# Between Theory and Practice: Aspects of Pitch Organization in North Italian Ensemble Instrumental Music, ca. 1610-1670.

Volume 1

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Submitted for the Degree of Doctor of Philosophy
December 2016

# Acknowledgments

I would like to thank my supervisor, Stephen Rose, for his careful guidance, encouragement, and kind support throughout the whole process. I also wish to thank Lars Berglund for his friendly help and advice all throughout my PhD. Nicholas Baragwanath provided some of the most important insights to help me progress in my research, and kindly shared his knowledge through drafts of his forthcoming book, *The Solfeggio Tradition: A Forgotten Art of Melody in the Long Eighteenth Century*.

I would also like to thank the staff of the British Library, Bodleian Library, Uppsala University Library, University of London Senate House library, and Royal Holloway library. For their help with Italian, German and Latin translations, thanks go to Russell Bateman, Matthew Laube, Laura Loritz, Raffaele Petroni and William Armillei. My friends Lars Berglund, Matthew Laube, Laura Ventura, Katherine McKell and Ester Lebedinski have kindly proofread and provided feedback on various chapters. I have a deep special debt of gratitude toward Sean Dunnahoe for his remarkable Sibelius transcriptions of musical examples and figures. I also wish to thank those who have supported me in multiple ways to help me complete this thesis: Thierry Destribois, Tamara Jones, Lillian Billing, Sean Dunnahoe, Christie Dunnahoe, Peter van Tour, Maria Schildt, Kiersten Leslie, Charlene Degen, and Jean-Paul Bravard. Finally, my greatest measure of gratitude goes to my mother, Martine Lajarige, and my grandmother, Françoise Beausoleil Lajarige; I could not have completed this work without their loving support.

# Declaration of Authorship

I, Clémence Destribois, hereby declare that this thesis and the work presented in it is entirely my own. Where I have consulted the work of others, this is clearly stated.

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# Abstract

This thesis examines aspects of the relationship between seventeenth-century theory and musical practice, with an emphasis on pitch organization in north Italian ensemble music, ca. 1610-1670. Rather than focusing on a single concept, it examines various aspects of pitch organization in that repertoire, with the aim of providing insights that will foster a more nuanced and historically informed analysis of seventeenth-century pitch organization. Chapter 1 introduces seventeenth-century concepts of hexachords and modes, emphasizing how various theorists sometimes use different approaches to describe the same concepts. The choice of cadence degrees and fugal answers in ensemble music ca. 1610-1630 is discussed in chapter 2, which looks for recurrent patterns and examines how the choice of cadence degrees and levels of imitation in opening fugues relate to seventeenth-century theories of mode, church tones, and hexachords. Chapter 3 focuses on seventeenth-century harmonic schemata (such as standardized bass-lines and techniques of cadential elaboration found in seventeenth-century continuo treatises) and shows how these can be used as an analytical tool to understand chord successions and their elaboration in the repertoire. Continuing the discussion of harmonic matters, Chapter 4 shows the method of modal-hexachordal analysis pioneered by Carl Dahlhaus for seventeenth-century music has in fact a firm historical basis; the collection of triads forming a harmonic hexachord on which a piece is based according to Dahlhaus's method corresponds to the six triads commonly used to harmonize a diatonic scale, which is extensively discussed in seventeenth-century continuo treatises. Chapter 5 addresses seventeenth-century modulation, showing how contemporaneous descriptions of scale transpositions must be taken into account, since they implicitly describe the mechanics of modulation (shifts of scale transpositions in the course of a piece). It also underscores the necessity of approaching seventeenth-century modulation from a variety of angles, with an awareness of harmonic as well as linear procedures. Finally, the last chapter explores the affective impact of pitch organization in ensemble works by Marco Uccellini and Maurizio Cazzati, in the light of rhetorical techniques and the seventeenth-century aesthetic of *varietas*.

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All translations are my own unless otherwise indicated. When quoting from primary sources, original spelling has been maintained. Foreign names have been written with English spelling (e.g. 'Diletskii'). Helmholtz notation is used throughout the thesis when discussing melodic motion or ambitus. Upper and lower case letters used in tables discussing cadence degrees represent the quality of the third above the note written in the table (upper case for major, lower case for minor). Em dashes stand for *cantus durus* (e.g. C — signifies C *cantus durus*). Musical examples are mainly taken from modern critical editions as listed in Volume 2.

## Introduction

When in the 1660s the Bolognese *maestro di cappella* Maurizio Cazzati was violently criticized in an anonymous text entitled *Dialogo fatto tra un maestro ed un discepolo desideroso d'approfittare nel contrappunto* for his supposedly 'incorrect' use of mode in the Kyrie of his *Missa primi toni*, Cazzati replied to his accuser to defend his own compositions as follows: [1]

> Many authors have written on the modes, and in particular Zarlino, the Fourth part of his book, ch.28, p.320, expressly says that there are twelve of them. Zagoni [Zacconi], in his book called *Pratica di Musica*, bk.4, ch.12, p.199, also confirms that there are twelve [modes]. Pietro Pontio in his *Ragionamento Terzo*, p.99, says that there are only eight. Angleria in his *Regola di Contraponto*, ch.22, p.8, holds the same opinion, that there are only eight modes; *and he says that many have written about the formation and recognition of the modes, but one confusingly different from another; and for this reason many cannot perceive in what mode a composition may be, [even] when seeing it, much less only when hearing it.*[2] (Cazzati's emphasis)

Cazzati's point is straight-forward: how could his opponent so violently criticize him on a topic that stirred up so much controversy even among authoritative music theorists? If even Camillo Angleria, invoked here by Cazzati, noted the general confusion regarding the number and classification of modes to the point that even seventeenth-century musicians themselves could not determine what the mode of a composition was, how can modern-day scholars analyse this repertoire?

Indeed, the analysis of seventeenth-century music has always represented a challenge for modern-day scholars. One of the most problematic aspects is the very nature

[1] Even though Gaspari attributed this text to Giulio Cesare Arresti, organist at San Petronio in Bologna, research has shown that Arresti is probably not the author. *Oxford Music Online*, s.v. 'Arresti, Giulio Cesare', www.oxfordmusiconline.com (accessed February 18, 2015).

[2] 'Molti autori discorono sopra li tuoni, & particolare il Zarlino nella Quarta parte del suo libro cap.28. car. 320. espressamente dice esservene dodici. Il Zagoni pure nel suo libro intitolato PRATICA DI MUSICA lib. 4 cap. 12 car. 199. afferma anch'egli esservene dodici. Pietro Pontio nel suo Ragionamento Terzo car.99. dice esservene solo otto. L'Angleria anch'egli nella sua Regola di Contrapunto cap.22 car.8. tiene la medema opinione, che otto solo sijno li tuoni, e dice che *molti hanno scritto della formatione, e cognition de'tuoni, mà l'uno dall'altro confusamente, e per questo molti non intendano di che tuono sia una Cantilena, in vederla, e manco in sentirla solamente.'* Maurizio Cazzati, *Riposta alle opposizioni fatte dal Signor Giulio Cesare Arresti nella Lettera al Lettore posta nell'opera sua musicale,* Bologna, Per gli HH. del Dozza, 1663, 1. Original text and translation in Gregory Barnett, 'Modal theory, Church Keys, and the Sonata at the End of the Seventeenth Century', *Journal of the American Musicological Society* 51, no.2 (Summer 1998): 251.

of seventeenth-century tonal language, as the theoretical system which controlled pitch organization in this period remains unclear. It is also challenging to describe pitch organization in this period without conceptualizing it as 'transitional', a teleological term that tacitly implies that the seventeenth-century tonal language is less interesting, or perhaps inferior to what comes before and after it.[3] This modern concept of the 'transitional' quality of seventeenth-century tonal language comes partly from the idea that the period witnessed the passage from a system of modes (whose number and ordering could vary according to the theorists) with two key signatures (nothing in the signature, called *cantus durus*, or one flat, called *cantus mollis*), to a system featuring a reduced number of modes albeit with more possible signatures (generally with up to three sharps or three flats). The music of the era reflects this complex development, and features elements that were commonly used in practice, but not always described in theoretical treatises. Indeed, the theory of modality advocated by sixteenth- and seventeenth-century theorists does not clearly relate to musical practice, and it seems that many aspects of the seventeenth-century system of pitch organization are not addressed in contemporaneous sources. The focus of the present study is precisely this relation between early theory and practice in seventeenth-century Italian ensemble music, with a particular stress on pitch organization, as will be explained below.

In the light of these complex developments, how can we approach the analysis of seventeenth-century music? To borrow terms used by Thomas Christensen, should we take a 'presentist' approach, and consider that the overriding criteria is how music of the past sounds to our present-day ear, or a 'historicist' approach, striving to re-educate our ear to hear things as seventeenth-century musicians heard them?[4] Is it even possible to hear early music with 'period ears', and can we recapture the revolutionary sense of innovation in seventeenth-century music when we are accustomed to hearing music of subsequent centuries? To what extent may contemporaneous treatises help us reconstruct 'period hearing', and are we able to read early treatises correctly to understand ideas of the past?

Peter Schubert and Shai Burstyn have addressed the dangers of a historicist approach. For Schubert, the main problem with 'authentic analysis' drawing on contemporaneous music treatises is that we have no 'original thinkers' to help us interpret

[3] On the nature of 'transitional' periods, see Jonathan Wainwright, 'From 'Renaissance' to 'Baroque'?', in *From Renaissance to Baroque; Change in Instruments and Instrumental Music in the Seventeenth Century*, ed. Jonathan Wainwright and Peter Holman (Aldershot: Ashgate, 2005), 1-21.
[4] Terms taken from Thomas Christensen as quoted in Peter Schubert, 'Authentic Analysis', *The Journal of Musicology 12*, no.1 (Winter 1994): 15.

music and early treatises correctly.[5] Schubert takes Bernhard Meier as a case study, among others, and denounces numerous weaknesses in his attempt at an 'authentic analysis' of sixteenth-century vocal polyphony.[6] Indeed, Meier aims to analyse this repertoire using concepts of modality, but hardly acknowledges the gap between theory and practice. For instance, he measures the relevance of the theoretical discourse to the music itself based on his comprehensive knowledge of the sixteenth-century polyphonic repertoire. However, this leads him to eliminate a number of theoretical sources, or to use only parts of treatises, based on his judgment that they are too 'speculative' because they do not reflect what he thinks is typical in musical practice.[7] Schubert also invokes what he sees as contrived interpretations of expression of text via modal deviations, with Meier's notion of 'irregular cadences', among other things.[8] In sum, Schubert asserts that Meier's attempt to discuss the modes 'according to the sources' and analyse their application to polyphonic music is impossible 'without making numerous, personal, arbitrary choices'.[9] He points out that, unlike his stated purpose, what Meier does is to discuss how 'Renaissance composers *could have* intended a relationship between mode and text', and that he 'offers us insights, not "truth"'.[10] Schubert seems to favour instead a dialogue between the 'presentist' and the 'historicist' and quotes Thomas Christensen who advocates a middle way:

> It is in the mutually defining relation between the past and present that the hermeneutic process of dialogue takes place…By means of the hermeneutic circle, we see that real historical interpretation involves neither the domination of the historian over the past nor his submission to it. Rather it occurs by means of a dialogue carried on through the pathway of tradition…By virtue of the filiations of tradition and communality of language that connects us to the past, a text can still have a common meaning for us.[11]

Schubert adds this cautionary advice regarding the historicists' approach:

> There is no way to establish an unequivocal connection between writings on music and the music itself (even the composers themselves have proven untrustworthy). In order not to show bad faith with the past, it might be reasonable to try to come up with theories that do not conflict openly with at least *some* theories of the period.[12]

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[5] Peter Schubert, 'Authentic Analysis', *The Journal of Musicology* 12, no.1 (Winter 1994): 3-4.
[6] Bernhard Meier, *Die Tonarten der Klassischen Vokalpolyphonie* (Utrecht: Oosthoek, Scheltema & Holkema, 1974). Meier's book has been translated by Ellen S. Beebe as *The Modes of Classical Vocal Polyphony* (New York: Broude Brothers, 1988).
[7] Schubert, 'Authentic Analysis', 6-7.
[8] Ibid., 8-10.
[9] Ibid., 10.
[10] Ibid.,13;16.
[11] Ibid., 15.
[12] Ibid.

Most importantly, Schubert asserts that whether we opt for a presentist or historicist approach, analyses must have a clearly stated purpose, be intellectually viable and speak to the reader.[13]

Burstyn examines this issue from the listener's perspective.[14] Regarding the question of hearing music with 'period ears' he states:

> We can never experience music as they did, even if we listened to the very same performance, were it possible […]. For the same reasons, we cannot use our aesthetic response as evidence – with or without scare quotes – of the musical perception of early listeners.[15]

Taking medieval music as an example, he claims that our experience listening to that music is, arguably, very different from how people of the past experienced it.[16] However, he adds that we can reconstruct how people *may have* heard music based on historical knowledge acquired through extant documents, an investigation of how past cultures and societies conceptualized and perceived space and time, and our own musical sensibility.[17] He outlines that our own, biased perception of the past should not discourage us from engaging with exercises in 'musical-historical imagination', but cautions that this kind of approach cannot pretend to provide an 'authentic' aesthetic judgement of early music.[18] Burstyn also underscores the importance of analysis in the quest of period listening, albeit acknowledging that 'even the restriction to contemporary theoretical musical concepts does not ensure a direct line to listening habits'.[19]

Both Schubert and Burstyn emphasize the importance of historicists clearly defining the purpose of their analyses. This seems to be one of the most problematic weaknesses in Meier's work. Indeed, no-one can pretend to restore period hearing; one can only give a glimpse of how musicians of the past *may have* composed, perceived, and performed music.

Margaret Bent and Cristle Collins Judd agree, like Schubert and Burstyn, on the unrealistic and unattainable nature of a quest for authentic 'sound' or 'period' hearing; but they nonetheless stress the necessity of being familiar with past musical styles and early treatises to achieve meaningful performances and gain a deeper understanding of the

[13] Ibid., 18.
[14] Shai Burstyn, 'In Quest of the Period Ear', *Early Music* 25, no. 4 (Nov., 1997): 692-697; 699-701.
[15] Ibid., 694.
[16] Ibid., 695.
[17] Ibid., 695-700.
[18] Ibid., 695-696.
[19] Ibid., 697.

history of music theory, thus leaning towards the 'historicist' side. Bent argues that even though modern musicians inevitably perceive early music from the standpoint of the present day through the prism of their own experiences, early music performers must gain a sense of the repertoire's style and the 'rules' of its musical 'grammar'.[20] For her, becoming familiar with the musical language of a particular repertoire, for instance its contrapuntal style, voice leading, and harmonic language, is necessary to give more coherent and sensible performances of that repertoire. Bent sides with John Rink as he asserts that

> To make sense of the music in whole or in part virtually *requires* an understanding of original compositional and interpretative criteria – not in order to achieve a putative authenticity (a chimerical if not downright naïve goal…), but to provide essential terms of reference for 'meaningful' modern-day performances.[21]

Judd presents a similar argument regarding music theory. Just as Christensen favours a form of dialogue between past and present, she strongly advocates the development of a greater historical awareness and continuity between the past and the present in the study of the history of music theory.[22] She notes that histories of music theory are too often presented as mere chronological lists of theorists outlining differences and innovations between them.[23] Judd claims that engaging in a dialogue between past and present allows us to show 'why earlier theorists offered certain insights and how they shape our own interpretation – of what it is we share in our own apprehension', since their conventions have shaped ours nowadays.[24] For her, a meaningful reading of an early treatise can only be done in the context of a broad, integrated understanding of what came before and after that treatise was written.

Bent and Judd rightly underscore the importance of contextualizing performance and historical research in music theory, respectively, by showing how our ways of listening to and performing music may be modified by research into historical styles and an understanding of the past as existing on a continuum with the present. However, this

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[20] Margaret Bent, 'Impossible Authenticities', *Il saggiatore musicale* 8, no.1, *La Storia della musica: Prospettive del secolo XXI Convegno Internazionale di studi, Bologna, 17-18 novembre 2000* (Bologna: Leo S. Olschki, 2001), 46; 48.
[21] John Rink, 'Translating Musical Meaning: The Nineteenth-Century Performer as Narrator', in *Rethinking Music*, ed. N. Cook and M. Everist (Oxford: Oxford University Press, 1999), 219. Quoted in Bent, 'Historical Authenticities', 49.
[22] Cristle Collins Judd, 'The Dialogue of Past and Present: Approaches to Historical Music Theory', *Intégral* 14-15 (2000-2001): 56-63.
[23] Ibid., 58.
[24] Ibid., 62.

should be taken with the caveat of the possible misreading of early sources, and the danger of mistaken assumptions regarding how people of the past conceived their own 'musical grammar'. As in the case of Meier invoked by Schubert, it all depends on the researcher's stated purpose.

How then can we, in practical terms, analyse early music in a viable way? In response to these complex questions, scholars have analysed sixteenth- and seventeenth-century repertoires using a wide array of methods and with a variety of purposes. Some have adopted a strongly presentist approach, describing early music in a language largely influenced by functional harmony, with no specific concern for historical 'authenticity'.[25] Saul Novack, for instance, has analysed the music of Josquin Desprez and Heinrich Isaac in tonal terms, and has even provided Schenkerian analyses of works dating from before 1600.[26] David Gagné has applied Schenkerian analysis to the music of Monteverdi, reflecting on the relative structural importance of notes and chords in the use of the romanesca pattern.[27] The examination of voice-leading in Monteverdi's middle-ground structures has been the focus of Geoffrey Chew, who used Schenkerian-inspired methods to show how contrapuntal schemata relate to linear descents, thereby illuminating typical linear intervallic patterns (such as apparent chains of consecutive fifths) in the repertoire.[28] Even though Susan McClary's voice-leading analyses are based on concepts derived from contemporaneous modal theory, her analyses are also strongly influenced by concepts of goal-directedness similar to those of Schenkerian theory.[29] In her study of the transition from modal to tonal organization in Monteverdi's vocal pieces, she modifies Schenkerian methods to ideas of the modal octave: for her, modal schemata utilise structures based on the linear *diapente* (the melodic fifth above the final in the modal octave) and *diatessaron* (the complementary melodic fourth in that same modal octave), which give direction and 'modal' coherence to passages of music.

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[25] David Schulenberg has warned against such presentist approaches, particularly those of scholars who seek to apply Schenkerian theory to non-tonal music. See David Schulenberg, 'Modes, Prolongations and Analysis', *The Journal of Musicology* 4, no.3 (Summer 1985-Summer 1986): 303-329.

[26] Saul Novack, 'Fusion of Design and Tonal Order in Mass and Motet: Josquin Desprez and Heinrich Isaac', in *The Music Forum*, vol. 2, ed. William J. Mitchell and Felix Salzer (New York: Columbia University Press, 1970), 187-263; 'The Analysis of Pre-Baroque Music', in *Aspects of Schenkerian Theory* (New Haven: Yale University Press, 1983), 113-133.

[27] David Gagné, 'Monteverdi's *Ohimè dov'è il mio ben* and the Romanesca', in *The Music Forum*, vol. 6, part 1, ed. Felix Salzer (New York, Columbia University Press, 1987): 61-91.

[28] Geoffrey Chew, 'The Perfections of Modern Music: Consecutive Fifths and Tonal Coherence in Monteverdi', *Music Analysis* 8, no.3 (Oct. 1989): 247-273.

[29] See Susan McClary, 'The Transition from Modal to Tonal Organization in the Works of Monteverdi' (PhD diss., Harvard University, 1976); Gregory Barnett, 'Modality According to McClary', *Early Music* 41 (2013): 337-340.

Because seventeenth-century music is often perceived as mixing modal and tonal traits, some scholars have set out to approach seventeenth-century music by striving to distinguish between aspects that are 'modal', and others that belong to functional harmony. To some extent, McClary follows this approach, as she employs a terminology found in contemporaneous treatises, albeit mixed with terms of functional harmony, to discuss the 'transition' from modality to tonality in Monteverdi's music. Robert Wienpahl, in an attempt to trace what he termed the 'evolution' of modality into tonality, classified some pieces as belonging to 'monality', a term he coined to describe pieces that mix modal and tonal elements.[30] Eva Linfield sought to underscore modal versus tonal elements in the vocal music of Heinrich Schütz, emphasizing the non-functional and non-hierarchical relationship between chords in Schütz's tonal language.[31] Leaning toward the historicist side, Linfield also attempted to apply descriptions of the principle of modulation as found in Athanasius Kircher's *Musurgia universalis* (1650) and Christoph Bernhard's *Tractatus compositionis augmentatus* (c. 1657) to the vocal music of Heinrich Schütz.[32]

By contrast, some scholars have sought to infer a method of analysis proper to the seventeenth century by identifying aspects of the tonal language of that time-period and designing methods of analysis that fit its particularities, with a particular focus on Monteverdi's polyphonic madrigals. Carl Dahlhaus wrote a set of studies on the emergence of tonality, ending with his famous analysis of Monteverdi's madrigal *O Mirtillo, Mirtillo anima mea*.[33] Dahlhaus perceived in Monteverdi's music what he called a 'society of component keys' [*Teiltonarten*], connected via a 'coordinate structure' that lacks a hierarchical relationship between pitches and chords, as opposed to the 'subordinate structure' apparent in functional harmony, where all the notes and triads are organized hierarchically around the tonic.[34] In accordance with his observations, Dahlhaus developed a model of seventeenth-century music analysis that was later expanded by Eric Chafe to reflect more accurately the shifts of transposition levels that are found in Monteverdi's madrigals. Beverly Stein, who was Chafe's student, later analysed shifts of 'systems' (in

[30] Robert W. Wienpahl, 'Modality, Monality, and Tonality in the Sixteenth and Seventeenth Centuries', *Music & Letters* 53, no. 1 (Jan. 1972): 59-73.
[31] Eva Linfield, 'Modal and Tonal Aspects in Two Compositions by Heinrich Schütz', *Journal of the Royal Musical Association* 117, no. 1 (1992): 86-122. Linfield partly based her discussion on sixteenth- and seventeenth-century treatises.
[32] Eva Linfield, 'Modulatory Techniques in Seventeenth-Century Music: Schütz, a Case in Point', *Music Analysis* 12, no. 2 (July 1993): 197-214.
[33] Carl Dahlhaus, *Studies on the Origin of Harmonic Tonality*, trans. Robert O. Gjerdingen (Princeton, NJ: Princeton University Press, 1990).
[34] Ibid., 289-323.

Chafe's model, the term 'system' is equivalent to key-signature level) in Giacomo Carissimi's vocal music.[35]

The present thesis adopts a historicist approach by examining aspects of the interaction between theory and musical practice with an emphasis on pitch organization in north Italian ensemble music ca. 1610-1670, drawing on insights found in sixteenth- to early-eighteenth-century treatises and pedagogical handbooks. Even though this thesis is strongly in the historicist mould, some chapters also include reflections on modern-day methods of early music analysis in parallel with my readings of early treatises, so that my approach also engages in a form of dialogue between past and present, as advocated by Christensen and Judd.

The north Italian ensemble music repertoire has been chosen for analytical case studies in this thesis because it has been largely overlooked by modern-day analysts. Scholars of early- to mid-seventeenth-century pitch organization such as Dahlhaus, Chafe, McClary, Stein or Linfield all focused on vocal music. The tonal language of the late seventeenth-century ensemble sonata, above all as found in Corelli's work, has also been the subject of research by scholars such as Gregory Barnett or Christopher Wintle, among others.[36] However, as Barnett noted, much remains to be done on early-to-mid-seventeenth-century ensemble instrumental music.[37] Indeed, the seventeenth-century tonal language as manifest in that repertoire is particularly interesting, partly because of its reliance on the use of harmonic schemata, and partly because the development of the trio texture provides an interesting combination of the vertical and horizontal parameters of music. Most importantly, because this repertoire does not feature texts, aspects of pitch organization are fundamental to the structure of compositions.

Northern Italy witnessed the development of a very rich repertoire of ensemble music in the seventeenth century. The creation of ensemble instrumental music was fuelled by both the demands of the Church, which required instrumental music for its services, and by the creation of academies dedicated to the study of music, such as the Accademia dei Floridi, founded around 1615 by Adriano Banchieri, and the famous Accademia Filarmonica of Bologna, founded in 1666 and modelled after Banchieri's academy. Many

[35] See Eric Chafe, *Monteverdi's Tonal Language* (New York: Schirmer Books, 1992); Beverly Stein, 'Between Key and Mode: Tonal Practice in the Music of Giacomo Carissimi' (PhD diss., Brandeis University, 1994). Dahlhaus's and Chafe's models are discussed in Chapters 2, 4 and 5.
[36] See Barnett, 'Modal Theory, Church Keys, and the Sonata', 245-281; Christopher Wintle, 'Corelli's Tonal Models: The Trio Sonata Op. III, no.1', in *Nuovissimi Studi Correliani*, Quaderni della 'Rivista Italiana di musicologia' 7 (Firenze: Leo S. Olschki, 1982), 26-69.
[37] Barnett, 'Modal Theory, Church Keys, and the Sonata', 281.

ensemble music composers were thus compelled to produce enormous amounts of music in a limited time, such as Maurizio Cazzati in Bologna, for instance, who published numerous printed collections. Stephen Bonta and Peter Allsop describe how free instrumental music, including sonatas and canzonas, was performed during the Gradual, Offertory and Communion and Elevation of the Mass.[38] Some of this repertoire was also written for courtly entertainment or pedagogical purposes, as with many pieces by Marco Uccellini, who was in charge of the musical education of the Estense family for several years.[39]

For the purpose of this thesis, I have chosen pieces originally conceived for two or more instruments to play together, including trio sonatas (a genre that still was not clearly established in the first half of the seventeenth century, but which may be considered a subset of the general category of ensemble sonatas). I have excluded dance music and pieces with texts (implying a vocal part), bearing in mind that many compositions of that period may be difficult to categorize. Indeed, as Allsop claimed, 'compositions for instrumental ensembles appeared under a variety of designations, and the numerous instances of inconsistencies and equation obviously preclude precise categorization'.[40] Moreover, as John Caldwell has noted, the terms the terms 'canzona', 'sonata' and 'sinfonia' were frequently interchangeable in the realm of ensemble instrumental music, as genre-specific musical features were not always well defined yet.[41] For these reasons, I have deemed acceptable to include in Chapter 2 a sample of pieces including ensemble sonatas, canzonas and a few sinfonias for a study of cadences degrees and opening fugal sections. In addition, it seems that compositional procedures employed in sonatas and canzonas are similar in the first half of the century, since both usually feature imitative and homophonic sections. Subsequent chapters include ensemble sonatas and canzonas, as well as a capriccio (added for its particular relevance to Chapter 6, dealing with the expression of rhetoric and affect).

Although this thesis presents case studies from the north Italian ensemble music repertoire, it does not intend to be representative of that repertoire; only the second chapter offers a wide cross-section of ensemble music from the period 1610-1630, whereas the other chapters present case studies illuminating aspects of the relationship between theory and practice. For this reason some pieces are chosen (such as Maurizio Cazzati's *Capriccio*

[38] Stephen Bonta, 'The Uses of the Sonata da Chiesa', in *Studies in Italian Sacred and Instrumental Music in the Seventeenth Century*, Variorum collected studies series (Aldershot: Ashgate,2003), 54-84; Peter Allsop, *The Italian Trio Sonata from its Origins until Corelli* (Oxford: Clarendon Press, 1992), 59-66.
[39] Allsop, *The Italian Trio Sonata*, 55-59.
[40] Ibid., 50.
[41] *Oxford Music Online*, s.v. 'Canzona', www.oxfordmusiconline.com (accessed February 21, 2017).

*detto il Gozadini*, from his Op. 50) because their exceptional nature raises provocative questions about the nature of pitch organization in the period.

Even though this thesis focuses on seventeenth-century Italy, its discussion of historical music theory includes non-Italian treatises as well as treatises that span a broader date range. The thesis generally focuses on seventeenth-century treatises. However, I have chosen to include some references to Glarean and Zarlino because they remained extremely prominent figures in the seventeenth century, leaving aside arguably less influential sixteenth-century theorists. The last chapter also includes a few references to other sixteenth-century theorists when their discourses include elements not explicitly discussed by seventeenth-century theorists, but arguably still influential in seventeenth-century practice. References to early eighteenth-century theorists have been made on the assumption that they reflect earlier musical practice.

As mentioned earlier, my discussion draws not only on Italian treatises, but also theory written further afield, notably in German-speaking lands. It is well-known that the seventeenth century witnessed important musical-cultural exchanges between Italian and German lands; a great number of German musicians went to Italy to perfect their musical education or referred to Italian musicians in their theoretical writings, and Italian musicians, trained in their native country, pervaded German courts and cities. This is the case with most of the German theorists discussed in this thesis. The very influential, German-born Athanasius Kircher taught in Rome at the Collegio Romano and several of his musical examples in *Musurgia universalis* (1650) feature Carissimi's vocal works (discussed in Chapter 5). Christoph Bernhard made two trips to Italy to perfect his understanding of Italian composing and singing techniques, encouraged by the Elector of Saxony Johann Georg II, who prized Italian music and employed a great number of Italian musicians at his court. Johann Andreas Herbst's *Musica pratica* (1642) provides guidelines on how to sing in the Italian style, and Spiridion a Monte Carmelo declared in *Nova instructio pro pulsandis organis* (ca. 1670-1675, discussed in Chapter 3) that he received his musical training from Italian abbot Francesco of Spezia, most likely indicating Italian influences on his treatise on keyboard improvisation. Among the well-known Italian-born composers trained in Italy who were employed in German-speaking lands is Antonio Bertali (active in Vienna), whose entire output retains strong links with the early seventeenth-century north Italian tradition.[42]

[42] *Oxford Music Online*, s.v. 'Bertali, Antonio', www.oxfordmusiconline.com (accessed February 18, 2017).

In the early eighteenth century, Johann David Heinichen spent more than six years in Venice and Rome, determined to learn the Italian operatic style, leaving behind a promising career in Leipzig. Johann Mattheson, cited in Chapter 1, showed his knowledge of Italian practice by explaining that 'the Italians and contemporary musicians' classify 'keys' starting with the church tones (see Chapter 1, pp. 83-85).[43] It is therefore highly probable that Italian pedagogues, composers and performers had a strong influence on various aspects of German music making. Throughout the thesis I make a few references to other German or Spanish authors, based on the similarities of their ideas with Italian concepts (a large part of southern Italy as well as Milan were under Spanish control in the seventeenth century, suggesting exchanges between the two cultures), and a Russian theorist (for reasons explained in Chapter 1, pp. 71-72).

This broader approach, as any other, has its limitations. Indeed, research often needs to restrict itself to specific geographic or chronological areas, and certain notions described in treatises may apply only to a certain geographic area within a specific date range. Nonetheless, such a broader view may also shed light on particular problems, as musicians and theorists of various cultures may express similar things in a different way. Arguably, non-Italian treatises subject to the influence of Italian musical culture may thus provide insights into seventeenth-century theory and musical practice.

In this thesis, I strive, as Stein did, to understand and analyse seventeenth-century music via the lenses of contemporaneous linear hexachordal theory, which, along with modal theory, was at the heart of seventeenth-century musicians' conception of tonal space. Following Dahlhaus and Chafe, I also consider harmonic hexachords, which provides insights on important aspects of the seventeenth-century conception of tonal space. I avoid the use of anachronistic terminology connected to modern functional harmony, and I seek to use terminology found in treatises, and, occasionally, terms of my own invention when deemed necessary. A specification of the meanings of the terms I use throughout this thesis is necessary here:

- **Scale**:

I use this term to denote an infinite set of tones and semitones with no fixed 'final' (no beginning or end), as defined by seventeenth-century theorist Lorenzo Penna (see Chapter 5, footnote 5).

[43] Johann Mattheson, *Das Neu-Eröffnete Orchestre* (Hamburg, 1713), 60.

- **Mode**:

In seventeenth-century sources, a set of tones and semitones with a fixed beginning and end, characterized mainly by species of fourths and fifths (*diatessaron* and *diapente*), specific cadences degrees, ambitus, and a final. The terms 'modo' and 'tono' (or 'tuono') were often used interchangeably in seventeenth-century sources, even though 'tuono' tended to denote church tones (also called 'psalm-tone tonalities' by some scholars), as will be discussed in Chapter 1. For the sake of this study, I have reserved the term 'tone' only for church tones (defined below). Throughout this thesis, I refer to three kinds of uses of the term 'mode', as employed by early theorists: 1) the eight-mode system, used from the medieval period through the sixteenth century and beyond, featuring authentic and plagal modes with finals on D, E, F and G; 2) the twelve modes as described by Glarean and Zarlino, featuring authentic and plagal modes with finals on D, E, F, G, A and C; 3) the practice of some theorists of referring to modes by their starting solmization syllables (usually *do*, *re* or *mi*). Therefore, I sometimes refer to *do* and *re* 'modes' (using the term 'mode' with quotation marks) to denote the set of tones and semitones above a tonal focus or final. I use quotations marks in this case because my use of the term 'mode' in analyses may differ from the way sixteenth and seventeenth-century musicians may have used it.

- **Church tones:**

Also known among modern scholars as 'church keys' or 'psalm tone tonalities', the church tones are a set of eight 'tonalities' that emerged from the alternatim performance of psalm tones, where the organ would customarily transpose certain psalm tones to accommodate the choir (see Chapter 1, pp. 52-53). I sometimes use the term 'tone' to designate one of the church tones. In the absence of specific modal designations, I have decided to discuss 'tonalities' as 'church tones' or 'tones' because these are described by seventeenth-century theorists as the most commonly used in musical practice. Because the Cazzati capriccio analyzed in Chapter 6 includes the term 'toni' in its title, I refer to the various 'tonalities' of this piece as 'tones', even though Cazzati may not have originally conceived them as transpostions of the church tones. Used in another context, the term 'tone' may also simply designate a musical pitch or sound.

- **Final**:

in seventeenth-century treatises, this term denotes the note located at the bottom of the mode's species of fifth (*diapente*). In my musical analyses, I use this term to denote the root of the final chord of a piece.

- **Tonal focus:**

Emphasis on a certain note in a specific section or passage of music, usually via cadences on that note at the end of the section or passage in question. In that sense, the 'final' of a piece in my analyses (as defined above) may also be considered a tonal focus.

- **Hexachord:**

A set of tones forming a *do-re-mi-fa-sol-la* sequence. The thesis makes a distinction between linear hexachords (as addressed in sixteenth- to eighteenth-century treatises) and 'harmonic' hexachords (my term), whereby the root of each triad found in a diatonic scale forms a hexachord, as in Carl Dahlhaus's and Eric Chafe's model of analysis (discussed in Chapters 2, 4 and 5).

- **Modulation:**

Transposition of the scale (conceived as an infinite sequence of tones and semitones, as defined above) to a new essential scale (the underlying scale once *ficta* accidentals are removed) in the course of a piece.

- **Transposition**:

This term may take on different meanings, which will be specified in the text according to each situation.[44] The term may refer to the transposition of a whole piece up or down by any interval to accommodate singers or to suit the tessitura or tuning of specific instruments. It may also designate the exact transposition (repeating the same intervals) of a motive, musical phrase, section, etc. in the same scale (using the term 'scale' as defined above), or in a new diatonic scale (in which case the term 'scale transposition', or 'modulation' is used). Finally, it may also be used to describe the inexact transposition of a motive, musical phrase, section, etc. in the same scale, or in a new diatonic scale. The notions of exact and inexact transpositions can also apply to harmonic structures.

When engaging with seventeenth-century music analysis of pitch organization, it is also essential to keep in mind that the period saw important developments with regard to notation. The question of seventeenth-century notation is very vast and complex, and only one aspect will be underscored here. Seventeenth-century Italian musicians had a common understanding of the principles of *musica ficta*, whereby certain pitches would be inflected in performance depending on melodic and harmonic context.[45] The alteration of these

[44] Compare with Chafe's fourfold taxonomy of types of transpositions listed in Eric Chafe, *Monteverdi's Tonal Language* (New York: Schirmer Books, 1992), 31.
[45] For detailed discussion of the use of *musica ficta* up to the sixteenth century, see Karol Berger, *Musica ficta: Theories of Accidental inflections in Vocal Polyphony from Marcheto da Padova to Gioseffo Zarlino* (Cambridge: Cambridge University Press, 1987).

pitches was often implied and the *ficta* accidentals were not always notated. There are three general rules to keep in mind in relation to this practice. First, musicians sought to avoid vertical and melodic intervals such as tritones, augmented fourths, diminished fifths and octaves by adding a flat sign (singing the note as *fa*) so as to always keep perfect intervals and to eliminate any problematic '*mi contra fa*' situations. Second, when a melody rose only one step above a hexachord and then returned to that hexachord, the single note above the hexachord was sung as a semitone (sung as *fa*, flattening that pitch if necessary); this was commonly described among theorists as the '*fa sopra la*' rule.[46] Third, a sharp sign was generally added at cadences on the pitch right below the final, and to the third of a final chord to form a major triad (*tierce picarde*), and could also appear to smooth out voice leading in certain situations (such as a sixth modified with a sharp to resolve up to an octave). In the seventeenth century, *ficta* inflections could be added in performance, or specified in notation. The analyst then faces the challenge to determine whether the presence of notated flat or sharp signs indicate *ficta* inflections, or the transposition of a scale (modulation). In this thesis, I seek to discuss the music with an awareness of the principles of *musica ficta* as described above, keeping in mind that further research on seventeenth-century musical notation may shed new light on the points I argue.

