, the hexachord occupying the position of the lower fifth will herein be called the *subdominant* (literally, the "lower dominant") hexachord of the system. The hexachord governing the system (comparable to the *naturale*) will be referred to as the *central* hexachord, regardless of transposition level. A primary property of the central hexachord of any three-hexachord-gamut system is that when it is reordered as fifths, it provides all the possibilities of the composition's harmonic structure. As a background harmonic pitch field, the central hexachord contains within it all of the structurally significant root pitch classes (that is, all those modal pitch classes capable of supporting triads as well as providing all the essential cadential points within a single composition) of all eight or twelve modes of the untransposed or transposed gamut.

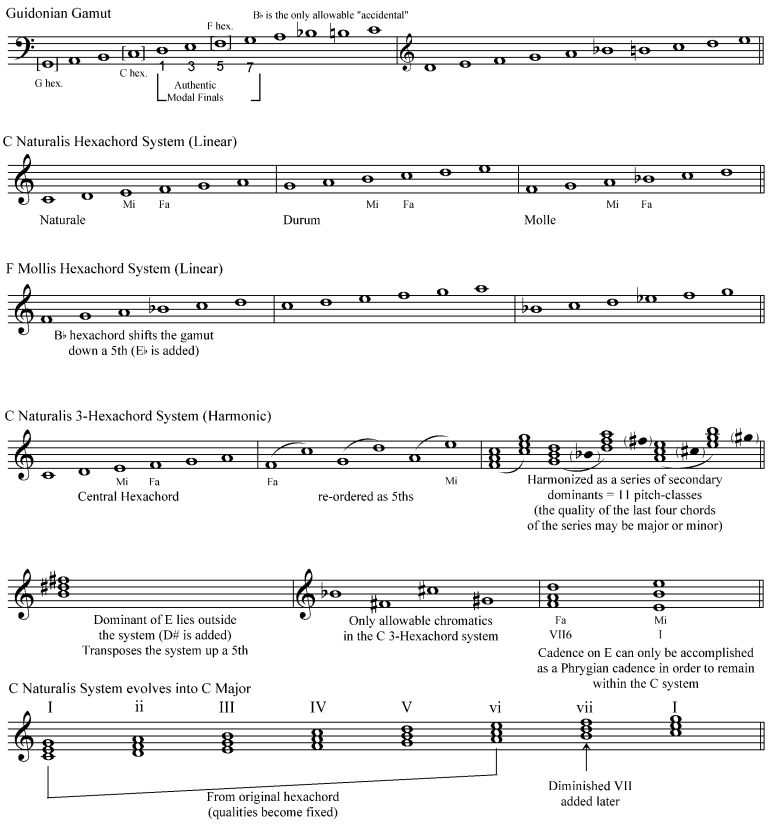


FIGURE 3.1: Evolution of Hexachord-System Modulation

Since transposition of the gamut was recognized by the addition of the next flat, the presence of E ♭ would be understood as a note whose presence indicates a transposition of the central hexachord down a fifth. An E ♭ would now occupy the same position as B ♭ had previously occupied in the natural gamut; that is, as *fa* within the F, or *molle,* hexachord. If every added flat were sung as *fa*, then each new flat would require its own hexachord starting on *ut*. Thus, E ♭ would be sung as *fa* within a B ♭ hexachord (B ♭ being *ut*). Since there is no B ♭ hexachord in the C gamut, E ♭ would naturally be viewed as *fa* within the subdominant hexachord of the *mollis*, or F gamut. In Figure 3.1, the new hexachord on B ♭ would then place

the new F hexachord at the center of the new system with the hexachords on C and B♭ as the dominant and subdominant hexachords respectively. In this context, the introduction of E♭ as part of the B♭ hexachord within the new three-hexachord system would be considered *musica recta*.[8]

To summarize, the addition of flats thus continues along the subdominant side of any three-hexachord gamut system: for example, B♭ is found only within the subdominant hexachord of the *naturalis* system. Through exact transposition, each flat added after B♭ is derived from the subdominant hexachord of the next three-hexachord system transposed down a fifth, E♭ from the subdominant hexachord of the F (*mollis*) system, A♭ from the subdominant hexachord of the B♭ (2♭) system, and so forth.

The concept of a possible connection between hexachord and harmony is not new. Besides the several theorists of the seventeenth century who discuss this topic, and who shall be examined later in the chapter, three recent studies devoted to the works of Monteverdi and Schütz emphasize the importance of hexachord mutation and transposition as a determinant of form and harmonic organization.[9] In particular, Eric Chafe's innovative theory proposes an

---

[8]See Margaret Bent, "Musica Recta and Musica Ficta," *Musica Disciplina* XXVI (1972): 73-100. Our conclusions regarding what constitutes *musica recta* are similar to Bent's, although we arrive at it from a different perspective that seems, if anything, to further support her arguments.

[9]Most relevant to the present study are: Eric Chafe, *Monteverdi's Tonal Language* (New York , 1992), and two studies by Eva Linfield: "Formal and Tonal Organization in a 17th-Century Ritornello/Ripieno Structure," *The Journal of Musicology*, IX/2 (1991): 145-164; and "Modulatory Techniques in Seventeenth-Century Music: Schütz, a Case in Point," *Music Analysis*, 12/2 (1993): 197-214. Linfield's own work is centered on the music of Heinrich

intimate relationship between *cantus* (a system equated with signature), either *durus* (no signature) or *mollis* (a signature of one flat), and a four-hexachord framework – B ♭ , F, C, and G – that comprises two overlapping hexachord systems (that is, C, F, G and F, B ♭ , C) which operate within one or the other of the two signatures. Each hexachord system contains the equivalent of the untransposed *naturale, durum* and *molle* hexachords on C, G, and F, respectively.

Chafe writes: "...the expanding tonal range of early seventeenth-century music might be described as the beginnings of a circle of transposable systems, each comprising three hexachords" (p. 29). To Chafe, then, transposition implies either harmonic motion within a given hexachord system (what might best be described as a *mutation*), or a wholesale shift of system to another pitch level (meaning a *transposition* of system that necessitates a change in *cantus*). Chafe delimits the total pitch content of both untransposed and transposed gamuts to a four-hexachord range; the hexachords starting from lowest to highest are B ♭ , F, C, and G respectively. Each hexachord carries with it harmonic implications as well since every pitch class may serve as the root of a triad, either major or minor. Chafe maintains that the governing hexachord of each system is that which corresponds to the *naturale*; however, the six notes of any one of the hexachords within the four-hexachord framework may form the root of a complete triad, either major or minor. What Chafe explains next about the harmonic organization of the hexachord deserves a full quotation since it forms the crux of his theory. Referring to the

---

Schütz, but is nevertheless indebted to Chafe. Chafe's own theory is ultimately derived from Carl Dahlhaus (*Monteverdi's Tonal Language*: 25).

individual pitch classes of any given hexachord, he states:

> Five of these may be preceded by their dominants, while the sixth – the sharpest or phrygian degree – usually is not ... Usually altered from minor to major, the sixth degree serves as the final for phrygian cadences and as the dominant of the fifth cadence degree, but when it appears as the final of a dominant-tonic cadence (that is, preceded by *its* dominant) the hexachord has shifted in the sharp direction. Likewise, when major chords are altered to minor it is usually an indication either of hexachordal shift in the flat direction or an incidental expressive device (p. 27).

In other words, Chafe conceives the six notes of the individual hexachord as a reordering of fifths in which the *mi-fa* degrees form its outer perimeters. Thus the C hexachord may be rearranged F – C – G – d/D – a/A – e/E, where the upper and lower case letters indicate the major or minor quality of the triad. Since there is no fifth beyond E, there can be no triad built on B to act as a functional dominant without shifting hexachords (however, Chafe seems to contradict this statement by including a major triad on B within the G hexachord, as indicated in his diagram on page 27).

Although Chafe's general approach is valid for this repertoire, his explanation of what constitutes a "system" is confusing. Chafe states that "... we are justified in describing the system (i.e., *cantus durus* or *mollis*) of any given madrigal as normally comprising up to three hexachords (very often two, sometimes three, very rarely fewer than two or more than three ..." (p. 28). This statement seems to contradict his four-hexachord framework mentioned above – is Chafe's definition of a "system" one that comprises two, three, or four hexachords? Chafe then continues: "The key signature, then, expresses the tonal content of the 'central' hexachord, F in the 1 ♭ system and C in the natural, while the work itself may introduce up to three contiguous

hexachords without any necessity of key signature shift." But Chafe's theory is simply not rigorous enough to explain system modulations *within* a given *cantus*, and *without* a key signature change.

Explained in greater detail later in this chapter, the present theory differs substantially from that of Chafe's in that we specifically define a harmonic area (derived from the total number of pitch classes associated with any given three-hexachord system) as one containing eleven pitch classes and, therefore, we fundamentally disagree with Chafe's four-hexachord framework (p. 27) since what he designates as allowable triads in both the natural and "sharp" hexachords results in overlapping hexachord systems of twelve pitch classes each. By this arrangement, each of Chafe's three-hexachord systems would contain all twelve notes of the chromatic scale, and thus would be inherently incapable of transposition because of its theoretical redundancy. Chafe's assertion that a major triad can exist on B, and therefore support a D♯, in what he calls a "sharp hexachord" (itself a misnomer since no F♯ exists in a G hexachord), within the untransposed gamut, is theoretically impossible without the entire gamut being transposed up a fifth. The sharp would then appear within the D hexachord as *mi*, the D hexachord itself being the dominant hexachord of a G system, with the C hexachord occupying the subdominant position. The same condition holds true for the 1 ♭ system. Here Chafe allows for a triad on E major, again theoretically impossible if the system is to remain untransposed (see Figure3.1). Finally, because he limits the transpositional capabilities of the system, both within a single composition and among related pieces, Chafe is forced to drop hexachordal terminology altogether half way through his book when he discusses Monteverdi's later madrigals.

Distinct from Chafe, we believe that we have developed a more cogent theoretical

construct which effectively addresses issues either left unanswered by Chafe or that are avoided by him altogether. Our theoretical model is based on a transposable three-hexachord system – *in effect, a system capable of modulation*. We use the term modulation in its modern connotation as harmonic motion in which one harmonic area (that is, one three-hexachord system) is displaced by another: both areas have identical intervallic content. The term *modulation* is therefore analogous to *transposition* in that both processes achieve the same results of moving the gamut, albeit temporarily, from one pitch level to another.

More specifically, the analytical methodology presented here is intended to provide a more comprehensive theory of large-scale harmonic unfolding, based on the transposition of eleven pitch-class areas (that is, the total pitch material, both diatonic and chromatic pitch classes, associated with a given three-hexachord system), than has previously been attempted by scholars. As a result, our theoretical model of the harmonic workings of modally constructed music can be systematically applied to both secular and sacred music composed at least as early as ca. 1542 (the date of Cipriano de Rore's first book of madrigals) to at least the 1670s, when the older modal system gives way to a "key-centered tonality", and thus to the works of Heinrich Schütz and his contemporaries.

IV. The Properties of the Central Hexachord as Harmonic Background

Three-hexachord systems provided all the necessary pitch material for a harmonic expression of the modes: they allowed for internal cadences to be clearly defined through the addition of leading-tone accidentals, expressive melodic embellishments, and even for tonal

ambiguities through the introduction of chromatic pitch classes not found in the diatonic mode that seemingly contradicted the prevailing modality.

The reason for the apparent ambiguity arising between mode and hexachord system is easily enough explained. Each three-hexachord system is governed by its central hexachord, which, when reordered in fifths, provides all the chord formations inherent in the system. For example, the *naturalis* system is governed by the C hexachord. This means that the C hexachord, reordered in fifths, becomes the harmonic basis of any composition in which it is operational. In fact, each note of the central hexachord may become a cadential goal in its own right regardless of mode; the quality the triad built on each of the reordered hexachord can be adjusted to allow for a leading tone.

Within the *naturalis* system, it is only the central hexachord on C, reordered in fifths, that

will accommodate all of the cadential goals contained within the eight (or twelve) untransposed church modes; therefore, it is only this hexachord – and here we differ from Chafe's interpretation – which will assume harmonic control over the course of the composition, unless a modulation occurs to another system that is sustained long enough to establish a new central hexachord. Only two pitch classes differentiate the pitch material of the central hexachord from its dominant and subdominant partners; in the case of the *naturalis* system, the pitches are B♮ and B♭, from the *durum* and *molle* hexachords respectively. Neither of these pitch classes may be *goals* of motion within the *naturalis* three-hexachord system, although a triad on B♭ functioning contrapuntally as an upper neighbor to A, or as part of a fifths cycle to F, would be allowable and is seen often enough; after all, B♭ is the only allowable flat in the C system.

However, as a harmonic goal, B♭ would be impossible unless it were associated with one of the transposed *mollis* systems, since this pitch class does not exist in any of the church modes of the untransposed gamut. As a pitch class within the *naturalis* system, B♮ functions as a leading tone to the triad built on the first note of the central C hexachord. Its function is therefore similar to the other sharps of the system; all of these sharp accidentals are contrapuntally derived, and none may form the root of a triad and still remain within the system. The only exception to this, at least by the time of Monteverdi, would be a first inversion diminished triad on B♮ as a contrapuntal leading-tone chord resolving to C, although any triad on B♮ (with or without the missing pitch, D♯) still remains an impossibility as a harmonic goal within the system.

As shown below, each pitch class of the central hexachord may form root position triads of various qualities (major or minor, or both). Altogether, the system comprises exactly eleven pitch classes: the six of the central hexachord, the added flat from the subdominant hexachord, one added natural (or sharp) from the dominant hexachord, and three sharps needed to form the major sixth at cadences.

The *Naturalis* Central Hexachord Reordered as Fifths

Quality of 3rd:	A	E	B♭/B♮	F♮ /F♯	C♮ /C♯	G♮ /G♯
C hexachord:	F –	C –	G –	d –	a –	e

Taking each triad in turn, the triad on F must be major if it is to be a cadential goal; an F minor triad is possible, but highly improbable since an isolated A♭ without an E♭ preparation would seem an unlikely occurrence and would imply the addition of flats beyond the *naturalis* system. Alternatively, an A♭ as an inflected passing tone for poetical or textural reasons would also be a

possibility. The next triad in the cycle, C, can only be major since an E♭ would modulate the system down a fifth into *mollis*. A G triad may occur either as major or minor. Likewise, the triads on D, A, and E may also support a raised or lowered third, depending upon harmonic function. Note also that the E triad may utilize a G♯ in order to act as a secondary dominant to A; consequently, in the *naturalis* three-hexachord system, G♯as a chord tone is preferred to its enharmonic A♭.

Examining the literature of the period confirms the above pitch-class preferences. For instance, in the following madrigal publications of Giaches de Wert,[10] books VII (1581), X (1591) and XI (1595), there is not a single instance of an A♭, A♯, or a D♯; instead, these tones are invariably spelled G♯, B♭, and E♭. To be precise, each madrigal, in all three books, unfolds only one flat accidental – either B♭ in *cantus durus*, or E♭ in *cantus mollis*, the rest of the chromatics are sharps. If fewer than eleven pitch classes are unfolded (and these are in the minority), then only sharps are presented. It is not improbable therefore to assume that Giaches de Wert considered the chromatic spectrum of the *naturalis* gamut and the *mollis* gamut (that is, one transposition level down a fifth) not to exceed two flats (B♭ and E♭), depending on the governing three-hexachord system, with the remaining four accidentals as sharps only. Most keyboard music of the period reflect the spelling of these tones in the *naturalis* and *mollis* gamuts as described: the black keys are invariably labeled B♭, C♯, E♭, F♯, and G♯. It is only when fully chromatic keyboards are discussed by theorists, in particular Vicentino and Zarlino, that we

[10] Giaches de Wert, *Opera Omnia*, Carol MacClintock and Melvin Bernstein, eds., 17 vols., American Institute of Musicology (1961-77).

find all enharmonic equivalents included. These experimental keyboards were, however, devised in order to make the gamut transposable at all levels, thus going beyond the normal C and F three-hexachord systems generally in use.[11]

Continuing our discussion of the harmonic properties of the central hexachord, the above diagram of the reordered *naturalis* hexachord shows the E triad as the terminus of the fifths cycle; a triad built on the next fifth would, therefore, be out of the *naturalis* system altogether. A triad on B, acting as dominant to E, would necessitate a D♯, the enharmonic equivalent of E♭. Just as E♭ would signal a transposition down a fifth from the *naturalis* to the *mollis* three-hexachord system, so would D♯ signify a transposition up a fifth form the *naturalis* to the *durus* three-hexachord system. Each hexachord system, as stated earlier, contains a total of eleven pitch classes; the presence of the missing pitch class implies a transposition (or modulation – the two terms are synonymous here) either up or down a fifth depending upon how the pitch class is spelled. In defining "modulation" as a motion from one eleven pitch class area to another within a single piece, the pitch classes acquired as part of the new three-hexachord system must be considered *musica recta*. The new gamut thus formed displaces the previous one, even if temporarily. (In more chromatic pieces, there may, in fact, be more than

---

[11] See Karol Berger, *Theories of Chromatic and Enharmonic Music in the Late 16th Century Italy*, op. cit.: 51-56. Elsewhere, Berger cites Pietro Aaron's treatise, *Toscanello in musica* (Book II, Ch. 40), as well as his *Lucidario in musica* of 1545. Aaron plainly states that the Italian twelve-step monochord, as well as Italian organs in general, include G♯, but consistently omit both A♭ and D♯ (K. Berger, "The Common and the Unusual Steps of Musica Ficta: a Background for the Gamut of Orlando di Lasso's *Prophetiae Sybillarum*," *Belgisch Tijdschrift voor musziekweltienschap* 39-40 (1985-1986): 69.

one system modulation – see the discussion of Rore's *Da la bella contrade* below). Further, the chromatic material of each hexachord system may contain any, but not necessarily all, of the eleven pitch classes of that system, including the one flat from the subdominant hexachord, one sharp (or natural) from the dominant hexachord, along with the remaining three chromatic tones spelled as sharps, used as *subsemitonia modi* (leading tones). Gioseffo Zarlino's comment concerning the need to adjust the chord quality of modal pitch classes to create a leading tone is particularly relevant here. He states:

> [E]very progression from imperfect to perfect consonance should include in at least one part the step of a large semitone, expressed or implied. To this purpose the chromatic and enharmonic steps will be found very useful, provided they are written in the manner to be described elsewhere.[12]

From a historical perspective it is interesting to note the following: before the sixteenth century, compositions tended to present eight or nine different pitch classes at most within any given three-hexachord system, but, by the end of the next century, composers were consistently unfolding eleven. As far back as the 1940s, Edward Lowinsky made a similar observation:

---

[12] Gioseffo Zarlino, *The Art of Counterpoint. Part Three of 'Le Istitutioni harmoniche,'* [Venice, 1558], trans. Guy a Marco and Claude V. Palisca [New Haven and London, 1968]: 83).

> It has not been observed yet that all seven Psalms [referring to Lasso's *Penitential Psalms*] work with exactly the same tone material. Each Psalm uses eleven tones. If we examine these eleven tones, we find that each time they fit into the pattern of a scale comprising two chromatic tetrachords. The only chromatic tone missing is the one between the tetrachords, or in other words the tritone. To give one example: Psalms 1 and 3 have no key signature and employ the notes of this scale: A – G♯ – G♮ – F♯ – F♮ – E ---- D – C♯ – C♮ – B – B♭ – A ... [13]

Even though Lowinsky recognized that the missing pitch of the *cantus durus* system Lasso employed was D♯/E♭, he never extended his findings – relegated only to a footnote! – beyond Lasso's *Penitential Psalms*, nor did he theorize about the significance of eleven pitch class areas as a harmonic system applicable to a much larger repertoire.

Eventually, by the end of the seventeenth century, the emerging conception of key-centered tonality required that the variable quality (either major or minor) of the triads contained within any given three-hexachord system, or "key", be fixed (see Figure 3.1, last system). For example, within the C *naturalis* system a triad on G would only be major while a triad built on D would only be minor. At the same time, the three hexachords of any given system began to realize a large-scale harmonic relationship – the pitch material associated with the subdominant hexachord became fixed within a larger harmonic progression as "pre-dominant" harmony and assumes its position as IV within the tonic progression. No longer were B♭ and B♮ indiscriminately interchanged within a purely linear context without harmonic justification.

---

[13] Edward Lowinsky, *Secret Chromatic Art in the Netherlands Motet* (New York, 1946), n. 34: 100-101.

The result of these fixed associations was the formation of major "keys": the C *naturalis* system became C major, the F *mollis* system becomes F major, etc.

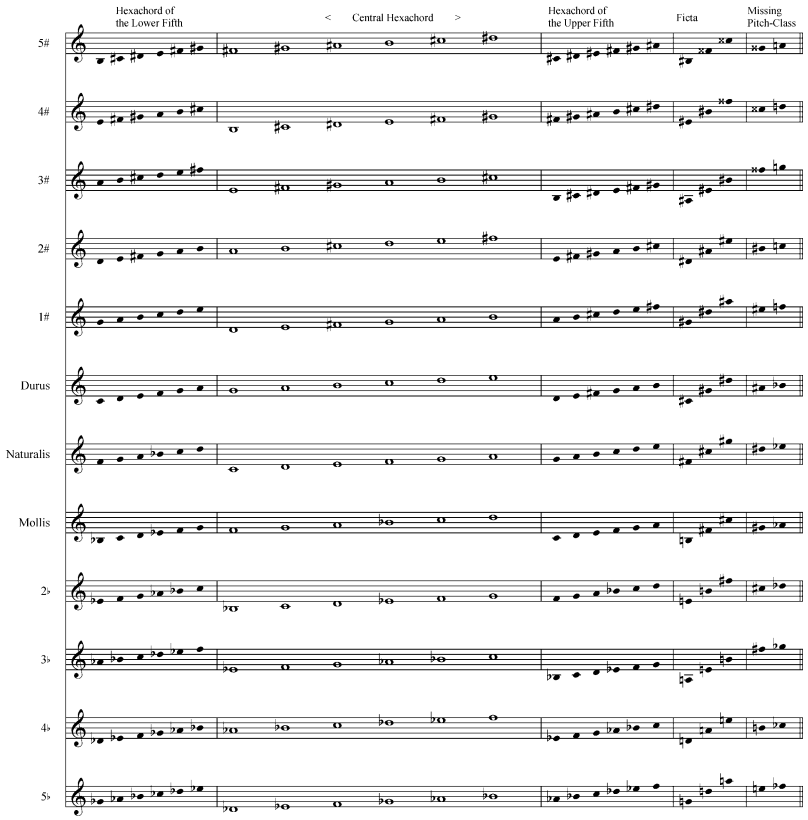


FIGURE 3.2: Three-Hexachord Systems

The entire three-hexachord theoretical system along with its most common transpositions are presented in Figure 3.2. Reading left to right, each grouping of three hexachords forms its own self-contained system comprising a central or governing hexachord, after which the particular three-hexachord system is named, and which, when reordered as fifths, is capable of harmonic potential, and its associated hexachords that flank it a fifth below and a fifth above. Next to this basic diatonic pitch material are indicated the leading-tone accidentals needed to

form formal cadences. In the figure, these leading-tone accidentals are labeled *ficta*. We use this term in its original sense to mean those pitch classes that exist outside the *diatonic* gamut. In addition, for these notes to belong to any given eleven pitch-class area, they must be written into the music, not simply implied as an editorial or performance emendation. Besides, adding flats or sharps by the performer would rarely if ever result in a system change; usually one would allow the tritone not only to prevent a system modulation, but also because adding consecutive flats would eventually destroy any sense of tonal organization.

Figure 3.2 identifies the four chromatics associated with each three-hexachord system (the "added flat" found in the subdominant hexachord, the "added sharp" (or natural) from the dominant hexachord, plus the three sharp accidentals) resulting in a harmonic area or region of eleven pitch classes. Each eleven pitch-class area is associated with a missing pitch class indicated at the end of each line of the figure. As stated above, the *naturalis* three-hexachord system (named after its central hexachord) represents the untransposed Guidonian gamut and is associated with the missing pitch class D♯/E♭. Similarly, the *mollis* 1♭ system omits G♯/A♭. When a composer moves from one eleven pitch-class area to another within a single composition, a new pitch class is acquired and a previously present pitch class is omitted. As we will demonstrate, a relationship exists between the linear accumulation of new *ficta* pitch classes (which become *recta* in the gamut of the new transposition) and harmonic movement at deeper structural levels. The sharp and flat enharmonic identity of the missing pitch class signifies direction (up or down) when it appears through the process of modulation, defined here as the movement from one eleven pitch-class region to another. It is interesting to note, however, with rare exceptions, that only two signatures, *cantus durus* (natural) and *cantus mollis* (one flat)

govern any given transposition level, no matter how many sharps of flats may be contained within the system.

Theorists of the first decades of the seventeenth century, if not earlier, alluded to only certain chromatic pitch classes being acceptable within the untransposed and transposed gamuts. For instance, in chapter 32 of his treatise, *L'antica musica ridotta alla moderna prattica* (Rome, 1555),[14] Nicola Vicentino presented polyphonic four-voice cadences on different scale degrees in each mode (see example 32 in the translated edition), including those of lesser structural significance (those not only on the final, repercussion and mediant degrees). In all modes in *cantus durus*, Vicentino's "♮ quadro" (hard hexachord), the only *ficta* used were C♯, F♯, G♯, and B♭; while in *cantus mollis* (specifically the lydian and hypolydian modes which Vicentino points out are usually written "per ♭ molle" [in the soft hexachord]), the *ficta* he used were F♯, C♯, B♮ and E♭. Thus in *cantus durus* (the *naturalis* three-hexachord system), both E♭ and D♯ were omitted, leaving the D as a natural before the final cadence in both authentic and plagal phrygian modes Similarly, in cantus mollis, Vicentino had no operable cadence at all on A in modes 5 and 6 in order to avoid the missing pitch G♯ (the leading tone of A) or its enharmonic equivalent A♭.

A contemporary theorist of relevance to this discussion is Adriano Banchieri

---

[14] Chapter 32 of Book III is entitled in the original as "Dimostratione di molte cadentie che si usanò ne gli otto Modi, à quattro voci, della Musica participata, e mista," 55r – 57r (translated as "Demonstration of Many Four-Voice Cadences Used in the Eight Modes of Tempered and Mixed Music." See Rika Maniates translation of the entire Book III as *Ancient Music Adapted to Modern Practice* (New Haven and London, 1996): 173-180.

(1567-1637).[15] In both his *L'Organo suonarino* (Venice, 1605),[16] and his third edition of *Cartella musicale* (Venice, 1613-14),[17] Banchieri clearly presents the allowable cadences for each of the eight church modes, five in *cantus durus* and three in *cantus mollis* (see Figure3.3).[18] The chromaticism found at Banchieri's cadential points (chromaticism arising from the use of *subsemitonium modi*) in those modes in *cantus durus* is identical to the chromaticism associated with the *naturalis* three-hexachord system illustrated in Figure 3.4.

---

[15] Banchieri was particularly an ardent admirer of Monteverdi's works and even quotes the *cantus* part of "non più guerra, pietate" from Monteverdi's Fourth Book in the former's *Cartella musicale* of 1614 (see Paolo Fabbri, *Monteverdi*, trans. Tim Carter (Cambridge, 1994): 106 & 138. Banchieri also sent Monteverdi a letter congratulating the composer on his acceptance into the Bologna's famed Accademia dei Filarmonici (ibid.: 193-4).

[16] Facsimile edition (Bologna: Forni, 1969).

[17] Facsimile edition (Bologna: Forni, n.d.).

[18]Figure 3.4 is taken from Banchieri's earlier treatse, *L'Organo suonarino*, p. 41, and reproduced in Walter Atcherson, "Key and Mode in 17th Century Music Theory Books," *Journal of Music Theory* 17 (1973): 219. Banchieri discusses the church modes from the standpoint of a practicing seventeenth-century musician; that is, he transposes several of them (indicated in Fig. 4) into *cantus mollis*, reflecting what was probably current practice on the part of church choir directors and organists (see Joel Lester, *Between Modes and Keys: German Theory 1592-1802* [New York, 1989]: 78-79).

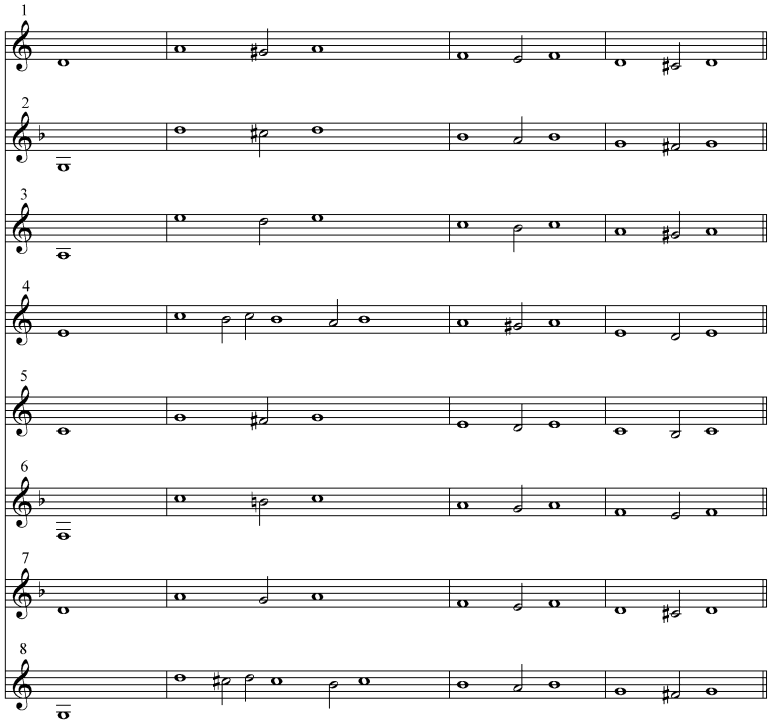


FIGURE 3.3: Banchieri's Modes

Significantly, D♯ is not used in the cadence for either of Banchieri's phrygian modes (nos. 4 and 5) even though half steps occur at all other cadential points in this *cantus*! Only three accidentals are indicated by Banchieri – G♯, C♯ and F♯ – in *cantus durus*. The B ♭ , however, while not included in the diagram (since it does not function as a leading tone) is included in Banchieri's contrapuntal illustrations of the *cantus durus* modes (cf. Banchieri's illustration of D dorian counterpoint in the *Cartella musicale,* p. 72 of the facsimile edition). Similarly, E ♭ s are added in *cantus mollis* modes as a matter of course (see Banchieri's mode 2 counterpoint, p. 73). The three modes in *cantus mollis* likewise contain only three sharps, C♯, F♯ and B♮ . The G♯ is omitted as a leading tone from the modes in this *cantus*; all the lower neighbor G's in modes 6

and 7 are left natural. It would therefore seem reasonable to assume that, for Banchieri, only eleven pitch classes were available within any given *cantus* without undertaking a transposition of the entire gamut.

A contemporary of Banchieri is the equally important German theorist, Otto Siegfried Harnisch, whose discussion of monophonic and four-voice polyphonic cadences in his *Artis musicae delineatio* (Frankfurt, 1608) also supports an eleven pitch-class gamut.[19] Figure 3.4 presents Harnisch's monophonic cadences in all twelve modes. Typical of most sixteenth- and early seventeenth-century theorists (including Banchieri), Harnisch recognizes the final, third and fifth of the mode as being structurally significant. He then applies figurations to four-voice polyphonic cadences, with the addition of several "rare" or irregular cadential points in

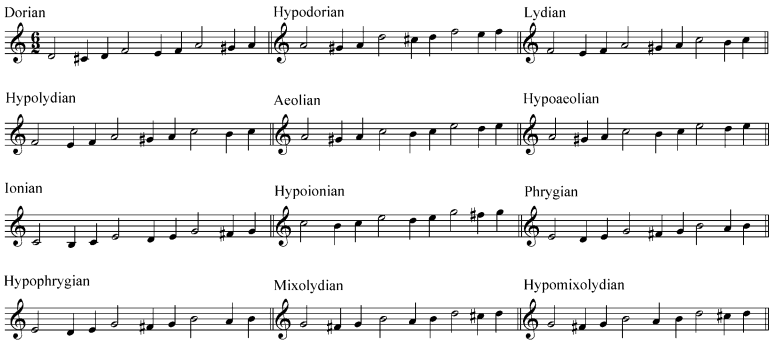


FIGURE 3.4: Harnisch's Monophonic Cadences

some of the modes. No polyphonic cadences utilize accidentals beyond those available within the

[19]The following relies heavily on a detailed discussion of Harnisch's treatise by Benito V. Rivera, *German Music Theory in the Early 17th Century: the Treatises of Johannes Lippius* (Ann Arbor, Michigan, 1980): 210-215. Our Figure 3.4 is taken from this source.

untransposed gamut, so their depiction here would be redundant. Also, since only the cadence of each mode is illustrated, Harnisch has no need to include the B♭ of the untransposed gamut – which is why his diagram only includes ten pitch classes. Additionally, his twelve modes are not "church keys" in the manner of Banchieri, but are the traditional eight modes augmented by those four proposed by Glarean and Zarlino, who added the regular and hypo forms of the ionian and aeolean modes. We are therefore only dealing with the untransposed gamut. However, even here Harnisch is careful only to include accidentals associated with the *naturalis* three-hexachord system – C♯, F♯ and G♯– even if the illustration of the mode shows cadence points on E or B. Harnisch's phrygian, hypophrygian, mixolydian and hypomixolydian cadences consistently avoid both D♯ and A♯, resulting in whole-tone lower neighbors to the *final* and *fifth* degrees of the phrygian and hypophrygian modes, and to the third degrees in the mixolydian modes. Yet within these same modes, F♯'s and C♯'s sharps are clearly indicated (see Figure 3.4).