Finally, issues of tuning and temperament must also be considered. While singers and players of string instruments could easily adjust to various tonalities and intonations of sharps and flats, fixed pitch instruments depended on temperament. In the first half of the seventeenth century, keyboard instruments were usually tuned in some form of meantone temperament, where eleven fifths were slightly narrowed in order to produce pure (or close to pure) major thirds on certain notes. For instance, quarter-comma meantone, one of the most common temperament used at the end of the Renaissance, results in pure major thirds in the triads on C, D, E♭, E, F, G, A and B♭. Other types of meantone temperaments were also used in the seventeenth-century (such as sixth-comma meantone), where all major third were slightly tempered, thus allowing the fifths to sound slightly better.[47] The various types of meantone temperaments did not allow for a full circle of fifths to be performed, since when tempering each fifth up or down the circle by a fraction of a comma, the last 'fifth' (known as the 'wolf fifth') was too wide (it is actually a diminished sixth). Even though the location of the 'wolf fifth' could vary depending on the starting point for the

[46] 'Una nota super la semper est canendum fa'.
[47] Other types of temperaments also flourished in the seventeenth century, such as irregular temperaments where fifths were tempered up to three different ways on a single instrument.

tuning, it was usually situated between G♯ and E♭. One solution to the problem was the use of keyboards with one or two split keys per octave to accommodate sharps and flats (often G♯ and A♭, as well as D♯ and E♭), which allowed the addition of B major and A♭ major triads to the eight 'good-sounding' major triads listed above. This also allowed keyboards to play in a wider range of tonalities. These questions of tuning and temperament were crucial to seventeenth-century musicians, who increasingly incorporated chromaticism and unusual 'keys' in their compositions. Moreover, meantone temperaments resulted in beautiful, sonorous major triads, while intervals of seconds, seventeenths or tritones were generally harsher to the ear, heightening the rhetorical impact of pitch organization (as will be discussed in Chapter 6).

Just as notions of 'authentic' performances or listening with 'period ears' are utopian, it is unrealistic to aim for 'authentic' analysis. Nonetheless, this thesis hopes to provide some insights regarding how musicians of the past *may have* conceived and experienced their music by establishing connections between principles described in extant treatises and pieces from the ensemble music repertoire. It seeks to challenge the way modern-day musicians and listeners apprehend that music by helping them re-hear and remould their aural expectations, and to recapture the freshness and innovation that the original performers and listeners perceived in this repertoire.

The first chapter of this thesis introduces seventeenth-century concepts of hexachords and modes. It contributes to scholarship by discussing in depth the close relationship between the so-called eight 'church tones', often described in contemporaneous sources as the modes commonly used in modern practice, and the use of four (or two) *do* and *re* 'modes' (*do* 'mode' for major-third and *re* 'mode' for minor-third modes), as discussed by theorists such as Andreas Werckmeister or Francesco Gasparini. In addition, it shows that the scales presented in treatises and manuals discussing *canto figurato* such as Lorenzo Penna's *Li primi albori musicali* (1672), among others, shed light on the reduction of the number of modes mentioned by several theorists. The chapter shows that an examination of the various ways in which theorists conceptualized scales and modes reveals that they sometimes used different approaches to describe similar concepts.

Chapter 2 offers the first systematic study of the choice of cadence degrees and fugal openings in Italian ensemble instrumental music in the period ca. 1610-1630. The first part of the chapter analyses how cadence degrees in that repertoire compare with seventeenth-century recommendations for cadences in modal theory, taking the eight

church tones as a basis for comparison. The second part of the chapter examines opening fugal passages. For each church tone, the levels of imitative entries and the nature of fugal answers (real or tonal, including the use of the same hexachord syllables in subject and answer) are analysed in the light of sixteenth-century modal theory, seventeenth-century theory of the church tones, seventeenth-century discussions of real versus tonal answers, and hexachordal theory. The chapter discusses what may be inferred from these observations on cadences and fugal openings about how Italian composers of ensemble music conceptualized tonal space.

Harmonic schemata of the early- to mid-seventeenth-century are the object of study of Chapter 3. Although harmonic schemata have been previously studied in improvised repertoires such as guitar and keyboard music, this is one of the first studies of their use instrumental ensemble music. The chapter introduces the standard harmonization patterns taught in continuo treatises such as Lorenzo Penna's *Li primi albori musicali* (1672) and treatises on improvisation such as Spiridion's *Nova instructio pro pulsandis organis* (1670-ca.1675), since the discipline of basso continuo was not limited to accompanists, but was also relevant for all musicians who desired to learn improvisation, which was inextricably linked to composition in the seventeenth century. In addition, it discusses harmonic and melodic schemata derived from standardized bass-lines found in dance and other improvisation traditions, such as the romanesca, passacaglia, chaconne and passamezzo, among others. With reference to compositions by Andrea Falconieri, Maurizio Cazzati and Salamone Rossi, the chapter discusses how these schemata were used in composition and were often embellished, showing the contrast between freely-written sections and sections that were assembled from schemata like a kit of parts. The analysis of Rossi's romanesca also suggests new perspectives on the development of hierarchical harmony. Deployed through techniques of variation, extension and truncation, these schemata could shape musical compositions in numerous ways.

Continuing the discussion of harmonic matters, Chapter 4 examines the principles of continuo playing and their harmonic implications in relation to the two main seventeenth-century scalar systems (*cantus durus* and *cantus mollis*), as described in seventeenth-century treatises, such as those of Bianciardi, Banchieri, Sabbatini and Penna. The chapter argues that continuo treatises provide contemporaneous theoretical evidence that Dahlhaus's and Chafe's modal-hexachordal analysis is an appropriate model for seventeenth-century music, thereby addressing the criticism of a lack of historical fidelity that some scholars have made against such models. The chapter concludes with two

musical examples showing how the principles of continuo realization may partly explain a composer's harmonic choices, and illustrates how Dahlhaus's model implicitly reflects these principles of continuo realization.

Chapter 5 addresses notions of seventeenth-century modulation. The chapter includes a discussion of concepts that may affect the analysis of seventeenth-century modulation, such as *musica ficta* and the rare allusions to the principles of 'modulation' in seventeenth-century treatises, particularly the concepts of *mutatio toni* and *mutatio modi* as employed by Athanasius Kircher and Christoph Bernhard. It argues that theoretical descriptions of scale transposition to accommodate singers, which modern scholars have overlooked in the context of a study of modulation, must also be taken into account, since they implicitly describe the mechanics of modulation (shifts of scale transpositions in the course of a piece). Indeed, the terminology employed for modulation in the eighteenth century often appears in seventeenth-century treatises in connection to transposition, showing the connection between the two concepts. In addition, this chapter argues that seventeenth-century modulation must be approached from a variety of angles, a point which has never been fully discussed in modern scholarship; an understanding of *ficta* accidentals, along with Eric Chafe's method of harmonic analysis and a linear hexachordal analysis in the light of seventeenth-century descriptions of scale transposition, can lead to a more global, multi-levelled understanding of modulation.

The thesis closes with an examination of the affective impact of pitch organization in seventeenth-century Italian ensemble music within the framework of a rhetorical interpretation of composition and performance. Chapter 6 provides insights from contemporaneous sources (some of which have never been discussed in that context, such as Silverio Picerli's *Secondo Specchio* (1631)) to help modern listeners hear seventeenth-century as early musicians and audiences may have heard it. This chapter first addresses seventeenth-century ideas on rhetoric as applied to music, as well as seventeenth-century stylistic concepts that may affect the expression of emotion in instrumental music. It then discusses the affective implications of intervals, consonances and dissonances, accidental signs, and modes and keys, as reflected in sixteenth- and seventeenth-century treatises. The chapter ends with two comprehensive analyses of pieces by Marco Uccellini and Maurizio Cazzati, arguing that aspects of pitch organization such as modulation, transposition, and the use of dissonances all enhance the rhetorical effect and emotional impact of instrumental ensemble pieces. By opening new perspectives through these analyses, I hope

to show how modern ears can be re-educated to hear the expressive power within the grammar of seventeenth-century pitch organization.

# Chapter 1
# Aspects of Seventeenth-Century Theoretical Conceptions of Hexachords and Modes.

This chapter introduces the seventeenth-century theoretical context for composers of Italian ensemble music by presenting notions of hexachord and modes as found in contemporaneous treatises. Building on the research of scholars such as Beverly Stein and Michael Dodds, the chapter discusses the close relationship between church tones, *do* and *re* 'modes' and the scales of *canto figurato* with a particular focus on hexachordal theory, thus providing new insights into how seventeenth-century musicians may have conceptualized scales (as defined in the Introduction) and 'modes' or 'keys'. The discussion emphasizes possible connections and similarities between points in the theoretical discourse which could at first seem contradictory and incompatible. This chapter does not intend to give a comprehensive overview of seventeenth-century theories of hexachords and modes, nor does it aim to bring absolute answers, as the issues discussed here can certainly be addressed from more than one angle. Rather, this chapter introduces and connects key theoretical concepts that can be used to provide, as much as possible, a historically sensitive approach to analysis in subsequent chapters. The approach I adopt and the points I emphasize in the following discussion are the most relevant to shed light on linear pitch organization in the ensemble music of north Italian composers.

One of the most fundamental questions is whether (or to what extent) the principles of solmization presented in this chapter and discussed throughout this thesis apply to instrumental music composition. Given that many seventeenth-century treatises strongly emphasize the vocal model in their explanations of theoretical concepts, this is a legitimate question; with the development of independent instrumental music and the vertically oriented accompaniments of basso continuo, did training in instrumental performance and composition follow the same model as that of singers? Even though this issue could be discussed at length, here are a few points which suggest that solmization concepts were applicable to vocal as well as instrumental music in general. First of all, solmization in the Guidonian system formed the core of music education, as most music teaching was done primarily in churches, where the

rudiments of music usually started with vocal training in the principles of *canto fermo* (plainchant) most likely before any training in instrumental performance or composition. In addition, Andreas Bornstein's research points out that didactic duos found in printed Italian collections from the early sixteenth century to the mid eighteenth century were usually used to teach vocal solmization, instrumental playing and composition alike.[1] This suggests that notions of solmization were inherent in all aspects of Italian musicianship, particularly in concepts of linear tonal organization such as scales, points of mutation, and *musica ficta* principles inherited from earlier periods, which required that certain pitches be inflected depending on the melodic context. Lastly, some treatises featuring explanations of scales and points of mutation in solmization in vocal music include examples with clefs for all voice types as well as for the violins, further showing the relevance of solmization in other aspects of musicianship than vocal training. Solmization principles, inextricably connected to both modal theory and tonal theory (as manifest in many eighteenth-century Italian treatises), were indeed at the heart of conceptions of tonal space until well into the eighteenth century.[2] It is therefore sensible to assume that principles of solmization can be applied to instrumental music composition, at least with regard to linear thinking; the vertical aspect of composition must be also be apprehended with notions of consonances and dissonances in mind, as described in the principles of counterpoint and in figured bass treatises.

This chapter is divided in four sections. First, general information on the Gamut and the origin of the Guidonian system with its three basic hexachords and the mechanics of hexachord mutations will be introduced, with an emphasis on seventeenth-century notions of hexachords and scales transposition. Second, I will discuss the state of modal theory in the seventeenth century, emphasizing mainly the controversial nature of the modes in the theoretical discourse, the eight church tones (also known as psalm-tone tonalities), which gained increasing importance in the course of the century, and the developing concepts of modes defined by the major or the minor third, as emphasized by some theorists. The third section examines whether concepts of scales as presented in *canto figurato* treatises and manuals may shed light on some of the theorists' discourses on modes, particularly on the

[1] Andrea Bornstein, 'Two-part Didactic Music in Printed Italian Collections of the Renaissance and Baroque (1521-1744)' (PhD diss., University of Birmingham, 2001), 9-11.
[2] For a thorough discussion of the importance of solmization in conceptions of tonal space in eighteenth-century Italian music theory, see Nicholas Baragwanath, *The Solfeggio Tradition: A Forgotten Art of Melody in the Long Eighteenth Century* (forthcoming).

reduction of the number of modes used in musical practice to four, or two (defined by the major or minor third). Finally, because theorists of the time single out either the eight church tones or the modes defined by the major or minor third as the 'modes' used in modern practice, these different conceptualizations of pitch space are compared to determine if similarities between them may be observed.

## I. Gamut, Scale System and Hexachords.

### 1. Origins and Basic Principles.

Early conceptions of tonal space from the Middle Ages until the seventeenth century were circumscribed by the gamut, which was traditionally divided in 20 degrees arranged in a sequence of tones and semitones spanning the range of the human voice (from G to e''). The two key signatures found in late Medieval and Renaissance music represent the two scalar systems in the gamut: the *cantus durus* (with no signature), named after the square shape of the natural B (*durum* meaning 'hard') and the *cantus mollis* (B♭ in the key signature), named after the round figure indicating B♭ (*molle* meaning 'soft').

The hexachord system developed by Guido d'Arezzo (ca. 995-after 1033) was based on three overlapping hexachords covering the complete gamut (see Fig. 1.1). A hexachord comprised six solmization syllables – *ut*, *re*, *mi*, *fa*, *sol*, *la* – indicating a fixed pattern of tones and semitones in the six-note sequence. Many treatises report the legend that those syllables were derived from syllables in each verse of the hymn *Ut queant laxis*, which outline this pattern of tones and semitones:

> ***Ut*** *queant laxis* ***re****sonar fibris*
> ***Mi****ra gestorum* ***fa****muli tuorum*
> ***Sol****ue polluti* ***La****bii reatum*
> *Sancte Ioannes*.[3]

During the seventeenth-century, the syllable *ut* was often replaced by *do*, a syllable that was easier to pronounce and to sing in solmization.[4] Three different hexachords were used to solmize the whole gamut (see Fig.1.1): the natural hexachord (C-D-E-F-G-A), the hard, or *durus* hexachord (G-A-B-C-D-E), and the soft, or *mollis* hexachord (F-G-A-B♭-C-D). The

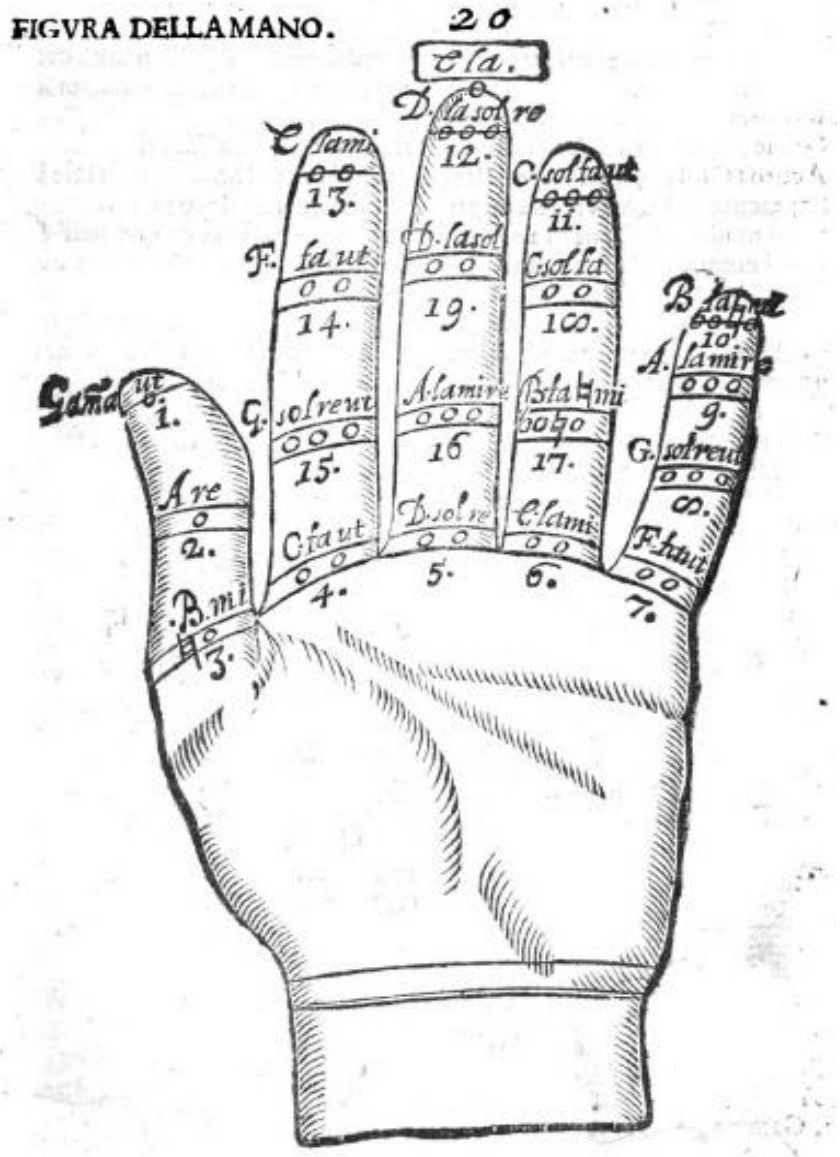
[3] For a typical account, see Adriano Banchieri, *Cartella musicale* (Venice, 1614), 4-5.
[4] Personal communication with Nicholas Baragwanath, November 2014.

famed Guidonian hand, present in countless music treatises from the Medieval period until the seventeenth century, was a visual representation of this system of hexachords that served as a mnemonic device to assist beginner musicians in sight-singing (see Fig. 1.2).

Figure 1.1. The gamut and its system of overlapping hexachords. *Source*: adapted from Lorenzo Penna, *Li primi albori musicali* (Bologna, 1679), 6.

| | | Hard | Natural | Soft | Hard | Natural | Soft | Hard |
|---|---|---|---|---|---|---|---|---|
| **S** | e’’ | | | | | | | LA |
| **O** | d’’ | | | | | | LA | SOL |
| **P** | c’’ | | | | | | SOL | FA |
| **R** | b’ | | | | | | ——— | MI |
| **A** | b ♭ ’ | | | | | | FA | ——— |
| **C** | a’ | | | | | LA | MI | RE |
| **U** | g’ | | | | | SOL | RE | UT |
| **T** | f’ | | | | | FA | UT | |
| | e’ | | | | LA | MI | | |
| **A** | d’ | | | LA | SOL | RE | | |
| **C** | c’ | | | SOL | FA | UT | | |
| **U** | b | | | ——— | MI | | | |
| **T** | b ♭ | | | FA | ——— | | | |
| **E** | a | | LA | MI | RE | | | |
| | g | | SOL | RE | UT | | | |
| | f | | FA | UT | | | | |
| **G** | e | LA | MI | | | | | |
| **R** | d | SOL | RE | | | | | |
| **A** | c | FA | UT | | | | | |
| **V** | B | MI | | | | | | |
| **E** | A | RE | | | | | | |
| | Piede. Gamma. (G) | UT | | | | | | |

Figure 1.2. The Guidonian hand. *Source*: Penna, *Li primi albori musicali* (1679), 5.



The lowest note in the gamut (the Greek letter *gamma* Γ, that is, G) stood at the tip of the thumb (no.1 in Penna's representation of the hand), and the pitches were organized in ascending order, following the numbers (down the thumb, across the first joints of the fingers, up the little finger, across the fingertips, and spiraling inward, the last pitch e *la* standing above the middle finger). This system allowed for a specific name to be assigned to each note of the gamut: the first pitch is gamma *ut* (from which the system takes its name), followed by A *re*, B *mi*, etc. The combination of the letter name of each note (*litterae*) and its hexachord syllables (*voces*) indicated the various possible positions of each note, depending on the hexachord; A *la mi re*, for instance, showed that the A coud function as either *la* (in the natural hexachord), *mi* (in the soft hexachord) or *re* (in the hard hexachord). As several pitches in the gamut bore the same name (such as g and g', both called G *sol re ut*), this system did not always allow for the designation of absolute pitches without the help of a clef.

As long as a melody's range remained within the limits of a single hexachord, a singer could solmize a piece without any problem. However, as soon as the range of a melody exceeded that hexachord, the singer had to 'mutate' to a different hexachord, so as to always keep the *mi-fa* syllables on all the semitones in the melody. In theory, in a piece written in the *cantus durus* system, the mutations would be done between the natural (C-A) and the hard hexachord (G-E), so as to accommodate a piece with no accidental in the signature. Conversely, in a piece written in *cantus mollis*, the singer would mutate between the natural (C-A) and the soft hexachord (F-D). A mutation simply consisted of substituting a hexachord syllable with that of another hexachord at specific points in a melody, as illustrated in countless treatises and singing guides for beginners. The points of mutation differed depending on the *cantus* and the direction of the melodic line (ascending or descending), as follows:

C*antus durus*:

- Ascending: *sol* becomes *re* at each D
  *la* becomes *re* at each A
- Descending: *re* becomes *la* at each A
  *mi* becomes *la* at each E

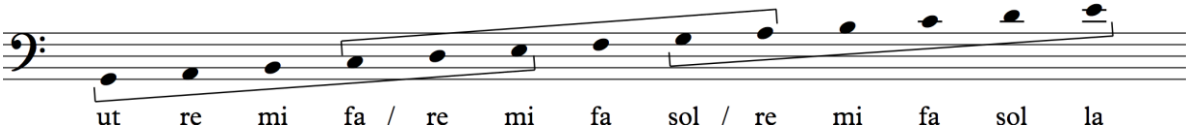
*Cantus mollis*:

- Ascending: *sol* becomes *re* at each G
  *la* becomes *re* at each D
- Descending: *re* becomes *la* at each D
  *mi* becomes *la* at each A.[5]

If we apply these patterns of overlapping hexachords to solmize the lower and middle registers in the gamut (from G to e'), for instance, the mutations proceed as follows:

Figure 1.3. Examples of mutations in *cantus durus* (stroke signs indicate hexachord mutations).

a) Ascending




b) Descending

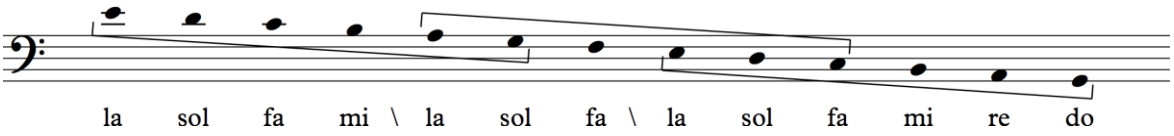
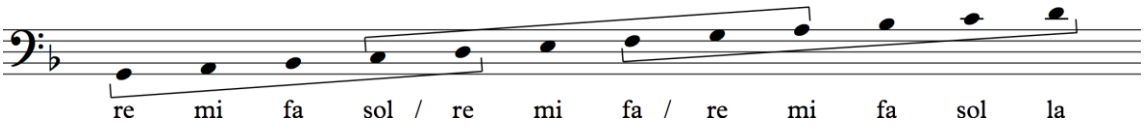


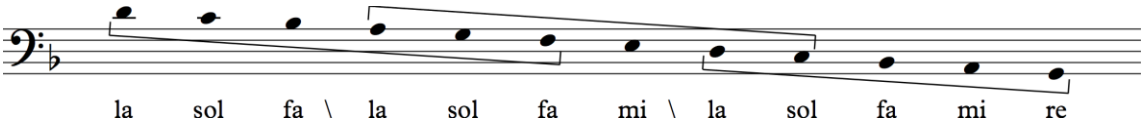

Figure 1.4. Examples of mutations in *cantus mollis*.

a) Ascending




[5] Gregory Barnett, 'Tonal Organization in Seventeenth-Century Music Theory', in *The Cambridge History of Western Music Theory*, ed. Thomas Christensen (Cambridge: Cambridge University Press, 2002), 410.

b) Descending




As melodies frequently exceeded the outer limits of the gamut, some theorists from the Renaissance till the seventeenth-century such as Ugolino of Orvieto (whose representation of the gamut in *Declaratio musicae disciplinae* in the early fifteenth-century went down to C), Adriano Banchieri (*Cartella Musicale*, 1614) or Giovanni d'Avella (*Regole di musica,* 1657) added extra notes to the gamut above and along the thumb or above the middle finger.[6]

## 2. Evolution to the Seventeenth Century.

The three-hexachord system first developed by d'Arezzo did not simply remain a practical scheme to learn sight singing; along with tonal markers such as finals, octave species and ambitus described in modal theory, the hexachord itself gradually became one of the main factors governing the conceptualization and presentation of tonal space from the late Middle Ages until well into the eighteenth century. In the fourteenth century, the increasing use of accidentals in vocal polyphony led some theorists such as Petrus frater dictus Palma ociosa in his *Compendium de discantu mensurabili* (1336) to introduce the notion of *ficta* hexachords, whereby *ficta* notes ('fictitious' notes), denoting notes not included in the gamut, resulted in mutations to hexachords outside the hand, that is, starting on other notes than C, G, or F.[7] At the end of the fifteenth century, Domingo Durán, in *Lux bella* (1492) was among the first theorists to suggest that *ut* may be placed on all seven letter names (from A to G), followed by Francesco de Brugis in *Graduale secundum morem sancta Romane Ecclesie* (1499) and Giovanni Battista Chiodino, in *Arte pratica latina et volgare di far contrapunto à mente, e à penna* (1610).[8] Even though this concept existed in theory, the mechanics of mutation between hexachords belonging to different scale transpositions were far from clearly defined.

The notion of *ficta* hexachords and the idea of placing *ut* on notes other than the traditional three (C, G and F) were well familiar to seventeenth-century theorists. *Regole di*

[6] Personal communication with Nick Baragwanath, November 2014.
[7] *Oxford Music Online*, s.v. 'Hexachord', www.oxfordmusiconline.com (accessed November 19, 2014).
[8] Personal communication with Nick Baragwanath, November 2014.

*musica* (Rome, 1657) by Giovanni d'Avella, a Franciscan preacher in the region called Terra Lavoro (situated between Rome and Naples) is one of the most detailed seventeenth-century sources in which the author theorizes the expansion of the hexachordal system and ensuing issues of solmization. D'Avella's naïve account of the origins of the Guidonian hand, which he attributes to Plato, Aristotle and Boethius, somewhat discredited him as a theorist among his contemporaries, as indicated in Giovanni Francesco Beccatelli's *Annotazioni sull' opra el P. Gio d'Avella, intitolata 'Regole di musica'* (Rome, 1657).[9] However, d'Avella's treatise is particularly interesting as he contextualized hexachord transpositions in visual representations of scale transpositions in the gamut (with five different 'hands'), and discussed problems of solmization when moving from one scale transposition to another.

In the heading of the second part of his treatise, d'Avella explained that the traditional Guidonian hand was not sufficient to learn *Canto figurato.* The term *'canto figurato'* ('figural music') denoted music notated on five-line staves with differentiated rhythmic values and other additional notational symbols such as ties, rests, ornaments, etc., as opposed to *Canto fermo*, or plainchant, notated on four-line staves with neumes. D'Avella claimed that no less than six different 'hands' were necessary to account for contemporary polyphonic practice.[10] He called the first hand 'the hand of Boethius', representing the 'compendium of music' (see Fig.1.5). This hand encompasses all five other versions of the hand, as any note from d to a' can function as any of the six hexachord degrees. Each of the remaining five hands stands for a particular scale transposition (see Fig. 1.6). The second hand represents the *cantus mollis*, ('Mano di ♭ essentiale, ò naturale') and the third hand is the accidental *cantus mollis* ('Mano di ♭ accidentale'), where E♭ and A♭ are added as accidentals in the scale (see Fig. 1.6.a and 1.6.b). The third hand represents the *cantus durus* ('Mano di ♮ essential, ò naturale'), and the fourth hand is the accidental *cantus durus*, or hand of the ♯ ('la mano del' accidente di ♮ si dice mano del ♯ diesis, ò di ♮ duro, ò giacente'), where F♯ and C♯ are added in the scale (see Fig. 1.6.c and 1.6.d). D'Avella specified how each of these four 'hands' could be used for practical purposes in instrumental transposition, explaining how each scale related to each other in terms of transpositions, and how players could use them to transpose pieces not written for their

[9] Ibid.
[10] 'SECONDO TRATTATO nel quale si dimostra con ragioni efficaci, e Domostrationi, come la Mano Commune non sia buona per imparere il Canto Figurato; si dimostrano parimente i principij del ben cantare, con sei mani…' Giovanni d'Avella, *Regole di musica* (Rome, 1657), 34.

respective range, or to accommodate a choir. However, d'Avella's subsequent detailed account on problems of solmization encountered in moving from one level of transposition to another makes it clear that these scales were also used in composition, and not merely as practical references to accommodate instruments. Finally, the hand of the two ♯♯ ('Mano delli due ♯ diesis'), featuring a scale with F♯, C♯, G♯ and D♯, is according to the author 'very necessary for singers and players, to enter and exit labyrinths, and difficulties, and composers can use it to multiply points of imitation' (see Fig. 1.6.e).[11]

[11] '[…] molto necessaria a cantori, e Sonatori, per entrare, & uscire da'laberiniti, e difficolà, & i Compositori se ne ponno servire, per moltiplicare le fughe'. Ibid., 40.

Figure 1.5. The 'Hand of Boethius.' *Source*: d'Avella, *Regole di musica*, 35.

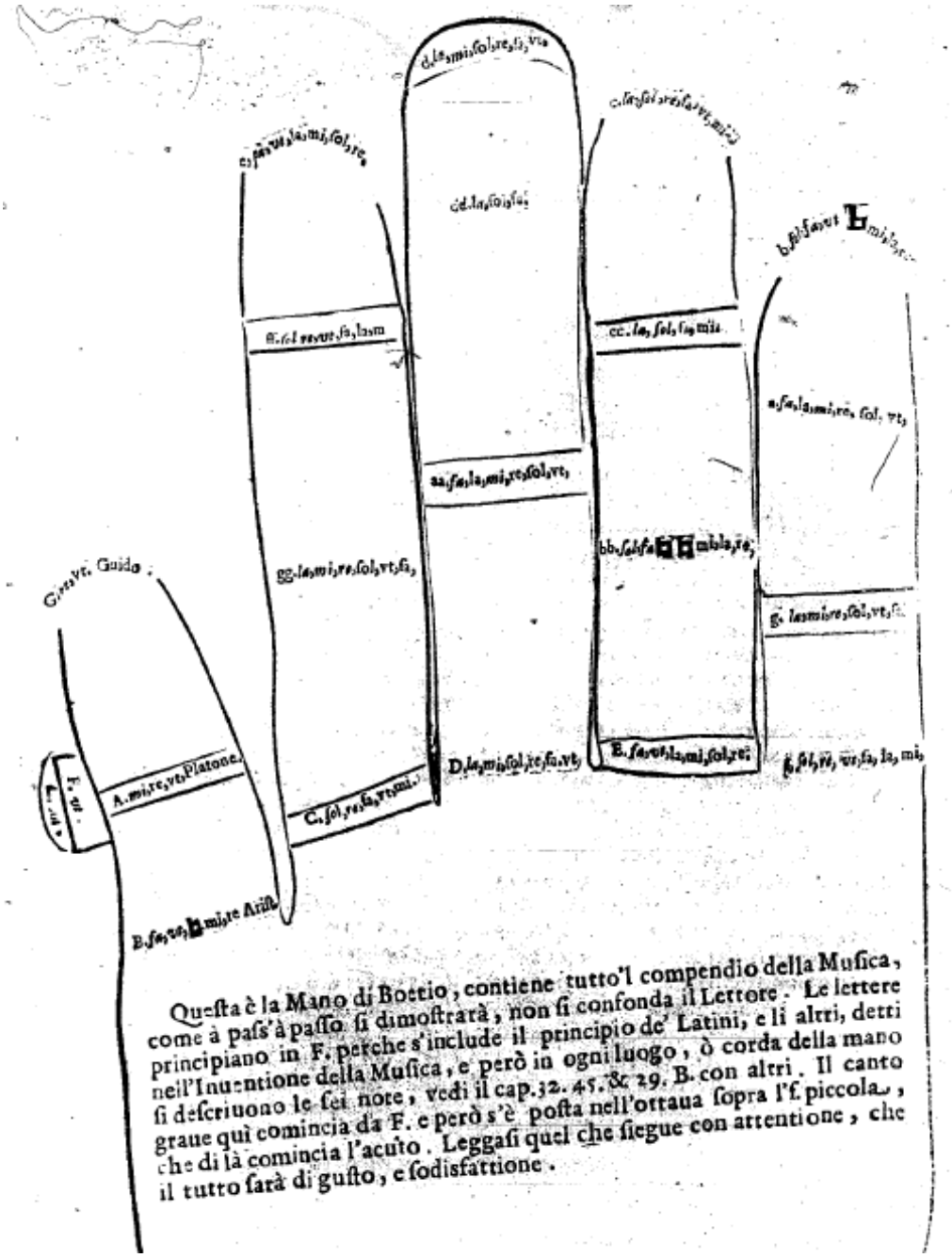
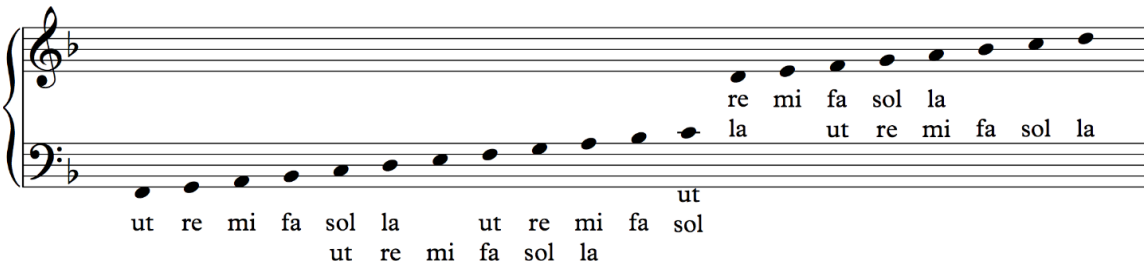
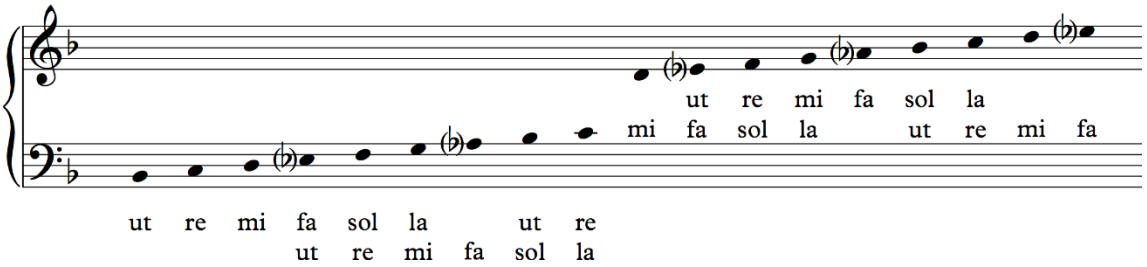


Figure 1.6. D'Avella's Guidonian hands. *Source*: d'Avella, *Regole di Musica*, 37-38; 40.

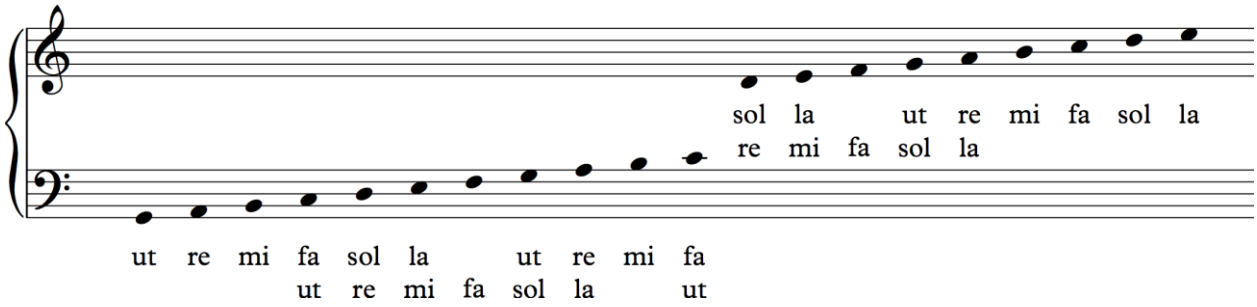

a) Hand of ♭ essential, or natural (left), with mutations between the soft and natural hexachords:



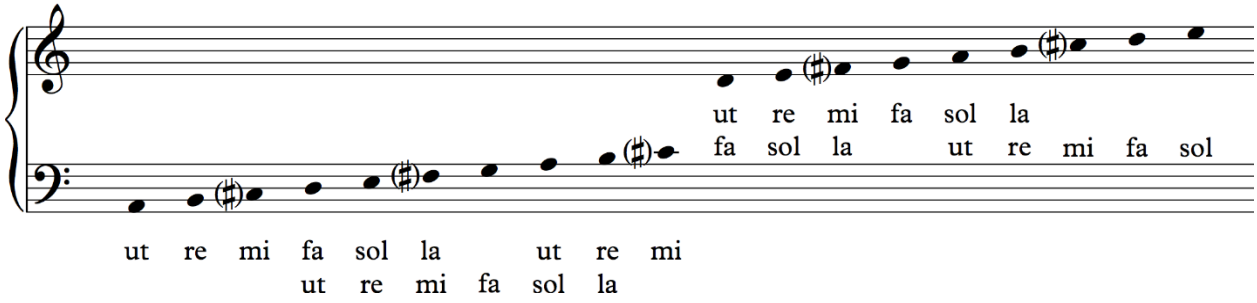

b) Hand of ♭ accidental (right), with mutations between the B♭ and the E♭ hexachords:

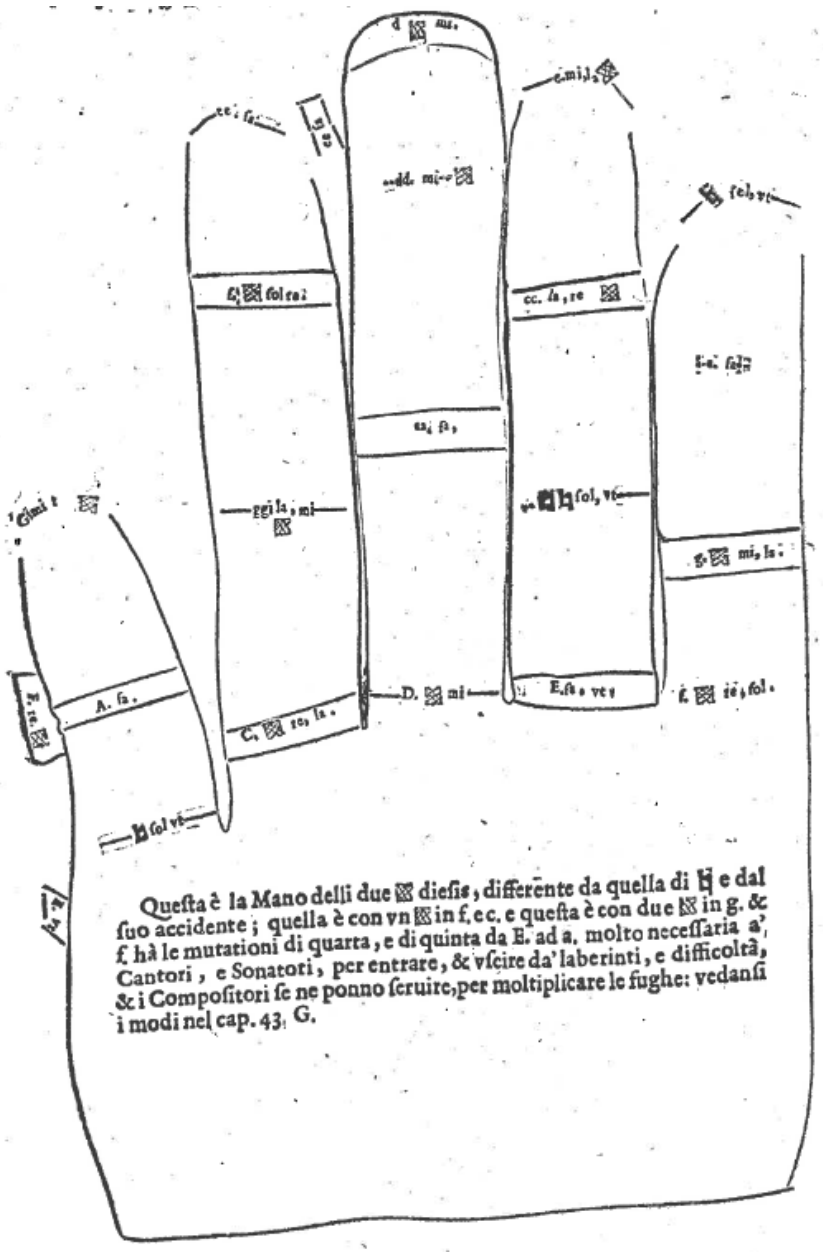



c) Hand of ♮ essential, or natural (left), with mutations between the hard and natural hexachords:

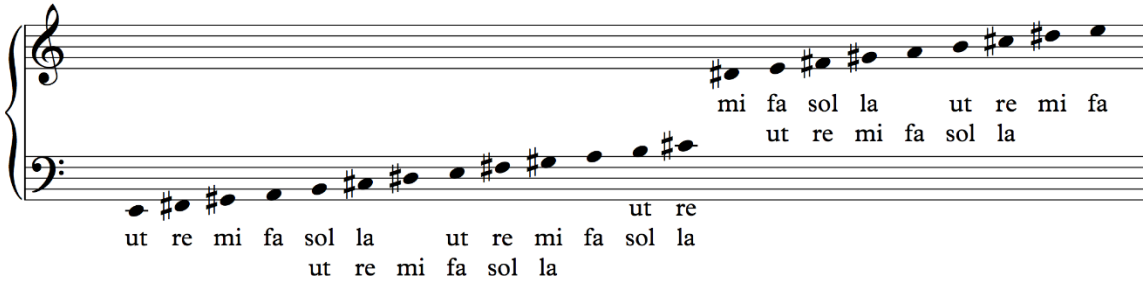



d) Hand of ♮ accidental, or hand of the ♯ diesis (right), with mutations between the A and D hexachords:






e) Hand of the two ♯♯, with mutations between the E and B hexachords.



D'Avella's presentation of the hexachord system spans a range of nine hexachords, starting on E♭, B♭, F, C, G, D, A, E and B within only two signatures (as manifest in his numerous musical examples illustrating hexachord mutations): *cantus durus* and *cantus mollis*. Even though d'Avella uses only two signatures, these hexachords are presented in five different scale types, some of which use 'accidentals' necessary to transpose the two overlapping hexachords used in each scale. Just as the two traditional *cantus* each comprise two hexachords (natural and hard in *cantus durus*, natural and soft in *cantus mollis*), each scale type is built on two overlapping hexachords:

- Hand of ♭ accidental: E♭ and B♭ hexachords
- Hand of ♭ essential: F (soft) and C (natural) hexachords
- Hand of ♮ essential: C (natural) and G (hard) hexachords
- Hand of ♮ accidental: D and A hexachords
- Hand of the two ♯♯: E and B hexachords

In this case, the hexachord on which each scale starts does not bear any theoretical implications, as d'Avella seems to have accommodated his presentation of each scale to the general range of the traditional gamut and available space on the hand.

As mentioned above, d'Avella's presentation of hexachord transpositions is not a new concept, but stands in line with a long tradition of theorists striving to adapt the Guidonian gamut to new developments in musical practice. D'Avella's complex discussion of problems of solmization to move from one scale transposition to the other attests to the ongoing confusion regarding principles of modulations among music theorists.[12] However, in musical practice, the seventeenth-century witnessed a gradual refining of the mechanics of modulation between various levels of scale transposition, as manifest in the repertory itself which often features passages with up to three or four sharps or flats (albeit still in the two basic key signatures of *cantus durus* or *cantus mollis*), so that by the eighteenth century, the principles of modulation became clearly defined. This may represent an instance where ideas first developed in music theory may have had an impact on musical practice, as composers gradually incorporated the *ut* on every note in an effective manner in the course of the seventeenth century. The expansion of pitch space via the extensive use of modulation (transposition of scale) represents one of the most important aspects of the evolution of

[12] See d'Avella, *Regole di musica*, 63-68.

seventeenth-century tonal language. In that regard, the development of instrumental music and the technical possibilities it entailed certainly played a major role in forming new conceptions of tonal space.

In the seventeenth and early eighteenth centuries, the Guidonian system still dominated musicians' understanding of music theory almost all over Europe, as evidenced in numerous music treatises of that period. The names of the notes A lamire, B fa B mi, C solfaut, D lasolre, E lami, F faut and G solreut later came to designate a tonality (called *tuono* in Italian music treatises) based on these notes.[13] As Nicholas Baragwanath points out, this attests to the ongoing use of the Guidonian hand for teaching basic musicianship in the eighteenth century, as well as the recognition of the *melodic* origin of these scales and keys.[14] An awareness of this gradual assimilation of the linear hexachordal system into a system of scales and tonalities based on hexachords is crucial to apprehending pitch organization in seventeenth- and early eighteenth-century Italian music.

## II. Seventeenth-Century Concepts of Mode.

### 1. Attachment to Tradition.

The seventeenth century inherited two prominent systems of modal classification from previous centuries. The first of these was the eight-mode system originally devised to classify plainchant and discussed in the sixteenth century by Pietro Aaron, among others, featuring authentic and plagal modes with finals on D, E, F and G, and characterized by modal final, octave species comprising intervals of fourth (*diatessaron*) and fifths (*diapente*), reciting tone, melodic formulae and ambitus. The second system was the twelve-mode system, devised by Glarean in *Dodecachordon* (1547) as an expansion of the eight-mode system, with the addition of four authentic and plagal modes with finals on A and C. This twelve-mode system was then carried on by Gioseffo Zarlino in *Le istitutioni harmoniche* (1558). In *Dimostrationi harmoniche* (1571), Zarlino proposed a reordering of the 12 modes starting on C, so as to relate the hexachordal syllables to each modal final.[15] However, the previous ordering

[13] Personal communication with Nicholas Baragwanath, November 2014.
[14] Ibid.
[15] Cristle Collins Judd, 'Renaissance Modal Theory: Theoretical, Compositional, and Editorial Perspectives', in *The Cambridge History of Western Music Theory*, ed. Thomas Christensen (Cambridge: Cambridge University Press, 2002), 397-98. See also Judd, *Reading Renaissance Music Theory: Hearing with the Eyes* (Cambridge: Cambridge University Press, 2000), 117-261.

remained authoritative throughout the seventeenth century. Discussions of modes in seventeenth-century treatises usually focus on modal finals, the various species of fifths (*diapente*) and fourths (*diatessaron*) that make up each mode, as well as their principle cadential degrees (*corde*). A typical presentation of modes taken from Giovanni Maria Bononcini's *Musico prattico* (1673) is reproduced in Figure 1.7.

Figure 1.7. Presentation of the twelve modes with species of fourths and fifths in Bononcini's *Musico Prattico*. *Source*: Giovanni Maria Bononcini, *Musico prattico* (Bologna, 1673), 122-23.

La varietà de i ſuderti Tuoni naſce dalle ſpecie della quinta, e della quarta aggiunte inſieme, come ſi dirà. *Aut.* *Plag.*

Il primo, e ſecondo Tuono ſi formano della prima ſpecie della quinta D, & A, e della prima ſpecie della quarta A, e D.

Il terzo, e quarto Tuono ſi formano della ſeconda ſpecie della quinta E, e B, e della ſeconda ſpecie della quarta B, & E.

Il quinto, e ſeſto Tuono ſi formano della terza ſpecie della quinta F, e C, e della terza ſpecie della quarta C, & F.

Il ſettimo, & ottauo Tuono ſi formano della quarta ſpecie della quinta G, e D, e della prima ſpecie della quarta D, e G.

Il nono, e decimo Tuono ſi formano della prima ſpecie della quinta A, & E, e della ſeconda ſpecie della quarta E, & A.

L'vndecimo, e duodecimo Tuono ſi formano della quarta ſpecie della quinta C, e G., e della terza ſpecie della quarta G, e C.

Another commonly recognized system of modal classification was the so-called church tones (*toni ecclesiasti*), which originated in the *alternatim* performance of psalm tones with some psalm verses sung by the choir and others played at the organ. Many seventeenth-century theorists acknowledged both means of classification, not as mutually exclusive, but as two coexisting systems. As these church tones are very often presented in treatises as the 'modes' most commonly used by seventeenth-century composers, thereby suggesting their greater relevance to musical practice, they will be discussed in detail below in a separate section in this chapter.[16]

Even though the two ways to classify mode mentioned above generally prevailed, there is also evidence of considerable disagreement among seventeenth-century theorists regarding the number and classification of modes. This is clearly manifest in Silverio Picerli's *Secondo specchio* (1631), as he began his eighteenth chapter by listing no less than six different views on the number of modes (14, 12, 8, 7, 6, and 3 or 4) classified according to various criteria ranging from the seven letters, the various species of fourth and fifths, or the number of psalm tones.[17] Mid-seventeenth-century Roman theorist Pier Francesco Valentini proposed a system of 24 modes, with two versions of each authentic mode: one built on the harmonic division, and the other on the arithmetic division of the octave (ex. in Dorian: d-a-d' and d-g-d', both sharing the same final pitch, d), to which Valentini added their respective plagal counterparts.[18] Johann Andreas Herbst, who in spite of the fact that he lived and worked in Germany his whole life was well known for his interest in contemporary Italian vocal styles, wrote a treatise on composition entitled *Musica poëtica* (1643), presumably illustrating contemporary musical styles. The work, which compiles the thoughts of various 'Latin and Italian authors and musicians, old as well as new', as indicated in the subtitle, is replete with contradictory and confusing information on modes.[19] In Giovanni Maria Bononcini's *Musico pratico* (1673), the prominent authority of Zarlino and his followers is evident as Bononcini took great care in reaffirming that there are 12 (and not only 8) modes for figural singing, and

[16] The terms 'toni' (or 'tuoni') and 'modi' are often used interchangeably in contemporaneous treatises.
[17] Silverio Picerli, *Specchio Secondo* (Naples, 1631), 154.
[18] F. Alberto Gallo and Frieder Zaminer, *Italienische Musiktheorie im 16. und 17. Jahrhundert: Antikenception und Satzlehre*, Geschichte der Musiktheorie 7 (Darmstadt: Wissenschaftliche Buchgesellschaft, 1989), 364-65.
[19] Joel Lester, *Between Modes and Keys: German Theory 1592-1802*, Harmonologia Series 3 (Stuyvesant: Pendagron Press, 1989), 63-66. This does not necessarily reflect Herbst's own misunderstanding of the topic, but his adhering to the common seventeenth-century intellectual model of reporting the words of several authorities on a given topic, without necessarily trying to make sense of them.

listed at least thirteen theorists to support his point.[20] On the one hand, Bononcini's position is typical of many seventeenth-century theorists, who felt compelled to pay respect to the authoritative sixteenth-century theorists who had a tremendous impact on subsequent musical thought. On the other, his admonition is telling and clearly indicates that some musicians and theorists had differing opinions in that regard. One way of discussing modes, namely, according to the nature of the third above the final, *ut* 'modes' for major third and *re* 'modes' for minor third (thereby directly tied to the practical system of solmization), gained importance in the late seventeenth and early eighteenth centuries, as will be discussed below.

The debate around the modes seems to have been equally strong between seventeenth-century theorists and music practitioners, who criticized each other based on their opinion regarding the 'correct' use of modes. Artusi's attack against Monteverdi in *L'Artusi, overo Delle imperfettioni della moderna musica* (1600) is well known. Artusi, citing anonymous madrigals (later published in Monteverdi's fourth and fifth books of madrigals), deplores their incorrect treatment of dissonance and modal improprieties.[21] This dispute was just one among several others in the seventeenth century. The dispute between Scacchi and Siefert (1643-45) involved issues of correct representation of the modes in fugal answers, a subject highly debated in the seventeenth-century.[22] Finally, as mentioned in the introduction, the Bolognese *maestro di cappella* Maurizio Cazzati, whose instrumental ensemble pieces are analyzed in this study, was strongly criticized for his use of mode in the Kyrie of his *Missa primi toni*.[23] These various debates further attest to the variety of opinions regarding modal representation in the early Baroque period, which may be partly explained by developments in musical practice throughout the seventeenth century.

These seventeenth-century debates pose a problem to modern scholars who analyze seventeenth-century music, as it raises an essential question: how relevant was modal theory to actual musical practice? Generally speaking, Frans Wiering's notion of a 'double discourse'

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[20] Bononcini, *Musico prattico*, 153.
[21] *Oxford Music Online*, s.v. 'Monteverdi, Claudio', www.oxfordmusiconline.com (accessed December 15, 2014). Modern scholarly debates around *Prima* versus *Seconda prattica* often focus on the first aspect (dissonance treatment) at the expense of the second, so that we sometimes forget that the new style also involved changes in modal theory. Gallo and Zaminer, *Italienische Musiktheorie*, 358.
[22] For an account of Scacchi's point of view, see Claude V. Palisca, 'Marco Scacchi's Defense of Modern Music (1649)', in *Words and Music: The Scholar's View—a Medley of Problems and Solutions Compiled in Honor of A. Tillman Merritt by Sundry Hands* (Cambridge, MA: Harvard University, 1972), 189-235.
[23] See Introduction p.12.

represents a sensible compromise between scholars who assume a close proximity between theory and practice, and others who tend to disconnect them.[24] For Wiering, there is a 'double' discourse about mode because concepts of modes are conveyed in both text (treatises) and music (the repertory). He argues for a 'continuous interaction' between the two, as theorists sometimes display an awareness of musical practice, and composers may demonstrate a concern for theoretical problems.[25] As Wiering has pointed out, in the late fifteenth and throughout the sixteenth century, musicians could 'hardly escape the notion that polyphony was modal', even though this notion, largely imposed by theorists, was far from clear, and many musicians made great efforts to give meaning to it in their compositions.[26] Consequently, some scholars have argued that there is a correspondence between theory and practice in sixteenth-century vocal music. For instance, Bernhard Meier noticed the presence of a clear distinction between authentic and plagal modes in a number of compositions in terms of the ambitus of the voice-parts, as well as a marked awareness of the importance of modes to bring out the musical expression of the text.[27] Harold Powers also discussed authentic versus plagal ambitus in that earlier repertoire, pointing out that patterns of cleffing (which he categorizes into various 'tonal types' defined by clef, key signature and final) are a more accurate expression of the authentic/plagal contrast.[28] On the other hand, Meier also remarked that in instrumental music (as opposed to vocal music), composers tended to observe correct ambitus only in pieces based on vocal models (such as ricercars or canzonas), whereas in improvisatory instrumental genres not based on vocal models (such as toccatas or preludes), ambitus is generally irrelevant, so that final, key signature and cadence degrees are the only modal markers left.[29] Generally speaking, it seems like musicians never fully internalized 'polyphonic modality', which remained a learned, acquired musical language. As Wiering states, this learned musical language probably coexisted with a more 'vulgar' one, as terms

[24] Frans Wiering, *The Language of the Modes: Studies in the History of Polyphonic Modality* (New York: Routledge, 2001), 21-25.
[25] Ibid., 23.
[26] Ibid., 204.
[27] Peter Bergquist, review of *Die Tonarten der Klassischen Vocalpolyphonie nach den Quellen dargestellt*, by Bernhard Meier, *The Musical Quarterly* 62, no.4 (October 1976): 591-93.
[28] Harold Powers, 'Tonal Types and Modal Categories in Renaissance Polyphony', *Journal of the American Musicological Society* 34, no.3 (Autumn 1981): 428-70.
[29] Michael R. Dodds, 'Tonal Types and Modal Equivalence in Two Keyboard Cycles by Murschhauser', in *Tonal Structures in Early Music*, ed. Cristle Collins Judd (New York: Garland Publishing, 1998), 352.

such as 'vulgariter' were applied to music reflecting an informal approach to modes, often connected to improvisation.[30]

The increasing confusion with regard to modal classification in the seventeenth century reflects the conflicting tendencies either to pay tribute to past authorities by holding on to old models, or try to accommodate modal theory to an ever-changing musical practice. Wiering, who identifies the seventeenth century as the last stage in the history of polyphonic modality ('gradual disappearance'), refers to the changes in compositional technique and the controversial nature of the modes as some of the two main reasons for the general waning of polyphonic modality.[31] Indeed, twelve-mode theory as described in treatises seemed far removed from new seventeenth-century developments and is often only remotely relevant to describe tonal events in Italian ensemble music of that era.[32] However, Chapter 2 will show that aspects of modal theory may explain certain features of opening imitative sections in instrumental ensemble music. At any rate, many seventeenth-century treatises mainly reflect an attempt to assimilate a repertory to a theory, and many theorists do not clearly spell out tonal conceptions that developed throughout the century, even though some treatises which are more grounded in musical practice such as Lorenzo Penna's *Li primi albori musicali* (1679) give elements of answers. It is often in the work of late seventeenth- and early eighteenth-century theorists (some of non-Italian origin) that we find more adequate descriptions of tonal conceptions that developed in the course of the seventeenth century, as will be discussed later in this chapter.

## 2. Church Tones, or Psalm-Tone Tonalities.

The so-called 'church tones' (*toni ecclesiastici*), or 'church keys', a term coined by Joel Lester derived from translations of the term found in the work of Adriano Banchieri, Alessandro Poglietti and Johann Caspar Ferdinand Fischer, are also known as 'psalm-tone tonalities'

[30] Weiring, *The Language of the Modes*, 204.
[31] Ibid., 199; 202.
[32] As Gregory Barnett observed, Bononcini used modal designations in his Sonata da Chiesa op. 6 (1672) and his collection of madrigals op.11 (1678) so as to demonstrate the principles presented in his treatises (as specified by Bononcini himself in each work's preface). Barnett adds that 'Bononcini's [twelve-mode] theory and his modal demonstrations seem not so much reflections of any well disseminated practice as uniquely creative applications of long-standing theoretical precepts'. Gregory Barnett, 'Giovanni Maria Bononcini and the Uses of the Modes', *The Journal of Musicology* 25, no.3 (Summer 2008): 234.

among modern-day scholars.[33] The church tones merit particular attention as many theorists refer to them as the tones most commonly used by their contemporaries in music composition, as opposed to the eight ancient Greek modes discussed by Boethius and by subsequent theorists (or the twelve-mode system, in the case of Bononcini).[34] . As mentioned earlier, these church tones originated in the *alternatim* performance of psalms and canticles between organ and choir, particularly the office of Vespers. In the Divine Office of the Roman Catholic Church, the psalms were traditionally recited antiphonally on psalm 'tones'. There were eight different psalm tones to which psalms could be sung. In the seventeenth century, the psalm verses were either all sung or performed in *alternatim* fashion, with some verses sung and others played at the organ. This *alternatim* practice required that the organ play the verse at a comfortable range for the choir to keep going smoothly onto the next verse, so as to achieve modal unity throughout. As a result, the organist sometimes had to transpose the verse to accommodate the range of the choir at his disposal. Just as there were eight different psalm tones, eight different 'tonalities' emerged from this practice of verse transposition at the organ (some of which were transposed while others remained at the same pitch as the original psalm tone), as illustrated in many treatises throughout the century (see Table 1.1). This set of tonalities, defined by key signatures and finals, constitutes the 'church tones'.

Michael Dodds has pointed out that a comparison of the eight-mode system with Banchieri's description of the eight church tones shows that modes 1, 6 and 8 correspond to the first, sixth and eighth church tones.[35] Mode 2 is transposed up a fourth to *cantus mollis* to make the second church tone, and mode 5 (which often appeared in *cantus mollis* in earlier practice) is transposed down a fourth to *cantus durus* to make the fifth church tone.[36] Dodds pointed out that church tones 3 and 7 derive their final not from their modal counterparts, but from their principal psalm tone termination, which does not always end of the corresponding modal final, as opposed to their framing antiphons. The principal psalm tone termination for both church tones 3 and 7 ends on A (tone 7 is generally transposed down a fifth to *cantus*

[33] Lester, *Between Modes and Keys*, 78-79.
[34] Wiering noted that in the Renaissance, the term 'tonus' was generally employed in relation to musical practice, whereas the term 'modus' was often connected to speculative music and twelve-mode theory. See Wiering, *The Language of the Modes*, 78-79.
[35] Dodds, 'The Baroque Church Tones', 10.
[36] Ibid.

*mollis*, but there are variants for that tone, as shown in Table 1.1).[37] Lastly, Banchieri's fourth church tone spans an A to a range, while retaining the original modal final, E.[38]

Table 1.1. Examples of church tones as listed in various treatises (finals and key signatures).

| Church tones | Banchieri (1614) | Penna (1679) | Bismantova (1677) | Tevo (1706) | Anonymous MS (early 1700s) |
|---|---|---|---|---|---|
| 1 | d — | d — | d — | d — | d — |
| 2 | g ♭ | g ♭ | g ♭ | g ♭ | g ♭ |
| 3 | a — | a — | a — | a — | a — |
| 4 | e — | e — | e — | e — | e — |
| 5 | C — | C — | C — | C — | C — |
| 6 | F ♭ | F ♭ | F ♭ | F ♭ | F ♭ |
| 7* | d ♭ | d ♭ or D ♯ or e ♯ | d ♭ | e ♯ | e ♯ |
| 8 | G — | G — | G — | G — | G — |

*Source*: adapted from Gregory Barnett, 'Modal Theory, Church Keys and the Sonata at the End of the Seventeenth Century', *Journal of the American Musicological Society* 51, no.2 (Summer, 1998): 258. The treatises referred to are Adriano Banchieri, *Cartella musicale* (Venice, 1614); Lorenzo Penna, *Li primi albori musicali* (Bologna, 1679); Bartolomeo Bismantova, *Compendio musicale* (Ferrara, 1677); Zaccaria Tevo, *Il musico testore* (Venice, 1706); *Regole del contrappunto* (MS, early 1700s, Biblioteca del Civico Museo Bibliografico Musicale 'G.B. Martini', Bologna, shelmark MS.P.120, no.5), fols. 40r-42v.

* There are several variants for tone seven, which is the most inconsistent tone both in music treatises and in collections including pieces ordered according to the church tones.

As early as the late sixteenth century, Italian musicians started to acknowledge the church tones as the most commonly used keys in musical practice.[39] In *L'Organo suonarino* (1605), Adriano Banchieri was the first to present in a treatise the church tones in the order that would become the standard in the seventeenth century.[40] Subsequent theorists presented a similar ordering. Out of respect for previous eminent theorists, some seventeenth-century theorists attempted to reconcile these 'modern', practical tonalities with modal theory. In *Musico prattico* (1673), for instance, Bononcini strove to explain the church tones in relation to the twelve modes as discussed by Glarean and Zarlino. Bononcini claimed that, even though

[37] Ibid., 11.
[38] Ibid.
[39] See for instance Bononcini, *Musico prattico*, 137.
[40] Michael Dodds, 'The Baroque Church Tones in Theory and Practice' (PhD diss., University of Rochester, 1998), 53.

some of the twelve modes were still in use, others had gone out of fashion and been replaced by more 'practical' ones.[41] Bononcini included a chapter entitled 'Which of the above-named modes are ordinarily used by composers' and starts by saying that only 'Seven modes are ordinarily used by composers'. He then proceeds and explains the seven modes in use, in their specific order: mode 1(Dorian), mode 2 (Hypodorian, transposed up a fourth), mode 10 (Hypoaeolian), mode 11(Ionian), mode 12 (Hypoionian, transposed down a fifth), mode 9 (Aeolian, transposed down a fifth), and mode 8 (Hypomixolydian). Thus, the modes which had gone 'out of fashion' are modes 3 and 4 (Phrygian and Hypophrygian, which are replaced by mode 10), modes 5 and 6 (Lydian and Hypolydian, which are replaced by modes 11 and 12, respectively), and mode 7 (Mixolydian, which is replaced by mode 9). The ordering of finals and key signatures of Bononcini's practical modes correspond to the church tones: d, g, a, C, F, d, G, with a B♭ in the key signature for the second, fifth, and sixth modes. The conspicuous absence of the Phrygian mode e (normally in fourth position in the church tones), matches the remarks of other Italian theorists such as Francesco Gasparini in *L'armonicco prattico* (1708), who claims that the modes starting on *mi* gradually fell out of fashion in the course of the seventeenth century.

These church tones, which originally started as an Italian phenomenon, quickly spread across Europe, so that multiple seventeenth-century treatises of French and South German origin also refer to them as commonly used in the Church. More than seventy extant collections of keyboard music of that time period, from Italy, France, South Germany, Spain, Portugal and the Low Countries, feature pieces ordered according to the church tones.[42] Some of these contain organ 'versets' to be performed in alternation with a choir in psalm recitation, while others include pieces that may have been used in other parts of the liturgy or for other religious occasions. Some collections of ensemble instrumental music also include pieces ordered according to the psalm-tone tonalities, even though occurrences are not nearly as frequent as in keyboard collections. These collections often include ensemble canzonas or sonatas, but may include pieces bearing other titles, or even dance pieces. Gregory Barnett found several such collections, to which I can add my own discovery of Bernardo Tonini's

[41] Bononcini, *Musico prattico*, 137-138.
[42] Michael R. Dodds, 'Key Signatures, Fugal Answers and the Emergence of the Major Mode: A Case Study in G Major', in *Fiori musicali: Liber amicorum Alexander Silbiger*, ed. Claire Fontijn and Susan Parisi (Sterling Heights: Harmonie Park Press, 2010), 190.

*Suonate da chiesa a tre, due violin e organo, con violoncello ad libitum*, Op.2 (Amsterdam, 1697) (see Table 1.2).[43] The use of these tonalities in collections of ensemble music attests to their recognition as tonal types in their own right that could be used in many types of instrumental settings, whether sacred or secular.

[43] Gregory Barnett, 'Modal Theory, Church Keys and the Sonata at the End of the Seventeenth Century', *Journal of the American Musicological Society* 51, no.2 (Summer 1998): 259; 'L'organizzazione tonale in Merula, Marini e Legrenzi', in *Barocco padano 1; Atti del IX Convegno internazionale sulla musica sacra nei secoli XVII-XVIII, Brescia, 13-15 Iuglio 1999*, ed. Alberto Colzani, Andrea Luppi and Maurizio Padoan (Como: Antiquae Musicae Italicae Studiosi, 2002), 213-17.

Table 1.2. Italian collections of ensemble instrumental music ordered according to the church tones.

| Church tones | Merula (1651) | Marini (1655) | Legrenzi (1655) Sonate *a 2* | Legrenzi (1655) Sonate *a 3* | Placuzzi (1667) | P. Degli Antonii (1676) | G.B. Degli Antonii (1690) | Galli (1691) | Legrenzi (1691) | Tonini (1697) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 d – | 1 d – | 1 d – | 1 d – | 1 d – | 1 d – | 1 d – | 1 d – | 1 d – | 1 d – |
| 2 | 2 g ♭ | 2 g ♭ | 2 g ♭ | 2 g ♭ | 2 g ♭ | 2 g ♭ | 2 g ♭ | 2 g ♭ | 2 g ♭ | 2 g ♭ |
| 3 | 3 a – | 3 a – | 3 a – | 3 a – | 3 a – | 3 a – | 3 a – | 3 a – | 3 a – | 3 a – |
| 4 | 4 e – | 4 e – | | 4 e – | 4 e – | 4 e ♯ | 4 e – | 4 e – | 4 e – | 4 e ♯ |
| 5 | 5 C – | 5 C – | 5 C – | 5 C – | 5 C – | 5 C – | 5 C – | 5 c ♭♭ | 5 C – | 5 C – ♭ |
| 6 | 6 F ♭ | 6 F ♭ | | | 6 F ♭ | 6 F ♭ | 6 F ♭ | 6 F ♭ | 6 F ♭ | 6 F ♭ |
| 7 | 7 d ♭ | – | 7 D ♯ | 7 c ♭ | 7 D ♯♯ | 7 D ♯♯ | 7 E ♯♯ | 7 d ♭ | 7 D ♯ | 7 B♭ ♭ |
| 8 | 8 G – | – | 8 G – | 8 G – | 8 G – | 8 G – | 8 G – | 8 C – | 8 G – e ♯* | 8 G – |
| – | – | – | – | – | 9 D ♯♯ | 9 B ♭ | 9 E ♭ ♭♭ | 9 d – | 9 B♭ ♭ B♭ ♭♭* | 9 c ♭♭ |
| – | – | – | – | – | 10 C – | 10 A ♯♯ | 10 b ♯♯ | 10 B♭ ♭♭ | – | 10 A ♯♯ |
| – | – | – | – | – | – | 11 C ♭♭ | – | 11 a – | – | 11 D ♯♯ |
| – | – | – | – | – | – | 12 E♭ ♭♭ | – | 12 a – | – | 12 b ♯♯ |

*Sources*: partly adapted from Barnett, 'Modal Theory, Church Keys, and the Sonata', 259; Gregory Barnett, 'L'organizzazione tonale in Merula, Marini e Legrenzi,' in *Barocco padano 1; Atti del IX Convegno internazionale sulla musica sacra nei secoli XVII-XVIII, Brescia, 13-15 Iuglio 1999*, ed. Alberto Colzani, Andrea Luppi and Maurizio Padoan (Como: Antiquae Musicae Italicae Studiosi, 2002), 213-17. The collections included in this table are Tarquinio Merula, *Il quarto libro delle canzoni da suonare a doi & a tre*…, Op.17 (Venice, 1651); Biagio Marini, *Per ogni sorte d'stromento musicale, diversi generi di sonate da chiesa e da camera*, op. 22 (Venice, 1655); Giovanni Legrenzi, *Sonate a due e tre*, Op.2 (Venice, 1655); Gioseffo Maria Placuzzi, *Suonate à duoi, à trè, à Quattro*…, Op.1 (Bologna, 1667); Pietro Degli Antonii, *Sonate a violino solo*, Op.4 (Bologna, 1676); Giovanni Battista Degli Antonii, *Ricercate à violino, e violoncello ò clavicembalo*, Op.5 (Bologna, 1690); Domenico Galli, *Trattenimento musicale sopra il violoncello*, no opus (MS, 1691, Biblioteca Estense, Modena, shelfmark Mus. C.81); Giovanni Legrenzi, *Balletti e Correnti a cinque Stromenti, con il basso continuo per il Cembalo*, Op. 16 (Venice, 1691); Bernardo Tonini, *Suonate da chiesa a tre, due violin e organo, con violoncello ad libitum*, Op.2 (Amsterdam, 1697).

*The eighth and ninth dance pairs have a different tonality for the *balleto* and the *corrente*.

Bononcini is not the only theorist to discuss the practical aspect of the church tones, as many more seventeenth-century sources describe them as the tones commonly used in musical practice. In the early seventeenth century, Adriano Banchieri, the first theorist to list the church tones as standard transpositions in psalmody, did not yet emphasize the practical aspect of the church tones. Banchieri specified when the church tones were to be used, as opposed to the twelve modes; the eight church tones were for *canto figurato* (as they are transposed for the proper pitch range of voices), to 'compose masses, psalms, hymns, canticles and other concerti for use in the churches and on other religious occasions', whereas the twelve modes could be used 'for composing concerti, [canzone] francese, toccatas, madrigals, and, in sum, any song that has nothing to do with plainchant'.[44] In 1622, Lodovico Zacconi, who also maintained a distinction between the two types of classification in the second part of his *Prattica di musica*, explained that the church tones were derived from the twelve modes, so that there were twelves psalm tones also, eight of which were more commonly used and well known.[45] In that respect, Zacconi was in line with other theorists such as Banchieri or Bononcini, who sought to reconcile the church tones with Zarlino's twelve modes system. On the other hand, in *La Regola del contraponto e della musical compositione,* published in the same year (1622), Camillo Angliera acknowledged but rejected the twelve mode system, and referred to the church tones as the 'tones according to modern usage' ('*tuoni secondo l'uso moderno'*), which he regarded as the only valid manner of classifying modes.[46] Antonio Bertali's *Instructio Musicalis Domini Antonii Berthalli* (1676) presented both the twelve modes and the church tones, specifying that the eight church tones were the 'modes currently in use'.[47] Finally, in *Li primi albori musicali* (1679) Lorenzo Penna mentioned his choice of eight tones 'to follow the use of the church' ('*per seguire l'uso della Chiesa'*), and claimed the church tones were 'in conformity with the modern usage' ('*conforme al uso moderno'*).[48] Even though in several of these treatises, it is unclear whether the 'common use' of the church tones was strictly

[44] Clifford Alan Jr. Cranna, 'Adriano Banchieri's "Cartella musicale" (1614): Translation and Commentary' (PhD diss., Stanford University, 1981), 215; 218.
[45] Dodds, 'The Baroque Church Tones', 128.
[46] Ibid., 121.
[47] If the attribution is correct, Bertali must have written this treatise earlier since he died in 1669. Ibid., 175.
[48] Dodds, 'The Baroque Church Tones', 136.

restricted to church music, there is strong evidence that the tonalities derived from the church tones had a profound impact on both sacred and secular music. The fact that several of the very first extensive listings of major and minor keys, as in Georg Falck's *Idea boni cantoris* (1688), started with the eight church tones indicates that the importance of these church tones cannot be overestimated in a study of seventeenth-century tonal language, as will be discussed below. The full significance of the church tones (to which I will come back) can only be measured in the light of another aspect of seventeenth-century tonal language, which came to be clearly articulated only later in the century and throughout the eighteenth century. This has to do with the categorization of major-third versus minor-thirds modes.