In Harnisch's polyphonic settings of the phrygian modes, the cadences to E are all of the phrygian type with F moving to E in the bass voice. In these modes there is also no root-position cadence to B; the monophonic formula is absorbed into a plagal cadence on E, with B forming the fifth of the E triad. In fact, Harnisch disregards a polyphonic cadence on B altogether in hypophrygian, mixolydian and hypomixolydian modes, stating that such a cadence appears only in phrygian – and exclusively as a melodic formula – and is currently "not in use" by contemporary composers.[20]

Lastly, and perhaps most importantly for this study, is the *Musurgia universalis* (Rome, 1650) of Athanasius Kircher, the primary theorist Eric Chafe calls upon to support his own

[20]Ibid.: 213.

conception of hexachord modulation.[21] Kircher gives four-voice polyphonic cadences in all eight modes, as does Banchieri and Harnisch before him, followed by an additional four; each modal cadence is complete with accidentals necessary to function as leading tones. Interestingly, Kircher ends each modal cadence on a full triad with a major third, no matter whether the mode is minor or major, the only exception being the final triad in the hypophrygian mode (discussed below). Kircher illustrates polyphonic cadences in more than one section of the *Musurgia*; however, the cadential group that is most relevant to this discussion (and not addressed by Chafe) occurs in Book VIII of the second volume (pp. 63-64). Under the heading *Systema universale quo assumptum thema per XII tonos mutatur essentialiter* ("Universal system in which a given theme is completely changed [transposed] through the 12 modes"), Kircher demonstrates how a four-voice polyphonic cadence can be constructed in all modes, in both *cantus durus* and *cantus mollis*. His use of modal transposition to illustrate certain authentic/plagal pairings is similar to Banchieri's "church keys," although Kircher expands the number to twelve. Figure 3.5 summarizes Kircher's *systema*.

---

[21] Athansius Kircher, *Musurgia universalis, sive Ars magna consoni et dissoni in X libros digesta* (reprint ed. Ulf Scharlau (Hildesheim, 1970). Chafe's discussion of Kircher and his particular approach to hexachord modulation is quite thorough and the reader is referred to that source for further information (see Chafe, op. cit.: 41-53).

Mode (& Final)	Cantus	Accidentals	Comments
I. Dorian (D)	durus	C#, F#, B@	
II. Hypodorian (G)	mollis	F#, B#, E@	B# is read as B♮
III. Phrygian (A)	durus	G#, C#	
IV. Hypophrygian (E)	durus	D#	Kircher states: *in hoc tono non valet clausula* ("no good cadence can be made in this mode")
V. Lydian (B@)	mollis	E@	
VI. Hypolydian (F)	mollis	none	
VII. Mixolydian (G)	durus	F#	
VIII. Hypomixolydian (C)	mollis	none	
IX. Ionian (D)	mollis	C#	
X. Hypoionian (A)	durus	G#, C#	
XI. Iastian (C)	durus	none	
XII. Hypoiastian (B@)	mollis	E@	

Figure 3.5: Kircher's Systema Universale

The pitch content illustrated in Figure 3.5 confirms that Kircher's cadential progressions, similar to Banchieri's and Harnisch's, operate within eleven pitch-class areas associated with either *cantus durus* (which omits D♯/E♭) or *cantus mollis* (which omits G♯/A♭); thus a major triad on B (supporting a D♯), in *cantus durus*, would be avoided altogether. Kircher's *systema* supports this fact by illustrating an authentic cadence in the hypophrygian mode (IV) on E in *cantus durus*, with a D♯ as leading tone. However, Kircher warns the reader, as does Harnisch before him, that such cadences "are not well made in this mode" (see Figure 3.5). This curious comment seems, on the surface, to be puzzling: what harm can a D♯ do other than strengthen a cadence to E? The only viable explanation would be that these theorists believed that in *cantus durus* D♯ was simply not a usable pitch, and that E was the terminus of the *naturalis* C hexachord and, therefore, could not be articulated by an applied dominant on B.

V. The Music of the Early Sixteenth Century and Three-Hexachord Gamut Systems

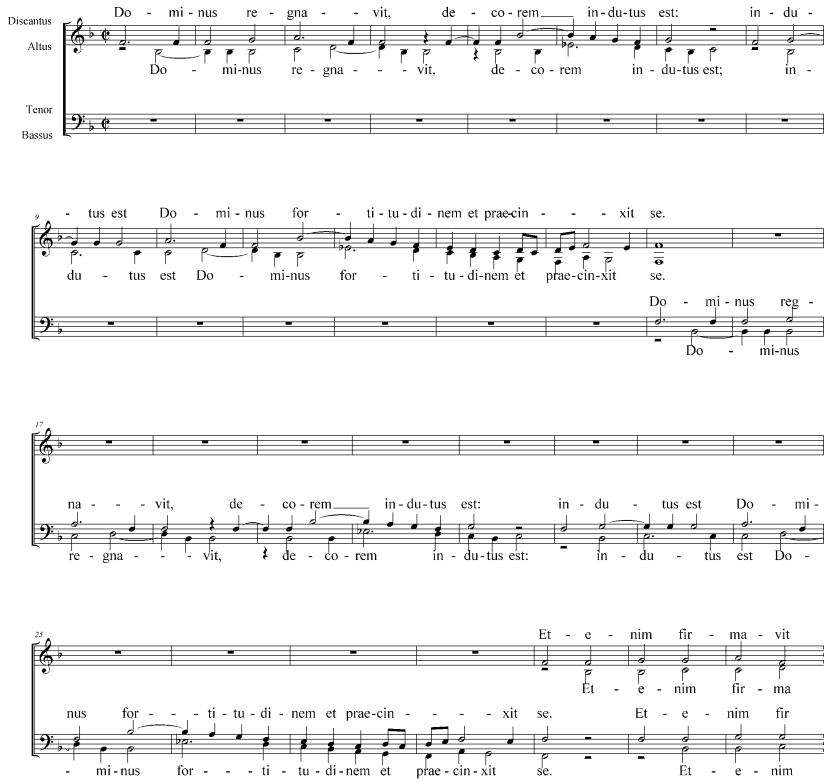
While theorists of the sixteenth and seventeenth centuries directly or indirectly acknowledge a gamut of eleven pitch classes – comprising the pitch material of the three diatonic hexachords (*naturale, durum* and *molle*, with their octave transpositions) and their additional *ficta* – and that this gamut was transposable either up or down by fifths, what proof is there that *composers* deliberately thought in terms of three-hexachord systems?

Evidence that composers, at least by the sixteenth century, if not earlier, were conscious of three-hexachord systems, and, indeed, deliberately sought to incorporate these systems into their compositions, can be verified by numerous examples. The following illustrations starting with the motet, *Dominus regnavit* of Josquin des Prez, may be used as exemplars. *Dominus regnavit* is written in a *mollis* 1♭ system, the hexachords of which are represented by the two conflicting signatures: B♭ in the *discantus* and tenor, circumscribing hexachords on F and C; and B♭ and E♭ in the *altus* and *bassus*, delimiting hexachords on B♭ and F (see Ex. 3.1).[22] The three hexachords together comprise the *mollis* transposed diatonic gamut whose central hexachord is on F. Reordered as fifths, the1♭ system of *Dominus regnavit*, with F as *finalis*, has the following properties:

Quality of third:	D	A	E♮ /E♭	B♭	F	C
Hexachordal pitch classes	B♭ –	F –	C –	g –	d –	a
	IV	I	V	ii	vi	iii

[22] Josquin, *Werken* , ed. Albert J. Smijers XVII (Amsterdam, 1955):33-40.

E ♭ (the flat-seventh degree) is the allowable flat in this gamut system. This pitch, like the others of the F hexachord, can either function as the root of a triad, or be a chord tone of C. In addition, Roman numerals are indicated below each hexachord pitch class. Their presence is solely for the convenience of showing the harmonic relationship of the final to the other pitch classes in the system: the numerals are not intended to indicate tonal relationships in the sense of a modern-day key-centered tonality.



EXAMPLE 3.1*:* Josquin, *Dominus Regnavit* (opening)

Depicting the pitch material of the motet in this manner, one can easily see how Josquin has ordered his motet in terms of its pitch content and cadence structure. Also, the localized relationship of the hexachord tones to each other can tell us a great deal about Josquin's compositional choices and how he perceived chordal relationships. For instance, in the case of *Dominus regnavit*, the above hexachord diagram shows that Josquin confined himself to the diatonic gamut, with no modulation of system, a procedure typical of the music of the early sixteenth century; the only chromatic relationship found in the work is that between E♭ and E♮. Harmonically, Josquin emphasizes the first three hexachord pitches for all the structurally significant cadences in the motet. What is striking about this particular work is that only the first two hexachord pitches, on B♭ and F respectively, consistently support a major third in their triads. All the others, with the exception of C, which is the only hexachord pitch class that supports either a major or minor third, are invariably minor chords (thus the lower case Roman numerals). It is significant that the minor triads of the hexachord never become harmonic goals in this motet. Instead, they function contrapuntally with respect to the first three fifths of the central hexachord, B♭ – F – C, as neighboring or deceptive motions (mm. 101-102) that create a continuous contrapuntal texture aided by diatonic 5-6 exchanges (see, for example, m. 69, where an E♭ major exchanges with C minor). The latter technique is especially important in this work since a rising chromatic segment is derived from the progression E♭ – cm – CM – F; namely, E♭ – E♮ – F is worked out motivically, thus creating a *dyad conflict*, a conflict which arises when a diatonic pitch is inflected to its immediate chromatic neighbor. In this case, the dyad conflict is between E♭ and E♮, the one chromatic alteration in the *mollis* hexachord.

On a deeper structural level, the harmonic organization of *Dominus regnavit* is based

upon the interrelationship of two conjunct diatonic tetrachords spaced a fifth apart, F-G-A-B♭ and B♭-C-D-E♭, that govern the paired canonic imitation of the opening twenty-eight measures. These two tetrachords are derived from the central and subdominant hexachords of the 1♭ system on F and B♭ respectively, whose tones – not coincidentally – are also the first two of the reordered *mollis* hexachord. All the diatonic pitch material of the *discantus* (soprano) and tenor voices relate to both the F and C hexachords, the C hexachord being that of the upper fifth of the system. Consequently, these voices never sing an E♭; thus the reason for the one-flat signatures. However, the *altus* and *bassus* contain pitch material from the B♭ and F hexachords exclusively, and thus E♭ is found only in their parts, the reason for the two-flat signatures in the original publication. The result of these interactions between the two voice pairings, often leading to formal cadences on F, allows Josquin to develop the E♭/E♮ dyad conflict that permeates the motet.

Josquin concludes the work, befittingly, with an authentic cadence followed by a plagal cadence. The last two triads thus summarize the relationship of the two hexachords on F and B♭, now interpreted as a harmonic function within the F lydian mode in *cantus mollis*. What is of considerable interest here is that E♭ is not a diatonic pitch within the modal octave of *mollis* lydian. Josquin seems to be more preoccupied with exploring the horizontal and vertical relationships of the two seminal F and B♭ hexachords – or, more precisely, their initial tetrachords – than with prolonging, or even expressing, an idealized F mode. Noticeably, cadences on either the third or the fifth degree are absent. More to the point, however, it is questionable whether or not mode should even enter the analytical discussion at all in works of

this kind.

A knowledge of the governing three-hexachord system is essential when applying unwritten flats, either editorially or in performance, to correct non-harmonic relations. In a 1 ♭ three-hexachord system, for example, the only available flat beyond the B ♭ already in the system would be E ♭ , *fa* of the subdominant hexachord. To go beyond this would mean a transposition out of the gamut system altogether, since A ♭ is missing in a 1 ♭ system. Invariably, the composer will indicate if and when a transposition is to take place by actually writing in the new accidental at the appropriate moment.

Some modern musicologists support the notion of hexachord systems which are strictly defined by the number of flats allowed in each system, if only by implication. For instance, Karol Berger, in discussing the theory of 'chain reaction', flats that are employed in order to correct vertical relations (a theory with which he is in total disagreement), states the following:

> If the normal way of correcting melodic and vertical relations was by means of flats, and if 'chain reactions' whereby one flat provoked the next were not practiced, it follows that pieces in which all internal accidentals were introduced in order to avoid melodic and vertical non-harmonic intervals would use at most one more flat than the number of flats in the key signature of the voice with the largest number of flats in the signature. Pieces in which all parts had no flats in the signature would require *at most* [our emphases] the use of B ♭ , pieces in which at least one part had a B ♭ -signature would require at most the use of B ♭ and E ♭ , and pieces in which at least one part had a B ♭ /E ♭ -signature would

require at most the use of B ♭ , E ♭ and A ♭ .

Berger's comments regarding the limits of possible ficta based on the number of flats in the signature would seem to follow general practice; however, a much more reliable method of determining the greatest number of possible flats is to first determine the three-hexachord system upon which the piece is based. The subdominant hexachord of the system always contains the greatest number of flats of that system. There are pieces in which the signature does not always reflect the actual system, however, since Renaissance composers seemed reluctant to go beyond two flats as a signature.[23]

Albert J. Smijers, editor of Josquin's Werke,[24] reduces the conflicting signatures of the 1539 Nuremberg edition of *Dominus regnavit* to one flat in all voices, preferring to write in the missing E ♭ s. By doing so, he tacitly agrees that the governing system is a 1 ♭ system even though both altus and bassus have two flats in their original signatures. Carl Dahlhaus took exception to Smijers' liberality, emphatically stating that the piece was controlled by a 2 ♭ system in which the *secunda pars* "modulates" to a 1 ♭ system for 36 measures before returning to a 2 ♭ system for the remainder of the piece.[25] While Dahlhaus's criticism of Smijers' edition is correct on editorial grounds, Dahlhaus's assertion of a 2 ♭ three-hexachord system, as

---

[23]Berger, *Musica Ficta*, op. cit.: 121.

[24]op. cit.

[25] Carl Dahlhaus, *Studies on the Origin of Harmonic Tonality*, trans. Robert O. Gjerdingen (Princeton, 1990): 252-253.

opposed to a 1 ♭ system, is unsupportable. First, not a single A ♭ – a pitch class that would have confirmed a 2 ♭ system – is either indicated or implied; and, second, E♮ s abound, functioning as both *subsemitonum* to F, and as *mi* within the C hexachord – the hexachord of the upper fifth of the 1 ♭ gamut system.

It is rare to find pieces composed during the late fifteenth and early sixteenth centuries that indicate more than a single flat in their signatures, but compositions with two flats do exist on occasion. One outstanding example of such a work is the famous motet, *Absalon fili mi,* once attributed to Josquin, but now thought more probably to be by Pierre de la Rue.

Despite the glaring scribal errors contained in MS Royal 8 G VII (in particular, the incorrect placement of flats in the tenor and bass signatures), the principal source for this work, it is almost certain that two flats, B ♭ and E ♭ , were meant in all four voices.[26] That being the case, a 2 ♭ system governs the motet, and is also an indication of its mode – transposed lydian *mollis* on B ♭ . What makes this particular motet so unusual is its modulation of systems that plunge the piece into a 4 ♭ system by its end, reflecting King David's ever deepening despair over the loss of his son. Not only do the hexachord systems change – with each new system introducing its own missing pitch spelled as a flat – but the mode changes as well, beginning in

[26] Robert Toft, "Pitch Content and Modal Procedure in Josquin's *Absalon, fili mi*," *Tijdschrift van de Vereniging voor Nederlandse Muziekgeschiedenis* XXXIII (1983): 7-8. Toft has proved conclusively that the low octave D ♭ in the bass is a scribal error for a low octave E ♭ . Recently, the motet has received a decidedly more accurate transcription with two flats in all voices (see *Pierre de la Rue, Opera Omnia,* vol. IX, ed. Nigel St. John Davison [American Institute of Musicology, 1996] where it is found among the *opera dubia*). All analytical references are based on this edition.

major (transposed lydian) and ending in minor (transposed dorian *mollis*). In both cases the final of the *mode* remains the same, B♭. However, as the *quality* of the B♭ triad changes, starting in m. 36, this produces what may be music history's earliest example of a piece that begins in major and ends in its parallel minor.

Compositionally, the opening of *Absalon* is not unlike Josquin's *Dominus regnavit* discussed previously. That is, the answering voice enters on the subdominant hexachord of the 2♭ system, which presages the downward thrust into ever flatter hexachords that pervades the motet. The background modal final, B♭, is not convincingly confirmed as such until it is asserted by a series of structurally significant cadences in mm. 21, 24 and 36, culminating, finally, on an incomplete B♭ triad at the end of the motet. The following diagram shows the reordered 2♭ hexachord system that governs the motet:

Quality of 3rd	G	D	A♮ /A♭	E♭	B♭	F
Central Hexachord:	E♭	B♭	F	c	g	d
	IV	I	V			

(A♭, the flat seventh degree, is the allowable flat in this system)

Similar to *Dominus regnavit*, all cadences fall either on the tonic or the subdominant of the mode so long as the 2♭ hexachord remains in effect. Note too, that only the dominant carries an inflected third degree while the other pitch classes of the central hexachord remain fixed as to chord quality. In m. 51, D♭ enters and shifts the 2♭ system down a fifth to a 3♭ system with E♭ as its central hexachord. Significantly, the text at this point reads *Non, vivam ultra* ("Let me not live longer"). We might infer that perhaps the composer no longer believed that the primary 2

♭ system was still "alive". The new hexachordal arrangement now has a B♭ minor triad available since B♭ is now in the dominant position within the new hexachord:

Quality of 3rd:	C	G	D♮ /D♭	A♭	E♭	B♭
Central Hexachord:	A♭	E♭	B♭	f	c	g
	IV	I	V			

(D♭ is the allowable flat in this system)

Within the confines of the new hexachord, triads on D♭ (the flat seventh degree of the system) appear frequently, along with triads on E♭ and B♭ (both as minor and without the third). The new system remains in effect until the next missing pitch, G♭ (the missing pitch of the 3♭ system) is added. This occurs in m. 66 on the word *plorans* ("weeping"). As a result, the previous 3♭ system now shifts down another fifth to a 4♭ three-hexachord system on A♭, with G♭ – used both as a minor third of the E♭ minor triad and as a root position chord in its own right – the allowable added flat within the 4♭ system:

Quality of 3rd	F	C	G♮ /G♭	D♮ /D♭	A♭	E♭
Central Hexachord:	D♭	A♭	E♭	b♭	f	c
	IV	I	V			

(G♭ is the allowable flat in this system)

This last hexachordal system remains uncontested; that is, there is no B♮, the missing pitch of the 4♭ system spelled as an augmented second, to revert the system up to three flats, nor is there a C♭ to transpose the system further down in the flat direction. The presence of G♭ not only confirms the new and last system, but it also plays an important role in the final cadence, acting as the flat sixth degree within the B♭ dorian *mollis* mode. Only in the last 4♭ system do we see

two hexachord pitch classes that carry an inflected third, the one on E♭ and on b♭. Note too that the opening B♭ major sonority, spelled in upper case, has now become minor and spelled in lower case since that is the position it now occupies within the 4♭ system.