### 3. Only Two Modes? *Do* and *re* 'Modes'.

Several late seventeenth- and early eighteenth-century theorists referred to the common use of only two modes, or four modes that can be 'reduced to two', based on *do-re-mi* or *re-mi-fa* solmization patterns. In the Renaissance, some theorists were already using solmization terminology to differentiate modes, with *ut, re* or *mi* as their final. In *Dodecachordon* (1547), Heinrich Glarean was one of the first theorists to refer specifically to a threefold grouping of modes, underscoring the practical basis for this categorization:[49]

> [Many learned men of this day] are acquainted with only eight modes, and others also proclaim that three, *ut, re, mi* are sufficient, just as ordinary players use them.[50]

In at least three other passages in his treatise, Glarean suggests the same idea:

> The same men teach in this way concerning the ending of songs in all modes: every song ends either on *re*, or on *mi*, or on *ut*. [51]

[49] Cristle Collins Judd, 'Modal Types and 'Ut, Re, Mi' Tonalities: Tonal Coherence and Sacred Vocal Polyphony from about 1500', *Journal of the American Musicological Society* 45, no.3 (Autumn 1992): 437.

[50] 'Qui ipsi octo duntaxat norant, altij etiam tres sufficere clamitabãt ut, re, mi, quemadmodu ludionum uulgus habet'. Heinrich Glarean, *Dodecachordon* (Basles, 1547), I, 65. Translated in Clement A. Miller, trans., *Heinrich Glarean Dodecachordon: Translation, Transcription and Commentary* Musicological Studies & Documents 6 (n.p.: American Institute of Musicology, 1965), 103. See Judd, 'Modal Types and Ut, Re, Mi' Tonalities', 437.

> Especially since even now we have commonly only three modes in frequent use.[52]

> Singers of our time place every *ut* according to this mode [Ionian], likewise every *re* to the Dorian and every *mi* to the Phrygian, recognizing no *ut* other than that of this mode.[53]

Several late seventeenth-century theorists followed that trend and employ solmization (rather than modal) terminology to discuss certain melodic characteristics of music.[54] For instance, in *Li primi albori musicali* (1679), Lorenzo Penna specified that it is first necessary to know if the melody proceeds via the minor third of the scale, *re-fa-la*, which he called 'primo modo' ('first way'), or the major third, *do-mi-sol*, which he called 'secondo modo' ('second way') to be able to transpose a melody.[55] Nikolai Diletskii, a theorist of Kievan origin who wrote a comprehensive guide to composition entitled *Grammatika* (1677) to teach Russians how to compose in the Western style, also described a two-fold system of music based on *do* and *re* scales, to which I will come back in detail shortly.[56] Moreover, in *Il musico testore* (1706), Zaccaria Tevo specified that 'some of the moderns claim that the tones are only two, and they are based on whether the third in their scale is major, or minor'.[57] Another early eighteenth-century Italian source, Francesco Gasparini's *L'armonico prattico al cimbalo* (1708), attests that

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[51] 'De fine autem cantilenarum in omnibus modis, ijdem ita praecipiunt: Omnis cantus definit aut in re, aut in mim aut in ut'. Glarean, *Dodecachordon*, I, 31. Translated in Miller, *Heinrich Glarean Dodecachordon*, 70**.** See Judd, 'Modal Types and Ut, Re, Mi' Tonalities', 437.

[52] Henrich Glarean, *Dodecachordon*, I, 76-77. Translated in Miller, *Heinrich Glarean Dodecachordon*, 115. See Judd, 'Modal Types and Ut, Re, Mi' Tonalities', 437-438.

[53] Heinrich Glarean, *Dodecachordon*, I, 115-116. Translated in Miller, *Heinrich Glarean Dodecachordon*, 154. See Judd, 'Modal Types and Ut, Re, Mi' Tonalities', 437-438.

[54] I have not come across treatises from the first half of the century explicitly discussing melodies in this way.

[55] 'Quello che deve vedere nel principio, e bene notare, è, se la Composizione sia di natura, che camini con terza Minore, formando Re, fa, la, ò pure di sua natura vadi di terza Maggiore formando, Ut, mi, sol.' Penna, *Li primi albori musicali* (1679), 186. See Beverly Stein, 'Carissimi's Tonal System and the Function of Transposition in the Expansion of Tonality', *The Journal of Musicology* 19, no.2 (Spring 2002): 295-97. Penna's example of the primo and secondo modo feature melodies with final on d and C in *cantus durus*, respectively.

[56] Claudia Jensen, 'A Theoretical Work of the Late Seventeenth-century Muscovy: Nikolai Diletskii's "Grammatika" and the Earliest Circle of Fifth', *Journal of the American Musicological Society* 45, no.2 (Summer 1992): 305-31.

[57] 'Vogliono certi novissimi, che li Tuoi siino solo due, & il fondamento loro è sopra la consideration delle terze maggiori, e minori, che entrano in essi […] siche vogliono, che la terza minore formi un Tuono, e la maggiore un' altro.' Zaccaria Tevo, *Il musico testore* (Venice, 1706), 269. See Gallo and Zaminer, *Italienische Musiktheorie*, 366. There is evidence that *Il musico testore* was written over several years and was already completed by 1700. See *Oxford Music Online*, s.v. 'Tevo, Zaccaria,' www.oxfordmusiconline.com (accessed April 22, 2015).

in the course of the seventeenth century the Phrygian modes gradually fell out of fashion so that only two classes remained, according to the nature of the third above the final: [58]

> It is enough to state that any composition whatsoever is formed with either the major or the minor third. This becomes evident in reading the notes. In the case of a major third, starting from precisely that note on which the composition is built, read: *ut, re, mi*; in the case of a minor third: *re, mi, fa*. I leave out consideration of the third and fourth [Phrygian] modes, which must be read *mi, fa, sol*, since this is not applied rigorously by present-day composers with its original structure.[59]

The prevalence of the quality of the third as the primary 'modal' marker sometimes appeared in disguise under a more traditional, modal terminology, rather than solmization in the Guidonian system.[60] Such is the case of Andreas Werckmeister, who in *Musicae mathematicae* (1687) reported his observations on late seventeenth-century musical practice as follows:

> Since the music of today (as already imagined) is much different, and only around four modes are in use, as Ionian with Mixolydian [*ut* modes] and Dorian with Aeolian [*re* modes], they are more often mixed in the ambitus of the fourth, *so that not more than two modes can be established*.[61] (Emphasis added).

The presentation of scales and hexachord mutation in seventeenth-century methods of *Canto figurato* sheds light on Werckmeister's mention of the use of the Ionian, Mixolydian, Dorian and Aeolian modes in musical practice, as will be discussed below.

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[58] Barnett, 'Modal Theory, Church Keys, and the Sonata', 278-79. Central European theorists, however, were more likely to recognize the continuing importance of the Phrygian (or *mi*) mode, particularly for Lutherans who continued to encounter this mode regularly in the chorale repertory. See Lester, *Between Modes and Keys*, 124.

[59] 'Basterà dunque avvertire, che qualsivoglia Composizione è formata o con la Terza maggiore, o con la Terza minore. E ciò si conoscerà subito dalla lettura delle note; mentre con la Terza maggiore ci figuraremo, che principiando dalla propria corda dove si forma la Composizione, dica: Ut, Re, Mi, e la altre colla terza minore diranno, Re, Mi, Fa, lasciando da parte le riflessioni del terzo, e quarto Tono, che regolarmente deve leggersi , Mi, Fa, Sol…perche questo da I Compositori d'oggidì non vien praticato col suo natural rigore, e con la propria Costituzione'. Francesco Gasparini, *L'armonico pratico al cimbalo* (Venice, 1708), 73-74. Translated in Frank S. Stillings, *The Practical Harmonist at the Harpsichord*, ed. David L. Burrows (New Haven: Yale University Press, 1963), 66.

[60] Personal communication with Nicholas Baragwanath, November 2014.

[61] 'Weil aber die Music (wie schon gedacht) heutiges tages ganz anders und nur eta. 4 *modi* im Gebrauch sind als *Jonicus*, mit dem *Mixolydio* und *Dorius* mit dem *Aelio*, mehrentheils in dem ambitu der quartae vermischet so können dannenhero nicht mehr als 2. modi anjesso statuiret worden.' Andreas Werckmeister, *Musicae mathematicae hodegus curiosus* (Frankfurt, 1687; repr., Hildesheim: Georg Olms, 1972), 124. Translated in Beverly Stein, 'Carissimi's Tonal System', 298.

In conclusion, Glarean's original reference to the *ut, re, mi* classification being used by 'ordinary players' indicates that this manner of discussing modes in connection to solmization syllables may have originated among music practitioners (as opposed to theorists) as a way to simplify modal classification in composition and performance by distinguishing only three types of pitch organization: '*ut* modes' (Lydian, Mixolydian and Ionian), '*re* modes' (Dorian and Aeolian) and '*mi* mode' (Phrygian). In the course of the seventeenth-century, music practitioners gradually forged a tonal language primarily based on two modes differentiated by the quality of the third above the final, which a number of theorists discussed in terms of solmization patterns rather than modal theory, indicating the growing importance of the hexachord itself as a fundamental basis for linear pitch organization.

## III. The Scales of *Canto Figurato.*

The ensemble music analyzed in this thesis falls under the label of *canto figurato*. It is therefore fit to consider the content of treatises and guides specific to *canto figurato* that would have been used to teach apprentice musicians. Even though many such guides survive, these have received very little attention from modern scholars and represent promising future avenues of research. A few examples taken from treatises and methods presenting principles of *canto figurato*, which shed light on other aspects of the theoretical discourse, will be discussed here.

### 1. Lorenzo Penna's *Li primi albori musicali* (1679).

The common use of the four modes mentioned by Werckmeister (Ionian, Mixolydian, Dorian and Aeolian) appears implicitly in some treatises discussing *canto figurato* scales and hexachord mutations, as Beverly Stein first noticed in her study of Carissimi's tonal language.[62] In Lorenzo Penna's *Li primi albori musicali* (1679), a treatise in three parts laying out the principles of 1) *canto figurato*, 2) counterpoint and 3) organ accompaniment, Penna does not mention once Zarlino's twelve modes in the entire treatise; the second book devoted to the principles of counterpoint only mentions the eight church tones towards the end. On the other hand, the first part of the treatise,

[62] Stein, 'Carissimi's Tonal System', 295.

discussing the principles of *canto figurato*, gives extensive explanations of scales and hexachord mutations. After presenting the Guidonian hand, the three hexachords, the various clefs, and the 'simple little scales' ('*scalette semplici'*, that is, the individual natural, soft and hard hexachords—separately— in all the clefs and for all voice ranges), Penna proceeded to introduce 'the great scales' (*le scale grandi*).[63] A *scala grande* features two full overlapping hexachords, forming either a ten-note or a nine-note scale, depending on the position of the two hexachords (mutation at the fourth or at the fifth). Penna clarified the formation of this scale at the end of his presentation:

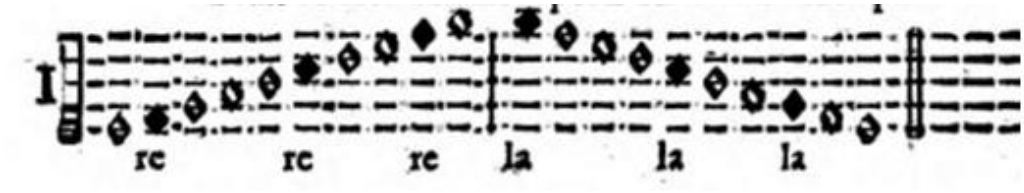
> To better understand the prescribed scales of mutations [great scales], the student must mentally imagine two small scales [two individual hexachords], one called lower and the other upper, which will have to join together, and which thus combined form, by way of the mutations, the great scale.[64]

Penna's presentation of the 'great scales' features, for each voice type (bass, tenor, alto, and canto), various combinations of two overlapping hexachords in *cantus durus* (natural and hard) and *cantus mollis* (natural and soft) in all the clefs used in each voice range (see Fig. 1.8). It is clear that Penna's motivation was to provide the student with charts to become fluent in 'reading the notes' (solmizing) in all the clefs encountered in *canto figurato* in both *cantus durus* and *cantus mollis* with the *do* placed on four possible positions on the staff. The points of mutations would have thus become ingrained in the pupils' mind and they could have used these charts as references to turn to during their training in *Canto figurato*. Penna then discussed how contemporaneous musicians made extensive use of the 'chromatic style' by transposing these scales using various clefs and key signatures with up to three accidentals (♭♭♭ or ♯♯♯). As solmization in the various transpositions was extremely difficult, Penna also provided a chart with correspondences between solmization in the basic *durus* and *mollis* signatures, and their equivalent in other clefs transpositions with various key signatures (see Fig. 1.9). As

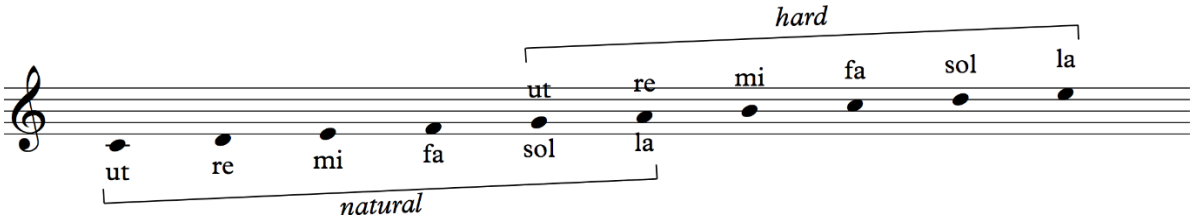
[63] Penna, *Li primi albori musicali* (1679), 17-22.
[64] 'Per meglio intendere le prescritte Scale di Mutazioni, deve il Scolare fingersi nella mente due Scalette picciole, una chiamata di sotto, e l'altra detta di sopra, quali dovrà unire insieme, che così unite formino per mezzo delle mutazioni la Scala Grande'. Ibid., 21.

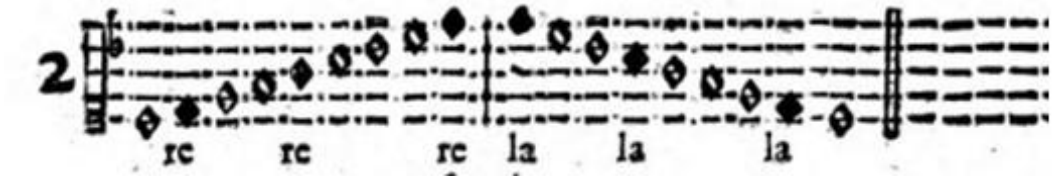
Beverly Stein noted, this chart only shows major-third 'modes', and all the key signatures correspond to transpositions of the Ionian or Mixolydian 'modes'.[65]

Figure 1.8. Great scales with mutations for the soprano, with added hexachords in brackets. *Source*: Lorenzo Penna, *Li primi albori musicali* (Bologna, 1679), 20.

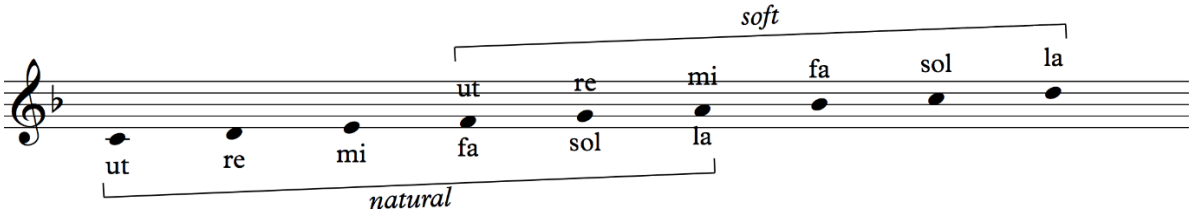



Natural and hard hexachords:

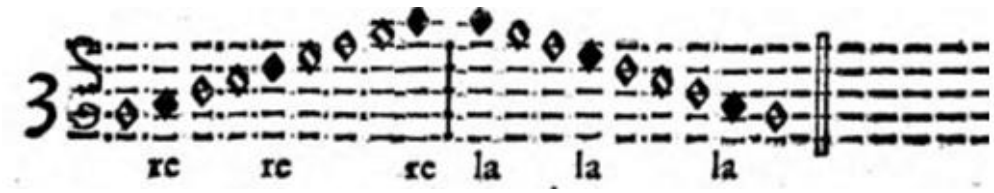


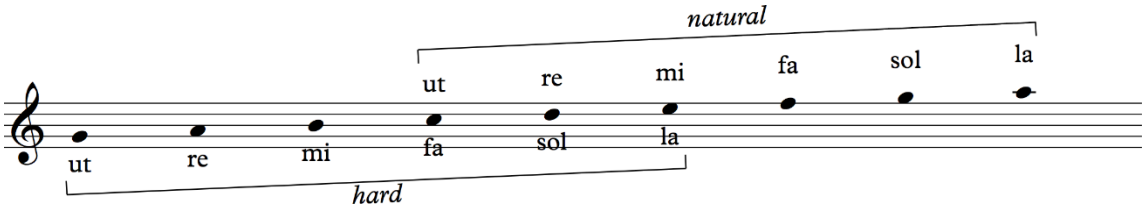

Natural and soft hexachords:

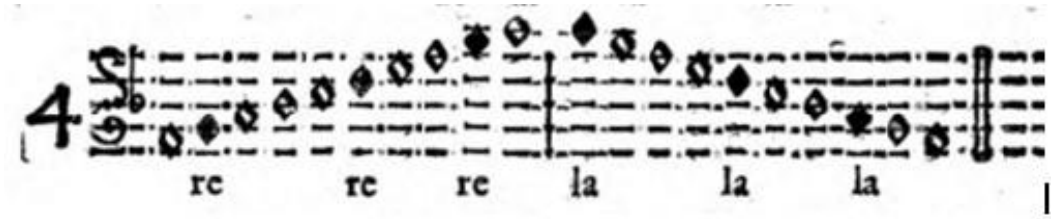



[65] Stein,'Carissimi's Tonal System', 295-296.




Hard and natural hexachords:




Soft and natural hexachords:

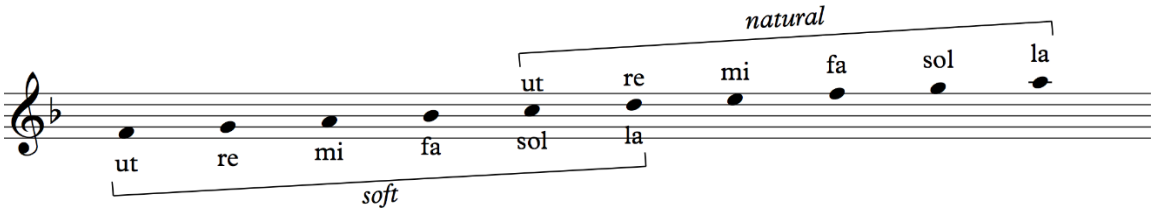
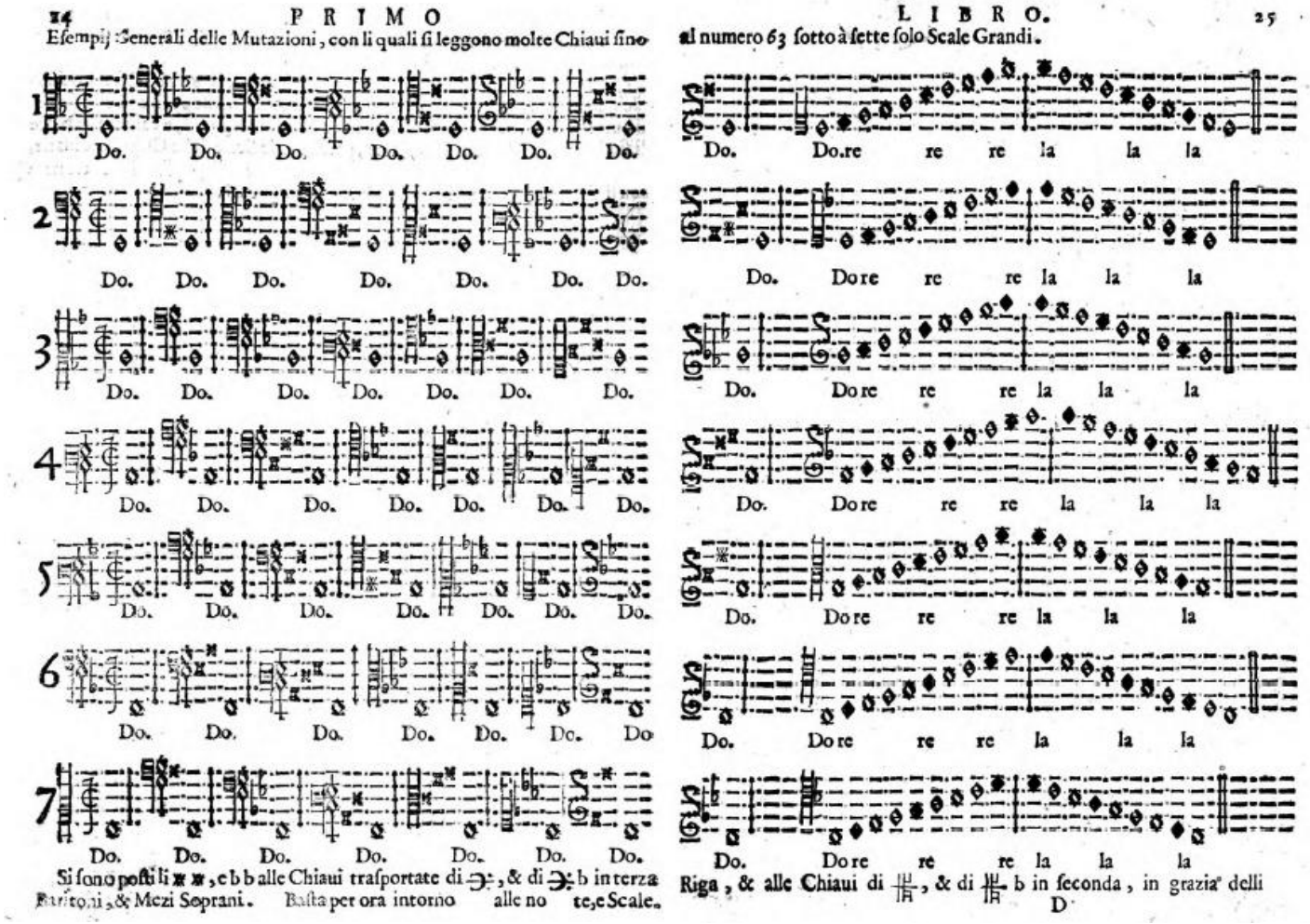
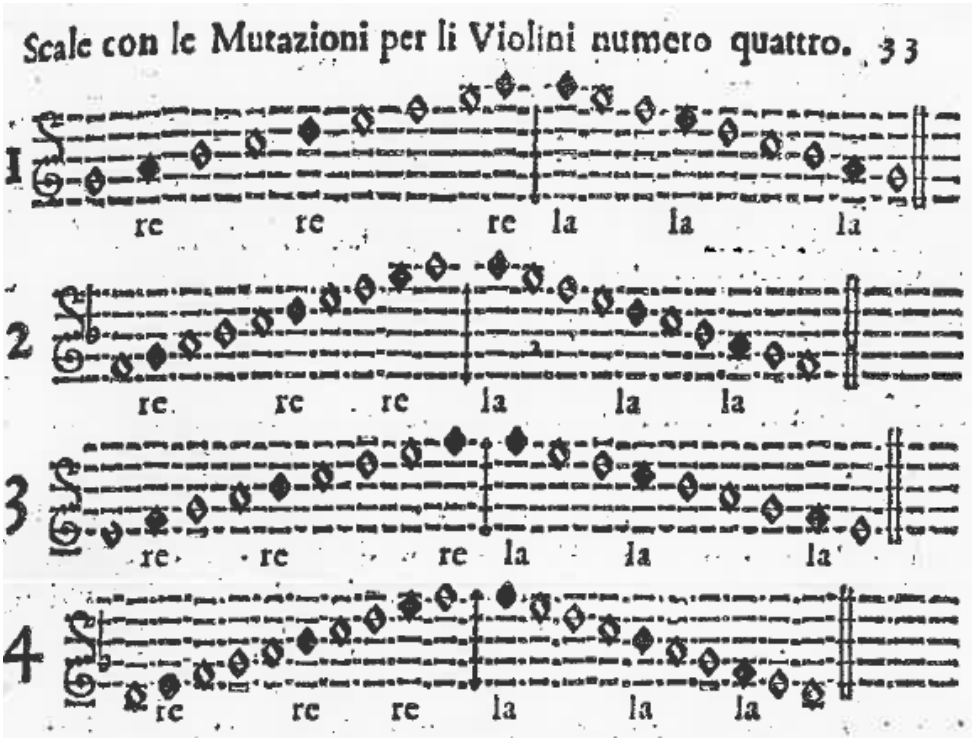


Figure 1.9. Great scales with solmization equivalences in various clefs. *Source*: Penna, *Li primi albori musicali* (1679), 24-5.



Note that Penna adds the great scales with hexachord mutations used by the violin (in G1 and G2 clefs) at the end of his examples (see Fig.1.10). Later sources such as early eighteenth-century solfeggio methods also include extensive examples of mutations for the violin, along with each voice type (see Ippolito Ghezzi's *Il Setticlave Canoro dove s'insegno* [*sic*] *gli elementi musicali, et il nodo di dare il Solfeggio à tutte le sette chiavi* (Bologna, 1709), for instance). This suggests that principles of solmization were also relevant to instrumental performers (and by extension, composers as well).

Figure 1.10. Great scales with mutations for the violins. *Source*: Penna, *Li primi albori musicali* (1672), 33.



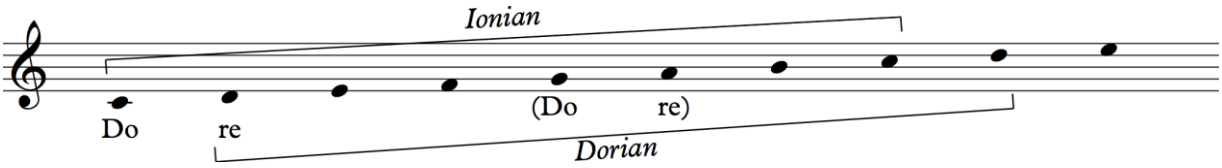

Note that in *cantus durus*, the untransposed *scala grande* can be formed in two ways: the natural hexachord at the bottom and the hard hexachord at the top (mutation at the fifth), or the hard hexachord at the bottom and the natural hexachord at the top (mutation at the fourth). The solmization pattern of the first scale type with a mutation at the fifth corresponds to that of the Ionian mode, and the second type with a mutation at the fourth, to that of the

Mixolydian mode, as noted by Beverly Stein.[66] In the Ionian scale, the solmization patterns of the scales built on the two *re* correspond to the Dorian and Aeolian modes, respectively (see Fig. 1.11). Conversely, in the Mixolydian scale (mutation at the fourth), the scales built on the two *re* correspond to the Aeolian and Dorian modes:

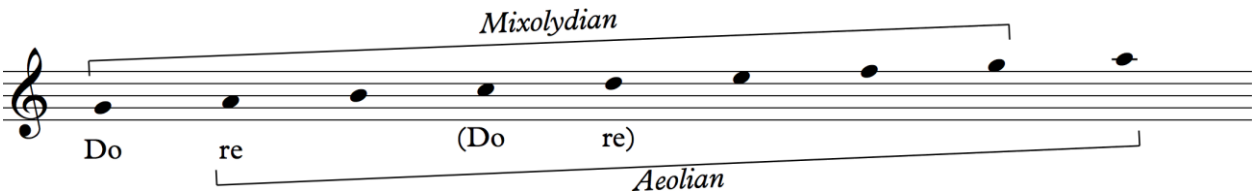
Figure 1.11. *Scale grandi* in *cantus durus* and *cantus mollis*.

a) *Scala grande* in *cantus durus* with mutation at the fifth: *do* (Ionian) and *re* (Dorian) modes

b)




c) *Scala grande* in *cantus durus* with mutation at the fourth: *do* (Mixolydian) and *re* (Aeolian) modes




As mentioned earlier, the facsimile of solmization equivalences in Penna's treatise, shown in Figure 1.9, all bear 'key signatures' indicating that the scales correspond to transpositions of the Ionian or Mixolydian modes. The two major-thirds modes (Ionian and Mixolydian) and minor-third modes (Dorian and Aeolian) thus formed shed light on Werckmeister's observation quoted earlier that these four modes were the only ones used in music.

Arguably, the principles of solmization and points of mutations of the *scale grandi* in *cantus durus* and *cantus mollis* and their transpositions, taught and repeated over and over in lessons of *canto figurato*, may have thus opened, or inspired a new way of conceptualizing linear tonal space by taking the *ut* of any of the three hexachords as the 'final' in all possible hexachord combinations in *cantus durus* and *mollis* and their transpositions (which provides yet another rationale for seventeenth-century key signatures), as described above. The scales

[66] Ibid., 291.

thus obtained happen to correspond in their solmization pattern to the Ionian and Mixolydian (*do*, major third), and Dorian and Aeolian (*re*, minor third) 'modes'. In other words, this could represent a 'reduction' of the number of modes to four or two, a simplified system that could accommodate the increasing number of transposition levels and key signatures in the course of the seventeenth century.

This suggestion raises two questions: did Penna himself intend to present implicitly a system of linear tonal organization in his charts of hexachord mutations, and is a similar system implicit in other seventeenth-century treatises? The implicit nature of the language employed in seventeenth-century treatises makes it difficult to answer these questions. However, some important remarks can be made. Regarding the first question, it appears that for Penna, the *scale grandi* thus presented may be sufficient to understand the principles of counterpoint included in the following parts of his treatise and, by extension, any type of *canto figurato* music. His explanation of the eight church tones at the end of the second book on counterpoint only mentions the species of fourths and fifths, the principal notes (*corde*) for each church tone, and the appropriate cadence degrees. Penna did not include musical examples to demonstrate the use of each tone in a composition (unlike Banchieri, for instance). The brevity of his remarks on the church tones somewhat undermines their importance in the treatise as a whole, even though Penna claimed that without a knowledge of these tones the contrapuntist would 'proceed very badly' and his pieces would be devoid of 'the true order and proper harmony'.[67] However, when discussing the practical issue of transposition, Penna did not mention the importance of being aware of the mode, but he referred to the minor third of the scale, *re-fa-la*, or the major third, *do-mi-sol*, as mentioned earlier.[68] In his musical examples, Penna wrote a melody with a final on d in *cantus durus* for the 'primo modo', and one with a final on C in *cantus durus* for the 'secondo modo', corresponding to the *do* and *re* scales in the natural hexachord, so that he seemed to connect the scales of the first part of his treatise to the way he conceptualized melodies in practical matters. According to Stein, numerous seventeenth-century treatises give d and C in *cantus durus* as the two primary keys in musical examples, and Joel Lester asserts that Dorian

[67] 'Senza la cognizione de' Tuoni, procederebbe molto male il contrapuntista e le sue Cantilene sarebbero prive del vero ordine, e dovuta Armonia…' Penna, *Li primi albori musicali* (1679), 119.
[68] 'Quello che deve vedere nel principio, e bene notare, è, se la Composizione sia di natura, che camini con terza Minore, formando Re, fa, la, ò pure di sua natura vadi di terza Maggiore formando, Ut, mi, sol.' Penna, *Li primi albori musicali* (1679), 186. See Stein, 'Carissimi's Tonal System', 295-97.

dominated as a model for the minor mode in music treatises up to Rameau's *Traité* (1722), further hinting at the significance of Penna's discussion of *scale grandi* and their implications in linear concepts of pitch organization.[69] This system is also implicit in other seventeenth-century documents, as will be discussed below.

## 2. Other Treatises Implying the Common Use of the Ionian, Mixolydian, Dorian and Aeolian 'Modes'.

Other seventeenth-century treatises also suggest the use of Ionian and Mixolydian as the two 'major-third modes', with Dorian and Aeolian as their corresponding minor counterparts. In *Musico Prattico* (1673), Bononcini included in the first part of his treatise dealing with principles of *canto figurato* a chart very similar to Penna's to facilitate solmization in various clefs and key signatures. Just as in Penna's chart, all clef and signature combinations bear Ionian or Mixolydian signatures.[70] Adriano Banchieri's *La Banchierina* (1623), a short guide to *canto figurato,* also included a chart with various clefs in *cantus durus* and *mollis* featuring Ionian and Mixolydian key signatures.[71] In addition, other aspects of the theoretical discourse more or less clearly imply the common use of these four 'modes'. In *Musico Prattico,* for instance, Bononcini claimed that there were twelve modes in figural music, as discussed above. As Stein observed, to support his point, Bononcini gave an illustration that ironically seems to defeat his initial purpose by showing how, starting on one mode, one could obtain three other modes simply by changing the place of the semitones via the use of different key signatures.[72] Bononcini presents the first mode in its natural form (d Dorian), and alters the scale by changing the key signature: Aeolian (with B♭), Mixolydian (with F♯), and Ionian (with F♯ and C♯). He then illustrates the exact same point with the seventh mode (Mixolydian), showing how the scale can be modified to form the Dorian (with B♭), Ionian (with F♯) and Aeolian (with B♭ and E♭) modes.[73] Even though Bononcini specified that the semitones could

[69] Stein, 'Carissimi's Tonal System', 295-97; Lester, *Between Modes and Keys*, 12.
[70] Bononcini, *Musico prattico,* 38-39.
[71] Adriano Banchieri, *La Banchierina* (Venice, 1623), 40. Banchieri's presentation prefigures Penna's, but it differs slightly in that Banchieri still incorporates notion of authentic or plagal ambitus. A copy of *La Banchierina* held at the music library in Bologna also includes a hand-written chart with multiple transposition levels bearing Ionian and Mixolydian 'signatures' with up to two ♭♭ and two ♯♯ (Biblioteca della musica di Bologna, Microfilm no. 1798).
[72] Stein, 'Carissimi's Tonal System', 292-294.
[73] Bononcini, *Musico prattico,* 148-153. See Stein, 'Carissimi's Tonal Language', 292-294.

be shifted in many other ways, and that he only gave these four examples for brevity's sake, the very fact that he chose these four scales to illustrate the melodic subtleties of various modes is telling, as they correspond to the four scales outlined in Penna's presentation of hexachord mutations.[74]

Finally, Baragwanath has noted that a source of Russian origin also hints at this four-fold system and provides more specific descriptions of how Western European musicians used major- and minor-third modes in music composition.[75] A brief review of the historical context in which this treatise came to be will help to clarify why a source that is geographically so far removed from Italy may actually be relevant to this discussion. After the treaty of Lublin in 1569, a large part of Western Russia came under the rule of the Poles, which resulted in the creation of the Polish-Lithuanian commonwealth, largely dominated by the Catholic Church.[76] A vigorous campaign against the Orthodox faith began under the direction of the Jesuits, very influential in Poland.[77] It was therefore in a region strongly dominated by Catholic and Jesuit influences that Nikolai Diletskii, a composer and theorist of Kievan origin who studied in Vilnius, Lithuania, wrote a treatise on composition entitled *Grammatika musikiyskago peniya* ('A Grammar of Musical Singing') designed to teach Russian musicians how to write polyphonic compositions in the Western style. The work, which circulated in manuscript in three versions 'published' between 1677 and 1681, remained the most influential Russian music treatise for more than a century.[78]

The influences on the *Grammatika* itself can be traced back in Russia to the mid-seventeenth-century, when a series of reforms attempting to unify Russian chant notation began. Sixteenth and seventeenth-century Russia witnessed an incredible proliferation of various types of chant and various ways to notate them, which had accumulated since the tenth

[74] 'In oltre si può variare il detto semituono in molt'altre maniere, che per brevità tralascio, credendomi, che le sopradette siano bastanti far conoscere, che variandosi l'accennato semituono in uno, ò due luoghi hà forza di variare tutta la Composizione col mutarla di un Tuono in un' altro, e farne sentire differente armonia'. Bononcini, *Musico prattico*, 153-154. Beverly Stein seems to bypass this important specification and jumps to conclusions by saying that Bononcini 'in fact proves through his examples (perhaps unintentionally) that there are actually only four [modes]'. Stein, 'Carissimi's Tonal System', 292.
[75] Personal communication with Nicholas Baragwanath, November 2014.
[76] Gerald R. Seaman, *History of Russian Music from its Origins to Dargomyzhsky* (Oxford: Basil Blackwell, 1967), 46-47.
[77] Ibid.
[78] Personal communication with Nicholas Baragwanath, November 2014; Jensen, 'A Theoretical Work of Late Seventeenth-century Muscovy', 308.

century when the Christian faith was first introduced in Russia.[79] After a series of unsuccessful reforms, a commission led by a monk named Alexander Mezenets was organized in 1667 to clarify the notation of the old system of chant.[80] To accomplish his task, Mezenets found inspiration in the Guidonian gamut (a novelty in Russia), most likely a consequence of the Catholic influence, still strong in seventeenth-century Russia.[81] Diletskii's treatise, which employs a language based on the Guidonian hexachord, was directly influenced by Mezenets' innovations.

The *Grammatika* is divided in two parts. In the first part, highly theoretical, Diletskii introduces basic concepts of music with a strong emphasis on the hexachord and other concepts drawn from the Western theoretical tradition.[82] The second part is entirely devoted to the composition of *konserty*, a term applied to polyphonic compositions based on liturgical texts created by juxtaposing sections of contrasting meters, rhythms, and melodic ideas, featuring musical examples from the work of Polish composers Marcin Mielczewski and Jacek Różycki, among others, who used the Italianate *concertato* style extensively.[83] It is important to underscore here that Diletskii's rules of composition apply to both vocal *and* instrumental music, as made clear by his musical examples for both mediums.[84] In the first part of his treatise, Diletskii presents his conception of the meaning, or idea of music (*smysl*) and the keys of music (*kliuch, kliavish*).[85] In his discussion of the meaning of music, Diletskii claims that music had the power to move someone to either happiness (*veselaia, radostnaia*), sadness (*pechal'naia, skorbnaia*), or a mixture of both emotions (*smeshennaia*).[86] Dilestkii attributed each type of emotion to music performed in various settings:

> It is happy [music] when man's ears and heart are moved to happiness, and to this type [of music] belong all church, joyful and popular singing. Sad music is that which moves man's heart to sadness and sorrow, as in weeping, sobbing and funereal singing and so forth. Mixed

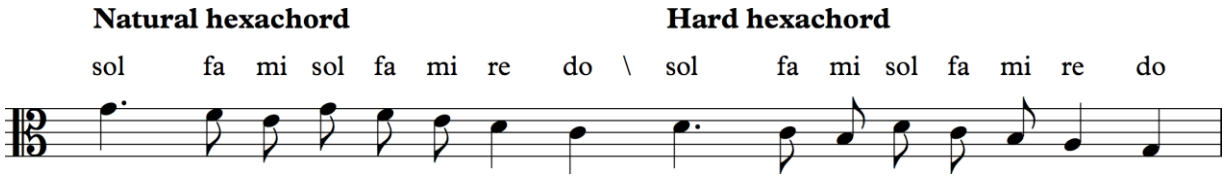
[79] Seaman, *History of Russian Music*, 43-6.
[80] Personal communication with Nicholas Baragwanath, November 2014.
[81] Ibid.
[82] Claudia Jensen, 'A Theoretical Work of Late Seventeenth-century Muscovy: Nikolai Diletskii's "Grammatika" and the Earliest Circle of Fifths', *Journal of the American Musicological Society* 45, no. 2 (Summer 1992): 307.
[83] Ibid.
[84] *Oxford Music Online*, s.v. 'Diletsky, Nikolay', www.oxfordmusiconline.com (accessed April 24, 2015).
[85] Jensen, 'A Theoretical Work of the Late Seventeenth-century Muscovy', 315.
[86] Ibid.

> [music] is that which moves one's ears first to happiness and then sadness, as in some sad popular singing.[87]

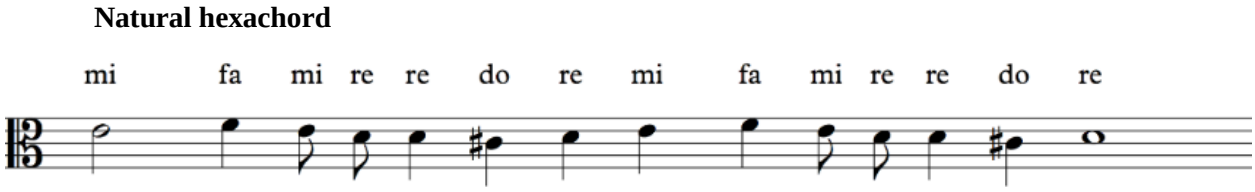
Diletskii illustrates his point with musical examples for each type of emotion (see Fig. 1.12). To my knowledge, no one has yet analyzed Diletskii's examples from the standpoint of hexachordal theory. When analyzed in terms of hexachords, Ditletskii's examples reveal the same system of four 'modes' (two *do* 'modes' and two *re* 'modes') discussed above in Penna's presentation of scales:

Figure 1.12. Diletskii's musical examples to show how to change the character of a melody as transcribed by Jensen, with added hexachord syllables and hexachord analysis. *Source*: Gosudarstvennaia biblioteka SSSR im V.I. Lenina 107, 16. See Jensen, 'A Theoretical Work of Late Seventeenth-century Muscovy', 321.

Here is an example of how to move [one] to happiness:

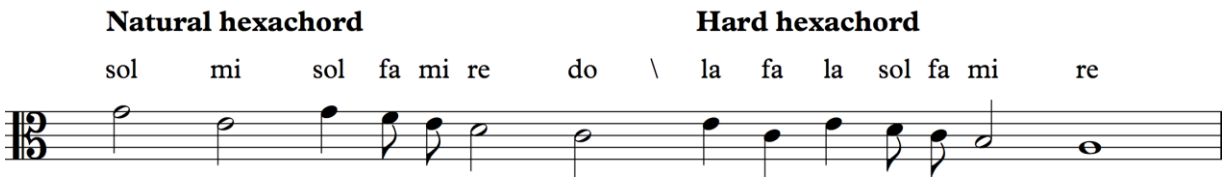



Here is an example of how to move [one] to sadness:




[87] Tsentral'nyi gosudarstvennyi arkhiv drevnikh aktov 541, fol.2. Translated in Jensen, 'A Theoretical Work of Late Seventeenth-century Muscovy', 316.

Here is an example of how to move [one] to mixed emotions:



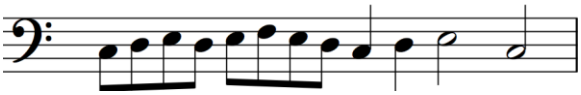

My hexachordal analysis of these examples sheds light on how these 'happy' and 'sad' emotions function structurally in relation to *do* and *re* 'modes' within a single *scala grande* (to use Penna's terminology), and shows how Diletskii may have intended all three examples to work together as a whole to demonstrate the two *do* and *re* 'modes' inherent to the hard/natural hexachord combination. The first example illustrating how to move someone to happiness features one phrase in the natural hexachord which is then repeated in the hard hexachord. The melodic contour emphasizes the *sol* (starting pitch with long note value), the *mi* (by a change of direction with a leap back to sol), and the *do* (descent from G to C, the point of arrival of the phrase) in the natural hexachord, and the phrase is repeated immediately after in the hard hexachord. As shown above, in that hexachord combination, the two *do* 'modes' are on C and G, and the two *re* 'modes', on d and a. Notice that the second example featuring sadness is written in the *re* 'mode' of the C natural hexachord (final on d), with a melodic contour revolving around the *re-fa* interval. Just like the first example, the last example showing how to express mixed emotion includes one phrase repeated in two different hexachords: the first in the natural hexachord, and the second in the hard hexachord. This time, however, Diletskii uses the *re* 'mode' of the hard hexachord (final on a), implicitly demonstrating how the contrasting natures of the *do* and *re* 'mode's arouse contrasting emotions. Again, and even more so than in the first example, Diletskii emphasizes the *ut-mi-sol* and *re-fa-la* contours in this last example, revealing a keen awareness of the defining role of the quality of the third to differentiate *do* and *re* 'modes'. In addition to the similarity of hexachord structure, the similarity of melodic contour between the first and last examples further suggests that Diletskii purposely sought to use the same system of two interlocking hexachords (natural and hard, presumably the simplest combination) to illustrate the contrasting *do* and *re* 'modes' inherent to that particular hexachord combination. Arguably, the second example, featuring the *re* 'mode' in the natural hexachord, completes the demonstration: the three examples complement each other not only to illustrate various

emotions, but also to show the complete modal scheme with all possible *do* and *re* 'modes' in the natural/hard hexachord combination.

Other parts of the *Grammatika* shed light on Diletskii's understanding of the happy and sad aspects of melody. For instance, in the second half of his treatise, devoted to composition, Diletskii lays out a number of rules (*pravila)* that student-composers can use to build up musical episodes, and extend or vary compositional ideas in the Western European style.[88] Dilestkii's 'contrary rule' (*pravilo protivnoe)* demonstrates in detail how to switch between the happy and sad aspects of a melody.[89] Claudia Jensen has remarked that Diletskii's musical examples for this rule reveal that he was not thinking in terms of a modern major-minor contrast of two scales sharing the same final (e.g. C major versus c minor), emphasizing that in order to demonstrate the change of character, Diletskii 'moves the melody to a different location, one in which the required third occurs without accidentals'.[90] Second, in a series of small snapshots illustrating how flats and sharps can be 'mixed', Diletsky also included an example of how 'happy notes' could be mixed with 'sad notes, *re*, together' (see Fig. 1.13):[91]

Figure 1.13. Diletskii's 'happy' and 'sad' notes. *Source*: Gosudarstvennaia biblioteka SSSR im. V.I. Lenina 146, 160. As reproduced in Claudia Jensen, 'A Theoretical Work of Late Seventeenth-century Muscovy', 321.

'Mixed, with happy notes and sad notes, re, together':



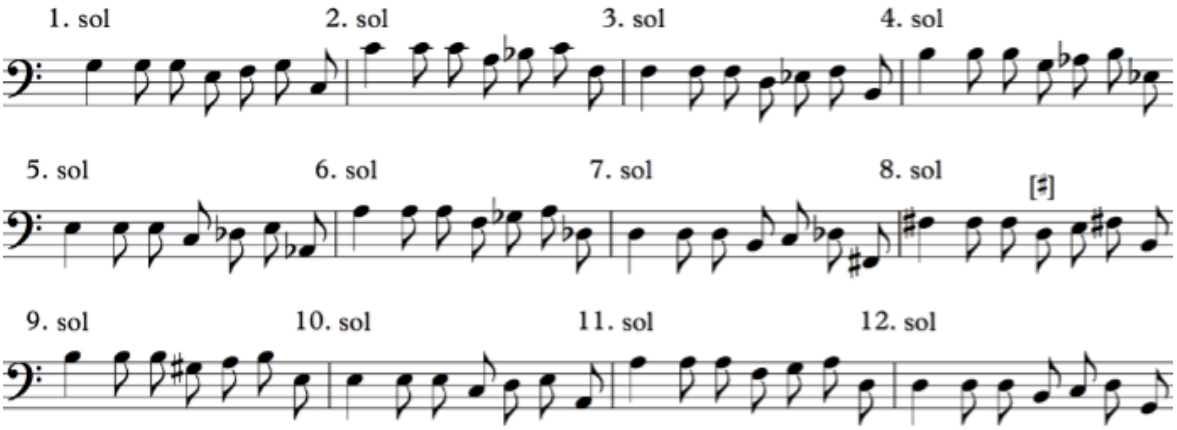
Again, a hexachordal analysis of this example corroborates the point argued above. The example, which features a single hexachord (the natural hexachord), shows an ascending major third (*do-re-mi*, the 'happy notes') followed by an ascending minor third (*re-mi-fa*, the 'sad notes'), and the melody then goes downward back to the original *do*, still in stepwise motion, with a final emphasis on the *do-re-mi* 'happy' notes at the end. Finally, Diletskii's illustrations of the circle of fifths introduce two so-called 'circles' (Claudia Jensen points out

[88] Jensen, 'A Theoretical Work of Late Seventeenth-century Muscovy', 317.
[89] Ibid., 322.
[90] Ibid.
[91] Ibid., 321.

that Diletskii calls them 'musical circles'): one labeled as 'happy circle', and the other 'sad circle'.[92] The 'happy circle' begins in the natural hexachord on G sol, in a melodic contour outlining the sol-mi-ut (G-E-C) melody of *ut-mi-sol* 'happy' singing (*do* 'mode' in natural hexachord), and proceeds by descending fifths down to the hard hexachord which brings the circle to a close (see Fig. 1.14). The 'sad circle' illustrates the same thing starting, again, in the natural hexachord, this time on A la, in a melodic contour emphasizing the *la-fa-re* melody (A-F-D) of *re-fa-la* 'sad singing' (*re* 'mode' in the natural hexachord), and proceeds downward by fifth until the hard hexachord is reached. The parallel is straight forward: Diletskii intends to demonstrate how the two sets of transposition work in both *do* and *re* 'modes' in each hexachord. Note that Diletskii's 'circles' may have been theoretical constructions rather than practical schemes to rehearse on an instrument; indeed, his use of accidentals implies an instrument where G♯ and A♭ and C♯ and D♭ are enharmonic equivalents, which would be impossible in many seventeenth-century tuning systems. The type of temperament and instrument Diletskii intended for his 'circles' therefore remains uncertain and requires further research.

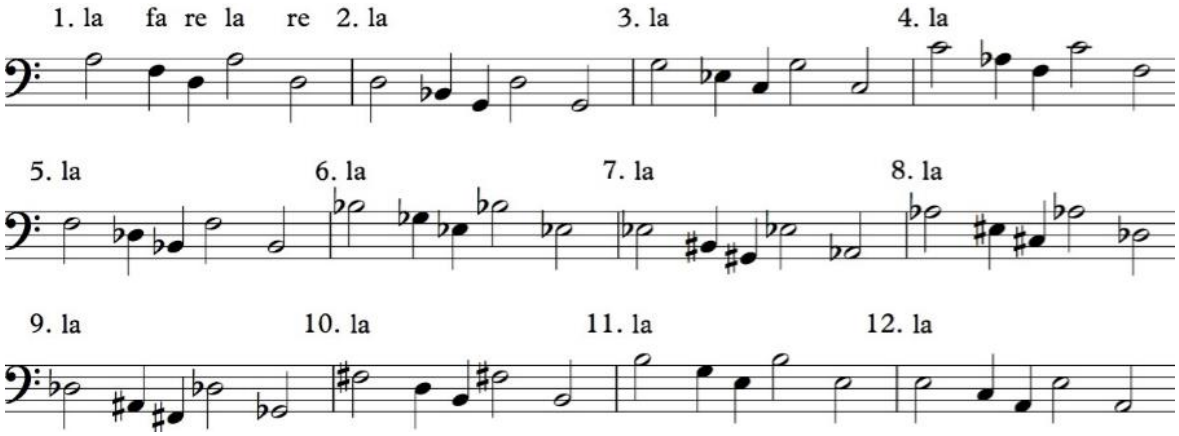
Figure 1.14. Diletskii's so-called 'musical circles' in *Grammatika*. *Sources*: Gosudarstvennaia biblioteka SSSR im. V. I. Lenina 146, 160; Gosudarstvennaia biblioteka SSSR im. V. I. Lenina 107, 134. As reproduced in Jensen, 'A Theoretical Work of Late Seventeenth-century Muscovy', 321.

a) The 'happy circle'.




[92] Ibid., 319.

b) The ‘sad circle’.




Although Diletskii did not mention the importance of the quality of the third in this early version of the *Grammatika*, in two later versions, Diletskii connected the ‘happy’ and ‘sad’ characters to hexachord syllables in several places:[93]

> The six musical signs are these: ut, re, mi, fa, sol, la, and they are divided into two: ut-mi-sol is happy singing and re-fa-la is sad singing.[94]

Later in the treatise, Diletskii emphasized this point:

> I teach you in this [work] a two-fold [system of] musical voices or tones, ut and re, and a two-fold system of music: happy, which is ut, and sad, which is re.[95]

In conclusion, Diletskii’s understanding of a two-fold musical system of ‘happy’ (*ut-mi-sol*) and ‘sad’ (*re-fa-la*) singing, which is also implicit in the work of Lorenzo Penna and others, is strikingly similar to the tonal system identified by Beverly Stein in Carissimi’s vocal music.[96] Baragwanath also claimed that the *Ars cantandi* (Augsburg, 1692) attributed to Carissimi, describes a similar system.[97] This tonal organization is based on a composite ‘great scale’ of two overlapping hexachords, which a composer may use to write music by moving

[93] Ibid., 316.
[94] Gosudarstvennaia biblioteka SSSR im V. I. Lenina 146, 61. Translated in Jensen, ‘A Theoretical Work of Late Seventeenth-century Muscovy’, 316.
[95] Ibid., 107, 124. Translated in Jensen, ‘A Theoretical Work of Late Seventeenth-century Muscovy’, 320.
[96] Stein, ‘Carissimi’s Tonal Language’, 264-305.
[97] Personal communication with Nicholas Baragwanath, November 2014.

along the major- third and minor-third scales based on the *ut* and *re* syllables of each hexachord. The solmization patterns starting on *ut* or *re* in these great scales with all four possible combinations of hexachords in *cantus durus* and *cantus mollis* correspond to the solmization of the Ionian, Mixolydian, Dorian or Aeolian modes.[98] Stein claimed that the system also applies to the music of other seventeenth-century composers including Claudio Monteverdi, Pietro Francesco Cavalli and Nicolò Fontei, and Chapter 2 will show that a similar system is also found in the music of north Italian ensemble composers discussed in this thesis.[99] This suggests that the scales and points of mutations as presented by Lorenzo Penna and others may have indeed represented more than a mere explanation of hexachord mutations; arguably, these may also implicitly lay out principles of a linear tonal organization based on scales and points of hexachord mutation that developed separately from modal theory. Eighteenth-century Italian music treatises clearly show that musicians conceived major and minor scales mainly in terms of solmization, attesting to the primacy of the hexachord itself (and the compound scale made up of two overlapping hexachords) in linear conception of tonal space. This manner of presenting scales in eighteenth-century treatises stemmed from earlier conceptions existing in musical practice, but not yet explicitly described in seventeenth-century theory.

## IV. 'The Tones Ordinarily Employed by Composers'[100]: Church Tones or Major- and Minor-third Modes?

The discourse of seventeenth-century music theorists can seem bewildering. The debate concerning the number of modes kindled so much confusion among theorists and musicians alike. On the other hand, many authoritative theorists seemed to recognize the church tones as most commonly used in musical practice. Moreover, some talked about the use of four modes (Ionian, Mixolydian, Dorian and Aeolian), and many mentioned the use of two modes, based on the quality of the third above the final. An examination of seventeenth-century presentations of scales and hexachord mutations in this chapter has shown how these may also

[98] Carissimi's core tonalities in his cantatas only involve natural and hard hexachord combinations in *cantus durus*, which are then transposed to the *two-flat system* in *cantus mollis*, involving the soft and B♭ hexachords (see Chapter 2). By extension, we may assume that the system found by Stein also applies to the one-flat system in *cantus mollis*, or to any transposition of the scale.
[99] Stein, 'Carissimi's Tonal System', 299.
[100] 'I tuoni ordinariamente pratticati da compositori'. Bononcini, *Musico prattico*, 137.

implicitly show concepts of seventeenth-century linear pitch organization. However, how can one reconcile these *do* and *re* 'modes' with the church tones, which, according to a number of theorists across Europe, were the 'modes' used in musical practice?

Harold Powers, who attempted to trace the development of the eight church tones towards our modern system of twenty four major and minor keys, did not specifically focus on an examination of the church tones from the vantage point of hexachordal theory.[101] In her study on Carissimi's tonal language, Beverly Stein made crucial observations regarding the correlation between the church tones and the *do* and *re* 'modes' as reflected in Carissimi's tonal practice.[102] Even though Beverly Stein convincingly demonstrated how her findings about Carissimi's expression of mode show a strong correspondence to the eight church tones, she was left with unanswered questions as she tried to connect the key pairings of church tones on the basis of shared ambitus (each authentic tone with its plagal counterpart), as compared to the pairings of Carissimi's core tonalities.[103] In addition, she did not fully discuss strong theoretical evidence that shows how theorists and musicians themselves may have conceptualized the church tones around the *do* and *re* 'modes' of each hexachord. Building on the work of Stein and Dodds, the remainder of the chapter examines of the relationship between church tones and major- and minor-third modes, a relationship which has not, to my knowledge, previously been fully scrutinized.

A comparison of the church tones with *do* and *re* 'modes' can be done by an examination of the hexachords used in each church tone's final:[104]

[101] Harold Powers, 'From Psalmody to Tonality', in *Tonal Structures in Early Music*, Criticism and Analysis of Early Music 1 (New York: General Music Publishing Company, 1998), 275-340.
[102] See Stein, 'Carissimi's Tonal System', 299-304.
[103] Ibid., 302-304.
[104] Considerations of authentic versus plagal qualities of each church tone have purposely been left out for now for the sake of the argument that follows, wherein the range and ambitus of each tone is not relevant.

Table 1.3 Church tones with finals and key signatures and corresponding hexachords.

| Church Tones | Hexachords |
|---|---|
| D — | C (re mode) |
| g ♭ | F (re mode) |
| a — | G (re mode) |
| e — / e ♯ | * |
| C — | C (do mode) |
| F ♭ | F (do mode) |
| D ♭ (or D ♯ / D ♯♯ / e ♯ / E ♯♯) | C (re mode)* |
| G — | G (do mode) |

*Tone four and tone seven, the most inconsistent of all, will be discussed in the text. The possible alternatives for tones four and seven listed in this table are found in a variety of treatises and collections featuring pieces ordered according to the church tones.

Table 1.3 shows that the church tones' finals feature the *do* 'modes' of the three basic hexachords, soft (F), natural (C), and hard (G) and their respective *re* 'modes' on g ♭, d and a. The fourth tone with a final on e is more problematic, and the seventh tone, which appears with many variants in treatises and collections ordered according to the church tones alike, is harder to categorize. Just as the natural hexachord is in theory the only one of the three basic hexachords to be found in both *cantus durus* and *cantus mollis*, there are two *re* 'modes' in the church tones featuring the natural hexachord in two different key signatures: one in *cantus durus* (tone one, d—) and one in *cantus mollis* (tone seven in its earliest form, d ♭). On the other hand, the church tones feature only the *do* 'mode' of the natural hexachord in *cantus durus* (tone five, C—), whereas the *do* 'mode' of the natural hexachord in *cantus mollis* (C ♭) is missing.[105] The other tonalities later found for tone seven (listed in Table 1.3), which will be further discussed below, may be partly elucidated by an examination of early listings of major and minor keys starting with the eight church tones as their basis.

The only extant listing of keys from this period by an Italian musician is that by Bertali, who Bertali received all his training from Sefano Bernardi in Verona and most likely followed

[105] Michael Dodds points out that Georg Muffat's *Apparatus musico-organisticus* (Salzburg, 1690) includes a rare example of C ♭ for tone seven. See Michael R. Dodds, 'Tonal Types and Modal Equivalence in Two keyboard Cycles by Murschhauser', 367.

his master to Austria after the latter's appointment to the service of Archduke Carl Joseph. Other early listings, such as those presented in Falck's *Idea boni cantoris* (1688), and Johann Mattheson's *Das neu-eröffnete Orchestre* (1713)**,** for instance, were compiled by Germans and offer theoretical evidence that some late seventeenth-century and early eighteenth-century theorists did relate all eight of the church tones to *do* and *re* 'modes'. The importance of the cultural-musical exchanges between Italy and Germany has been outlined in the Introduction (see pp. 21-22) and most likely influenced these treatises. Even though these early German listings certainly do not indicate that all musicians conceived 'keys' that way, they merit attention in the present discussion and may arguably shed light on aspects of Italian music.

In his *Idea boni cantoris*, a rudimentary singing manual for schoolboys, Georg Falck introduces the students to sixteen keys divided in two sets of eight, with comments addressed to the chorister.[106] The church tones constitute the first set, which he presents as the *tonis oder modis Regularibus* without any reference to their origin in psalmody.[107] Falck does not write the church tones in staff notation, nor does he discuss key signatures or ambitus; he only specifies in the 'tonic' triad for each tone, as follows:[108]

| | |
|---|---|
| Tone 1 | d f a |
| Tone 2 | g b♭ d |
| Tone 3 | a c e |
| Tone 4 | e g b |
| Tone 5 | c e g |
| Tone 6 | f a c |
| Tone 7 | d f♯ a |
| Tone 8 | g b d |

Falck then extends the list with eight additional keys, which he calls *tonis fictis vel transpositis* (I have added the hexachords with the corresponding *do* and *re* 'modes', which are not in the original text):[109]

[106] Dodds, 'The Baroque Church Tones', 187.
[107] Ibid., 187-88.
[108] Ibid., 188.
[109] Ibid.

| | | Hexachords |
|---|---|---|
| According to A *dur* by the major third | a c♯ e | A (do mode) |
| According to B♭ by the major third | b♭ d f | B♭ (do mode) |
| According to B by the minor third | b d f♯ | A (re mode) |
| According to C *moll* by the same | c e♭ g | B♭ (re mode) |
| According to E♭ by the major third | e♭ g b♭ | E♭ (do mode) |
| According to E by the same | e g♯ b | E (do mode) |
| According to F by the minor third | f a♭ c | E♭ (re mode) |
| According to F♯ by the minor third | f♯ a c♯[110] | E (re mode) |

Falck's set of eight additional keys features two tetrachords ordered chromatically (A major; B♭ major; b minor; c minor, followed by E♭ major; E major; f minor; f♯ minor), revealing no logical transposition pattern when compared with the original ordering of the eight church tones. However, an examination of the hexachord within which each final stands illuminates Falck's reasoning; the underlying logic behind his classification is not one of transpositions based on the original ordering of the eight church tones, but one of *do* (major third) and *re* (minor third) 'modes' based on an extension of the list to tonal extremities**.** Thus, Falck extends the list of keys flatwards in descending fifths after the soft hexachord with the B♭ and E♭ hexachords and their corresponding *do* and *re* 'modes' (B♭ major, E♭ major, c minor and f minor). Likewise, he extends the list sharpwards in ascending fifths after the D hexachord (which in Falck's original list of the church tones is present with an F# in the scale in tone seven) to the A and E hexachords and their corresponding *do* and *re* 'modes' (A major, E major, b minor and f# minor). Falck then reordered the eight new keys in two sets of tetrachords, as discussed above.

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110

| | |
|---|---|
| '…A dur. Ob tertiam Maj. | a cis e |
| …B ex Tertia Majore | b d f |
| …H vel bis ex Tertia Min. | bis d fis |
| …C moll. Ex eâdem | c dis g |
| …Dis ex Tertis Maj. | dis g b |
| …E ex eâdem | e gis bis vel h. |
| …F ex Tertia Min. | f gis c |
| …Fis ex Tertia Min. | fis a cis' |

Translated in Lester, *Between Modes and Keys*, 83. The original text in German may be found in Dodds, 'The Baroque Church Tones', 189. As Dodds points out, German pitch nomenclature used a single symbol to represent enharmonic equivalents: *gis*, for instance, stands for both G♯ and A♭. Dodds, 'The Baroque Church Tones', 298.

Another listing of German origin reveals the same underlying organization. Mattheson's listing of the twenty-four major and minor keys in *Das neu-eröffnete Orchestre* is three-fold.[111] He first presents the eight church tones, emphasizing their Italian origin, and proceeds with two other groups of eight keys each, as follows (again, the hexachords with the corresponding *do* and *re* 'modes' are not in the original text and have been added):

The Italians and contemporary composers use another means to differentiate their modulations and call

| | | | Hexachords |
|---|---|---|---|
| The first key | d f a | or d minor | C (re mode) |
| The second key | g b♭ d | or g minor | F (re mode) |
| The third key | a c e | or a minor | G (re mode) |
| The fourth key | e g b | or e minor | D? (re mode) |
| The fifth key | c e g | or C major | C (do mode) |
| The sixth key | f a c | or F major | F (do mode) |
| The seventh key | d f♯ a | or D major | D (do mode)[112] |
| The eighth key | g b d | or G major | G (do mode) |

[...] Although the above mentioned eight keys are easily the best known and most prominent, nevertheless the following tones are no less usable and pleasing:

| | | | Hexachords |
|---|---|---|---|
| 9. | c e♭ g | or c minor | B♭ (re mode) |
| 10. | f a♭ c | or f minor | E♭ (re mode) |
| 11. | b♭ d f | or B♭ major | B♭ (do mode) |
| 12. | e♭ g b♭ | or E♭ major | E♭ (do mode) |
| 13. | a c♯ e | or A major | A (do mode) |
| 14. | e g♯ b | or E major | E (do mode) |
| 15. | b d f♯ | or b minor | A (re mode) |
| 16. | f♯ a c♯ | or f♯ minor | E (re mode) |

[111] Lester, *Between Modes and Keys*, 114-115.

[112] Mattheson's choice of D 'major third' as tone seven suggests his pairing of tone seven (*do* 'mode' in the D hexachord) with tone four (e, potentially *re* 'mode' in the D hexachord). The absence of information about key signatures makes it impossible to say if tone four is e is a true Phrygian or if there are sharps in the scale.

[…] Whoever wishes to know all the tones must also do the following:

| | | | Hexachords |
|---|---|---|---|
| 17. | b d♯ f♯ | or B major | B (do mode) |
| 18. | f♯ a♯ c♯ | or F♯ major | F♯ (do mode) |
| 19. | g♯ b d♯ | or g♯ minor | F♯ (re mode) |
| 20. | b♭ d♭ f | or b♭ minor | A♭ (re mode) |
| 21. | a♭ c e♭ | or A♭ major | A♭ (do mode) |
| 22. | c♯ e g♯ | or c♯ minor | B (re mode) |
| 23. | d♭ f a♭ | or D♭ major | D♭ (do mode) |
| 24. | d♯ f♯ a♯ | or d♯ minor | D♭ (re mode) [113] |

[113] 'Die Italianer und heutigen Componisten gebrauchen sich einer noch andern andern Art ihre modulationes zu unterschieden, und nennen

| | | | | |
|---|---|---|---|---|
| Tonum | Primum | d f a | oder | d moll |
| | Secundum | g b d | | g moll |
| | Tertium | a c e | | a moll |
| | Quartum | e g h | | e moll |
| | Quintum | c e g | | c dur |
| | Sextum | f a c | | f dur |
| | Septimum | d fis a | | d dur |
| | Octavum | g h d | | g dur |

[…] Obgleich obenstehende 8. Tone schier die bekanntesten und vornehmsten sind, so sind doch folgende nicht weniger gebräuchlich und annehmlich:

| | | | |
|---|---|---|---|
| 9. | c dis g | oder | c moll |
| 10. | f gis c | | f moll |
| 11. | b d f | | b dur |
| 12. | dis g b | | dis dur |
| 13. | a cis e | | a dur |
| 14. | e gis h | | e dur |
| 15. | h d fis | | h moll |
| 16. | fis a cis | | fis moll |

[…] Wer alle Thone zu kennen begierig ist, muss folgende darzu thun:

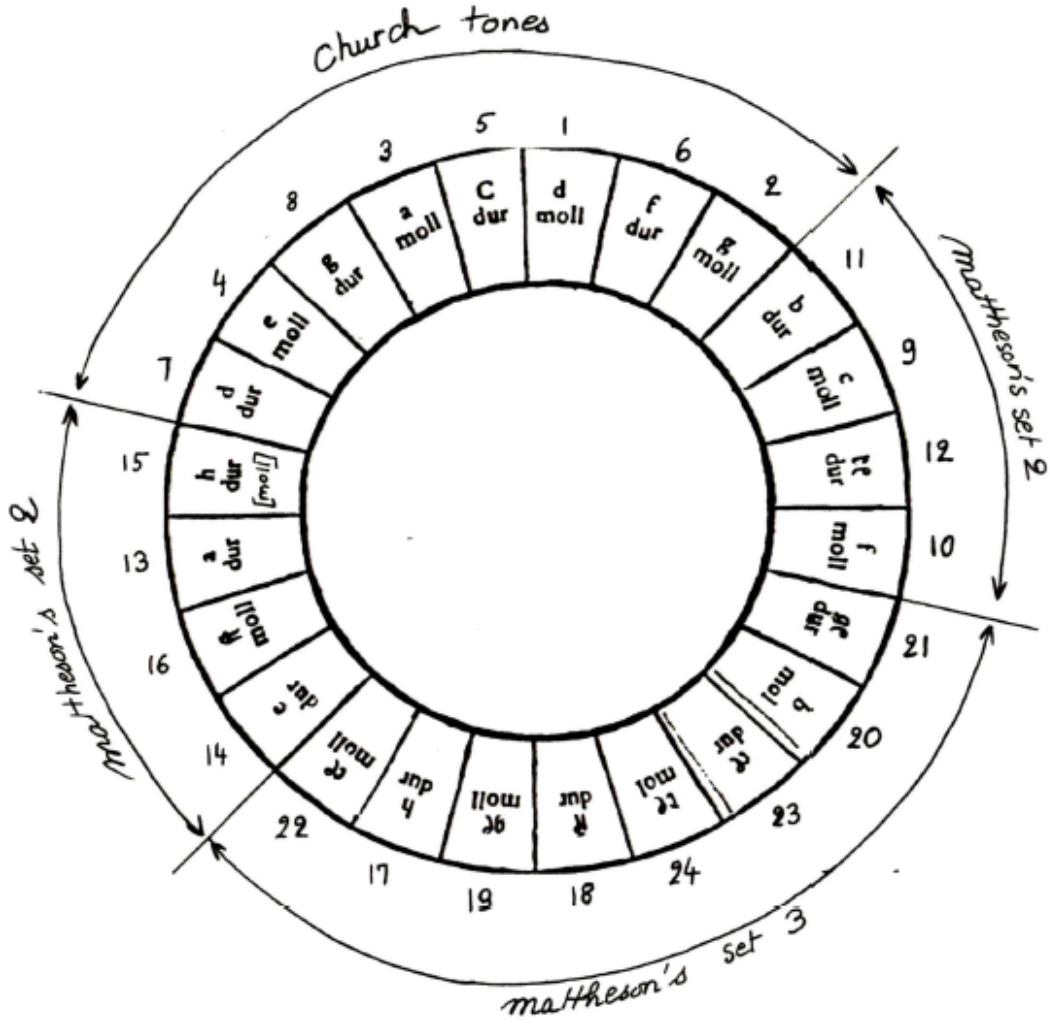
| | | | |
|---|---|---|---|
| 17. | h dis fis | oder | h dur |
| 18. | fis b cis | | fis dur |
| 19. | gis h dis | | gis moll |
| 20. | b cis f | | b moll |
| 21. | gis c dis | | gis moll [sic] |
| 22. | cis e gis | | cis dur [sic] |
| 23. | cis f gis | | cis dur |
| 24. | dis fis b | | dis moll |

Johann Mattheson, *Das Neu-Eröffnete Orchestre*… (Hamburg, 1713), 60-62; See Dodds, 'The Baroque Church Tones', 297; 299; 302. Mattheson uses tablature symbols for sharps and flats; for clarity's sake, Dodds has replaced the tablature symbols by their spelled-out names.

Even though Mattheson's *ordering* differs from Falck's, Dodds noticed that the second set of keys (no. 9 through 16) corresponds exactly to that of Falck; once again, Mattheson extends the list based on transpositions of the *do* and *re* 'modes' to tonal extremities.[114] The correspondence becomes obvious as Mattheson refers the reader to Johann Heinichen's presentation of the 'musical circle' (*Musicalischer Circul*) in *Neu erfundene und gründliche Anweisung…des General-Basses* (1711) as a key to understanding his extensions to the original list of church tones.[115] Heinichen's musical circle features the eight church tones reordered in fifths according to *do* and *re* 'modes' in each hexachord (see Fig. 1.15). An examination of Heinichen's musical circle uncovers the pattern underlying Mattheson's ordering of the next two sets of keys. In the second set (keys 9 through 16), Mattheson proceeds first with the flat side by adding the following two *re* 'modes' in the circle of fifths (on c and f, probably to parallel the first two *re* 'modes' in the church tones) and their respective *do* 'modes' (on B♭ and E♭), and then switches to the sharp side, with the next two *do* 'modes' (on A and E, counterclockwise), and their respective *re* 'modes' (on b and f♯). Mattheson's ordering for the last set (keys 17 to 24) does not seem to follow a systematic pattern.

[114] Dodds, 'The Baroque Church Tones', 298; 303.
[115] Ibid., 303.

Figure 1.15. Heinichen's *Musicalischer Circul* and Mattheson's twenty-four keys. *Source*: adapted from Dodds, 'The Baroque Church Tones', 304.



In the light of Falck and Mattheson's listings, it becomes easier to rationalize the fourth tone and the inconsistency of the seventh tone, as this may reflect the theorists' attempt to accommodate theory to musical practice. As Powers demonstrated, transposition practices during psalmody or other parts of the liturgy are certainly the first aspect to investigate to understand and explain the varying listings of church tones in general, and tone seven in particular.[116] However, the treatises discussing church tones abstractly as theoretical key types (such as those of Falck and Mattheson), rather than in relation to psalmody, may offer alternative explanations based on the theorist's conception of tonal space and his perception of how the tones relate to each other as a set. Arguably, the relative consistency of church tones 1, 2, 3, 5, 6 and 8 in music treatises, with finals and key signatures corresponding to the *do* and *re* 'modes' in the three basic hexachords (soft, natural and hard), may indicate the unanimous recognition of these six tones as the core tones from which all others (including tones four and seven) should be theoretically derived. The major- or minor-third quality of each tone may have superseded the traditional modal markers, under the influence of musical practice.