To sum up this area of the discussion, composers during the fifteenth and well into the first half of the sixteenth century expanded the theoretical confines of traditional modality by operating simultaneously within two theoretical paradigms: the older church modality expressed within a governing three-hexachord system. As a result, modal finals were sometimes relegated to the side-lines of the piece, acting primarily as an ultimate point of resolution at the conclusion. However, within the body of the piece itself, harmonic and melodic organization revolved around mutation within the background three-hexachord system, the number of allowable flats added being contingent upon the number of flats contained within the subdominant hexachord of the system. Transposition of the system, either up or down a fifth, as part of the internal organization of the composition, was uncommon (*Absalon* is one of a few exceptional cases) until the 1540s when composers deliberately incorporated an increased chromatic pitch field into their music, especially the madrigalists of northern Italy. Pure modality, if there ever were such a thing, gave way to what we call *extended modality*, a harmonic/modal system that had to contend with many more chromatic pitch classes presented at a faster rate than had ever been the case previously. Similarly, the increased chromaticism affected the concomitant three-hexachord system which now took on an added harmonic dimension of its own, in effect displacing an ever more weakly defined modality. It is the three-hexachord system and its emerging harmonic organization – analyzed by reordering of the hexachord in fifths – that directly informs the present theory.

Even with the extensive system modulations that characterize *Absalon*, its modal

language still remains basically consonant; there are no sharp accidentals in the piece, and there is no attempt to apply direct chromaticism. For that, we must now turn to the chromatic composers of the next generation.

VI. Modulation of Gamut Three-Hexachord Systems in Chromatic Modality

We now turn our attention to specific pieces that contain a transposition (or modulation) of system within them. Before we look at specific pieces, however, we need to review what determines a particular eleven-pitch three-hexachord gamut system. Our determination is based on the following four criteria: 1) the signature, or *cantus*, of the composition which identifies the initial gamut system: a natural signature indicates a *naturalis* system, a 1 ♭ signature indicates a *mollis* system, a 2 ♭ signature indicates a 2 ♭ system, etc.; 2) the absence of the missing pitch class associated with a particular three-hexachord system; 3) the presence of the missing pitch class of the three-hexachord system spelled as the minor third degree above the root of the central hexachord of the prevailing gamut system, effectively transposing the system down a fifth; 4) the presence of the missing pitch class of the three-hexachord system spelled as the augmented second (the enharmonic equivalent of the minor third degree) above the root of the central hexachord of the prevailing gamut system, which would effectively transpose the system up a fifth. Once the composition has begun, and the governing three-hexachord system has been determined, the introduction of the missing pitch from that system will effect a modulation of

that system either a fifth up or down, depending upon its spelling. Compositions may remain within one gamut system throughout, unfolding only eleven pitch classes, or they may have less than eleven pitch classes, or they may modulate systems once or more than once, depending upon compositional factors such as text setting or even a composer's desire to complete a chromatic aggregate. The following analytical discussions should clarify how gamut systems and their modulations inform the background structures of so many vocal pieces of the middle sixteenth to early seventeenth centuries.

Giulio Cesare Monteverdi, in his defense of his famous brother, Claudio, in his appended "Declaration" to the latter's *Scherzi musicali* of 1607, mentions that Claudio Monteverdi acknowledged Cipriano de Rore (1516-1565) as the originator of the "Seconda Prattica.".[27] Cesare Monteverdi names certain madrigals of Rore which he feels approximates his brother's new practice. Among these is *Da le belle contrade* from Rore's Fifth Book (1566).[28]

The madrigal, based on an Italian sonnet by an unknown poet, is set in an F mode in *cantus mollis*, that is, in a 1 ♭ three-hexachord system. The form of the piece is that of a classic mid-sixteenth-century madrigal in that it is clearly divided into three sections, the outer sections diatonic and remaining within the 1 ♭ system, and the middle section chromatic with numerous

---

[27] Giulio Cesare Monteverdi, "Dichiaratione della lettera stampata nel quinto libro de suoi madrigali," in Claudio Monteverdi, *Scherzi musicali a tre voce* (Venice: Ricciardo Amadino, 1607). Reprinted in Claudio Monteverdi, *Tutte le opere*, ed. G. Francesco Malipiero, X (Vienna, 1929): 69-72.

[28] Cipriano de Rore, *Opera Omnia*, Vol. 5, ed. B. Meier (American Institute of Musicology, 1971). The work is also found in *Historical Anthology of Music*, eds. A.T. Davison and W. Apel, vol.1, no. 131 (Cambridge, Massachusetts, 1959): 142-143.

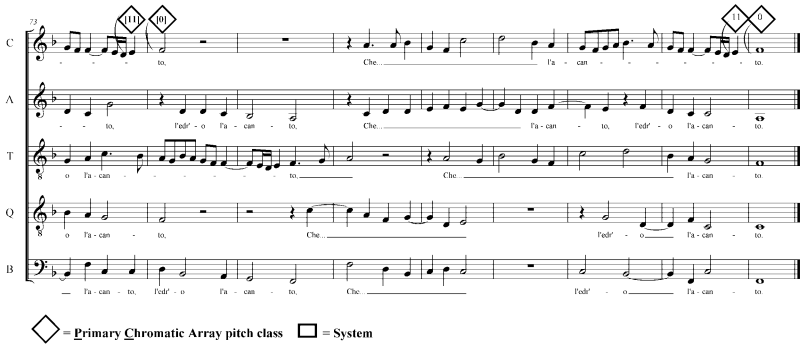
hexachordal system shifts (see Figure 3.6). Both outer sections, recited by the narrator, unfold eleven pitch classes that omit G♯/A♭, the missing pitches of a 1♭ system. While the chromatic middle section begins in m. 25 with the change in tense from narrator to female lover, it is in m. 36, at the words *Che sara qui di me* ("What will become of me here?"), that Rore disrupts the prevailing *mollis* system by introducing a G♯, suddenly shifting the 1♭ system up a fifth into *naturalis*. Within this short area of only five bars (mm. 36-40) eleven pitch classes are unfolded, omitting only E♭/D♯, the missing pitches of the *naturalis* system. The dramatically wrenching setting of the words *Ahi crud'amor!* on a C minor triad in m. 41 plummets the previous *naturalis* system down again to one flat and initiates a steady descent of increasingly flat hexachords that mirrors the increasing frustration of the jilted lover. Thus, in m. 46, A♭ enters on the word *dubbose* ("uncertain"), shifting the 1♭ system down to a 2♭ system. A D♭ follows next as the root of its own major triad (m. 48) on the word *dolcezze* ("pleasures"), bringing the system further down to 3♭ system.

Text	***3-Hexachord System***	***Measures***	***Missing pc***
Da le belle contrade d'oriente *From the beautiful regions of the East* Chiara e lieta s'ergea Ciprigna, et io *Clear and joyful rose the morning star, and I* Fruiva in braccio al divin idol mio *Was enjoying, in the arms of my divine idol,* Quel piacer che non cape humana mente *That pleasure that transcends human understanding,* Quando sentii dopo un sospir ardente: *When I heard, after a passionate sigh:* "Speranza del mio cor, dolce desio, *"Hope of my heart, sweet desire,* T'en vai, haime, sola mi lasci, adio. *You go, alas, you leave me alone, farewell!*	Mollis (1β) F lydian (11 pcs)	1-35	G#/Aβ
Che sarà qui di me scura e dolente? *What will happen to me here, gloomy and sad?*	Naturalis (G# enters, 11pcs)	36-40	Eβ
Ahi crudo Amor, *Alas, cruel Love,*	Mollis 1β (Eβ enters)	41-45	Aβ

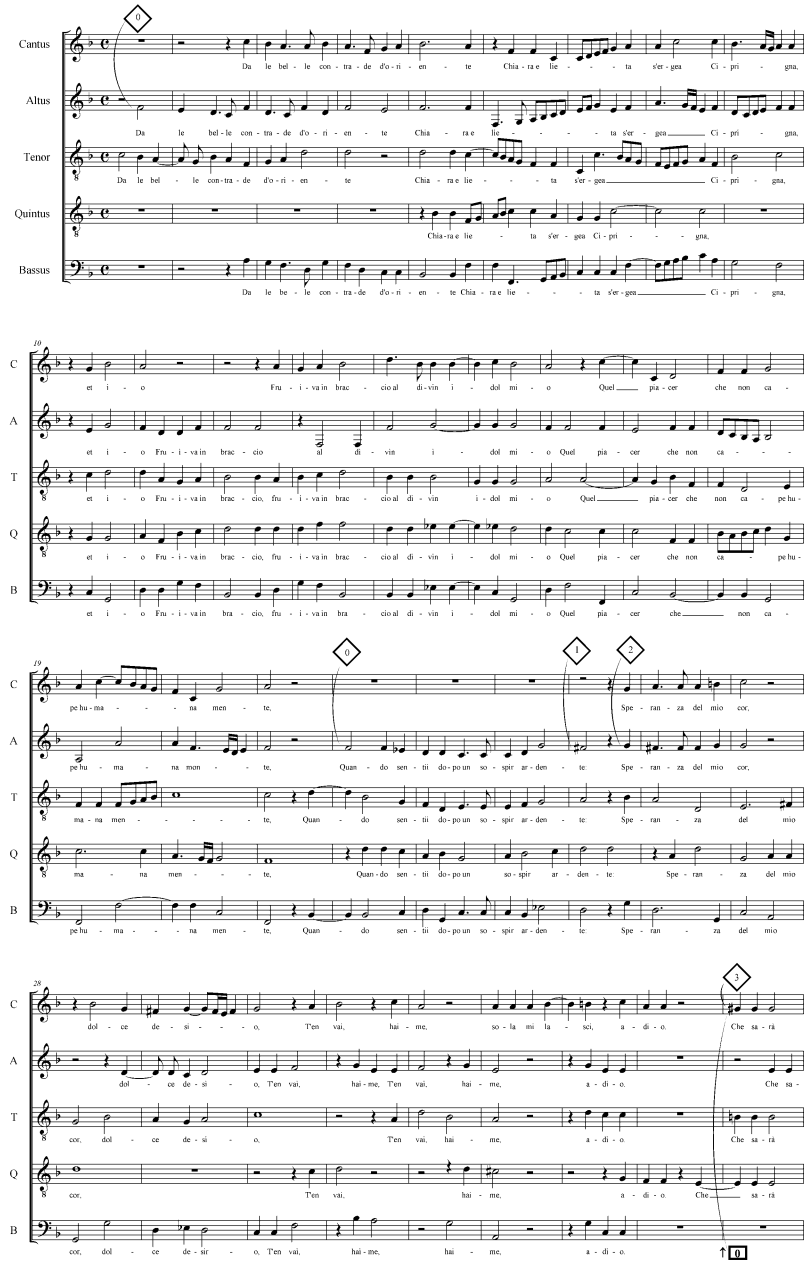
dubbose e corte	2β (Aβ enters)	46-47	Dβ	
how uncertain and short-lived				
Le tue dolcezze, poi ch'anchor ti godi	3β (Dβ enters)	48-52	F#	
Are your pleasures, for it even please you				
Che l'estremo piacer finisca	2β (F# enters)	53-55	C#	
That the greatest pleasure should end				
in pianto."	1β (C# enters, 11 pcs)	56 -to end	Aβ/G#	
in tears."				
Nè potendo dir più, cinseme forte				
Unable to say more, she held me tightly,				
Iterando gl'amplessi in tanti nodi,				
Repeating her embraces in more entwinings				
Che giamai ne fer più l'edra o l'acanto.				
Than ivy or acantus ever made.				

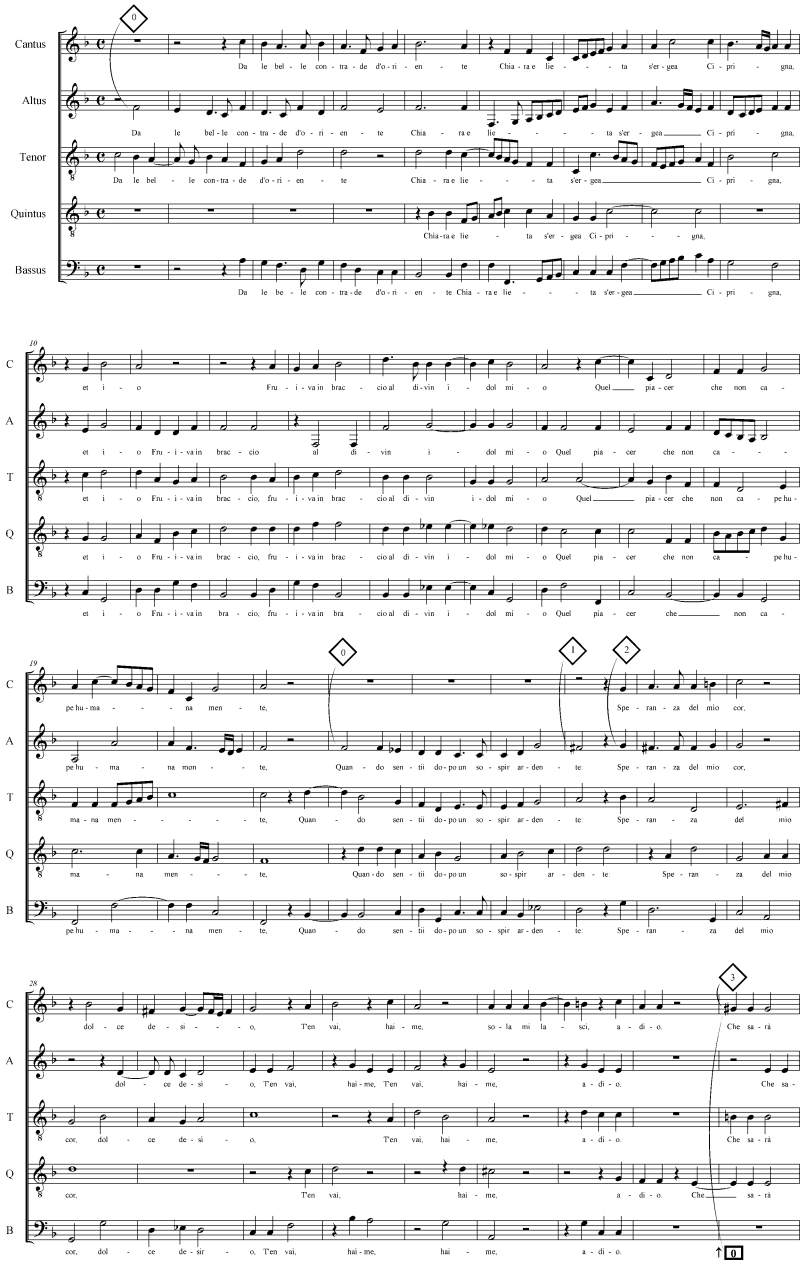
Figure 3.6: Cipriano de Rore, Da le belle contrade[29]

EXAMPLE 3.2*:* Rore, *Da le belle contrade*



[29]The translation of the text is taken from Allan W. Atlas, *Renaissance Music: Music in Western Europe, 1400-1600*, W. W. Norton, New York, 1998: 635. Altas also analyzes this piece in some detail.


Cantus
Da le bel - le con - tra - de d'o - ri - en - te Chia - ra e lie - - - ta s'er - gea Ci - pri - gna,
Altus
Da le bel - le con - tra - de d'o - ri - en - te Chia - ra e lie - - - ta s'er - gea Ci - pri - gna,
Tenor
Da le bel - le con - tra - de d'o - ri - en - te Chia - ra e lie - - - ta s'er - gea Ci - pri - gna,
Quintus
Chia - ra e lie - ta s'er - gea Ci - pri - - - gna,
Bassus
Da le be - le con - tra - de d'o - ri - en - te Chia - ra e lie - - - ta s'er - gea Ci - pri - gna,
10
C
et i - o Fru - i - va in brac - cio al di - vin i - dol mi - o Quel pia - cer che non ca -
A
et i - o Fru - i - va in brac - cio al di - vin i - dol mi - o Quel pia - cer che non ca - - -
T
et i - o Fru - i - va in brac - cio, fru - i - va in brac - cio al di - vin i - dol mi - o Quel pia - cer che non ca - pe hu -
Q
et i - o Fru - i - va in brac - cio, fru - i - va in brac - cio al di - vin i - dol mi - o Quel pia - cer che non ca - pe hu -
B
et i - o Fru - i - va in bra - cio, fru - i - va in bra - cio al di - vin i - dol mi - o Quel pia - cer che non ca -
19
C
pe hu - ma - - - na men - te, Spe - ran - za del mio cor,
A
pe hu - ma - na mon - - te, Quan - do sen - tii do - po un so - spir ar - den - te Spe - ran - za del mio cor,
T
ma - na men - - - - - te, Quan - do sen - tii do - po un so - spir ar - den - te Spe - ran - za del mio
Q
ma - na men - - - te, Quan - do sen - tii do - po un so - spir ar - den - te Spe - ran - za del mio
B
pe hu - ma - - - na men - te, Quan - do sen - tii do - po un so - spir ar - den - te Spe - ran - za del mio
28
C
dol - ce de - si - - - o, T'en vai, hai - me, so - la mi la - sci, a - di - o. Che sa - rà
A
dol - ce de - si - o, T'en vai, hai - me, T'en vai, hai - me, a - di - o. Che sa -
T
cor, dol - ce de - si - o, T'en vai, hai - me, a - di - o. Che sa - rà
Q
cor, T'en vai, hai - me, a - di - o. Che sa - rà
B
cor, dol - ce de - sir - o, T'en vai, hai - me, hai - me, a - di - o.



In addition to associating the drama of the text with harmonic motions at the deepest level of structure, Rore distinguishes the lovers' voices by associating their individual speeches with different harmonic areas (see Ex. 3.2). At m. 41, for instance, where Venus expresses her sorrow, Rore modulates to the *mollis* 1 ♭ system that initiates a series of hexachordal system shifts in the

flat direction culminating on the word *dolcesse* with a modulation into a 3♭ system. Towards the end of her quote, *poi ch'anchor ti godi, che l'estremo piacer finisc'in pianto*, the systems reverse and move back up in fifths starting with the introduction of F♯ on the syllable *mo* from *l'estremo* ("extreme"). The F♯in m. 53 (see the above figure) moves the 3♭ system up to 2♭s and, consequently, the C♯ in m. 56 on the syllable *to* from *pianto* ("tears") returns the system to *mollis*. The C♯ not only redresses the system to its original *mollis* state, but also signals the return of the male narrator's voice. Interestingly, C♯ appears in the same A triad that was heard at the end of the first *mollis* section (m. 33), and again at the end of the *naturalis* system in m. 40. The presence of C♯ finally restores the 1♭ system. The F triad that follows in the same bar is a reminder that A was indeed the farthest harmonic point from F within the reordered 1♭ hexachord; now F regains its status as modal final and center of its own gamut system. With the return of the 1♭ gamut system, all further modulation ceases as there is no A♭ or G♯ from here to the end of the madrigal.

Rore's *Da le belle contrade* also exhibits another aspect of chromaticism that will pervade the compositional process from here on in: the desire of the composer to complete the chromatic aggregate by unfolding the tonic modal octave through rising chromatic half-steps over the course of the entire composition. Rore's madrigal starts to climb chromatically from F in the alto voice of m. 22. Since F is the final of the madrigal, F must initiate the chromatic ascent. If we assign the Arabic number 0 to this first pitch class, the F♯ that follows in m. 25 (same voice) is then pc 1, and its resolution to G (pc 2) occurs in the same measure. The other chromatic ascending pitch classes follow in an ordered succession, primarily in the upper voice, often coinciding with important gamut system shifts. For instance, in m. 36, G♯ in the soprano

voice (the madrigal's *cantus*) – and therefore the next chromatic pitch – enters over an E major triad. The G♯ is pc 3, the missing pitch of the 1 ♭ gamut system, shifting the system up a notch into the sharp direction to *naturalis*. The G♯ resolves to A, pc. 4, in m. 37 and A, in turn, moves up to B ♭, pc 5, in m. 38. Since the system shifts now move to the flat side of the fifths cycle, B ♮, pc 6, must wait until the flat systems modulate up into the sharp direction. An expected B♮ enters on the last beat of m. 51 in the tenor as the raised third of an applied dominant chord to C, pc 7 (m. 52). Pc 8, C♯, appears next in the alto of m. 56, returning the previous 2 ♭ system back up to the 1 ♭ system that governs the madrigal. Pc. 9, D, follows soon enough, but pc 10, E ♭, is omitted from the series simply because Rore wishes to keep the last section of the madrigal completely diatonic, thus excluding even the allowable additional flat of the 1 ♭ system. The deceptive cadence in m. 73, which is repeated as an authentic cadence in the last two bars of the madrigal, gives us the last two pitch classes, pc. 11, E♮, and pc 0, F.

We have called the slow linear unfolding of the tonic chromatic octave ascending over the course of an entire composition *The Primary Chromatic Array* (PCA); this will be discussed more fully in later chapters. But sixteenth-century music is not only concerned with the unfolding of the chromatic tonic octave. The diatonic nature of the mode, which motivates all contrapuntal motion in the piece, and, thereby, the treatment of consonance and dissonance, must also be taken into account. Just as the chromatic pitch classes within the tonic octave seek to ascend to the final octave in the soprano voice through the PCA, there is a concomitant diatonic unfolding of the modal octave in the tenor that descends to the modal final. This diatonic descent is called *The Primary Diatonic Array* (PDA).

The justification for the interaction of these two octave unfoldings, the chromatic

ascending, and the diatonic descending, is derived from the nature of Renaissance counterpoint itself. Sixteenth-century counterpoint is based upon the intervallic interaction of two structural voices, most often the soprano and tenor, although the alto and bass, and even the bass and soprano, may also assume structural significance. A formal cadences is formed through a 6 - 8 intervallic contrapuntal progression in which the upper voice ascends to the modal final via a leading tone forming a major sixth with the tenor. The two voices then resolve outward in stepwise motion to the octave; in effect, *ti* moves up to *do* and *re* resolves down to *do*, to use modern movable *do* solfege terminology.

In Rore's madrigal, *Da le belle contrade*, the tenor voice carries the PDA against the PCA in the upper voices. At first the tenor begins on the fifth degree of the mode before descending to the first structural pitch of the PDA, F, in m. 2. Since the first part of the madrigal is basically diatonic with many cadences on F, the tenor voice has no need as yet to descend further on a deeper structural level. Only in the second part, that part of the madrigal which is more intensely emotional, and therefore more chromatic, does the PDA begin to descend. In m. 38, the tenor's F has now been shifted up an octave, and descends in m. 40 from F to E♮ . The next diatonic pitch in the descending diatonic array is D, but because of chromatic inflections in the tenor, D is first approached by an upper neighbor E♭ in mm. 41-42. In m. 43, D's diatonic descent to C is emphasized by a subordinate cadence on a C major triad in m. 52. The PDA pitch C is now sustained in the tenor voice on a higher structural level until its final descent begins in mm. 79 – 80. M. 80 sees the tenor initiate its final descent, B♭ – A – G. The G now forms the major sixth with the soprano's E♮ and both voices resolve to the F octave, *ti* - *do* in the soprano against *re* - *do* in the tenor.

Since we believe that our understanding of the contrapuntal unfolding of the diatonic and the chromatic pitch classes of the modal octave can reveal important stylistic characteristics, our attention is drawn more to those individuals in the sixteenth century whose compositional interests included the exploitation of the modal octave's chromatic potential. Among those composers who followed Cipriano da Rore, Orlando de Lasso's (1532-1594) approach to chromaticism most informed the compositional techniques of the succeeding generation.

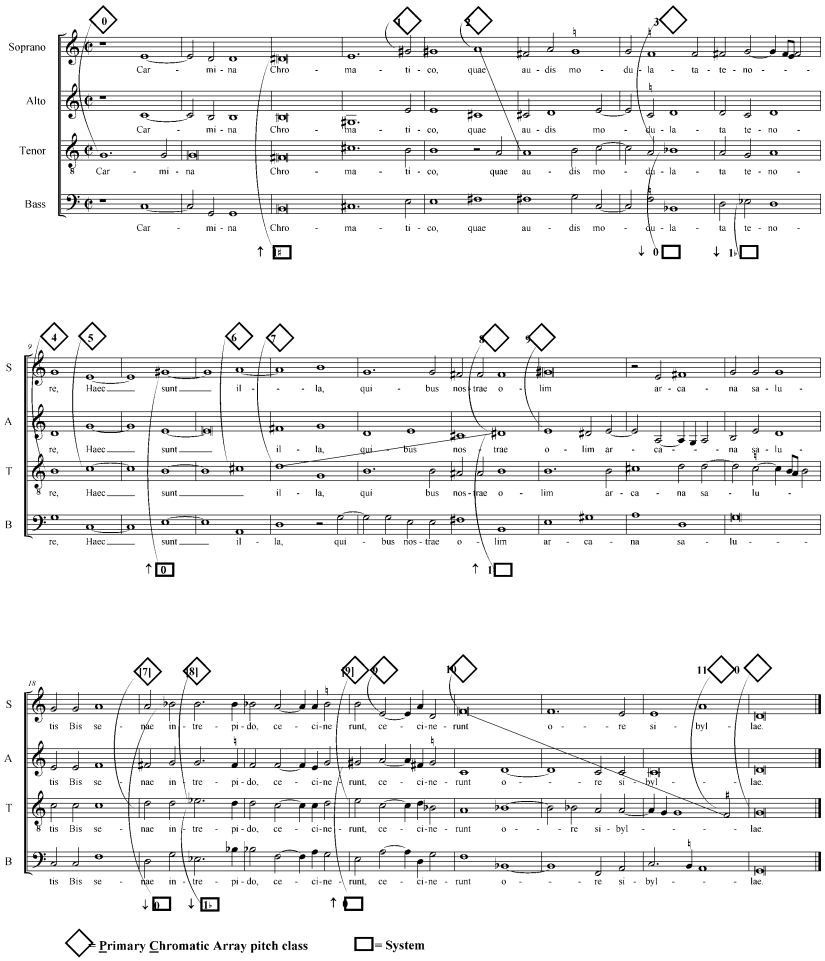
Lasso was the most published composer of the sixteenth century and his works were often cited by contemporary theorists as models of their kind. For examples, see the numerous citations in Joachim Burmeister, *Musica poetica* (Rostock, 1606); in Adam Gumpeltzhaimer, *Compendium musicae* (Augsburg, 1591); and in Maternus Beringer, *Musicae, der Freyen lieblischen Singkunst* (Nürnberg, 1610). Recent studies have shown that the late works of Lasso not only anticipated many of the stylistic innovations of the Florentine monodists but Monteverdi's *seconda prattica* as well.[30] Lasso had a strong influence on composers working in Venice, especially the Gabrielis, and consequently, Monteverdi who succeeded Giovanni Gabrieli at San Marco. Significantly, Lasso's music exhibits the same affective use of eleven pitch-class areas as does Rore's. For example, the *Prologo* to Lasso's *Prophetiae Sibyllarum* (Ex. 3.3) dramatizes the text through series of three-hexachord system modulations.[31]

---

[30]See Wolfgang Boetticher, "Anticipations of Dramatic Monody in the Late Works of Lassus," in *Essays on Opera and English Music: In honour of Sir Jack Westrup* (Oxford, 1975): 84-102.

[31]Our analysis of the *Prologo* is yet another interpretation among many of this intriguing piece. It is interesting to note that all the following discussions differ in their fundamental methodologies, not to say their conclusions: W. Mitchell, "The Prologue to Orlando di Lasso's Prophetiae Sibyllarum," *Music Forum* II (1970): 264-273; K. Hübler, "Orlando di Lassus Prophetiae Sybillarum oder Über chromatische Komposition im 16. Jahrhundert," *Zeitschrift für Musiktheorie*, ix (1978): 29; K. Berger, "Tonality and

EXAMPLE 3.3: Lasso, *Prophetiae Sibyllarum, Prologo*



While structural cadences on G predominate in the *Prologo,* the association of the pitch classes of the G triad as cadential points within the mixolydian modal octave is of less concern than the forward drive and momentum, and of course the expressive character, created by the number and relationship of three-hexachord system shifts. Here too, the modulation of gamut

---

Atonality in the Prologue to Orlando di Lasso's *Prophetiae Sibyllarum*: Some Methodological Problems in Analysis of Sixteenth-Century Music," *Musical Quarterly*, 66 (1980): 484-504; K. Berger, "The common and the Unusual Steps of *Musica ficta*: a Background for the Gamut of Orlando di Lasso's *Prophetiae Sybillarum," Belgish Tijdschrift voor muziekwelenschap*, 39-40 (1985-1986): 61-73.

systems works within the unfolding G chromatic octave. Referring to Ex. 3.3, the opening two bars clearly establish a C *naturalis* gamut in *cantus durus* (natural signature) and introduce the first pc of the PCA, G♮ (pc 0), in the tenor. In the third measure, on the syllable *Chro* from *Chromatico*, an unexpected D♯ suddenly enters in the soprano voice, shifting the system up a fifth to the G gamut (*durus*). This modulation allows Lasso to introduce the next two rising PCA pitch classes (pcs 1 and 2), G♯ (m. 4) and A♮ (m. 5). Since the A♮ would next move to B♭, Lasso needs to shift the system down to accomplish this motion. He does so in m. 7: note that the A♮ has shifted into the tenor voice in m. 6 so that that voice can now move up to B♭ (pc 3) in the next measure. The B♭ shifts the system down a fifth from G *durus* to C *naturalis*, but Lasso goes even further by introducing E♭ in m. 8 (bass voice), shifting the system down another fifth to 1♭ (*mollis*) to articulate the text, *modulata tenore* ("in measured verses"). The B♭ next moves to B♮ (m. 9), pc 4, in preparation for the cadence on C (pc 5), in the same measure. M. 10 brings the system up again to *naturalis* with the G♯ in the soprano. This allows the next two PCA pitches to unfold, C♯ (pc 6, tenor, m. 11), which acts as a leading tone to D (pc 7, m. 12, same voice). To move the PCA further, D♯ must be introduced next. This can only be done through another system shift, which occurs in m. 14. Here the D♯ in the alto voice brings the system up another fifth to *durus*, acting, at the same time, as leading tone to E, pc. 9, in m. 15. All that is necessary to complete the PCA chromatic octave are pcs 10,11 and 0, that is, F♮, F♯, G, respectively. The alto voice first introduces these notes in mm. 18-19, but they do not actually become significant until the approach to the final cadence in the last four bars of the motet. Thus, the soprano's F♮ in m. 22 is inflected up to F♯ in the tenor voice in m. 24 – the F♯ is understood

as a necessary ficta note even though it is not indicated in the manuscript copy – before the ascending octave to G is finally completed in the last measure.