Interestingly, Joel Lester pointed out that in the late seventeenth-century the seventh tone was most frequently changed from d ♭ (the most common in early treatises) to D ♯, noticing that 'with this change, the first four modes contain a minor triad on the final, and the last four a major triad on the final'.[117] This D major third for tone seven is present in Falck and Mattheson's listings, as well as in late seventeenth-century treatises such as Antonio Bertali's *Instructio musicalis* (1676), Alessandro Poglietti's *Compendium oder Kurtzer Begriff und Einführung zur Musica* (1676), Lorenzo Penna's *Li primi albori musicali* (1679), Johann Jacob Prinner's *Musicalischer Schlissl* (1677), or the anonymous author of the Wegweiser organ manual (*Kurtzer, jedoch gründlicher Wegweiser…die Orgel recht zu schlagen*, 1689), among others. Lester added his opinion that the change occurred 'probably either to differentiate it more clearly from the first mode, or to present a true transposition of Mixolydian'.[118] An alternative reason may be that the D major-third tone completed the set with the missing last pair of *do* and *re* 'modes' between the fourth (e —) and seventh tones (now D ♯), provided the fourth 'Phrygian' tone was conceived with an F♯ (whether implied, or

[116] For an explanation of the shift of tone seven in relation to transposition practice in psalmody see Powers, 'From Psalmody to Tonality', 305-12; Dodds, 'Tonal Types and Modal Equivalence in Two Keyboard Cycles by Murschhauser', 364-67.
[117] Lester, *Between Modes and Keys*, 80.
[118] Ibid.

in the key signature), which is the case in Penna's conception of tone four.[119] Arguably, the change of tone seven to D ♯ therefore transformed the eight church tones into a more rational, practical set that could be used easily in pedagogy and practice. On the other hand, the e♯ and E ♯♯ tonalities that sometime appear in presentations of the church tones for tone seven would be harder to rationalize in that context. It is also noteworthy that Bononcini simply eliminated the Phrygian tone (tone four) in his discussion of the church tones, which he presented as the seven 'practical' modes ordinarily used by composers.

A last example of early listing starting with the church tones clearly supports the fact that church tones were conceived by some musicians primarily as a logical set based on the major and minor third quality of their scales. While Falck and Mattheson's listings are similar in their organization of the tones around the *do* and *re* 'modes' of each hexachord, Antonio Bertali, who worked in Vienna but received his musical training from Stefano Bernardi in Verona, presented an alternative approach whereby he added four tones to the original set of eight church tones so that each final will have both its major third and minor third versions. For each church tone, Bertali included in staff notation the triad built on the final, along with alphabetic notation beside the chord, the principal cadence degrees of each tone, and a description of the hierarchy of cadences.[120] Bertali's listing features the following finals and key signatures, with tone seven as D ♯:

[119] Penna's discussion of cadences for the fourth church tone features a F♯ in the descending line towards the final E. See *Li primi albori musicali* (1679), 121. Some studies have shown that there is often ambiguity in the repertoire itself as to whether pieces with E as final in *cantus durus* were objectively conceived as truly 'Phrygian' or as our modern 'e minor', as many pieces modally labeled as tone four feature both F♮s and F♯s. A careful consideration of the melodic and harmonic context would be necessary to make informed judgments on these matters. For further discussion on this and other ambiguities in relation to the fourth church tone, see Dodds, 'Tonal Types and Modal Equivalence in Two Keyboard Cycles by Murschhauser', 354-57; Powers, 'From Psalmody to Tonality', 322-33; Barnett, 'Modal Theory, Church Keys, and the Sonata', 269-71.
[120] Dodds, 'The Baroque Church Tones', 176.

Finals and Key Signatures

d —

g ♭

a —

e —

C —

F ♭

D ♯

G —

Bertali then added the following four tones to the original list, for a total of twelve tones:

| | |
|---|---|
| Tone 9, or *Nonus Tonus ex Tertio Tono* | (A major triad) |
| Tone 10, or *Decimus tonus ex 4to Tono* | (E major triad) |
| Tone 11, or *Undecimus Tonus per B-Mol ex 5to* | (C minor triad with ♭♭ in the key signature) |
| Tone 12, or *Duodecimus tonus per B-Moll ex Sexto tono* | (F minor triad with ♭♭♭ in the key signature).[121] |

Bertali completed the list of church tones by adding the two 'missing' parallel major and the two parallel minor tones so that each degree of the natural hexachord will have its major-third and minor-third tonality in the twelve-tone set.[122] As Dodds pointed out, other aspects of Bertali's discussion of mode clearly show the major-minor dichotomy, which would soon become the main criteria to classify modes at the turn of eighteenth century.[123] For instance, Bertali also discusses the twelve modes of Glarean and Zarlino in his treatise (with two additional modes on B), along with the eight church tones, and his listing of the twelve modes first presents the minor-third modes, followed by the major-third modes.[124] Bertali also added the following:

[121] Ibid., 176-77.
[122] Ibid., 177.
[123] Ibid.
[124] Ibid.

> In the end I share with many other virtuosi the French opinion, that there are not more than two modes, one with *B moll*, and the other with *quadro*, as they say. V[erbi] g[ratia]: set forth the test in D minor or D major, in G minor or G major, and I can bring from the two tones all of the twelve…[125]

Even though some conceived the church tones as a paradigm representing an organization of modes around the *do* and *re* 'modes' of each hexachord while others, such as Bertali, took the church tones as a starting point to extend the list of modes by pairing major-third and minor-third modes sharing the same final, both approaches are not as antagonistic and mutually exclusive as it may appear. Indeed, after presenting the twelve modes of Glarean, Mattheson specified that the modes may also be categorized according to their third degree, and proceeded with his presentation of the church tones.[126] Thus, Mattheson directly relates the church tones to modes classified according to the quality of the third degree over the final, and in the end, his listing of twenty four keys also results in twelve major-third and twelve minor-third modes sharing the same final. In short, the differing presentation and conceptualization of modes between Mattheson and Bertali seems to reflect their attempt to describe the same phenomenon, albeit from different standpoints.

**Conclusion**

This chapter has outlined some important aspects of seventeenth-century music theory of hexachords and modes to shed light on tonal organization in Italian ensemble music of that period. Among the new insights regarding the conceptualization of scales and modes in the seventeenth century, this chapter has offered a detailed explanation of the various scales used in d'Avella's transpositions of the gamut in five different 'hands'; it has demonstrated the correspondence between *do* and *re* 'modes' and 'happy' and 'sad notes' in hexachordal analyses of Diletskii's musical examples; it has shown the possible link between Diletskii's conception of scales and that of Penna and theorists who discuss modes based on the quality of the third above the final. The chapter has also suggested how the church tones may have been conceived as a practical set of tonalities conceived around the *do* and *re* 'modes' of the three

[125] 'Pro ultimo bin ich neben viellen anderen virtuosi der französischen Meinung, dass nit mehr als zwey Toni seindt, einer per B moll, der ander per quadro von ihnen genendt. V[erbi] g[ratia]: asu den D Moll oder D Duro, aus den G Moll oder G Duro und seze die Proba hierbey, dass ich aus den 2 Ton all die 12, so ich auffgesezt , heraus pringen kan.' Bertali, *Instructio musicalis*. Tranlsated in Hellmut Federhofer, 'Zur handschriftlichen Überlieferung', in Osterreich in der zweiten Hälfte des 17. Jahrhundert', *Die Musikforschung* 11 (1958): 275. See Dodds, 'The Baroque Church Tones', 177.
[126] Dodds, 'The Baroque Church Tones', 296.

main hexachords, thus providing an hypothesis for the common use of D ♯ as tone 7 towards the end of the seventeenth century, and for early listings of keys starting with the church tones.

The debates and controversy around the number, classification, and use of modes reached a climax in the seventeenth-century, partly because some theorists strove to maintain traditional concepts, while others attempted to accommodate theory to new developments in musical practice. The century also witnessed a gradual reduction of the number of modes to two modes, based on major or minor third, so that by the eighteenth century, most theorists agreed on the quality of the third as the only criteria to categorize modes.

For centuries, the hexachord remained mostly a pedagogical and practical means to identify the position of tones and semitones in solmizing melodies; mapping out each mode with hexachords allowed musicians to comprehend its melodic characteristics, along with its final, ambitus, reciting tone and main cadence degrees. Nevertheless, the hexachord also served to conceptualize tonal space, as manifest in many treatises from the late Medieval and Renaissance period. New musical developments in the seventeenth century, in particular the expansion of tonal space through scale transposition, arguably led to a greater focus on the hexachord as a unit of pitch space organization, as scale transpositions were conceived primarily with hexachords, as will be discussed in Chapter 5. This becomes more apparent in eighteenth-century Italian treatises, which discuss principles of keys (*Tuono*) and transposition using Guidonian solmization terminology.

This chapter has referred to both Italian and non-Italian treatises to address the problem of modes and scales in seventeenth-century Italy. The influence of Italian musical concepts on Russian musicians such as Diletskii has been already discussed. The frequency of the cultural exchanges between Italy and Germany in that period, as well as the mention of Italian concepts as models in many German treatises, suggest that the differing approaches to music theory in Italian and German treatises reflect less a difference in musical practice than a difference in conceptualization and presentation. Such a comparative approach may be in the spirit of the hermeneutic dialogue advocated by Thomas Christensen (see Introduction). Much research must still be done in Italian seventeenth-century music theory so that we can gain a better understanding of the changing concepts of scales and modes in that complex period.

# Chapter 2

## Conceptualization of Tonal Structure as Manifest in Cadence Degrees and Opening Fugal Sections, 1610-1630.

In the early- to mid-seventeenth century, the tonal structure of a piece of instrumental ensemble music would have been partly conceived upon 1) the basic scalar system of the piece (*cantus durus* or *cantus mollis*), 2) the three basic hexachords and their transpositions (thus leading to possible transpositions of the basic scalar system towards the sharp or flat side), and 3) arguably, the possible influence of the structure of modes and church tones (mostly theoretical prescriptions for cadence degrees, reciting tones and opening imitative sections). In addition, the seventeenth century witnessed a very important conceptual change in musicians' understanding of tonal space. Older systems of conceptualizing pitch — including the sixteenth-century system of twelve (or eight) modes at two transposition levels (*cantus durus* and *cantus mollis*) and also the notion of eight church tones — gradually gave way to the eighteenth-century model of two modes (major and minor) at twelve transposition levels.[1] These developments were contingent upon experimentations and innovations in tuning (among which meantone temperaments that favoured the use of pure, or near to pure major thirds were particularly prized), and in instrument building. As discussed in the Introduction, the very nature of seventeenth-century tonal language complicates the analysis of pitch organization, since it inevitably blends modal and tonal elements.

The purpose of this chapter is twofold. On the one hand, this chapter aims to analyze patterns in general tonal structure in Italian ensemble pieces ca. 1610-1630 as expressed via cadence degrees and imitation in opening fugal sections (which are both described as markers of pitch organization in modal and tonal theory). The chapter also strives to determine whether the factors that shape tonal structure tend to relate to modal theory, and more particularly the theory of the church tones (which were commonly described as the tones most used by music practitioners), or to hexachordal theory. In addition, this chapter explores the implications of

[1] Beverly Stein, 'Between Key and Mode: Tonal Practice in the Music of Giacomo Carissimi' (PhD diss., Brandeis University, 1994), 63-64.

these observations, with an emphasis on how they may shed light on the early seventeenth-century tonal system and what previous scholars have said about it.

In discussions of the twelve-mode system, cadence degrees sometimes correspond to the *corde* (principal degrees) of each mode, and specific cadence degrees are used to represent individual modes. Likewise, in treatises discussing the church tones, theorists prescribe certain cadences in connection to each church tone, which may correspond to each tone's principal degrees or to the reciting tone. In eighteenth-century tonal theory, cadences represent important points of arrival, either within a single key or to confirm a modulation (to the relative major or minor key, or as a result of a transposition of the scale in the course of a piece). Moreover, cadence degrees in eighteenth-century compositions project the hierarchical nature of tonality, establishing pitches subordinate to the tonic. In modal theory, the notes used to write the first point of imitation at the opening of a piece are strictly connected to the *diapente* (species of fifth) and *diatessaron* (species of fourth) of the mode, and throughout the seventeenth century, the notion of fugal answer was highly debated in relation to the correct representation of mode, indicating that it was closely tied to concepts of pitch organization. Fugue subjects and answers remained indicative of tonal organization in the eighteenth century. Therefore, it is likely that an examination of seventeenth-century cadence patterns and fugal procedures will enlighten our understanding of seventeenth-century tonal language, since it stands at a crossroads between two types of tonal practice. This perspective may also help us get away from the hierarchical conception ('subordinate structure', to use Dahlhaus's term) inherent in common practice.

Several scholars have examined cadences in relation to tonal structure in seventeenth-century music. In his famous analysis of Monteverdi's *O Mirtillo*, Dahlhaus has argued that the early seventeenth-century system of pitch organization is based on the occurrence of cadences on the six degrees of a hexachord which forms the basis of a piece's pitch organization, as will be explained below.[2] Stein, who analyzed cadences in Carissimi's vocal music, also noticed a system of pitch organization that relates to hexachordal degrees and which she suggests can be found in the work of several other seventeenth-century composers.[3]

[2] Carl Dahlhaus, *Studies on the Origin of Harmonic Tonality*, trans. Robert O. Gjerdingen (Princeton, NJ: Princeton University Press, 1990), 289-323.
[3] Beverly Stein, 'Carissimi's Tonal System and the Function of Transposition in the Expansion of Tonality', *The Journal of Musicology* 19, no. 2 (Spring 2002): 291-295; 305.

Several other scholars such as Harold Powers, Michael Dodds, Gregory Barnett and Geoffrey Webber have drawn attention to the fact that the church tones strongly affected some aspects of tonal structure in the second half of the seventeenth and early eighteenth centuries, particularly in genres that could be related to psalmody (even though sometimes remotely) such as ensemble sonatas for the church and solo organ music.[4] Barnett, in particular, pointed out similarities of structure between pieces in certain 'tonalities' and their corresponding church tones (such as emphases on reciting tones). While these scholars have often convincingly shown how church tones influenced tonal structure in the late seventeenth and early eighteenth centuries, to what extent is this true of pieces dating from the early- to mid-seventeenth century, when theorists already described the church tones as the tones most 'commonly used' by music practitioners? This chapter discusses (with some reservations regarding *cantus mollis)* how in Italian ensemble music of ca. 1610-1630, cadence degrees were determined mainly by the limitations of the scalar system and its two interlocking hexachords rather than by characteristics features of modes or church tones and their corresponding psalm tone melodies. On the other hand, opening fugal sections seem to have been influenced by aspects of modal theory and the church tones as well as hexachordal theory.

This chapter analyses a sample of ensemble pieces available in the Garland edition *Italian Instrumental Music of the Sixteenth and Early Seventeenth Centuries*, chosen for the pragmatic reason that the scope of this PhD could not extend to all transcriptions of music available in modern editions.[5] The chronological range of ca. 1610-1630 has been chosen because ensemble music of that time period often involves little modulation (as defined in the Introduction) and constitutes a foundation for understanding where basic tonal organization in later ensemble music stemmed from. The composers featured in this chapter were all active in cities of northern Italy. Giovanni Battista Grillo (late sixteenth century – 1622) worked for

[4] See Harold Powers, 'From Psalmody to Tonality', in *Tonal Structures in Early Music*, Criticism and Analysis of Early Music 1 (New York: General Music Publishing Company, 1998), 275-340; Michael R. Dodds, 'Key Signatures, Fugal Answers and the Emergence of the Major Mode: A Case Study in G Major', in *Fiori musicali: Liber amicorum Alexander Silbiger*, ed. Claire Fontijn and Susan Parisi (Sterling Heights: Harmonie Park Press, 2010), 187-201; Gregory Barnett, 'Modal Theory, Church Keys and the Sonata at the End of the Seventeenth Century', *Journal of the American Musicology* 51, no.2 (Summer 1998): 245-281; Geoffrey Webber, 'Modes and Tones in Buxtehude's Organ Works', *Early Music* 35, no. 3 (August 2007): 355-369.

[5] *Italian Instrumental Music of the Sixteenth and Early Seventeenth Centuries*, vol. 21-30, Garland Series, ed. James Ladewig (New York: Garland Publishing, 1989-1995).

most of his life in Venice. Giacomo Filippo Biumi (1580-1653), Serafino Cantone (1580-1627), Giulio Cesare Ardemanio (ca.1580-1650), Francesco Casato and Andrea Cima were all organists in Milan, and Nicolò Corradini (?-1646) was organist in Cremona. Giovanni Antonio Cangiasi (dates unknown) was organist in Vercelli and Milan. Pietro Lappi (ca.1575-1630) and Paolo Bottaccio were *maestri di cappella* in Brescia and Como, respectively, and Vincenzo Pellegrini (ca.1562-1630) was mostly known as an important composer of sacred music in Milan. Stefano Bernardi (ca. 1580/85-1636) was *maestro di cappella* in Verone and later resided in Salzburg until his death. Finally, Giovanni Battista Fontana (1589-1630) worked in Venice, Rome and Padua, and Biagio Marini (1594-1663) was active in various places in northern Italy all throughout his life as a violinist or *maestro di cappella* and also worked in Neuburg an der Donau and Düsseldorf. I have not included collections such as Dario Castello's *Sonate concertate in stil moderno* (Venice, 1621) or *Libro secondo*, a 1-4, b.c. (Venice, 1629), and Giovanni Gabrieli's posthumous *Canzoni et sonate* (Venice, 1615), which could be the subject of future research. This sample shows how less prominent composers could use cadences and opening imitative sections, and may arguably reflect more mainstream practice. Pieces of various genres have been included for reasons mentioned in the Introduction (p.20), and to get a large enough sample to observe certain tendencies. The remarks made in this chapter only apply to the sample analyzed, keeping in mind that observations involving accidentals in this period require the general caveat about the flexibility of the notation and the continuing use of *musica ficta*.

The chapter is divided in two parts. First, cadence degrees in Italian ensemble music are discussed, in the light of contemporaneous treatises and modern scholarly research on seventeenth-century cadence patterns. The chapter introduces the cadences prescribed in modal theory and treatises discussing church tones, and asks whether the cadence patterns observed in Italian instrumental ensemble correspond to cadence degrees prescribed by theorists or whether they reflect another paradigm of pitch organization. Second, fugal subjects and answers are addressed, placing the issue of real versus so-called 'tonal' answers in the context of seventeenth-century debates around that question. This section focuses on finding out if opening fugal sections feature recurrent patterns with regard to fugal answers and levels of imitation, and whether these patterns may be related to ideas of 'proper' fugal writing according to modal theory, church tone structure, or to hexachordal theory.

None of the pieces analyzed in the sample specifies implicitly (in the ordering of the pieces in individual collections) or explicitly (in their title) a mode or a church tone on which the pieces would be 'based'. It is therefore impossible to know if these composers 'thought' in terms of 'modes' or 'church tones' when they wrote these pieces. Because a number of theorists declared that the church tones were the 'tonalities' commonly used by music practitioners in the seventeenth century, I describe these different 'tonalities' as 'church tones', designated by number according to finals and key signatures, as discussed by seventeenth-century theorists.

## I. Cadence Degrees in Italian Ensemble Pieces, ca. 1610-1630.

### 1. Recommended Cadence Degrees in Modal and Church Tones Theory.

Along with the final, species of fourths and fifths, ambitus, and notes to write fugues, theorists discussing modality also prescribed characteristic cadence degrees for each mode. For most sixteenth-century theorists, the notion of cadence was closely connected to the text in vocal music; a cadence should correspond to the end of a section or a phrase, just as one pauses to indicate a punctuation mark in speech.[6] In his definition of cadence, Zarlino specifies the following:

> It [the cadence] should not be put always in the same tone, but, in the interest of grateful, pleasing harmony, its location should be varied. The end of a sentence in the text should coincide with the cadence, *and this should not fall on an arbitrary tone but on the proper and regular steps of the mode used*.[7] (emphasis added).

This idea applied equally to instrumental music, as principles of rhetoric pervaded all music composition in the seventeenth century. In instrumental ensemble sonatas, cadences mark the end of large sections or short musical phrases, so that the musical discourse is organized in large and smaller building blocks that form a coherent musical 'argument' as a whole. On the other hand, cadential figurations may also appear more concealed in the musical texture, thus weakening the rhetorical and structural effect of the cadence. Cadences of various strengths thus have different structural implications in a piece, as certain cadence degrees are given

[6] Anne Smith, *The Performance of Sixteenth-Century Music: Learning from the Theorists* (Oxford: Oxford University Press, 2011), 72-73.
[7] Gioseffo Zarlino, *The Art of Counterpoint: Part Three of* Le Istitutioni harmoniche, 1558, trans. Guy A. Marco and Claude V. Palisca (New Haven: Yale University Press, 1968), 141-142.

more importance than others and may reflect a composer's deliberate intention to stress specific pitches.

Many sixteenth- and early seventeenth-century theorists discussing the twelve modes indicate similar cadence degrees for the Dorian (d, (F), a), Lydian (F, a, C), Mixolydian (G, b, d), Aeolian (a, C, e), Hypoaeolian (e, C, a), Ionian (C, e, G) and Hypoionian (G, e, C) modes, but there are important inconsistencies among them for cadences in the other modes.[8] These discrepancies suggest that, while there was a general agreement among theorists regarding the species of fourths and fifths and their essential mode-defining quality, cadence degrees may have been less important to characterize modes. Moreover, these inconsistencies also reflect the ambiguity and confusion around the subject itself, as composers sought to write polyphonic music based on the modes, which were originally devised to classify monophonic plainchant.

As many of the pieces discussed in this thesis would have been performed in the church, a careful consideration of the church tones is necessary here. The cadence degrees prescribed by seventeenth-century theorists for the church tones are more consistent than those prescribed by theorists for the twelve modes (see Table 2.1):

[8] For specific details on the variety of cadence degrees that theorists recommend, see Smith, *The Performance of Sixteenth-Century Music*, 165-229.

Table 2.1. Cadence degrees for the church tones in seventeenth-century treatises.

| Church tones | Final and key signature | Reciting tones | Banchieri (1614) | Angleria (1622) | Bertali (1676) | Penna (1679) |
|---|---|---|---|---|---|---|
| 1 | D — | a | d, F, a | d, F, a | d, F a | d, F*, a |
| 2 | g ♭ | B♭ | g, B♭, d | g, B♭, d | g, d, B♭ | g, B♭*, d |
| 3 | a — | C | a, C, e | a, C, e | a, e, C | a, C*, e |
| 4 | e — | a | e, a, b, c | e, a, C | e, b, G | e, a*, b |
| 5 | C — | G | C, e, G | C, e, G | C, G, e, a, F | C, F*, G |
| 6 | F ♭ | a | F, a, C | F, a, C | F, C, a, B♭ | F, B♭*, C |
| 7 | d ♭ or D # | g | d, F, a | d, F, a | D, a, F♯, G | d, C*, g |
| 8 | G — | C | G, C, d | G, C, d | G, d, b, C | G, C*, d |

*Sources*: Adriano Banchieri, *Cartella musicale* (Venice, 1614), 80-84; Camillo Angleria, *La Regola del contrapunto e della musical* compositione (Milan, 1622), 85; Antonio Bertali, *Intructio Musicalis Domini Antonii Berthalli* (MS Regenterei L67); Lorenzo Penna, *Li primi albori musicali* (Bologna, 1679), 119-122.

* According to Penna, these cadence degrees are 'accidental'.

Banchieri specifies that cadence degrees recommended for duos in the church tones are the same as for polyphonic pieces with more than two voices.[9] Angleria's discussion of cadence degrees for church tones in *La Regola del contraponto* implies cadences in polyphony as well.[10] The fact that Bertali lists the triad built on the final in his presentation of the church tones suggests that the cadence degrees indicated are applicable to polyphony, and Penna's discussion of church tones and their cadence degrees in polyphony is found at the end of his chapter on counterpoint in *Li primi albori musicali*.[11]

All four theorists agree on the same cadences for tones one, two, three and eight (with the exception of a cadence on b in tone eight in Bertali's treatise), while there are a few differences in the other church tones. Banchieri and Angleria agree on the same cadence degrees for every church tone (Banchieri only adds the b in the fourth tone), which often closely correspond to the cadences prescribed by theorists for the twelve modes (this is true of

[9] Banchieri, *Cartella musicale* (Venice, 1614), 80.
[10] See Michael Dodds, 'The Baroque Church Tones in Theory and Practice' (PhD diss., University of Rochester, 1998), 120-124.
[11] See Ibid.,176; Lorenzo Penna, *Li primi albori musicali* (Bologna, 1679), 119-129.

church tones one, two, three, five and six, which have cadence degrees similar to the Dorian, transposed Dorian, Aeolian, Ionian and Lydian modes, respectively). Theorists of the second half of the century tend to allow greater variety in their recommendations for cadence degrees. For most church tones, at least one cadence degree coincides with the corresponding psalm-tone reciting tone (only Bertali's tone four, Penna's tone six, and Angleria's and Banchieri's tone seven do not include the reciting tone in their cadence degree). It is noteworthy that Penna's degrees stand out as different from degrees prescribed by the other three theorists, as he indicates 'accidental' cadence degrees, and as the cadence degrees he indicates for the seventh church tone are the same as for the eighth church tone. It is also interesting that Bertali conceives church tone seven as a major-third tone. In this chapter, these theoretical prescriptions are compared and contrasted with cadences found in north Italian ensemble music from the early seventeenth century.

## 2. Church Tones and Hexachordal Theory

In order to examine the possible meanings of cadence degrees in relation to tonal structure in early seventeenth-century music, it is also essential to re-emphasize how the church tones fit into the basic scalar systems of *cantus durus* and *cantus mollis* from the standpoint of hexachordal theory, as discussed in Chapter 1. Tables 2.2 and 2.3 illustrate the church tones in relation to hexachords, assuming that each church tone's scalar system is based on either the natural or the one-flat system, as suggested by the key signatures indicating *cantus durus* or *cantus mollis*.[12]

[12] Some scholars such as Nicholas Baragwanath believe that certain church tones may have had implied inflected tones that were not notated. Some of their assumptions are based on the melodic contour of psalm tone melodies; for instance, there might have been an implied F♯ in the eighth church tone, as the eighth psalm tone melody from which it is derived does not include a F, so that any F in the eighth church tone may (or may not) have been raised. This assumption is partly founded on collections ordered according to the church tones from 1720 onward, where pieces labelled as 'tone eight' often feature a F♯ in the key signature (see Dodds, 'Key Signatures, Fugal Answer, and the Emergence of the Major Mode'). This may indeed show how composers started indicating in the signature the inflection of a pitch that was implied before. Nonetheless, this may also simply be the result of the emergence of the major scale as the standard major-third 'mode' based on the 'Ionian' sequence of whole tones and semitones (G major). For the sake of this thesis, I have chosen to work from the assumption that in the church tones, the key signature also indicates the system used in a piece (with no implied inflected tones in the essential scale).

Table 2.2. Church tones in *cantus durus* (natural and hard hexachords)

| Church Tones | Finals and key signature | Reciting tones | *do* degrees | *re* degrees | *mi* degrees | *fa* degrees |
|---|---|---|---|---|---|---|
| 1 | d — | a | C G | **d** a | e b | F C (=*do*) |
| 3 | a — | C | C G | d **a** | e b | F C (=*do*) |
| 4 | e — | a | C G | d a | **e** b | F C (=*do*) |
| 5 | C — | G | **C*** G | d a | e b | F C (=*do*) |
| 8 | G — | C | C **G** | d a | e b | F C (=*do*) |

* Hexachordal degrees underlined in bold correspond to the church tones' finals

Table 2.3. Church tones in *cantus mollis* (natural and soft hexachords)

| Church Tones | Finals and key signature | Reciting tones | *do* degrees | *re* degrees | *mi* degrees | *fa* degrees |
|---|---|---|---|---|---|---|
| 2 | g ♭ | B♭ | C F | d **g** | e a | F(=*do*) B♭ |
| 6 | F ♭ | a | C **F*** | d g | e a | F(=*do*) B♭ |
| 7 | d ♭ | g | C F | **d** g | e a | F(=*do*) B♭ |

* Hexachordal degrees underlined in bold correspond to the church tones' finals

The church tones' finals always fall on a *do* or *re* syllables in the *durus* or *mollis* scales, with one exception in the fourth tone, e *durus*, whose final is *mi* in the natural hexachord.[13] Notice also that in church tones five and six, the final can be either *do* or *fa*, depending on the hexachord. Lastly, it must be remembered that Bertali conceived tone seven as a major-third tone, with the final functioning as a *do* degree in the D hexachord. In spite of the pervasive emphasis on modal theory and the church tones in seventeenth-century treatises, hexachordal theory cannot be overestimated, as it formed the basis of how musicians grasped tonal space in practical terms.

### 3. Observations of Modern Scholars on Cadence Degrees and Systems in Seventeenth-Century Music.

In an article dealing with the influence of church tones on tonal structure in Italian ensemble music in the late seventeenth century, Gregory Barnett observed that in pieces in G *durus*,

[13] That tone four is an exception is typical of the nature of Phrygian / E tonalities in the seventeenth century.

Italian composers tended to stress C as an important pitch via cadences and other means of emphasis.[14] Barnett argued that this emphasis on C in G *durus* may be explained by the eighth church tone's reciting tone on C, since G *durus* is a 'tonality' derived from the eighth church tone. After giving a few musical examples, Barnett boldly declared, 'the emphasis on C as a secondary degree in these G-tonality pieces identifies them clearly as tonal descendants of tone eight as much as ancestors of G major'.[15] Nevertheless, Barnett did not pursue the implications of his argument by systematically examining if this emphasis on the reciting tone applies to other 'tonalities' derived from the other church tones. Moreover, he does not consider other possible analytical interpretations for this emphasis on C in G *durus*, such as the fact that C features as one of the recommended cadence notes in the Mixolydian mode, as well as the eighth church tone. Is Barnett's observation true for pieces in other 'tonalities' and their corresponding church tones' reciting tones? Might there be other possible rationales for a composer's emphasis on certain scale degrees? What insights can a systematic examination of cadence degrees bring to our understanding of the early seventeenth-century tonal system?

As mentioned in the introduction, several scholars have examined cadence degrees in early-to-mid-seventeenth-century Italian music and their implications on tonal structure. Some of the most important studies include Dahlhaus's analysis of Monteverdi's madrigal *O Mirtillo* and Stein's examination of cadence paradigms in Carissmi's vocal music. Dahlhaus partly based his conception of the early seventeenth-century system of pitch organization on his observations regarding cadence degrees and triads in Monteverdi's *O Mirtillo*, from the fifth book of madrigals.[16] In *O Mirtillo*, Dahlhaus observed that the cadence degrees and the chords at the end of each verse do not reflect any pattern that can be traced back to prescribed cadences in modal theory.[17] On the contrary, he noticed that in this madrigal, the cadence degrees span the range of the natural hexachord, with cadences on C, D, E, F, G and A uniformly distributed throughout the piece.[18] Just as the cadences in the piece do not suggest any specific mode, the final of the piece is difficult, if not impossible to determine; at the outset, Monteverdi cadences on F, immediately followed by a transposition of the first two

[14] Barnett, 'Modal Theory, Church Keys, and the Sonata', 266-269.
[15] Ibid., 269.
[16] Dahlhaus, *Studies on the Origin of Harmonic Tonality*, 289-323.
[17] Dahlhaus only referred to modal theory in this particular analysis, with no mention of the church tones.
[18] Ibid., 290.

bars leading to a cadence on G, whereas the piece ends with a cadence on D.[19] Dahlhaus, who first proposed that the piece is in G-Mixolydian, acknowledged himself that it is impossible to come to this conclusion without numerous detours; if this music is not tonal, it would be equally meaningless to call it 'modal'.[20]

Alternatively, Dahlhaus offered what he viewed as a more accurate reading of Monteverdi's tonal language by likening it to a 'society of component keys' (*Teiltonarten*), whereby each cadence degree may represent the 'final' of each component key (for a total of six component keys).[21] In Dahlhaus's system, the 'main key' should not be perceived as a tonal center to which the other component keys are related as subordinate keys, as in functional harmony. Rather, the main key is simply a 'primus inter pares' (first among equals), because it is the first in the society of component keys due to its prominent place at the beginning and end of a piece, and the 'main key' only derives its meaning from the system of component keys to which it belongs.[22]

Following these observations, Dahlhaus conceptualized Monterverdi's tonal system by developing a model of hexachordal analysis that has been subsequently applied to the music of other seventeenth-century composers. For Dahlhaus, the cadence degrees of a piece indicate the hexachord on which the piece is based, and the system of the piece is then determined by the transposition level of that hexachord. For instance, a piece in the natural system (the untransposed scale in the gamut) includes cadence degrees on the natural hexachord (C D E F G A), and a piece in the ♭ system (the transposed scale in the gamut) includes cadential degrees on the soft hexachord (F G A B♭ C D). (The term 'system,' which Dahlhaus used to denote the level of transposition of the hexachord, is different from the concept of *cantus*; a piece in *cantus mollis*—with only one flat in the key signature—can feature a hexachord in the ♭♭ system (B♭ C D E♭ F G).) In each case, the system is characterized and can be identified by the semitone between the *mi* and *fa* degrees, which represent the two extremes of the hexachord and set the limits of the system (for instance, in the natural hexachord, with the cadential degrees ordered by fifths: F— C— G— D— A— E, with *mi* = E and *fa* = F). In any given hexachord system, the *mi-fa* contrast is most clearly manifest in the Phrygian cadence,

[19] Ibid., 289.
[20] Ibid., 291.
[21] Ibid., 292.
[22] Ibid., 291.

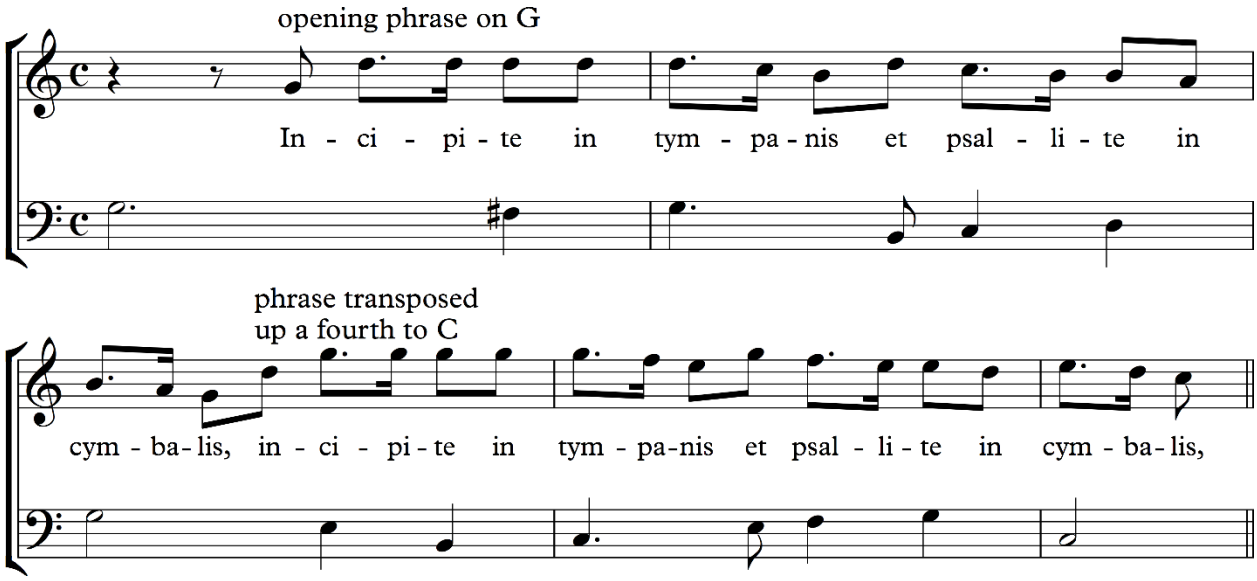
which is the hallmark of a system and always occurs between the *mi* and *fa* degrees of the hexachord. Two types of musical events almost always result in a shift of hexachord system: 1) a cadence on a note outside those allowed in the hexachord, and 2) a Phrygian cadence on a degree other than the *mi* degree of the hexachord. By extension, Dahlhaus also conceived a harmonic interpretation of the hexachord, with each hexachordal degree functioning as the root of a triad, which will be discussed in detail in Chapter 4.

Dahlhaus's analysis sets forth and clarifies the nature of the early seventeenth-century system of pitch organization. However, one should bear in mind that *O Mirtillo* is a madrigal that was criticized for its supposedly unorthodox use of mode, and which illustrates features of the *seconda prattica*. Therefore, the piece may arguably not be the most appropriate to use as a model for the analysis of a wide range of seventeenth-century musical repertoires since it may exemplify an exception rather than the norm. In addition, ensemble music may exhibit less unorthodox pitch organization as it may use conventional melodic formulae and may have more regular cadences inspired by dance music.

Stein's study of Carissimi's cadence paradigms is crucial to understanding tonal structure in Italian instrumental ensemble music of the first half of the seventeenth century. Stein was one of the first to draw attention to Carissimi's systematic and methodical use of cadences in connection to transpositions in his vocal music. Most importantly, she noticed the correlation between these transposition levels and the major- and minor-third modes based on the *do* and *re* degrees of each hexachord as described in Chapter 1.[23] The systematic nature of Carissimi's transposition levels (almost always at the fourth or fifth) first led Stein to suggest that they were connected to tonal organization.[24] In a G *durus* 'tonality', for instance, Carissimi's opening phrases typically feature a transposition from G to C, outlining the G-G octave via two descending *diapente* (from d'' to g' and g'' to c''), as in the opening bars of *Jephte*'s 'Incipite in tympanis' (see Fig.2.1).[25]

[23] Stein, 'Carissimi's Tonal System', 291-292.
[24] Ibid., 266.
[25] Ibid.

Figure 2.1. Carissimi's 'Incipite in tympanis', from *Jephte*. *Source*: Stein, 'Carissimi's Tonal System', 266.




Not only does Carissimi use characteristic opening phrase transpositions, he also structures entire refrains and middle sections with similar phrase transpositions, providing us with a clear example of seventeenth-century pitch organization. Carissimi's tonal language is based on a set of four 'tonalities' and their transpositions (for a total of eight core tonalities) defined by predictable cadence patterns, or, in Stein's terminology, cadence 'paradigms'. Table 2.4 illustrates Carissimi's cadence paradigms in the opening, middle and ending sections of his cantatas.[26] It is important to emphasize again that there is a distinction to make between key signature and system; in Table 2.4 b, for instance, even though the key signature indicates *cantus mollis* (one flat), the cadence paradigms reported show that the pieces operate in the ♭♭ system (with the B♭ and soft hexachords). Therefore, key signature and system are two separate things.

[26] Ibid., 264, 288. For the sake of this discussion of Carissimi's choice of cadence degrees, I am using the term 'tonality' as used by Stein in her dissertation and subsequent article. It is important to note that Carissimi's cadences on *do* and *re* degrees of hexachords are often correlated to phrase transposition. However, the interval of transposition emphasizes the *do* and *re* degrees of the initial scale.

Table 2.4. Carissimi's cadence paradigms.

a) Carissimi's four basic, untransposed tonalities

| Finals and key signatures (natural system) | Cadence paradigms |
|---|---|
| a — | a-d / G-C / d-a |
| d — | d-a / C-G / a-d |
| G — | G-C / a-d /C-G |
| C — | C-G / d-a / G-C |

b) Carissimi's four basic tonalities transposed to the ♭♭ system

| Finals and key signatures (♭♭ system) | Cadence paradigms |
|---|---|
| g ♭ | g-c / F-B♭ / c-g |
| c ♭ | c-g / B♭-F / g-c |
| F ♭ | F-B♭ / g-c / B♭-F |
| B♭ ♭ | B♭-F / c-g / F-B♭ |

*Source*: adapted from Stein, 'Carissimi's Tonal System', 288.

As Stein observed, cadences at the fourth or fifth in Carissimi's core tonalities correspond to the 'finals' for the *do* and *re* 'modes' in *cantus durus*:

| | Bottom hexachord | Top hexachord | *do* 'modes' | *re* 'modes' |
|---|---|---|---|---|
| *Cantus durus* | C | G | C and G | d and a |
| | G | C | G and C | a and d |

Carissimi's cadence degrees in *cantus durus* also correspond to cadence degrees found in late sixteenth and early seventeenth-century English and Italian madrigals, as described by Delbert Beswick in an early study on the transition between modality and tonality.[27] These findings

[27] Delbert Beswick, 'The Problem of Tonality in Seventeenth-century Music' (PhD diss., University of North Carolina, Chapel Hill, 1950). Beswick analyzed modes and cadences in more than five hundred pieces across a variety of European countries and musical genres (including German polyphonic music, English and Italian madrigals, Italian toccatas and English virginal music), making his study somewhat unfocused and its conclusions therefore may be questionable. Nonetheless, it is still worth mentioning that the cadence degrees

show that in the untransposed scale (*cantus durus*), there seem to be a clear correlation between a composer's choice of cadence degrees and the *do* and *re* degrees of the two hexachords comprised in the scale, for a total of four possible cadence degrees. In Carissimi's vocal music, these cadence degrees are transposed to the ♭♭ system, which reveals the exact same patterns of *do* (F, B♭) and *re* (g, c) degrees in the ♭♭ system (see Table 2.4 b). Interestingly, Stein notes that the one-flat system is conspicuously absent from Carissimi's tonal language.[28]

The following discussion of cadence degrees in early seventeenth-century ensemble music will show how the cadence degrees found in that repertoire compare with cadence degrees prescribed by seventeenth-century theorists for the church tones, the most commonly used 'tones'. These cadence patterns will also be examined against Dahlhaus's remarks on cadences spanning the range of a hexachord in Monteverdi's madrigals, and Carissimi's cadence paradigms as discussed by Stein.

## 4. Cadence Degrees in Early Seventeenth-Century Ensemble Pieces from Northern Italy, ca. 1610-1630.

To begin with, it is essential to clarify the exact definition of the term 'cadence' as used in this study, as seventeenth-century music exhibits both modern cadential figures, as well as older ones reminiscent of sixteenth-century contrapuntal style. Seventeenth-century treatises discuss cadences in connection with modal theory, counterpoint and thorough bass principles. The duos demonstrating each *Tuono* in *Cartella musicale* (1614) show that Banchieri's conception of cadences (*cadenze*) was grounded in older notions of counterpoint between the cantus and

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Beswick found in madrigals in the Ionian and Mixolydian 'modes' correspond to Carissimi's; in the untransposed scale (*cantus durus*), the characteristic cadence degrees are as follows, in order of frequency (Beswick anachronistically uses Roman numerals):

Ionian: C, G, d, a

Mixolydian: G, C, d, a, D (according to Dahlhaus, the majorisation of the d degree is only incidental and often relates to the use of *tierces picardes* at cadences.)

Beswick findings for the Dorian and Aeolian 'modes' are somewhat different:

Dorian: d, a, F

Aeolian: a, d, C

See Stein, 'Between Key and Mode', 68-69. Cadence degrees in the Dorian 'mode' differ from that of the other three, as the F cadence degree may imply a shift to the one-flat system. The cadence degrees in the Dorian 'mode' closely correspond to cadence degrees in the second church tone (g *mollis*, the transposition of the Dorian mode down a fifth) in Italian ensemble music of the first quarter of the seventeenth-century, as will be shown below.

[28] Stein, 'Between Key and Mode', 118.

tenor voices to mark the end of phrases or points of imitation (also called 'contrapuntal' or 'tenor' cadences).[29] Cadences are also often characterized by dissonance between voices and movement from final to raised 7th scale degree and back to final ($\hat{8}$— $\hat{7}$— $\hat{8}$) in one of the voices. As triadic harmony further developed in the course of the seventeenth century, the notion of cadence evolved so as to include movement by leap in the bass as one of its essential components by the early eighteenth century. Contrapuntal cadences, as well as cadences characterized by melodic dissonance between two voices which may be accompanied by a leap up a fourth or down a fifth in the bass, are both trademarks of seventeenth-century cadential movement and indicate a composer's intention to stress certain pitches, even if they do not coincide with a clear phrase ending. Such typical cadential patterns are illustrated in treatises discussing counterpoint and thorough bass principles, such as Lorenzo Penna's *Li primi albori musicali* (see Chapter 3, pp. 148-150; 153-154).[30] The ensemble music of the first half of the century also includes more modern cadential figures, which do not feature dissonance in the upper voices.

All cadence degrees found in each piece have been included, and have been entered in the tables in relative order of frequency. Cadence degrees in parentheses represent uncommon and weak cadences, which do not seem to be of structural importance. The modern terminology for cadences cannot be applied to that early repertoire without anachronistic biases. Therefore, only cadence degrees are reported, generally without mention of the type of cadence, since it is difficult to label cadence types as the notion of the tonic was not yet firmly established. None of the cadences in these pieces bears resemblance to the modern deceptive (or interrupted) cadence, and Phrygian cadences are rare. The large majority of the cadences that have been reported in the tables are either contrapuntal cadences, or include a leap in the bass up a fourth or down a fifth, unless otherwise noted. Finally, the notes raised to resolve up to the tonal focus at cadences should be regarded as written out *musica ficta* alterations and do not affect the hexachord system on which a passage in based.

[29] See Adriano Banchieri, *Cartella Musicale* (Venice, 1614), 72-79.
[30] See Penna, *Li primi albori musicali* (1679), 123-28; 165-75.

### 4.1 Church Tones in *cantus durus*

Tables 2.5 to 2.9 feature cadence degrees found in pieces with a final on d, a, e, C, and G in *cantus durus*.[31] Certain church tones (such as d *durus)* are less common, and pieces with a final on e are rare, perhaps due to the fact that the Phrygian 'mode' was problematic when writing for more than two voices because of the impossibility of building a perfect fifth above the B natural.[32]

Table 2.5. Cadences in d *durus* tonalities (tone 1).

| Composers and pieces | Cadence degrees (in order of frequency) |
|---|---|
| Cangiasi – Canzon sesta La Bussola (1614) | d, a |
| Cangisasi – Canzona nona La Theorica (1614) | d, a |
| Bernardi – Sinfonia ottava a piena (1615-1616) | d, a, G |
| Lappi – Canzon vigesima a 10, La Serafina (1616) | d, a, G, C, F, E* |
| Bottaccio – Canzone L'Odescalca (1617) | d, G, a, C |
| Marini – La Ponte (1617) | G, d, C |
| Corradini – Canzon terza L'Argenta (1624) | d, C, a |
| Corradini –Suonata à 3 La Marcha (1624) | d, a, F* |
| Corradini – Suonata à 2 La Sfondrata (1624) | d, a, C |

*****The cadence on E in *La Serafina* occurs in what seems to be a shift of system with the addition of F♯ as the fifth above B (bb.27-28). There is only one cadence on F in *La Marcha*, which seems to occur in the context of a modulation to the ♭ system.

[31] Some pieces with no clear or not enough cadences on various degrees have been left out.
[32] Stein, 'Between Key and Mode', 68. Stein refers to Beswick's dissertation in connection to that remark, adding that Beswick observed that only keyboard collections tend to feature the Phrygian mode. The problem of the absence of a perfect fifth above the B natural in Phrygian is mentioned by Banchieri. See Banchieri, *Cartella musicale*, 75.

Table 2.6. Cadences in a *durus* tonalities (tone 3).

| Composers and pieces | Cadence degrees (in order of frequency) |
|---|---|
| Bernardi – Sinfonia quarta concertata (1615) | a, d, C, G, (g) |
| Lappi – Canzon ottava a 4 La Rovatta (1616) | a, d, C, (G) |
| Lappi – Canzon Decima a 4 La Luzzaga (1616) | a, C, G (d) |
| Lappi – Canzon decimaterza a 6 L'Usipina (1616) | a, d, G, C |
| Lappi – Canzon decimasettima in ecco a a 8, L'Allè (1616) | d, C, a (G) |
| Cantone – Canzone La Serafina (1617) | a, d, C, (A), (G) |
| Marini – La Zorzi (1617) | a, C, e (Phrygian) |
| Grillo – Sonata seconda a 7 (1618) | d, a, C, G |
| Grillo – Canzon prima a 8 (1618) | a, d, C, (G) |
| Grillo – Canzon terza a 8 (1618) | a, C, d, G |
| Corradini – Canzon Quarta La Sforza (1624) | a, d, C |
| Biumi – Canzone nona (1627) | a, C, d |

Table 2.7. Cadences in e *durus* tonalities (tone 4).

| Composers and pieces | Cadence degrees (in order of frequency) |
|---|---|
| Bernardi – Sonata terza (1613) | d, a, C, G, F, e ('Plagal')* |
| Cangiasi – Canzon decimaterza, La Torta (1614) | a, e (Phrygian, 'Plagal')*, d |
| Cangiasi – Canzon decimasesta, La Girometta (1614) | a, G, C, e (Phrygian, 'Plagal')*, (d) |

*The cadences on e are either Phrygian or 'plagal' (in the modern sense of the term) at the end of the piece (A-E).

Table 2.8. Cadences in C *durus* tonalities (tone 5).

| Composers and pieces | Cadence degrees (in order of frequency) |
|---|---|
| Lappi – Canzon terza a 4, La Conta (1616) | C, G, d |
| Ardemanio – Canzone La Bona (1617) | C, G, d, a |
| Pellegrini – Canzone La Lomazza (1617) | C, G, a, d |
| Marini – Il Monteverde (1617) | C, a, d |
| Marini – La Cornera (1617) | C, G |
| Marini – La Bocca (1617) | C, G, a |
| Grillo – Canzon seconda a 8 (1618) | C, d, G, a |
| Corradini – Canzon nona La Pessa (1624) | C, G, d |
| Corradini – Canzon decimal La Taverna (1624) | G, C, d, a |
| Biumi – Canzone undecima (1627) | G, C |
| Biumi – Canzone duodecima (1627) | C, G, d |
| Biumi – Canzone decimaterza (1627) | C, G, d |
| Biumi – Canzone decimaquinta (1627) | C, G, d |
| Biumi – Canzone decimasesta (1627) | C, G |

Table 2.9. Cadences in G *durus* tonalities (tone 8).

| Composers and pieces | Cadence degrees (in order of frequency) |
|---|---|
| Bernardi – Sonata sesta in sinfonia (1613) | G, C, d, a |
| Cangiasi – Canzon undecima La Capitania (1614) | G, C, d |
| Cangiasi – Canzona decimaquinta La Fiorina (1614) | G, C, d, a |
| Bernardi – Sinfonia sesta piena (1615) | G, d, C, |
| Lappi – Canzon nona a 4 La Federica (1616) | G, a, d, C |
| Lappi – Canzon duodecima a La Mainazza (1616) | G, C, a |
| Lappi – Canzon decimaquinta a 7 L'Arborea (1616) | G, C, a, d, (F) |
| Lappi – Canzon vigesimaprima a 11 La Chizuola (1616) | G, a, d, C |
| Marini – La Hiacinta (1617) | C, d, G, a |
| Corradini – Canzon prima La Pallavicina (1624) | G, C, d, a |
| Biumi – Canzone quinta (1627) | G, d, (C) |
| Biumi – Canzone sesta (1627) | G, d |
| Biumi – Canzone settima (1627) | G, d, a, C |
| Biumi – Canzone ottava (1627) | G, (d) |

Tables 2.5 to 2.9 show that for the first, third, fifth and eighth church tones, if there are two or more cadence degrees, these tend to always to be on d, a, C or G regardless of the final. Some church tones cadence more frequently on specific degrees, such as d *durus* (d, a), a *durus* (a and d, or a and C), or C *durus* (C, G), for instance.[33] The cadences found in this sample do not show a clear resemblance with cadence degrees prescribed by Italian theorists for the church tones (see Table 2.1). Theorists unanimously agreed that pieces in the first church tone (d *durus*) should cadence on d, F, a, whereas d *durus* pieces in ensemble music often include cadences on G and C as well as d and a, but rarely on F. Even though pieces in a *durus* should cadence on a, C, e according to church tone theory, only one piece features these three degrees (the only one with a Phrygian cadence on e), while a, C, d and G are commonly found. The sample did not include enough pieces in e *durus* (tone 4) to identify clear patterns regarding cadence degrees. In C *durus*, which theoretically should cadence on C, e, G (with the possible addition of F or a, according to Bertali and Penna), there are no cadences on e or F in any piece in the sample, but cadences on C, G, a, and d are frequent. Finally, pieces in G *durus*, which should cadence on G, C, d (and possibly b for Bertali) tend to cadence on G, C, d and a. In addition, pieces in G *durus* seem to feature d just as frequently as C (the reciting tone of the eighth church tone) as a second cadence degree, which goes against Barnett's claim quoted earlier, at least in the sample analyzed. Likewise, some of the other church tones do not show a clear emphasis on the reciting tone in the cadence degrees; in pieces in a *durus*, cadences on d seem as common as cadences on the reciting tone, C, for instance. However, there seems to be a stress on G in pieces in C *durus*, which corresponds to the fifth tone's reciting tone, and pieces in d *durus* often feature a as a second most frequent cadence degree, which matches the first tone's reciting tone.

In short, if every church tone in the sample analyzed has at least two cadence degrees that correspond to the theorists' recommendations for cadences in the church tone theory, most add additional degrees, and the emphasis on the reciting tone in the choice of cadence degrees is not always clear, even though a bigger sample might yield different results. These additional cadence degrees appear consistently enough to suggest that these composers seem to have had a common understanding of what cadence degrees to use for each church tone.

[33] A greater sample would help clarify these tendencies.

Even though Dahlhaus's analysis of *O Mirtillo* identifies six possible cadence degrees in a given system, the pieces in the sample analyzed here include on average between two and four different cadence degrees (apart from the pieces in tone 4, which seem to have a more exploratory, open sense of tonality, similar to Monteverdi's *O Mirtillo*). On the one hand, the fact that the great majority of the pieces in the sample show less than six different cadence degrees does not mean that each piece could not include more, since instrumental ensemble pieces do not have the experimental and highly expressive character of madrigals. On the other hand, apart for pieces in e *durus,* it is striking that all composers tend to agree on the same cadence degrees for each church tone. Most importantly, all church tones in *cantus durus* tend to feature the same cadence degrees regardless of the final (again, with the exception of e *durus*, which requires further investigation), which suggests a system of closely related 'tones' within a single scale (*cantus durus*).

As Dahlhaus put it, in functional harmony, 'each chord is what it is – tonic, dominant, or subdominant – in relation to the others' and 'the result of this reciprocal relationship is the cadence, the model of tonal harmony'.[34] Here, however, all cadence degrees seem to be independent of the final but determined by the scale system (*cantus durus*), since the same cadence degrees (C, G, d, a) tend to appear in the first, third, fifth and eighth church tones in *cantus durus*. This concept recalls Dahlhaus' idea that the complex of cadence degrees, or 'component keys', to use his terminology, is 'logically prior' to the choice of a final in a piece; in other words, the final does not determine the scale system in connection to a key, as in functional harmony, but the scale system determines various possible finals and tonal foci. However, Dahlhaus's model of analysis does not account for the emphasis on the same four cadence degrees (or only two or three out of these possible four). The recurrent use of these four degrees indicates that these may have been the core degrees in these composers' tonal language.

In addition, it is significant that cadences on the final are the most common in each church tone (except for tone 4), and that one or two specific degrees often appear more frequently in each church tone. For instance, pieces in the fifth church tone (C *durus*), tend to cadence most frequently on C and G, and pieces in the eighth church tone (G *durus*) commonly cadence on G and C, or G and d. These tendencies create a strong sense of

[34] Dahlhaus, *Studies on the Origin of Harmonic Tonality*, 38.

'tonality' at cadences, somehow organized around the final, while the final itself is determined by the scale system (*cantus durus*), as suggested above.

The cadence degrees found in the first, third, fifth and eighth church tones exhibit a clear similarity with Carissimi's cadence paradigms in *cantus durus* identified by Stein (see Table 2.4). Indeed, the cadence degrees most frequently found in the church tones in *cantus durus* are C, G, d, a, which, as Stein pointed out in Carissimi's music, correspond to the *do* and *re* degrees in the natural and hard hexachords (C, d and G, a, respectively) found in the untransposed scale in *cantus durus*. From the standpoint of modal theory and the theory of the church tones, these four cadence degrees correspond to the finals of the fifth, first, eighth and third church tones, as well as the Ionian, Dorian, Mixolydian and Aeolian modes (C, d, G, a), further corroborating seventeenth-century theorists' view that these four modes were commonly used in musical practice, as discussed in Chapter 1. These observations also confirm Stein's claim that Carissimi's tonal system is found in the work of other composers and may indeed reflect a wide-spread early seventeenth-century tonal practice.

### 4.2 Church Tones in *cantus mollis*

Tables 2.10 through 2.12 illustrate the cadence degrees found in pieces in the second, sixth and seventh church tones, with finals on g, F and d in *cantus mollis*. While there are numerous pieces in g *mollis* (only a few have been reported here), F *mollis* is less common and d *mollis* pieces are rare, which suggest that this church tone was probably not as commonly used, at least in early Italian ensemble instrumental music.

Table 2.10. Cadences in g *mollis* tonalities (tone 2).

| Composers and pieces | Cadence degrees (in order of frequency) |
|---|---|
| Bernardi – Sonata prima (1613) | g, d, B♭ |
| Cangiasi – Canzon quinta, La Stella (1614) | g, d, B♭, (d Phrygian?)* |
| Lappi – Canzon decimaottava a 8, La Negrona (1616) | g, d, B♭, C, F, (d Phrygian?)* |
| Pellegrini – Canzone La Pelegrina (1617) | g, d, B♭ |
| Cima – Canzone La Gratiosa (1617) | g, d, (B♭) |
| Casato – Canzone La Pecchia (1617) | g, d, B♭, C |
| Marini – La Marina (1617) | g, d, B♭ |
| Grillo – Sonata prima a 7 (1618) | g, d, B♭ |
| Grillo – Canzon pian e forte a 8 (1618) | g, d, B♭, (a) |
| Biumi – Canzone prima (1627) | d, g, B♭ |
| Biumi – Canzone seconda (1627) | g, d, B♭ |
| Biumi – Canzone terza (1627) | g, d, B♭, (c) |
| Biumi – Canzone quarta (1627) | g, d, B♭, (c) |
| Biumi – Canzone decimaquarta (1627) | g, d, B♭, (G), (D) |
| Biumi – Canzone decimasettima a 8 (1627) | g, d, (c) |

* Some pieces seem to feature Phrygian cadences on d, implying the d as *mi* degree in the B♭ hexachord. The ubiquitous cadences on B♭ in g *mollis* suggest that indeed, *cantus mollis* may have implied the equal use of the natural hexachord, soft hexachord and the hexachord on B♭. However, in this particular piece, these cadences may also be perceived as 'imperfect' cadence on the fifth above the final, with the E♭ as a *fa sopra la* above the soft hexachord (which could undermine Dahlhaus's observation that *fa-mi* cadences define the system).

Table 2.11. Cadences in F *mollis* tonalities (tone 6).

| Composers and pieces | Cadence degrees (in order of frequency) |
|---|---|
| Bernardi – Sonata quarta (1613) | F, C, g, B♭ |
| Lappi – Canzon undecimal a 5 La Penolaccia (1616) | F, d, C, g, B♭ |
| Lappi – Canzon quarta a 4, La Pietrobella (1616) | F, C, B♭ |
| Lappi – Canzon decimaquarta a 6, La Diamente (1616) | F, C, B♭ |
| Corradini – Canzon settima La Bizzara (1624) | F, C, g, d |
| Biumi – Canzone decima (1627) | F, C, (g), (d) |
| Fontana – Sonata nona per violino e fagotto (ca. 1610-1630) | F, d, C, g, B♭ |
| Fontana – Sonata dodicesima per violin e fagotto (ca. 1610-1630) | F, C, B♭, g, d |

Table 2.12. Cadences in d *mollis* tonalities (tone 7).

| Composers and pieces | Cadence degrees (in order of frequency) |
|---|---|
| Marini –La Soranza (1617) | d, g, B♭*, C* ,a* |
| Marini –La Gambara (1617) | d, F, G*, C*, a* |
| Fontana – Sonata ottava per due violini (ca.1610-1630) | d (including some Phryg.), F, a (Phryg.) |

*The presence of E♭ in the texture around the cadence on B♭ may indicate a shift to the ♭♭ system, and the consistent presence of B♮ around cadences on C, G and a may indicate a shift to the ♮ system.

Cadences in church tones in *cantus mollis* seem to exhibit different patterns than those in *cantus durus*. Among these, pieces in g *mollis* feature a very clear pattern of cadences on g, d, B♭, which corresponds precisely to cadences that seventeenth-century theorists recommended for the second church tone (see Table 2.1).[35] Pieces in F *mollis* should according to the theorists cadence on F, a, C, with the addition of B♭ for Bertali, and with B♭ instead of a for Penna. In the sample examined, pieces in F *mollis* do not include any cadences on a, but tend to feature F, C, B♭, g and d, so that three degrees out of five match theoretical recommendations. Finally, pieces in d *mollis* should in theory cadence on d, F, a, with F♯ and G for Bertali and d, C, g for Penna, but the sample examined does not feature enough pieces in d *mollis* to observe any tendency. Note that tone 7 recalls tone 4, in that its cadence degrees seem more flexible or exploratory than the other church tones. Therefore, if pieces in g *mollis* are very clear in their expression and correspond to the theoretical prescription for tone 2, this is not as striking in pieces in F *mollis* (tone 6). As far as reciting tones, pieces in the second church tone (g *mollis*) most frequently cadence on d after the final g, while the reciting tone B♭

[35] These also match Beswick's findings on cadences in the Dorian mode, which is to be expected as g *mollis* is a transposition of the Dorian mode up a fourth. One last aspect to consider is that of the conflation of modes, or the tendency, observable in the sixteenth century, to mix authentic and plagal qualities of a mode within the same voice in a piece, as discussed by some early theorists such as Christoph Bernhard. Thus, hypothetically, the conflation of modes one and two (Dorian and Hypodorian) would lead to an emphasis on the final and the *repercussae* (reciting tones) of both the first and second modes (d and a for the first mode and d and F for the second mode), that is, an emphasis on the notes of the triad built on the final (d, a, F). This could possibly explain the cadence degrees found in g *mollis* in Italian ensemble music (g, d, B♭). However, this would not satisfactorily account for cadence degrees in pieces in the untransposed Dorian mode in that repertoire (which seem to emphasize G and C more than F), nor for cadence degrees in any other pieces in *cantus durus*. (Cadences degrees in pieces in G *durus* partly conform to notes that would be emphasized in the conflation of modes seven and eight - Finals on G and reciting tones on d and C, respectively-with cadences on G, C, d. Nevertheless, several pieces in G *durus* also includes cadences on a, which are at odd with the idea conflation of modes seven and eight.)

comes clearly in third position, and pieces in the sixth church tone (F *mollis*) never cadence on the reciting tone, a.

Just as in most of the *cantus durus* church tones, pieces in *cantus mollis* tend to exhibit fewer than six possible cadence degrees, unlike what Dahlhaus found in Monteverdi's *O Mirtillo* (except for tone 7). Pieces in g *mollis* demonstrate a strong pattern of cadences on g, d and B♭ (with occasional c/C), and the order of frequency of these cadences, which is always with the final first, then d and finally B♭ suggests a strong sense of pitch organization in pieces in the second church tone. This is also true of pieces in F *mollis*, which feature cadences on F, C, g, B♭ and d, with F and C as the most frequent, generally speaking. Finally, just as in pieces in e *durus*, pieces in d *mollis* are not common enough to make any observations. Again, Dahlhaus's ideas cannot account for idiosyncrasies in the second and sixth church tones, and it appears that these composers had a common understanding of cadence degrees to use in individual church tones, which is especially striking in pieces in g *mollis* with three specific recurrent degrees. In addition, the observation made earlier that all church tones in *cantus durus* tend to have the same cadence degrees regardless of the final is not true of *cantus mollis*, since the most common cadence degrees in g *mollis* and F *mollis* tend to be more distinct; in g *mollis*, there is not a single cadence on F and cadences on c are more rare, while these two are the most frequent in F *mollis* pieces. This suggests a *cantus mollis* scale system that works somewhat differently than *cantus durus*, as it appears that at least two church tones in *cantus mollis* (g *mollis* and F *mollis*) are more structurally independent of each other even though they share the same scale system, while *cantus durus* church tones seem closely related.

Finally, unlike in *cantus durus* church tones, Stein's observations on cadence paradigms in core tonalities in *cantus mollis* in Carissimi's music do not match cadence patterns in *cantus mollis* in early seventeenth-century ensemble music (see Table 2.4 b). It is crucial here to keep in mind that Stein observed that the most frequent *cantus mollis* tonalities and their cadence paradigms in Carissimi's music are a transposition of the *cantus durus* cadence paradigms to the ♭♭ system, with cadences on F, B♭, g and c (the *do* and *re* degrees in the soft hexachord and B♭ hexachord, respectively); significantly, the one-flat system with cadences on F, C, g and d (the *do* and *re* degrees in the soft and natural hexachords) never appears in Carissimi's vocal music. Arguably, when analyzed from the standpoint of

hexachordal theory, the structure of g *mollis* pieces in ensemble music commonly involves three hexachords, since g and d are the *re* degrees in the soft and natural hexachords, respectively, and B♭ is the *do* degree in the B♭ hexachord (the frequent occurrence of E♭ around cadences on B♭ hints that the B♭ should be interpreted as *do* in the B♭ hexachord, rather than *fa* in the soft hexachord). Moreover, the occasional presence of Phrygian cadences on d also suggests d as a *mi* degree in the B♭ hexachord. Interestingly, in the second half of the seventeenth century, Lorenzo Penna explains in the third part of *Li primi albori musicali* dealing with the fundamentals of continuo playing at the organ, that the notes of the *mi* in *cantus durus* (b *quadro*) are B fa b mi and E lami, and the notes of the *mi* in *cantus mollis* (b *molle*) are A lamire and D lasolre, suggesting the common use of E♭ in *cantus mollis* later in the century, which is confirmed by his musical examples.[36] Likewise, pieces in F *mollis* commonly include cadences on F, C, g, d, the *do* and *re* degrees in the soft and natural hexachords, and B♭, arguably the *do* degree in the B♭ hexachord, so that it is possible that the same three hexachords are commonly involved in F *mollis* pieces as well. The use of three hexachords a fifth apart in *cantus mollis* pieces (B♭, F, C) recalls Eric Chafe's elaboration of Dahlhaus's model, whereby Chafe extended Dahlhaus's concept from one to three linked hexachords a fifth apart, which constitute the cadential and triadic make up of a piece.[37] At any rate, cadence patterns in neither the second nor the sixth church tone correspond to the cadence paradigms in the ♭♭ system in Carissimi's music as discussed by Stein. Most importantly, cadence patterns in neither church tone correspond to what would be expected if conceived as *cantus durus* tones transposed to *cantus mollis*; cadences in d *durus* are different from cadences in g *mollis* (d *durus* transposed down a fifth), and cadences in C *durus* are different from cadences in F *mollis* (C *durus* transposed down a fifth), since unlike C *durus*, F *mollis* commonly includes cadence on the 4th degree over the final. Thus, each church tone in cantus mollis has distinct qualities, and we are a long way from the eighteenth-century notion of each key as a transposition of one of two tonal types (major or minor).

In summary, it is striking that all these composers display similar cadence degrees in at least church tones 2, 3, 5, 6, and 8 clearly implying a common understanding of each 'tonality' among these composers. Apart from pieces in g *mollis* and, to a certain extent, pieces in G

[36] Penna, *Li primi albori musicali,* 136-137.
[37] See Eric Chafe, 'Aspects of durus/mollis Shift and the Two-system Framework of Monteverdi's Music', *Schütz-Jahrbuch* 12 (1990): 171-176.

*durus*, these composers' choices of cadence degrees generally do not quite correspond to cadence degrees prescribed in seventeenth-century treatises for the church tones, and there is not always a clear correspondence between the church tones' reciting tones and the frequency of the corresponding cadence degrees. Barnett's assertion that the eighth church tone's reciting tone accounts for the stress on C in pieces in G *durus* may thus find an alternative explanation in hexachordal theory, as suggested above. Even though it certainly provides valuable insights on the early seventeenth-century tonal system, Dahlhaus's analysis of *O Mirtillo* does not explicitly shed light on characteristic features of each church tone, such as the emphasis on certain cadence degrees. However, Stein's analysis of cadence paradigms in Carissimi's vocal music greatly illuminates cadence degrees in *cantus durus* church tones in Italian ensemble music, which seem closely related to each other as they tend to share the same cadence degrees. These composers' choice of cadence degrees, which correspond to the *do* and *re* degrees of the scale and tend to be the same regardless of the final (with the possible exception of e *durus*), hints at the primacy of the scalar system over the final in *cantus durus*. The fact that the organization of cadences around *do* and *re* degrees in *cantus durus* does not transfer to pieces in *cantus mollis* in the pieces analyzed in this sample (unlike in Carissimi's vocal music) raises questions regarding the hexachord implied in a piece in *cantus mollis*, as well as the reason for such a specific emphasis on certain cadence degrees (as in g *mollis* pieces).

These cadence patterns become more concealed later in the century, as composers made greater use of modulations (transpositions of scale) in the course of a piece, and also due to the gradual establishment of the fixed major and minor scale systems based on the model of the Ionian and Aeolian 'modes'. Arguably, when reflecting on the four commonly used church tones in *cantus durus* and their cadence degrees in early seventeenth-century ensemble music, the seventeenth-century must have witnessed the transition from an understanding of four (or five, if one counts the Phrygian degree) related 'modes' within a single scale system (C, G, d, a, (e) in the natural system), to two related 'modes' at a minimum of three different levels of transposition of that scale, for a total of at least six related 'modes' (C and a in the ♮ system, F and d in the ♭ system, and G and e in the ♯ system).[38] (However, some theorists such as

[38] Eighteenth-century discussions of what should be considered the model for the minor mode further suggest that such a development took place. While the natural scale with a final on C (C major) became the fixed standard for the major mode, theorists debated whether the mode based on d (Dorian) or a (Aeolian) should represent the minor mode, since the C major scale includes both the natural and hard hexachords, with two possible *re* 'modes'

Kuhnau suggested that there were still three modes in existence at the end of the seventeenth century: major, minor, and Phrygian.) Incidentally, this three-fold model at three levels of transpositions recalls the possible inclusion of three hexachords a fifth part in the basic *mollis* system discussed above. The particularities of *cantus mollis* noted above will be further explored below in an examination of fugal opening sections in *cantus mollis*.

## II. Opening Fugal Sections.

### 1. Modal versus Hexachordal Theory.

The seventeenth-century definition of *fuga* (fugue) is different from our modern understanding of the term. Since the eighteenth century, the term 'fugue' has been used to designate an imitative piece of music that can be either self-standing or constitute a section of a larger piece, structured with an exposition and episodes with various entries of the subject at various levels. However, in the seventeenth century, the word *fuga* was generally used to designate a compositional procedure involving points of imitation.[39] Therefore, the opening 'fugues' examined in this thesis refer to opening points of imitations that appear at two different pitch levels of imitation and carried out through all voices in the texture, regardless of whether the fugal procedure is actually carried on afterwards in the whole opening section.[40]

Sixteenth-century theorists did not comment or elaborate on the principle of so-called 'tonal answers', even though they were familiar with the principle of tonal answers and used them occasionally in their musical examples.[41] Gioseffo Zarlino, the most influential sixteenth-century theorist, never mentioned that a leap of a fifth in the leading voice should be

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(d or a). For instance, in his *Traité de l'harmonie* (1722), Jean-Philippe Rameau advocates Dorian as the model for minor, but changes his mind in favor of Aeolian in the supplementary section of his work. See Joel Lester, *Between Modes and Keys: German Theory, 1592-1802*, Harmonologia 3 (Stuyvesant, NY: Pendragon Press), 12. In addition, later Italian theorists such as Luigi Sabbatini favored Aeolian as the model for minor, arguing that the choice of Dorian as a model led to tonal ambiguity, since the sequence of solmization syllables in Dorian is too close to that of the Ionian mode (that is, the C major scale). Personal communication with Nicholas Baragwanath, November 2014.

[39] Paul Walker gives a detailed account of all the complex variants in the definitions and uses of this term throughout music history in Paul Walker, *Theories of Fugue from the Age of Josquin to the Age of Bach* (Rochester, NY: University of Rochester Press, 2000).

[40] In north Italian ensemble instrumental music of the early seventeenth century, some opening 'fugues' constitute full, large sections, while others only feature one or two points of imitation before moving on to another texture or section of a piece.