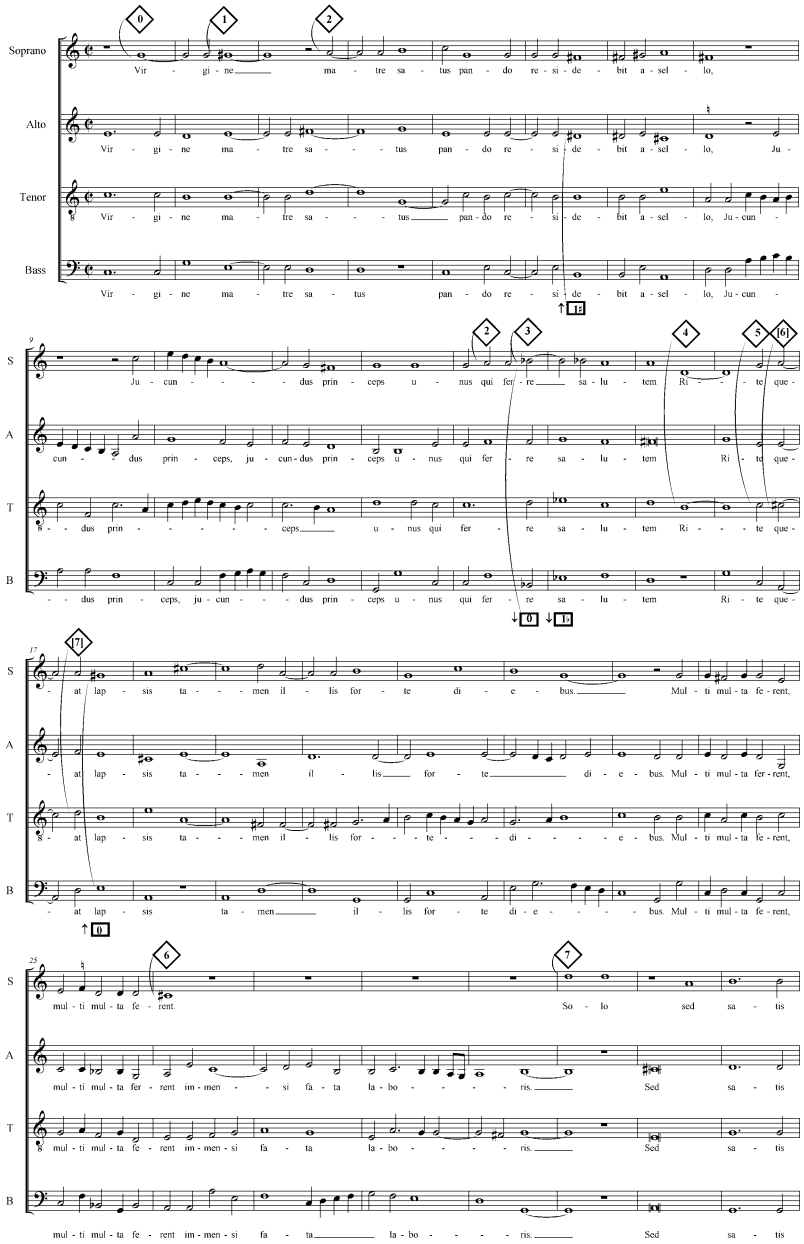
Along the way, Lasso returns the system to *naturalis* by first shifting out of *durus* in m. 19 with the return of B♭ in the soprano. The B♭ brings the system down to *naturalis*, but Lasso intensifies the modulation by going another fifth down to *mollis*, as he did previously in mm. 7-8, with E♭ entering in both tenor and bass voices in m. 19. The only way to return to the original *naturalis* system from the present 1♭ system is to introduce a G♯; this happens in the alto of m. 21. From this point to the end of the motet, the system remains in C *naturalis.*

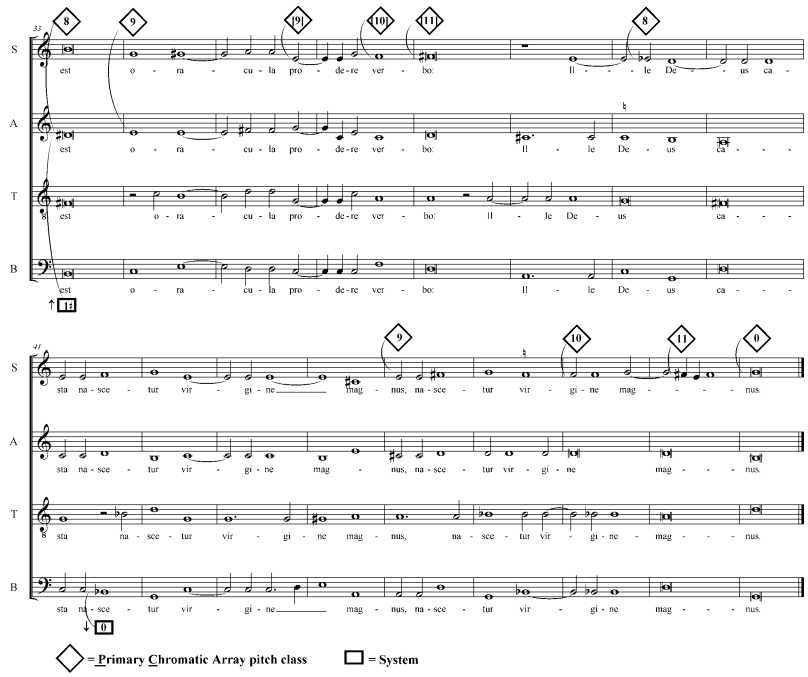
In summation, while the G major triad serves as a point of reference, the internal harmonic scheme is not controlled by the *diatony* of G mixolydian; rather, the relationship of three-hexachord gamut systems yields an extreme chromaticism which supports the underlying affect of the motet, *carmina chromatico* heard in *modulata tenore*.

After the *Prologo*, the succeeding motets relate the oracles of the twelve Greek Sibyls, particularly those oracles that foretell the life and death of Christ. While a full discussion of Lasso's *Prophetiae Sibyllarum* would be impractical here, we can at least look at the first two motets of the cycle. *Sibylla Persica*, the first motet, oracles the birth of Christ (Ex. 3.4). It is written in G mixolydian mode in *cantus durus* and therefore begins in the *naturalis* three-hexachord system. Lasso immediately unfolds the first three pitch classes of the PCA in the soprano voice: G, G♯, A (pcs. 0, 1 and 2 in mm. 1-3). On the syllable *de* of *residebit* ("will sit"), in m. 6 (the opening text reads: "Born of a virgin mother, he *will sit* on the crooked back of an ass"), a D♯ enters as part of a B major triad, as an applied dominant of E, the last pitch class of the reordered C central hexachord. As a result, the system shifts up temporarily to G *durus* . The

next system shift occurs in m. 13 where B♭ is introduced followed immediately by E♭ (the text reads: "The joyful prince who alone *will bring salvation"*). The B♭, pc 3 of the PCA, brings the system back down to *naturalis*, but the E♭ that follows on the word *salutem (*"salvation") brings the system further down to 1♭. Before the next system shift takes place in m. 17, the PCA continues to rise in half steps: pc 4 (B♮) appears in the tenor voice in m. 15 followed, in the same voice, by pcs 5, 6, 7 (C, C♯, and D), articulated by a harmonic area around D, the dominant of the mode. In m. 17 the *mollis* system shifts up to *naturalis* with the entrance of G♯ on the word *lapsis* ("fleeting"). Pc 6, C♯, is reiterated in m. 26 as part of a phrygian cadence on A. Pc 7, D, is also reiterated in m. 30 on the word *solo* ("this *one* prophecy"), sung by the soprano voice alone. Pc 8, D♯, next appears in m. 33 in the alto voice as the third of a B major triad, set to the verb *est* ("this one prophecy *is* different"). The D♯ raises the *naturalis* system to *durus* again, and at the same time moves to E, pc 9, in m. 34. The PCA rise continues in mm. 35-37, in the soprano voice, with E moving to F and F♯, but this segment of the PCA must be understood as an anticipation of the structural completion of the chromatic octave, all in the soprano voice, that follows. Pc 8, D♯, is enharmonically respelled as E♭ in m. 39. The E♭, coming after an E♮, is heard as an expressive passing tone to D, highlighting the text at this point ("*He*, God, will be born of a virgin"). The E♮ returns in m. 41 (pc 9) and does not ascend to the next pitch in the series until F♮, pc 10, is reached in m. 47 . Along the way, the system reverts to *naturalis* in m. 41 with the presence of B♭. From this point on, there are no further system changes and the motet ends in its background "C" system. The last two bars has F♮ move up to F♯ in preparation for the final authentic cadence to G, ending the chromatic ascent in the last measure.

EXAMPLE 3.4: Lasso, *Prophetiae Sibyllarum, Motet I, Sibylla Persica*

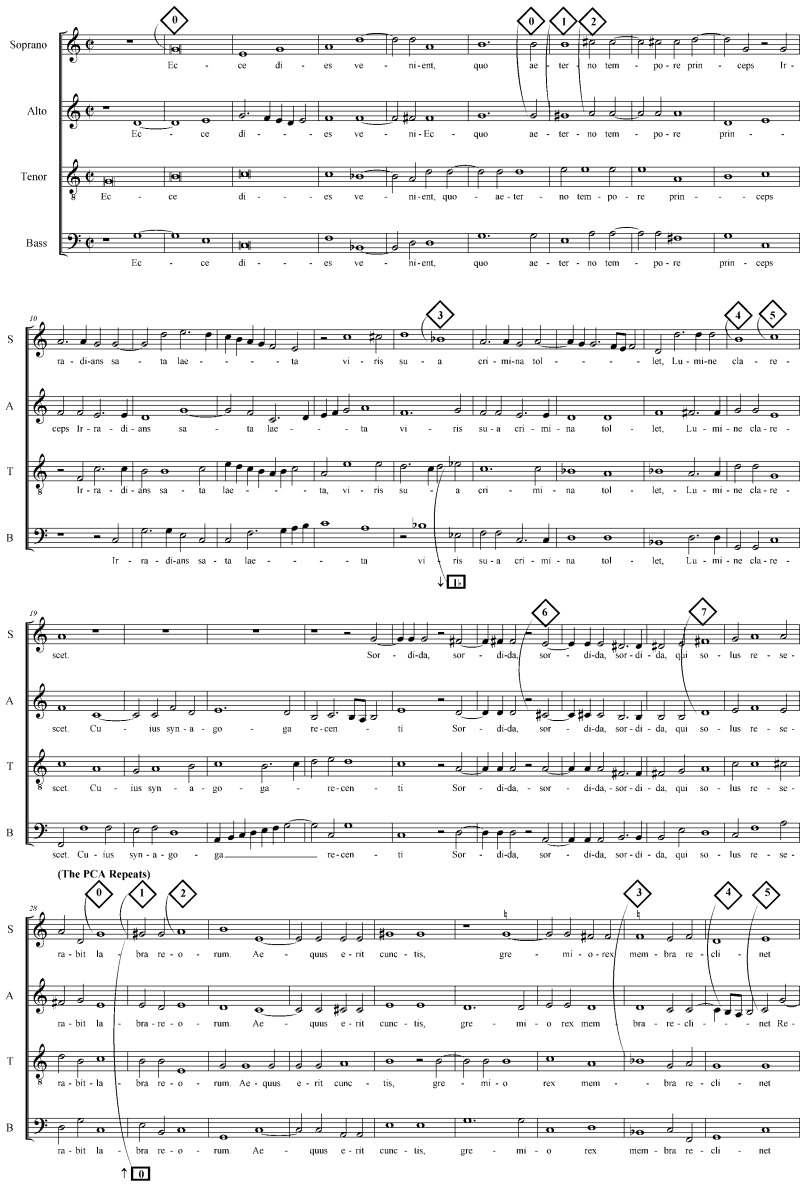


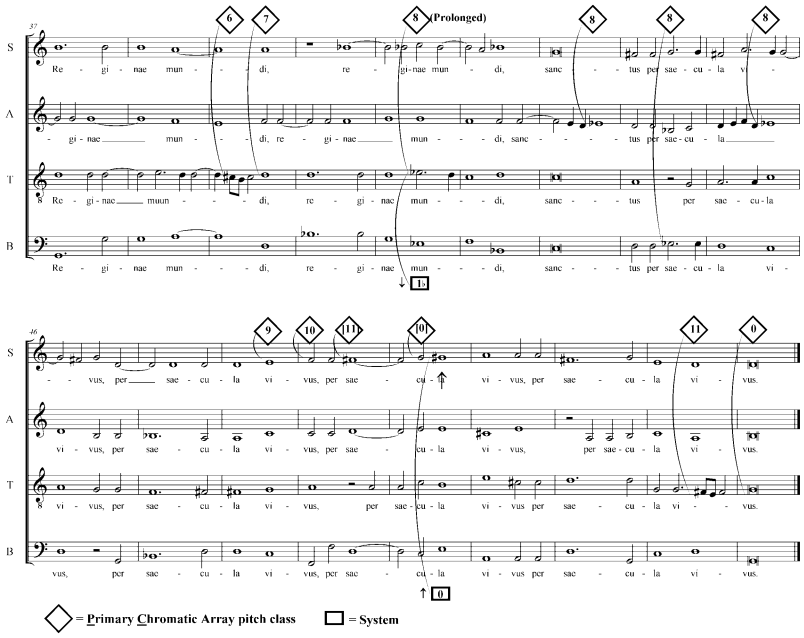


The second motet in the cycle, *Sibylla Libyca* (Ex. 3.5), is also written in G mixolydian in *cantus durus*; therefore, its background gamut system is also *naturalis*. The text of this motet concerns the vindication of Christ against the calumnies of His enemies and His eventual eternal life in heaven. As in the first motet, there is a complete PCA rise in the upper voice, conditioning a number of gamut system changes. Also, the working out of the ascending chromatic line differs from the first motet in several respects, not the least of which is the large-scale repetition of pcs 0-7 before the octave is completed. The opening of the motet up to the downbeat of m. 14 unfolds all eleven pitch classes of the *naturalis* "C" gamut system. When the text turns to "the charges so cheerfully laid against Him", E ♭ enters, shifting the "C" system down to 1 ♭ . The 1 ♭ system harmonically focuses upon the F central hexachord, and the note F now acts as a large-scale lower neighbor to G, the final of the mode. Lasso has already prepared this relationship at the very opening of the motet by allowing G in the bass to be contrapuntally

prolonged on a middleground level by F in m. 4 before returning to G in m. 6. The composer now takes this gesture and works the contrapuntal relationship between G and F into the deeper structural levels of system modulations.

EXAMPLE 3.5: Lasso, *Prophetiae Sibyllarum, Motet II, Sibylla Libyca*





The 1 ♭ gamut system remains in effect until G♯ enters in m. 29, restoring the original *naturalis* system. Lasso's expression of the 1 ♭ system (mm. 14-28) is invigorated by a daring enharmonic shift which reinterprets the allowable flat of the system, E ♭ , as a D♯! While the E ♭ that initiated the system shift into the 1 ♭ system (m. 14) has prepared us to accept D♯, the latter pitch still remains a very unlikely choice within a *mollis* system, especially when it is supported by a B major triad! Here again, Lasso is working out a contrapuntal detail first heard in the opening measures of the motet, namely the relationship between E and D. The second bass note after the initial G is E, and while its immediate resolution is up to F in m. 4, the E is, in turn, prolonged by a lower neighbor D in m. 5 which moves up to E in m. 7 (see Ex. 3.5). As dominant of the mode, D becomes a first goal of motion, albeit within a 1 ♭ gamut (mm. 23-26). As part of the dominant prolongation, E becomes a prominent upper neighbor in m. 26, supported, in turn, by that B major triad: thus the D♯. Note that the E triad in m. 26 is kept minor in order not

to introduce a G♯ too early; Lasso saves that pitch for m. 29 as part of the cadence that ends the third line of the quatrain. The dominant prolongation that leads up to the G♯ and the return of the *naturalis* system, is also the structural arrival of the PCA at pc 7 (D).

The G♯ in m. 29, an inflection of the G♮ just before it, now begins another PCA rise from pc 0 (G♮). Pcs 0, 1, and 2 (G♮, G♯, A) cover mm. 28-29. Pcs. 3, 4, and 5 occur in mm. 25-27, the B♭ (pc 3) appearing in the tenor and bass voices, the B♮ and C (m. 26) in the alto voice as part of a cadence on C. Pcs 6 and 7, C♯ and D, next occur in the tenor in m. 39, forming a cadence on the dominant. The next pitch is E♭, the missing pitch of the *naturalis* system. By introducing this pitch in m. 41, Lasso shifts the system once more to 1♭. The persistent E♭s in the alto and bass voices in the following measures preserve the 1♭ system until G♯ is once again introduced to return the system back up to *naturalis*. At the same time, E♭ is displaced by E♮, pc 9, in m. 48, in preparation for the final ascent to the *finalis*, thus completing the chromatic G octave. The E♮ moves immediately to F, pc 10, and then to F♯, pc 11, all within the soprano voice (mm. 48-49). While F♯ does move up to G♮, even going passed it to G♯ and to A, the structural completion of the octave does not occur until the final authentic cadence, and in the tenor voice (F♯ up to G, pc 0). As it happens, the full PCA chromatic rise of all twelve pitch classes is not confined to one voice in this motet as it had been in the previous one, but moves steadily downward from the upper voices (alto and soprano) and finally into the tenor.

Why does Lasso anticipate the final completion of the octave in the soprano in m. 50? One notices that this gesture is but one of several chromatic ascents involving the same pitch classes, as if Lasso were deliberately thinking of developing this chromatic fragment, or at least

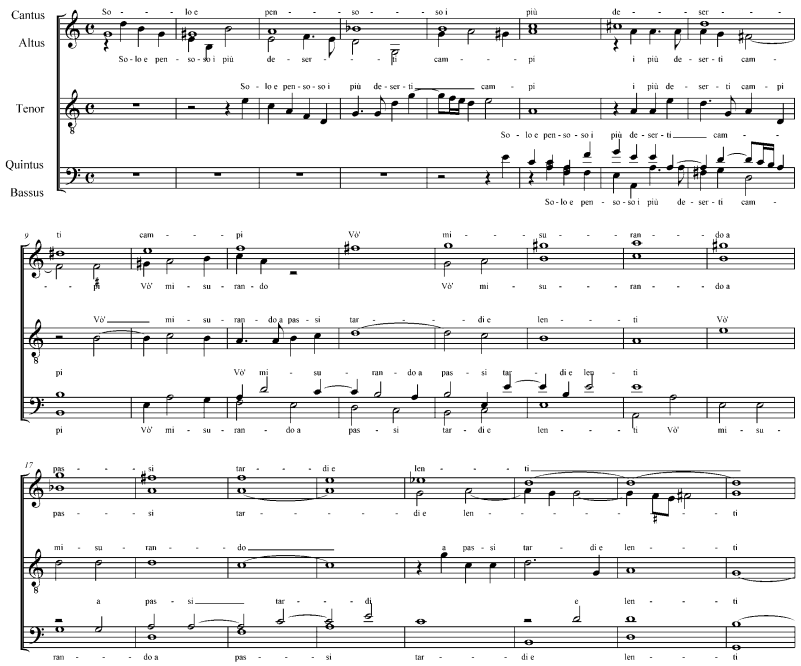
using it as a unifying gesture. The initiation of the PCA chromatic rise in the alto voice in mm. 6-7, concentrates on the trichord G♮ – G♯ – A. The same trichord reappears in the soprano voice in mm. 28-29, at the repeat of the first seven pitch classes of the PCA. Here the G♯ is necessary to revert the system to *naturalis*. These same pitch classes now recur at the end of the motet, and for the same reason: the soprano's G – G♯ – A trichord (mm. 50-51) effectively shifts the system up to *naturalis* for the last time.

Another issue is of particular significance here: E ♭ , the missing pitch of the *naturalis* system, motivates the recurrence of the G– G♯– A trichord segment. Lasso is, in fact, anticipating a common developmental ploy used by composers in later style periods: the manipulation, or "working out," of a chromatic trichord over the course of an entire composition.

Contemporaries of Lasso were also interested in developing chromatic events in their music, often working these events into background system changes, although none were quite as consistent in their chromatic language as was Lasso. The output of Luca Marenzio (1553 or 54 – 1599) is a case in point. Marenzio was, after Lasso, perhaps the second most revered madrigalist of the late sixteenth century; noted for his highly sensitive and emotional text settings. However, Marenzio's use of chromaticism and system modulation is stylistically distinct from that of Lasso, as an examination of Marenzio's madrigal, *Solo e pensoso*, will demonstrate (the opening measures of this work are presented in Ex 3.6).[32]

[32] Luca Marenzio, *Il nono libro de madrigali a 5 voci* (Venice: Gardano, 1599)

EXAMPLE 3.6: Marenzio, *Solo e pensoso* (mm. 1-24)



Solo e pensoso is taken from a sonnet by Petrarch (1304-1374), one of several favorite authors whose poetry (sonnets and *canzoni*) was much favored by late sixteenth-century madrigalists. Petrarch was especially admired for the wide variety of contrasting emotions and images portrayed within a single sonnet, giving the composer numerous opportunities for thematic and textural contrast, and therefore numerous occasions for chromatic inflection. The opening madrigalisms in *Solo e pensoso* are a case in point. There are two thematic ideas unfolded simultaneously which support the poetic imagery of the text. The soprano's "solo" rising chromatic line suggests the opening phrase of text: "Alone and pensive," while the lower voices "tread" along with their descending thirds in imitation, deliberately, it seems, breaking every rule of third-species counterpoint to bring out the poetic conceit of the rest of the line: "the deserted fields I tread with deliberate and slow steps."

The soprano's complete ascending chromatic line within the first fifteen measures , a kind of accelerated PCA , is quite unusual. Such an accelerated chromatic unfolding is never found in other composers of the period, including Lasso. Lasso is more deliberate, with the entrance of each chromatic pitch placed slowly enough so that the entire chromatic octave (or least the eleven pitch classes of a single system) covers a longer musical space. In other words, Lasso does not exhaust all his available pitch-class material before the piece ends; thus, he avoids diatonic stasis in the middle of the composition. Marenzio is more concerned with maintaining the modal structure of his piece, whereas Lasso, and Rore before him, seem to have had little concern about modal definition, both being more inclined towards working out the properties of the background gamut three-hexachord system of the madrigal. After a extraordinary chromatic opening, Marenzio reverts to pure diatonic mixolydian mode for long stretches of music.

Even so, Marenzio does utilize system modulation on a deeper structural level and in a unique way. The opening hexachord system is *naturalis*, supporting the mixolydian mode of the composition. But the nature of the soprano's steadily rising chromatic line forces a system change to *durus* at the entry of D♯ on the syllable *ti* of *deserti* ("deserted") in m. 9. However, the soprano, after completing the chromatic octave, descends chromatically down to D♮ , the fifth degree of the mode, in parallel sixths with the alto voice. It is the alto voice that restores the *naturalis* system with a B♭ on the word *passi* ("steps") in m. 17. All this works out well, but the soprano has not yet finished the chromatic descent to D. What was once a D♯ ascending to E now becomes an E♭ (on *lenti*, "slow") descending to D in m. 21, causing another system shift, this time in the opposite direction, down to *mollis* (1♭). In order to return the system to *naturalis*, Marenzio would have to introduce a G♯, the missing pitch of the 1♭ system, spelled as an

augmented second; Marenzio never uses an A♭ in this madrigal. The G♯, supported by E, does not appear until m. 65, implying a half cadence in A minor which never materializes, and which articulates the text at this point: "Because when joy is gone from actions ..." Thus, a very long time is spent within the 1♭ system (mm. 21-65) even though G mixolydian is clearly expressed by structural cadences on the *finalis* and dominant of the mode during this period. G mixolydian can function within a 1♭ system so long as G♯ or A♭ are absent. Indeed, the lengthy time spent in the 1♭ system finds its consequence within the second half of the madrigal.

With the return of the *naturalis* system in m.65, the rest of the first half of the madrigal remains in that system and concludes on a full cadence on the dominant of the mode (m. 87). The second half of the madrigal starts in m. 88, still in the *naturalis* system, and contains a number of pictorial madrigalisms. But our concern is with the transposition to *mollis* in m. 118. This is a particularly restless part of the madrigal, the poetry depicting the lover's flight from cupid since he wants no more unrequited love affairs. The text at this point (mm. 111 ff.) reads in translation: "Yet neither such rough nor wild paths can I find where love does not seek me out ..." (*Ma pur sì aspre viene sì selvagge...*) At the mention of "rough nor wild paths," E♭ enters (prepared by B♭) and forms the root of its own chord on the downbeat of m. 118. The lover's flight from Cupid is here reflected by a "flight" of systems, the 1♭ system remaining in force throughout the rest of the madrigal, while the G♯ needed to revert the system is totally absent. In fact, Marenzio avoids chromatic pitch classes altogether after m.121, except for the F♯ leading tone at the final cadence. So while the madrigal ends on the final of the mode, G, the system remains *mollis*.

Marenzio's contrast of natural and flat systems enhances the poetic conceit of the lovers'

distress. Notice too that the two systems balance each other: *naturalis, mollis, naturalis, mollis*; the first transposition to the *mollis* 1 ♭ system (mm.21-65), balances and prepares for the 1 ♭ system that concludes the madrigal (mm.118-139). Similar to Lasso, Marzenio also unfolds the complete PCA chromatic octave; however the first structural chromatic pitch class does not occur until m. 65 when G♯ enters reverting the previous *mollis* back to *naturalis.* The G♯ (pc 1) does not immediately resolve to A (pc 2), but A does occur in m. 67 (tenor) and B ♭ (pc 3) follows in the next measure (bass). Pc 4, B♮ , articulates a brief motion to C, pc 5 (m. 70). The next pitch, C♯, pc 6, in turn articulates the cadence on D, pc 7, as part of the dominant cadence (mm. 86-87). After D, the next pitch class in the series, pc 8, is the missing pitch of the system, E ♭ , which enters in m. 118, effecting a transposition to *mollis*. Pc 9, E ♭ , follows in the upper voices in m. 120, and passes up to F, pc 10, in m. 122 (tenor). The last pitch of the PCA, F♯, pc 11, articulates the final G cadence with G itself completing the octave in the last measure.

Our final examples of gamut systems in modality come from the madrigals of Claudio Monteverdi, a composer whose works straddle the stylistic tendencies of the late sixteenth and early seventeenth centuries and who leads us into the early Baroque period. Monteverdi's invention of the *concertato* madrigal, supported by an instrumental basso continuo, articulates vertical progressions of the harmonies as never before. Because of the basso continuo's rhythmic function of articulating the rate of harmonic rhythm of the chord progression, the reordered pitch classes of the central hexachord now assume a more significant harmonic function, the instrumental bass often progressing in fifths, closely following the order of fifths within the reordered hexachord. As in earlier vocal music, the harmonic potential of the central hexachord can either support a background modal final by emphasizing through structurally significant

cadences the first, fifth and third degrees of the mode, or ignore it altogether. In the latter case, the hexachordal fifths become localized relationships giving little or no support to a background modal final. Especially within those madrigals from Book V on (past 1605), one often sees the bass moving in fifths progressions and leading to cadences that do not support the modal final at all, but do articulate hexachordal degrees (see, for instance, Artusi's comments on Monteverdi's *Cruda Amarilli* quoted above).

A case in point is Monteverdi's *Eccomi pronta ai baci* from the Seventh Book (Venice, 1619, text by Marino). Here is an example of a madrigal that remains in a *naturalis* system throughout, unfolding only ten pitch classes (there is no D♯/E♭, the missing pitch of the system, or B♭/A♯). The mode itself, D mixolydian, emphasizes the sharp side of the *naturalis* hexachord, whose harmonic reordering is given below:

Quality of Third:	A	E♮	B♮	F♮ /F♯	C♮ /C♯	G♮ /G♯
Hexachordal degree:	F –	C –	G –	D –	A –	E
			IV	I (final)	V	

From the above diagram, we can see that Monteverdi limits himself to only sharp accidentals with no flats present at all, not even the allowable B♭ of the "C" system.

The arrangement of the basso continuo bass line clearly outlines the properties of the C central hexachord; in fact, the bass line for the entire madrigal seems to be conditioned on the fifth relationships inherent in the C hexachord. Owing to the relationship of the hexachordal fifths to each other, harmonic progressions may or may not support a background tonic. When they do, one perceives the madrigal's short-term tonal progressions and harmonic relationships to be adumbrations of the harmonic language of later periods. For instance, the opening of the

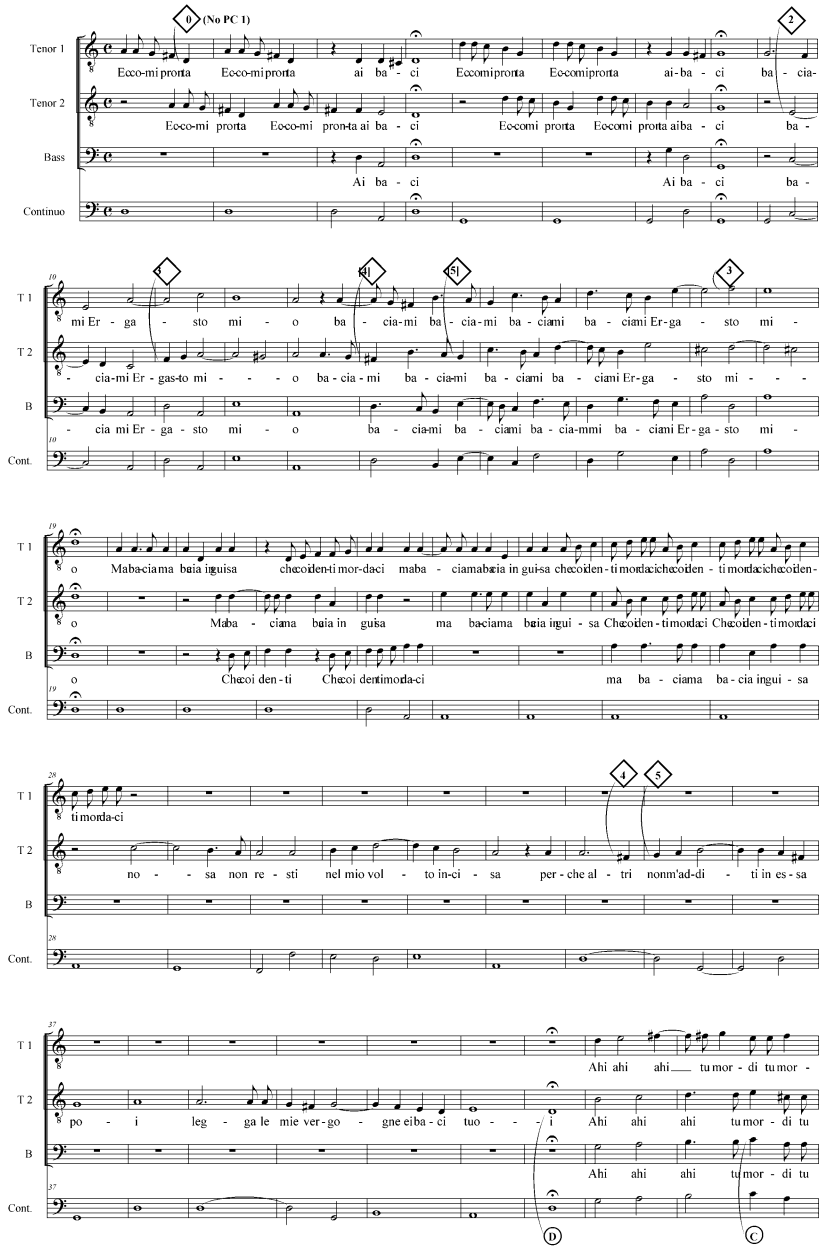
madrigal (see Ex. 3.7) clearly presents D as "tonic" within the first four measures, A acting as dominant at the close of the phrase. The next period repeats the phrase, this time on G, the subdominant of the mode. Through transposed repetition, this second phrase also forms a complete progression, supported by its dominant (mm. 5-8). Both D and its fifth A, followed by G and its fifth D, directly relate to their respective positions within the C hexachord from which they are derived.

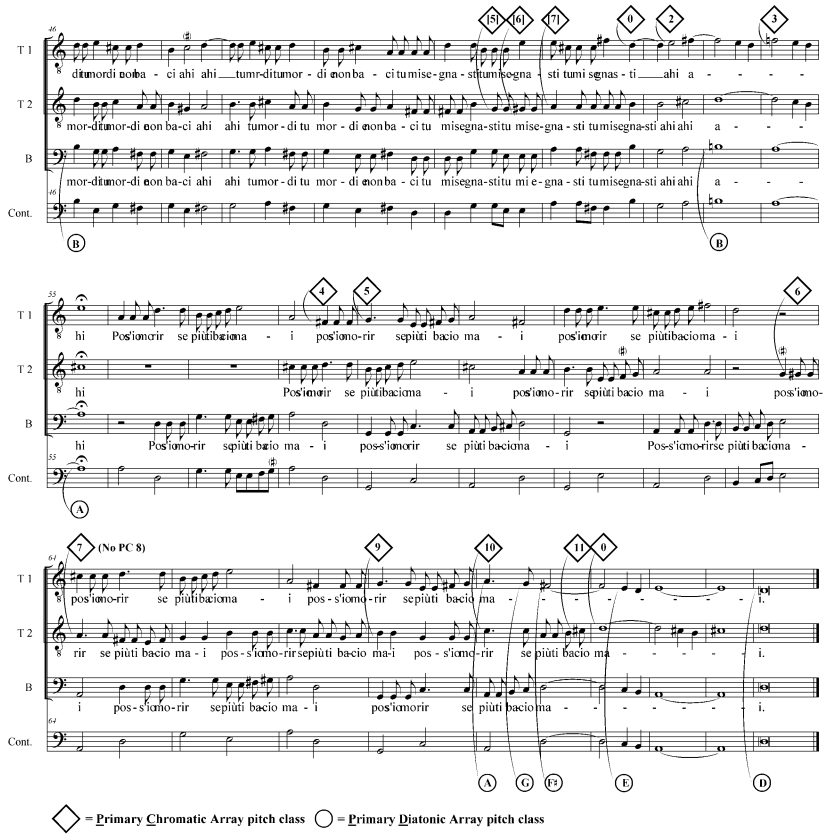
As seen in the above diagram of the reordered hexachord for this madrigal, D is flanked by two fifths on either side of it, G and A, and this relationship now forms the higher-level harmonic progression of the opening of the madrigal. However, although the two tonic and subdominant phrases on D and G respectively, may, within themselves, form complete harmonic progressions (in particular, I–V–I), large-scale prolongations of the modal tonic often do not adhere to later common-practice tonality – nor should they, considering the era. If one looks at the complete period from mm. 1-13 (see Ex. 3.7), the underlying progression is D – G – a, with the a triad kept always as minor. This is hardly a normal tonal progression, but it does conform to the nature of the reordered hexachord. By keeping the dominant as minor (see m. 10), both fifths above and below D gain an equal status quite unlike their relationship in common-practice tonality where the major dominant has a stronger hierarchal position than does the subdominant. Thus, in this instance, D can relate to G as much as it can to A. In addition, owing to the nature of the eleven pitch-class gamut system, the quality of third above each hexachord pitch is variable, again emphasizing localized fifth relationships that do not necessarily relate to a background final of the mode. For example, the dominant cadence in m. 13 moves to a D major

triad in m. 14, initiating a diatonic 5-6 sequential progression leading to a D dorian cadence in m. 19. Note that this sequential progression is based on the fifths of the hexachord, and that the only note within this progression which is not a root within the hexachord is B (m. 14, beat 3). The B is never harmonized as a major triad, but instead remains minor, thus preventing a system shift out of *naturalis*.

What is behind the move into D dorian? Monteverdi's sensitivity to the *concetto delle parole* of Marino's text obviously plays a major role in Monteverdi's choice of mode at this point. The poem concerns the amorous flirtations of a female lover who teases her male partner by demanding a kiss – rather "quickly" it seems – only to instruct him not leave any unsightly red marks on her face by doing so. What makes the madrigal setting so humorous is that two male tenors and a bass are singing the part of the female lover, thus presenting the text from a male viewpoint, satirizing the fickleness of the woman's sexual desires.

EXAMPLE 3.7: Monteverdi, *Eccomi pronta ai bacci*





The motion to a pure dorian cadence in m.19, with its prominent F♮ , raises the fundamental compositional issue in this madrigal, which is the dyad conflict resulting from the major/minor inflected third degree over the D final, F♮ /F♯, with the F♮ derived from D dorian, and the F♯derived from D mixolydian. Monteverdi is working out D in both its major and minor modal variants. This relationship has already been forecast in m. 11 where, for the first time, F appears as F♮ and not as F♯. For the first time, too, the text mentions the male lover's name, *Ergasto*, but his name is set to D minor instead of the expected D major. D major returns in m. 14 as the female lover entices her male lover with the words *baciami Ergasto mio* ("kiss me, my Ergasto"). The F♮ now prepares for the extended D dorian cadence in mm. 17-19. D dorian remains in effect during the next section of the madrigal reflecting the determined admonition of

the female lover that her Ergasto "kiss so that your biting teeth leave no signs etched on my face..." D mixolydian returns with the next line of text in m. 34 (*perchè altri non m'additi in essa poi* – "because others might point at me"), the D preceded by a fifths progression (mm. 32-34): E – a (again, kept minor) – D major. Again, D is flanked on both sides, first by A as minor dominant and, in m. 35, G as subdominant.

The equality of sonorities, so typical of modal progressions of this period, can often lead to confusion as to what harmony is being prolonged at any given moment. The D major chord in m. 34 goes to G, momentarily emphasizing G as a temporary tonic with D seemingly its dominant, but in actuality D is the more important harmony and is confirmed as so at the end of the period with an authentic cadence (mm. 42-43). Again, a knowledge of the reordered hexachord and its localized fifth relationships allows us to understand the nature of such progressions: any member of the hexachord can act as either an applied dominant or as the "tonic" resolution of that applied dominant, regardless of the background modal final.

The next line of text (mm. 44 ff), *Ahi, ahi, ahi, tu mordi e non baci* ("Ah!, you're biting, not kissing!"), retains the F♯ as the harmonic rhythm accelerates and the vocal rhythms subdivide into smaller and smaller units. In mm. 52-55, at the words *tu mi segnasti, ahi, ahi!* ("you've scarred me, alas, alas!"), the madrigal reaches its climax, the F♯ now almost violently juxtaposed with F♮ in the soprano voice and the F♮ supported by a minor cadential 6/4 in m. 54. The minor 6/4 chord resolves to a 5/3 in the next measure, ending the line. Immediately, in m. 56, F♯ returns as the female lover exclaims in no uncertain terms that "I'll die before I'll ever kiss you more!" In this way, the background dyad conflict of the piece, F♯/F♮ informs the structure of the composition, centering its climax around the close juxtaposition of the pitch classes of the

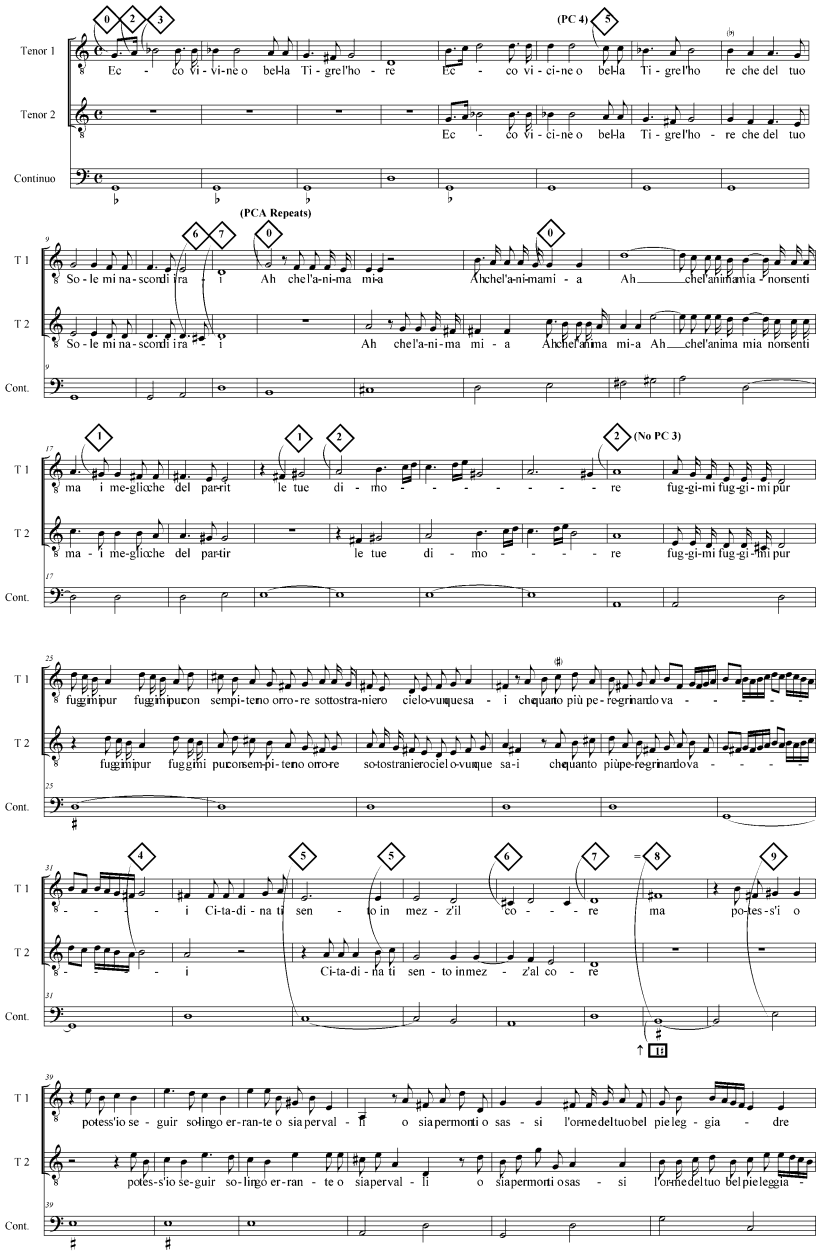
dyad conflict.

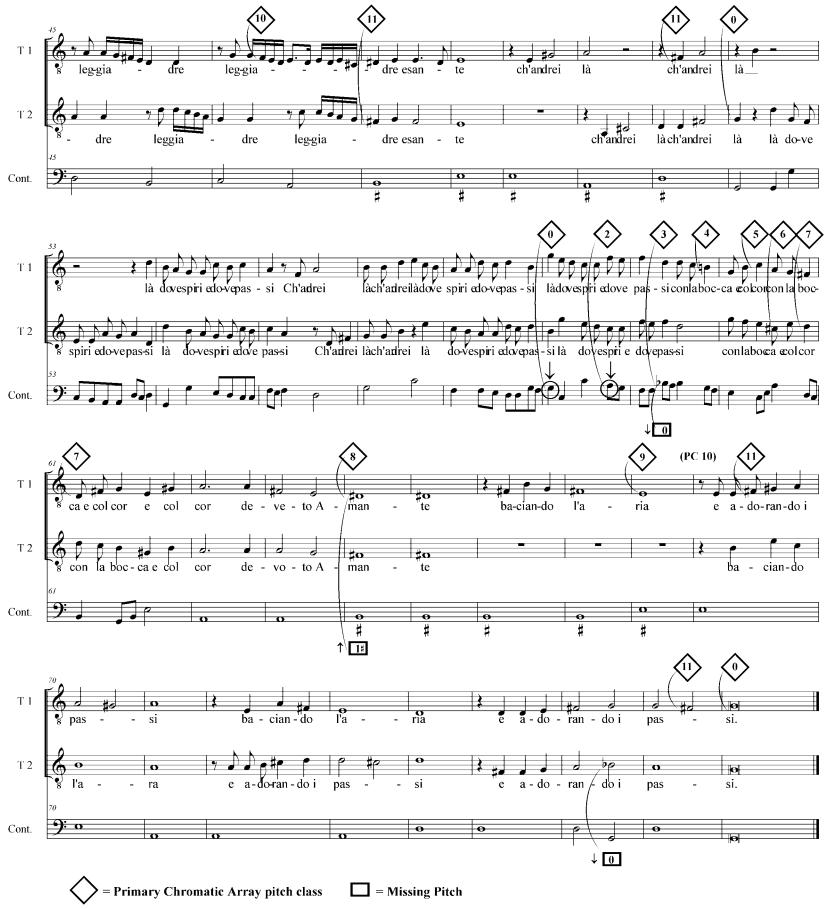
The harmonic motion of the rest of the madrigal simply follows the ordering of the *naturalis* system's hexachordal fifths, first unfolding A (now major) – D – G (mm. 56-57), followed again by A – D – G, with the addition this time of C (m. 59); and so it goes until the final D mixolydian cadence. Since a harmonic ostinato governs the last thirteen measures of the madrigal, A – D – G is stated several times. Thus the opening progression that pitted A and G against D within a symmetrical relationship, now finds its resolution at the end of the madrigal, the progression finally resolves into the final D authentic cadence. Monteverdi has thus unified the madrigal by composing out both a semitonal dyad conflict on the melodic/motivic level, and a harmonic relationship on a deeper one. The working-out process exhibited here is no less exacting then that used by later Baroque and Classical composers and is indeed quite similar.

Our last example for this chapter is Monteverdi's "*Ecco vicine o bella Tigre*," set to a text by Achillini.[33] This madrigal is also from the Seventh Book (see Ex. 3.8), and again is set for male voices, this time for two tenors without vocal bass, accompanied by the basso continuo. What is interesting about this particular work is that it, like "*Eccomi pronta ai baci*," works the relationship of both major and minor variants of the mode, this time G mixolydian against G dorian, raising a B♮ /B ♭ dyad conflict. However, unlike the previous madrigal, "*Ecco vicine*" composes out the dyad conflict to encompass system modulations: G with B ♭ (G dorian) appearing within the *naturalis* system, and G with B♮ appearing within the G *durus* system.

[33] The music for this and the following madrigal examples are taken from Claudio Monteverdi, *Tutte le opere*, vol. 7, G. F. Malipiero, ed. (Vienna, 1928).

EXAMPLE 3.8: Monteverdi, *Ecco vicine o bella Tigre*





The madrigal opens in a *naturalis* C system whose hexachord formation is as follows:

							Durus shift
Quality of 3rd:	A	E	B♭/B♮	F♮/F♯	C♮/C♯	G♮/G♯	‖ D♯
C Hexachord:	F –	C –	G –	D –	A –	E –	‖ B
			I	V			

Monteverdi utilizes all eleven pitch classes of the *naturalis* system, but singles out the one allowable flat of the system, B♭, for special emphasis. Instead of beginning the madrigal in G mixolydian, the composer does the unexpected by introducing a B♭ over a G pedal, turning the

mode into dorian, and at the same time creating an air of expectancy occasioned by the text *Ecco vicine o bella Tigre l'hore* ("The hour is near, O beautiful tigress").

It is interesting how Monteverdi structures the harmonic background of this madrigal. Monteverdi begins by unfolding the fifths of the *naturalis* hexachord in an ordered progression opening with the final, G, which moves to a half cadence on D in m. 11. The period that follows actually prolongs dominant harmony and leads to a formal cadence on A in m. 23, acting temporarily as V/V. Monteverdi's long-range fifths motion away from the G final reflects the *concetto* of the text, the musings of a worshipful lover for a woman who remains at a distance, in fact, fleeing from him, he imagines, over mountains and valleys, with him eager to follow. After the A cadence, the fifth motion temporarily retreats to the tonic as the A moves to D (major) which subsequently moves to the final, G in m. 30, the whole period ending with a half cadence on D in m. 36.

Monteverdi's fifth motions also reveal an underlying chromatic rise (PCA) to the dominant of the mode from G to D, pcs 0 - 7. In fact there are two 0 - 7 rises, both incomplete, and both omitting different pitch classes, a condition that is not unusual in these compositions. The goal of the first rise is to C♯(pc 6), the leading tone of the dominant. Beginning in the first measure, G ascends to B♭ (tenor 1), omitting G♯/A♭ (pc 1). Since Monteverdi does not want to inflect the B♭ to B♮ within the opening period (G is kept dorian), B♭ passes to C♮ in the same voice at the end of m. 6. Ultimately, this C♮ will have to be displaced by C♯, pc 6, in order to effect the cadence on the dominant in m. 11 (D is pc 7). Thus the PCA may omit pitch classes depending upon compositional factors. However, in such cases there is invariably a second rise which fills in the missing pitch classes of the first ascent. Thus in m. 12, on a first

inversion G triad, the series repeats from pc 0. This time pc 1, G♯ does appear in tenor 1 (m. 17) and passes on to A, pc 2 (same voice), in m. 20. However, within this PCA rise A does not pass on to B♭, a pitch already given within the first PCA ascent, but moves instead to B♮, pc 4 in m. 30, tenor 2. The B♮ ascends to pc 5, C♮, in m. 33 (again, tenor 2 and continuo bass) before it is again displaced by C♯ (m. 34, tenor 1) in preparation for the half cadence on D (pc 7) in the next measure. All of the music up to this point has remained within the C *naturalis* system, no D♯ has yet to appear.

Significantly, Monteverdi saves the D♯, pc 8, for the midpoint of the madrigal (m. 37) and the start of a new line of text. With its introduction as the major third of a B triad, indicated by the "♯" figure below the B in the basso continuo, D♯ effects a system shift up to G *durus*. All this supports the new sentiment in the text: *ma potess'io sequir solingo errante...* ("But if I could follow, wandering alone ..."). At this point the next fifth of the background series can now be unfolded, namely, E (A, in m. 23, was the previous fifth in the series). As it happens, E, pc 9, is also the next pitch in the ascending PCA. The G *durus* system remains in effect until m. 59 when B♭ (in the basso continuo) reverts the system to *naturalis*. During the *durus* modulation, the PCA climb continues with F♮, pc 10 (m. 46, tenor 1) ascending to F♯ in m. 47 (tenor 2). The F♯ at this point has not gained structural significance since it appears only as the fifth of the B major triad that articulates the E major cadence in m. 48. Monteverdi's fifths cycle actually concludes with the B major dominant of E, the cycle then reversing itself, rapidly returning to G, the final of the mode. Thus the E triad in m. 48 and 49 moves to A in m. 50, D in m. 51 as structural dominant, and, finally, G in m. 52. The F♯ in tenor 1 in m. 51 is the structural PCA pc 11 and the subsequent G, now clearly in mixloydian mode, ends the sequence as pc 0. The PCA has thus

encompassed the entire G chromatic octave from G as dorian to G as mixolydian, its "opposite" mode.

But this is not yet the end of the story. The return to G in m. 52 initiates another PCA rise, again starting from pc 0, but now all the operations are accelerated, supporting the image of the lover trying vainly to follow the footsteps of his beloved as she flees from him over mountains and valleys. Thus m. 58 begins the ascent from G, skipping over pc 1, G♯, and rising instead to B♭ in the next measure (with its system shift), all in the continuo bass. The same rise, in diminution, was seen at the opening of the madrigal when tenor 1 sang the identical pitch-class collection – G – A – B♭ – in dotted rhythm. Tenor 1 now takes up the PCA from the continuo bass, and in the same measure, with B♮, pc 4. B♮ passes to C, pc 5 within the same voice, but then transfers the PCA line into tenor 2 with its C♯as pc 6 (still in the same register, however). Naturally, C♯ moves to D as pc 7 in m. 61. As the lover intensifies his expression of adoration for his beloved ("e col cor devoto Amante"), D♯ enters the pitch field tossing the system back up to *durus* (m. 64 on the word "Amante"). D♯ is pc 8 and is supported harmonically by a B major triad which once again move to E in m. 68. E is pc 9 which now passes directly to F♯ (there is no pc 10 in this ascent) as pc 11. Only at the last moment does the system revert back to C *naturalis* when B♭ is introduced in m. 76. Here is the last juxtaposition of the primary dyad conflict of the piece, B♭/B♮. B♭ is once again heard within G minor ('dorian"). But as the last pitches of the PCA unfold, namely F♯ and G as pcs 11 and 0, Monteverdi deliberately ends the piece on octave Gs. Perhaps we are meant to hear the G octave as implying B♮ since the overtone series on G as fundamental would imply the major third. If that is the case, then the previous B♭ would be understood to have resolved itself once and for all to B♮, implied within the context of

the octave G naturals in the final cadence.

Monteverdi's harmonic procedures, in terms of the unfolding PCA , system modulations and hexachord as both harmonic foreground and background, are not unique to his time period, nor even to his nationality. We find very similar compositional concerns in the works of Heinrich Schütz, who most likely studied with Monteverdi in 1628; unfortunately, limitations of space prevent us from exploring these works. The major difference between Schütz and Monteverdi is in the German composer's somewhat greater interest in large-scale prolongations of structurally significant harmonic areas, especially in his later works. But there are many other composers doing this as well; in fact, it would be hard to find a composer whose harmonic language tends towards the chromatic and who does not unfold the chromatic octave or who does not follow the fifth orderings of a system's central hexachord. When modality finally yields to a stronger tonal harmonic organization around the latter part of the seventh century, these conditions are still present, and may now be reinterpreted in light of an encroaching common practice tonality, which is the subject of the next chapter.