[41] Walker, *Theories of Fugue*, 64; 68. Nicolò Vincentino's remarks that in imitation in two voices, a fifth cannot be answered by a fifth since it would overstep the modal octave remains an exception. Ibid., 64.

answered by a fourth so as to remain within the boundaries of a mode.[42] However, Zarlino claimed that in the opening of an imitative composition, the first note of the *guida* (subject) and the first note of the *consequente* (answer) should form a perfect consonance. He further specified which notes should be used:

> This [rule about beginning on a perfect consonance] is not unreasonable, for one begins on the extreme notes [*chorde estreme*] or the middle notes [*mezane*] of the modes on which the melody is founded. These are the most natural and essential notes [*chorde naturali overo essentiali*], as we shall see elsewhere.[43]

Zarlino used the terms *chorda estrema* and *chorda mezane* to designate final and dominant, respectively, which defined the modal octave and octave division of the mode.[44] Thus, for Zarlino, the first note of the *guida* and *consequente* outlining the final and dominant (or dominant and final) of the mode was sufficient to make the mode clear at the beginning of an imitative composition, regardless of the subsequent melodic motion of each voice.[45] In addition, Zarlino made a distinction between the *fughe* and *imitationi*, using the first term to denote exact intervallic imitation between subject and answer, and the second to designate imitation that disregards the intervals of the leading voice.[46]

By contrast, the seventeenth century was the scene of intense debates regarding the 'correct' representation of mode via the use tonal answers at the opening of imitative compositions.[47] Girolamo Diruta was the first theorist in the early seventeenth century to insist on the importance of tonal answers in opening fugal sections.[48] A real answer replicated the same intervals as those of the subject albeit starting on a different pitch, while a tonal answer involved the modification of certain intervals of the subject so as to ensure that the species of fourth and fifth of the mode were correctly represented at the outset of the piece. These debates on correct representation of mode were tied to the principles of rhetoric, which in the

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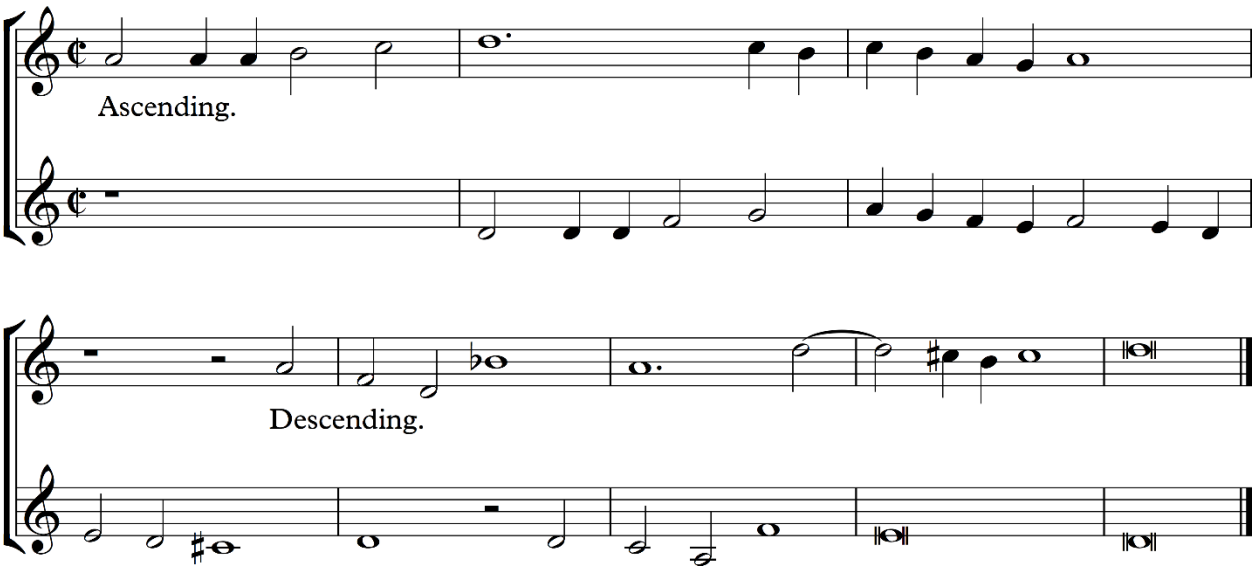
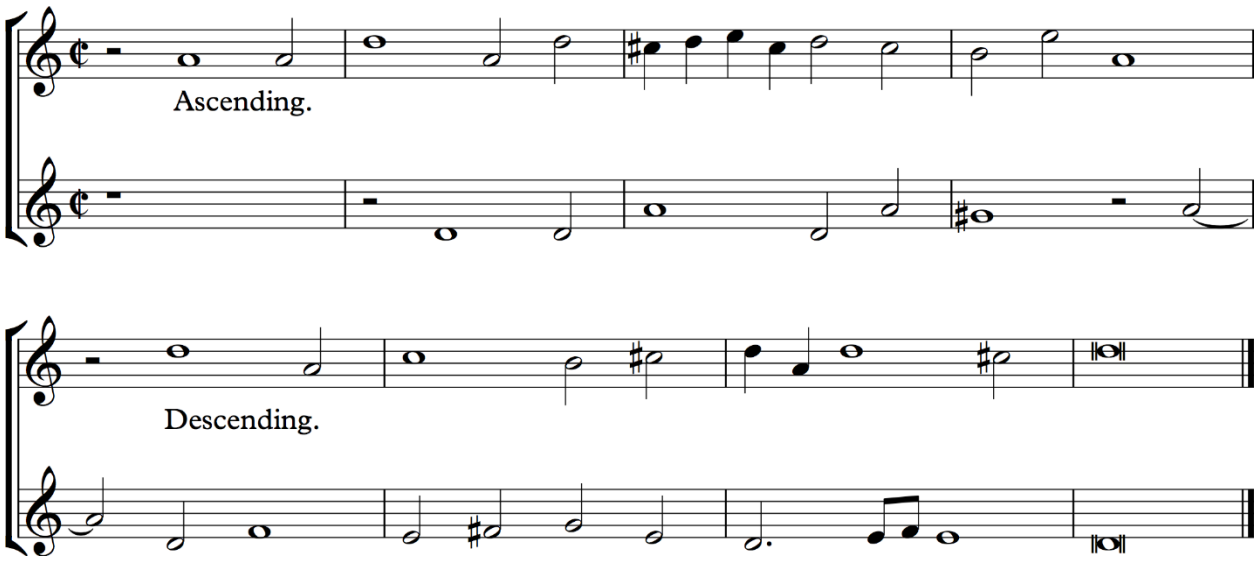
[42] Ibid., 67.
[43] Gioseffo Zarlino, *The Art of Counterpoint*, Part Three of *Le istitutioni harmoniche*, 1558, trans. Guy A. Marco and Claude Palisca (New Haven: Yale University Press, 1968), 55.
[44] Walker, *Theories of Fugue*, 66.
[45] Ibid., 68.
[46] James Haar, *The Science and Art of Renaissance Music*, ed. Paul Corneilson (Princeton, NJ: Princeton University Press, 1998), 121. See also James Haar, 'Zarlino's Definition of Fugue and Imitation', *Journal of the American Musicological Society* 24, no.2 (Summer 1971): 226-254.
[47] Walker, *Theories of Fugue*, 64.
[48] Ibid.

seventeenth century pervaded discourse on music composition, particularly in Germany; just as a good orator had to clearly present the subject of his argument at the beginning of his discourse, a good composition was to make the 'mode' of a piece as clear as possible at the outset. Modal theory, which discussed how to use species of fourths and fifths for each mode in opening fugal sections, was thoroughly discussed by seventeenth-century theorists and was prized as prescribing the most proper and learned manner of writing opening *fugae,* or points of imitation; the beginning of a piece should underscore the outer notes of the *diapente* and *diatessaron,* thereby clearly presenting the mode. Bononcini's *Musico prattico* gives examples of how this was to be done. Bononcini provides examples of opening fugues in the Dorian mode, where the opening point of imitation outlines the fourth and fifth of the mode (a'-d'' and d'-a') in subject and answer:

Figure 2.2. Examples of fugal openings according to principles of seventeenth-century modal theory. *Source*: Giovanni Maria Bononcini, *Musico Prattico* (Bologna, 1673), 83-84.




a) 'Fuga composta regulare, e perfetta.'




b) ‘Fuga incomposta regulare, e perfetta.’

Against this theory of tonal answers, some theorists advocated exactness of imitation in subject and answer in opening fugal sections. What this ‘exactness’ of imitation entailed depended on the theorists, who could distinguish between imitation using the exact same hexachord syllables (*voces*) or the same intervals in subject and answer (albeit in different hexachords), or sometimes the same rhythm.[49] This concern for imitation originated in early theories of fugues developed by Tinctoris and continued by Zarlino, who prized exactness of imitation as the most important principle of fugue composition, which in the sixteenth century was often connected to canonic writing.[50] According to the early seventeenth-century Italian theorist Pietro Cerone, fugues could take place at the fourth (or at the fifth), provided the original melody remained in the same hexachord, showing that arguably, for him, exactness of imitation by maintaining the same *voces* was important in fugal writing.[51] Further investigation of Italian treatises is necessary to determine if the concept of exactness of

[49] Such is the case of Pietro Pontio in *Dialogo* (Parma, 1595), for instance (see Walker, *Theories of Fugues*, 70-71). In the seventeenth century, an interval was also defined by the internal sequence of tones and semitones between the outer notes of the interval (for instance, C-G was considered a different interval than d-a).
[50] Walker, *Theories of Fugue*, 64.
[51] Ibid., 55-56.

imitation, and more particularly the retention of the same *voces* in subject and answer in opening *fugae*, was common among seventeenth-century Italian theorists.[52]

Before going any further, it is useful at this point to examine each church tone's structural characteristics in relation to fugal writing. Table 2.13 includes the notes to write fugues, which correspond to the notes marking the octave division in each church tone in the treatises of Banchieri, Angleria and Bononcini. Table 2.14 shows the notes corresponding to the matching complementary *voce* for each church tone's final (as these may be helpful to understand certain characteristic features of some fugal openings), and how these compare with the octave division and reciting tone of each church tone.

Table 2.13. Modal octave division for each church tone in three seventeenth-century treatises.

| Church tones finals and key signatures | Reciting tones | Banchieri (1614) | Angleria (1622) | Bononcini (1673) |
|---|---|---|---|---|
| d — | a | d-a-d' | d-a-d' | d-a-d' |
| g ♭ | B ♭ | d-g-d' | d-g-d' | d-g-d' |
| a — | C | e-a-e' | a-e'-a' | e-a-e' |
| e — | a | A-e-a | e-a-e' | e-a-e' |
| C — | G | c-g-c' | c-g-c' | c-g-c' |
| F ♭ | a | c-f-c' | c-f-c' | c-f-c' |
| d ♭ | g | d-a-d' | d-a-d' | d-a-d' |
| G — | C | d-g-d' | d-g-d' | d-g-d' |

*Sources*: Adriano Banchieri, *Cartella musicale* (Venice, 1614), 80-84; Camillo Angleria, *La regola del contraponto* (Milan, 1622), 80-81; Giovanni Maria Bononcini, *Musico prattico* (Bologna, 1673), 138-150.

[52] I have not yet found other seventeenth-century references to the importance of maintaining the same hexachord syllables in subject and answer in seventeenth-century Italian theory.

Table 2.14. Church tone finals with their matching *do* or *re* hexachord degrees, octave division and reciting tones.

| Church Tone | Final and key signature | | Matching complementary *voce* | | Octave division | Reciting tones |
|---|---|---|---|---|---|---|
| 1 | d — | (*re* natural hex.)* | a | (*re* hard hex.) | d-a-d’ | a |
| 2 | g ♭ | (*re* soft hex.) | d | (*re* natural hex.) | d-g-d’ | B♭ |
| **3** | **a —** | **(*re* hard hex.)** | **d** | **(*re* natural hex.)** | **e-a-e’** | C |
| **4** | **e —** | **(*mi* natural hex.)** | **b** | **(*mi* hard hex.)** | **e-a-e’** | a |
| 5 | C — | (*do* natural hex.) | G | (*do* hard hex.) | c-g-c’ | G |
| 6 | F ♭ | (*do* soft hex.) | C | (*do* natural hex.) | c-f-c’ | a |
| **7** | **d ♭** | **(*re* natural hex.)** | **g** | **(*re* soft hex.)** | **d-a-d’** | g |
| **8** | **G —** | **(*do* hard hex.)** | **C** | **(*do* natural hex.)** | **d-g-d’** | C |

*The church tones for which the matching *do* or *re* hexachord syllables do not correspond to the notes marking the church tone’s octave division are presented in bold type.

Table 2.14 shows that four church tones (3, 4, 7 and 8) do not have two *do* or *re* hexachordal degrees that correspond to the notes of the octave division of the church tone. In addition, it appears that the reciting tone of church tones 2, 3 and 6 do not correspond to any of the tone’s matching *do* or *re* pairs nor to the octave division of the tone.

In the following, observations on opening fugal procedures in 84 pieces from early seventeenth century north Italian ensemble pieces in the church tones are reported. These opening imitative sections are taken from essentially the same corpus previously analyzed for cadence degrees. The following remarks examines whether these fugal openings present any similarities with Zarlino’s recommendations for fugal openings. It also seeks to find out if the sample tends to feature tonal or real answers, which are at the heart of seventeenth-century debates on openings fugues. Observations on real answers (‘exactness’ of imitation) are discussed in two distinct categories: 1) the use of the same intervals with the same *voces* in subject and answer, and 2) the use of the same intervals with different *voces* in subject and answer. This distinction has been made between real answers that retain the same *voces* and those that don’t, as the hexachord syllables may be different even if the exact same intervals are maintained, since the points of mutation differ in ascending and descending motion (*re* and *la*, respectively). Under this last category feature also fugal answers that retain the same

intervals as in the subject, but where the major, minor or diminished quality of each intervals is not always maintained.

## 2. Opening Fugal Sections in North Italian Ensemble Music in the First Half of the Seventeenth Century.

Table 2.15 reports 84 fugal openings and show the number of real answers (with the same intervals in subject and answer), tonal answers (projecting species of fourths and fifths of the church tone), projection of the tone according to Zarlino's prescriptions, and fugue subjects that are contained in a single hexachord. The first three categories (in bold) are mutually exclusive, whereas the last two overlap with all other categories in the table.[53]

The table shows that an overwhelming majority of fugal openings follow Zarlino's recommendations, by starting the subject and answer on any of the notes of the octave division, whereas only a few feature a tonal answer with an opening fifth in the subject answered with the complementary fourth, as prescribed by seventeenth-century theorists (see Table 2.15). Thus, the composers in the sample definitely demonstrate an awareness of the 'mode', or church tone, even though this is not expressed through the use of tonal answers, as one might expect in the context of seventeenth-century discussions on modal representation in fugues. In addition, real answers are strongly prominent.[54] Out of 84 fugal openings, 52 fugal subjects remain within the boundaries of a single hexachord versus 27 out of these that keep the same *voces* in the answer, so that there is no clear correlation between the range of the subject in relation to hexachords and the retention of the same *voces* in subject and answer.[55] Arguably, the relatively small number of replication of the exact same *voces* in subject and answer undermines the importance of the hexachord itself as a melodic unit of pitch organization. Nonetheless, the hexachord may have also had an influence on another aspect of the musical structure, as will be discussed below. The following case studies in three church tones (G *durus*, F *mollis* and g *mollis)* illustrate the general remarks discussed above. Some of

[53] Occasionally, some fugal openings do not fit these categories, which is the reason why some rows do not add up to the total of 84.
[54] Only 7 fugal openings do not have a clear tonal answer at the outset, and feature neither the same *voces* nor the same intervals in subject and answer. Again, the following observations are to be taken with the caveat of the relative uncertainty of musical notation.
[55] The replication of the same *voces* in subject and answer can be done only if the subject remains within the boundaries of a single hexachord.

the observations below also shed light of on other aspects of early seventeenth-century concepts of pitch organization.

Table 2.15. Summary of fugal openings in North Italian ensemble pieces, ca.1610-1630.

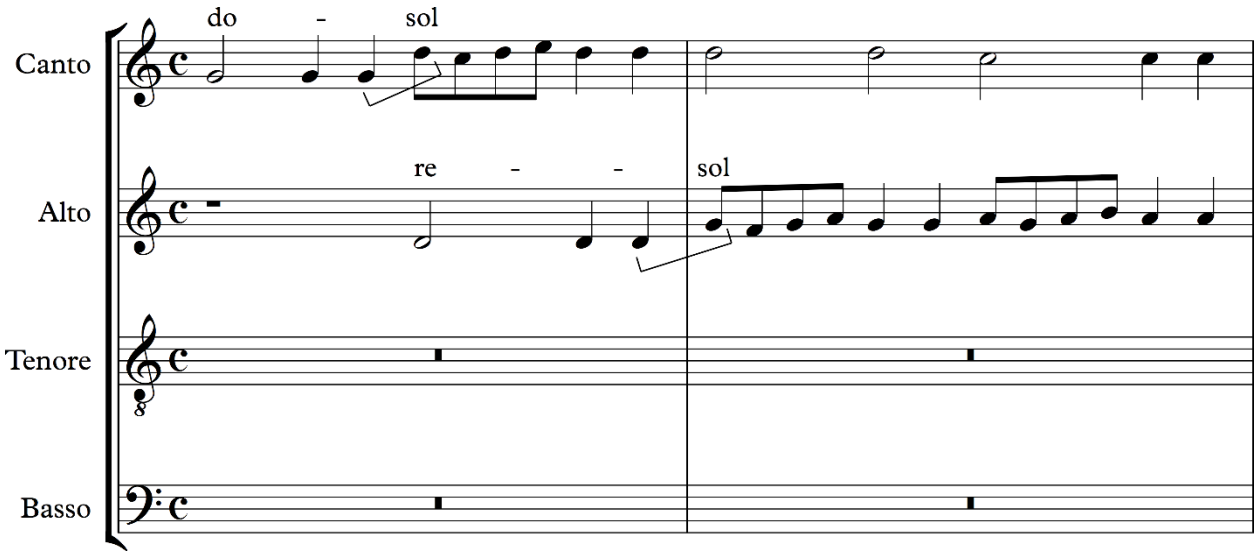
| Church Tones | Finals and key signatures | Total number of imitative openings | **Real answers (same intervals, same *voces*)** | **Real answers (same intervals, different *voces*)** | **Tonal answers Projection of the mode according to 17th century theorists** | Projection of the mode according to Zarlino | Subject contained in a single hexachord |
|---|---|---|---|---|---|---|---|
| 1 | d — | 7 | **2** | **3** | **1** | 7 | 3 |
| 2 | g ♭ | 20 | **5** | **7** | **6** | 18 | 13 |
| 3 | a — | 9 | **1** | **7** | **0** | 8 | 4 |
| 4 | e — | 4 | **1** | **2** | **0** | 4 | 3 |
| 5 | C — | 14 | **2** | **8** | **2** | 14 | 4 |
| 6 | F ♭ | 10 | **1** | **8** | **0** | 10 | 7 |
| 7 | d ♭ | 0 | **-** | **-** | **-** | - | - |
| 8 | G — | 20 | **15** | **4** | **1** | 16 | 18 |
| | TOTAL | 84 | **27** | **39** | **10** | 77 | 52 |
| | % | 100 % | **32 %** | **46.5 %** | **12 %** | 91.5 | 62 % |

### 2.1 A Case Study in G *durus*.

Out of 20 pieces with imitative openings in G *durus* in the sample analyzed, 16 have subject and answers starting with G or D (the notes marking the octave division in the eighth church tones) in accordance with Zarlino's theory, and only one exhibits a concern for clearly presenting the mode at the outset via the use of a tonal answer in accordance with principles of seventeenth-century modal theory. Nineteen pieces feature the same intervals in subject and answer (real answers), with 15 which retain the same *voces* and 4 that use with different *voces*. Out the 4 in this latter category, one still retains the same *voces* at least half way through the subject, and one retains the same *voces* except for one pitch (octave leap), still implying a concern for the retention of the same *voces* in subject and answer in these two pieces.

The only piece that exemplifies a 'correct' representation of the mode according to seventeenth-century tonal answer theory in its imitative opening section is Cangiasi's *Canzon decima, La Guerra* (1614), reproduced in Figure 2. 3. The subject begins with three repeated notes on g' featuring a canzona-like rhythm and then leaps to d'', so that this opening fifth would be solmized as '*do-sol'* in the hard hexachord. The answer begins on d' and leaps up a fourth to g', which would be solmized as '*re-sol'* in the natural hexachord. It appears that here, Cangiasi emphasizes the species of fourths and fifths making up the d'-g'-d'' octave in the eighth church tone, as opposed to a desire to preserve the same intervals in subject and answers (see Fig. 2.3).

Figure 2.3. Giovanni Antonio Cangiasi, ‘Canzon decima, La Guerra’. *Source*: Giovanni Antonio Cangiasi, *Scherzi foratieri per suonare a Quattro voci* (Milan, 1614), ed. Robert Judd, Italian Instrumental Music of the Sixteenth and Early Seventeenth Centuries 24 (New York: Garland Publishing, 1991), 63.

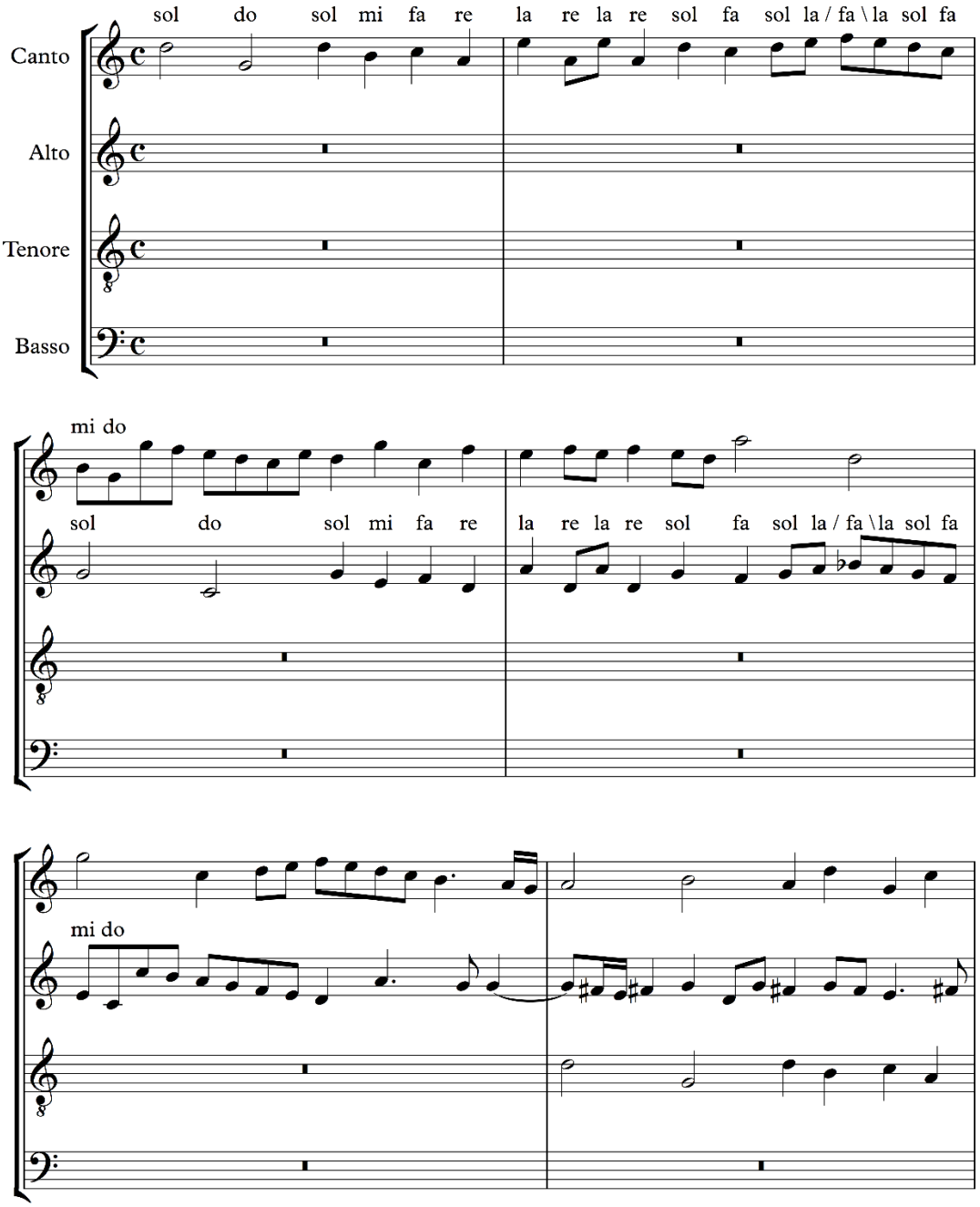



However, the great majority of fugal openings in G *durus* in the sample analyzed retain the same hexachord syllables in subject and answer. Such is the case of Biumi’s *Canzon quinta* (1627), for instance (see Fig. 2.4). The opening of the subject underscores the descending fifth d’’- g’, and the answer is real, with a descending fifth g’- c’. The opening fifth d’’- g’ should according to modal theory (if the answer starts on g’) be answered by the complementary species of fourth (g’-d’, or g’’-d’’), so as to outline the modal octave of the eighth church tone. In this case, however, the fifth g’- c’ in the answer is at odds with principles of modal theory, as Biumi favors the use of similar *voces* in the fugal answer. In this imitative opening, the entire subject and answer are in the hard and natural hexachords, respectively (with the exception of the ‘*fa sopra la*’ in bb. 2 and 4). The subject begins on d’’ and the answer starts a fifth below on g’, the two *corde* of the eighth church tone, thus agreeing with Zarlino’s recommendations. The melodic contour of the subject itself underscores the descending fifths on the *do* and *re* degrees in the hard hexachords (see bb. 1-2, d’’-g’ and e’’-a’), thus stressing the major- and minor-thirds ‘modes’ in that hexachord. In this

case, the use of the exact same *voces* in subject and answer shows an emphasis on the scale itself at the outset (*cantus durus*) with its two interlocking hexachords.

It is important to notice in this piece the emphasis on the descending *diapente* d''-g' in the subject and the descending *diapente* g'-c' in the answer. Out of 20 pieces in G *durus* in the sample, no less than 15 pieces show a similar clear emphasis on G and C in subject or answer or *vice versa* (via the hexachord, octave, *diapente*, or triad in the melodic contour, or simply because the answer begins on C), which are the two *do* degrees found in *cantus durus*. Thus, if the church tone is made clear via the starting note of subject and answer, the melodic contour of the subject and answer hint at another facet of pitch organization governed by the scalar system and its two interlocked hexachords. This idea is partly corroborated by a similar emphasis on the two *do* or *re* degrees in the melodic contour of the subject and answer in other church tones. For instance, in pieces in the third church tone (a *durus*), subject and answer almost always start on e and a or *vice versa* (the notes of the modal octave of the third church tone), but the melodic contour of subject and answer often stress a and d, the two *re* degrees in *cantus durus*, suggesting a melodic structure emphasizing the two hexachords comprised in the *cantus durus* scale. In addition, pieces in the fifth church tone (C *durus*), subjects and answers always begin on the notes of the modal octave of the tone (C and G or vice versa), and the melodic motion also outlines C and G, the two *do* degrees in *cantus durus* which in this case coincide with the notes of the modal octave of the tone. Again, this shows that what Barnett saw as an emphasis on the reciting tone (C) in pieces in the eighth church tone (G *durus*) may arguably find another explanation in hexachordal theory, as already suggested earlier.

Figure 2.4. Giacomo Filippo Biumi, ‘Canzone quinta’. *Source*: Giacomo Filippo Biumi, *Canzoni alla francese à 4. & à 8. con alcune arie de correnti à 4*. (Milan, 1627), ed. James Ladewig, Italian Instrumental Music of the Sixteenth and Early Seventeenth Centuries 30 (1989), 28.



As indicated above, some pieces in G *durus* in this sample retain the same intervals, but cannot be solmized with the same *voces*. In Corradini's *Canzon seconda, La Sartirana* (1624), for instance, the subject starts in the bass in the natural hexachord, mutates to the hard hexachord at the octave leap (on c') and mutates back to the natural hexachord on the very last note on the first bar (see Fig. 2.5). The answer begins with the same *voces* in the hard hexachord, and mutates to the natural hexachord on the octave leap as well (on g'), but this time, the solmization syllables on the descending line in bar 3 (*sol-fa-mi-re*) are different from the analogous mutation in the hard hexachord in the subject (*fa-mi-re-do*).[56] The answer mutates back to the hard hexachord till the end, but the solmization at the end of the answer differs from that of the subject so as to accommodate the return of the subject on G.

Again, the piece abides by Zarlino's prescriptions with a subject and answer starting on g and d', the notes of the modal octave of the eighth church tone. However, the beginning of the subject and answer cite all the notes of the natural and hard hexachords, respectively (*sol-la-mi-fa-re-sol-mi-do*), and outline the descending fifths g-c and d'-g, respectively, while a 'modally correct' tonal answer according to seventeenth-century theory would have required an answer emphasizing the complementary fourth to outline the modal octave.[57]

This last observation leads to an important point. The octave division outlined in the fugal subject of this piece is c-g-c', which is at odds with the modal octave division in the eighth church tone as discussed by theorists (d-g-d', see Table 2.13). From the standpoint of a modally-oriented analysis, this could indicate the presentation of another type of plagal 'mode', with the final G as dividing pitch, or a transposed mode. However, from the standpoint of hexachordal theory, this arguably reveals an interesting aspect of early seventeenth-century conceptions of pitch organization. The two *do* degrees in *cantus durus* could arguably account for the emphasis on the c-c' octave in the subject and g'-g'' octave in the answer, as discussed above. In addition in this case, the melodic contour of the subject creates ambiguity regarding what the final is; the subject begins on g, outlines the c-c' octave, thus bringing out the c-g-c' octave, so that the listener is unsure if the final is g or c. In addition to the c-g-c' octave division, the emphasis on the natural hexachord in the melodic

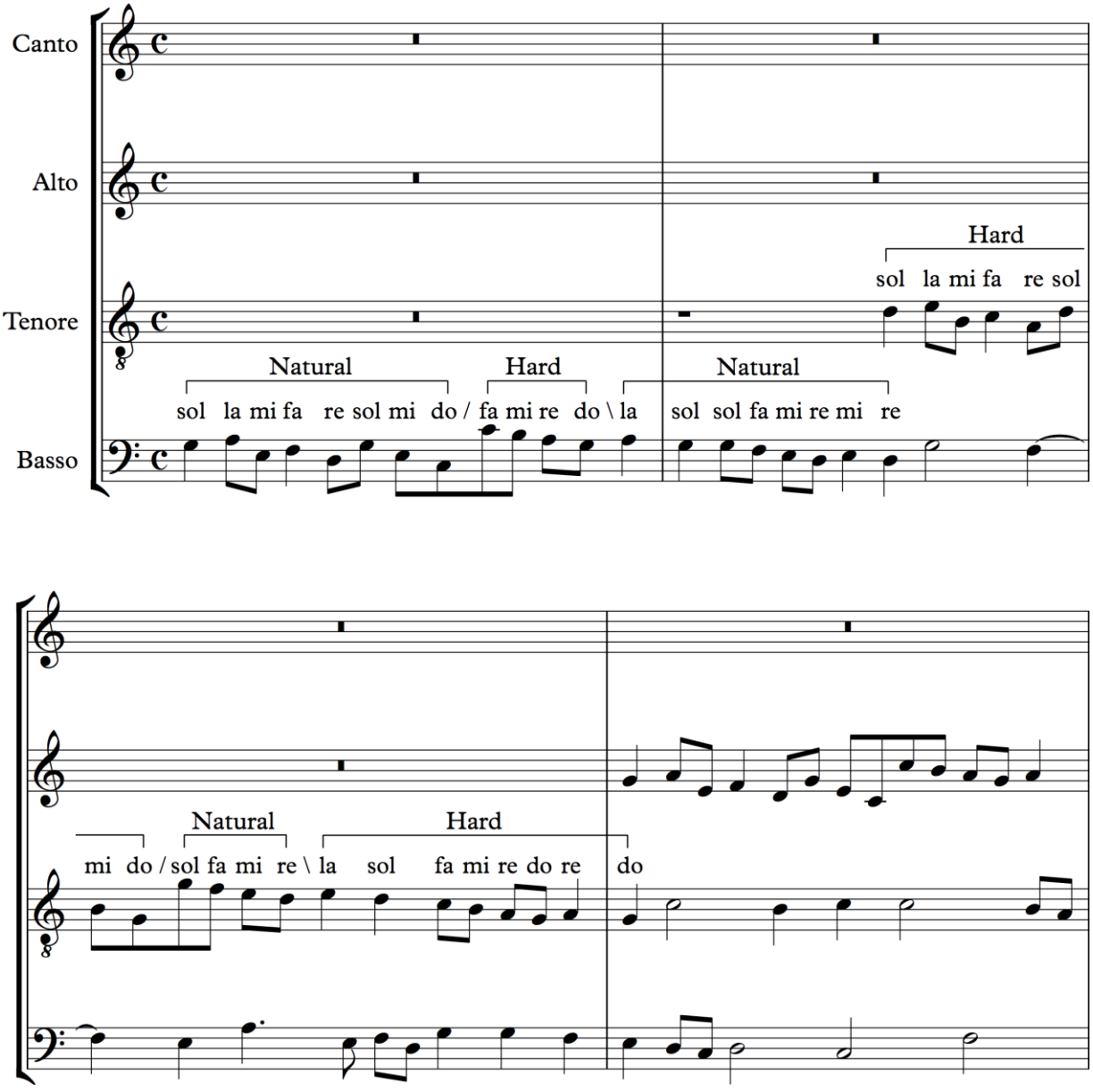
[56] For the purpose of this study, the hexachord syllables have been compared between the entire subjects and answers.

[57] Even though exact imitation is not carried all the way through the answer, the beginning of subject and answer still feature the same *voces* and clearly outline the natural and hard hexachords as opposed to 'correct' representation of mode, so that retention of similar *voces* seems to still be a concern in this case.

contour of the beginning of the subject suggests that Corradini is playing with the scale system and its two hexachords to blur the final at the outset of the piece, with C and G as two dual tonal foci. Again, this hints not only at the importance of the hexachord itself in certain aspects of early seventeenth-century tonal organization, but also at the primacy of the scale system over the final, an idea that was initiated earlier in this chapter in relation to cadence degrees in *cantus durus*. Within the sample studied, five such fugal openings in pieces in G *durus* feature an emphasis on C first (via the descending *diapente* on C, the C triad, or otherwise), thus blurring the final at the outset, and a similar procedure is found in several opening fugal sections in the other church tones. On the other hand, this emphasis on C in G *durus* pieces also recalls Zarlino's concept of *soggetto*, that is, the main voice that leads the others in a polyphonic piece; indeed, Zarlino specifies that the *soggetto* 'sets and maintains the mode', but is not necessarily the first voice to sound.[58] The concept of *soggetto* and how it could apply in this repertoire could be the subject of future research.

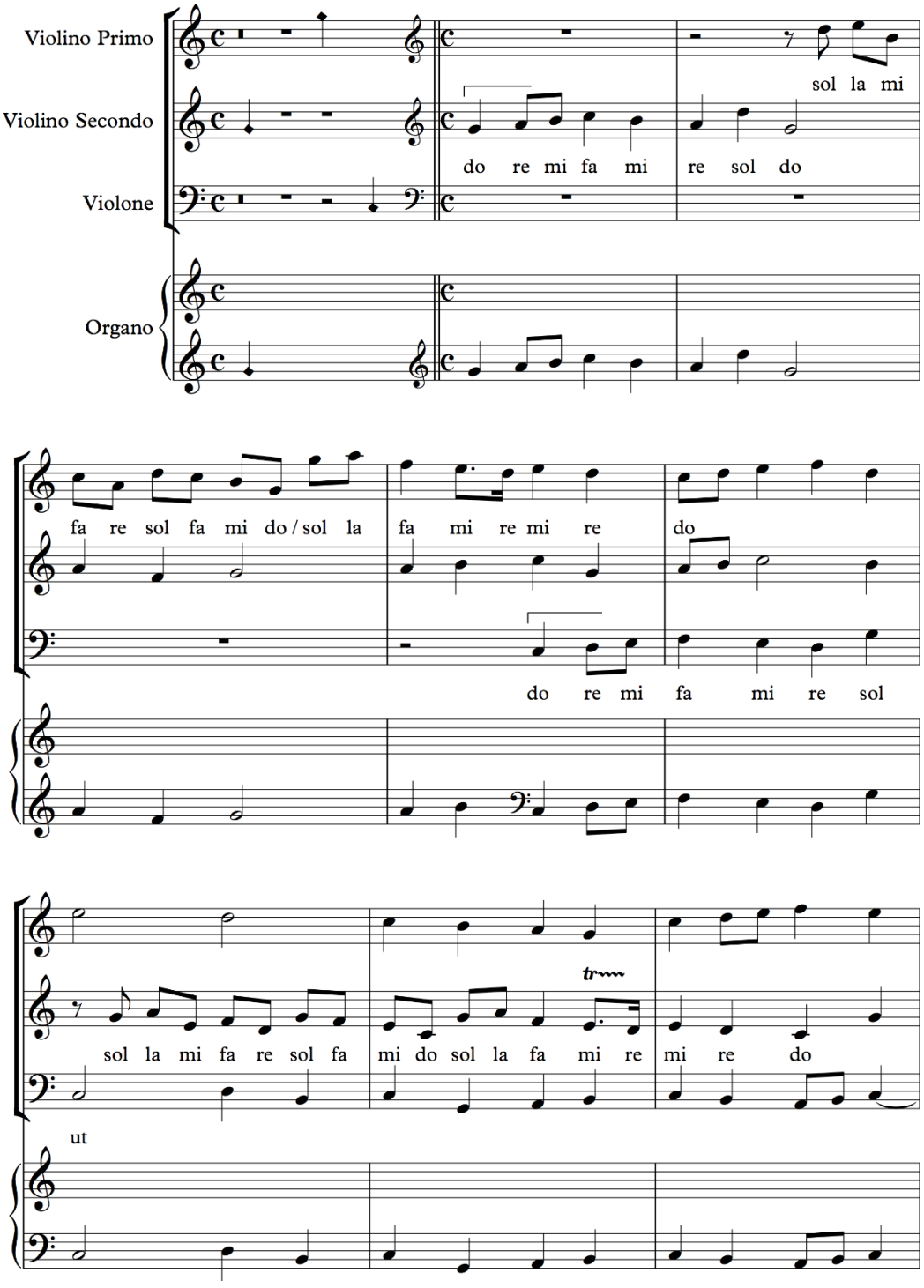
[58] Benito V. Rivera, 'Finding the *Soggetto* in Willaert's Free Imitative Counterpoint: A Step in Modal Analysis', in *Music Theory and the Exploration of the Past*, eds. Christopher Hatch and David W. Bernstein (Chicago: the University of Chicago Press, 1993), 75.

Figure 2.5. Nicolò Corradini, ‘Canzon seconda, La Sartirana’, (1624) bb.1-4. *Source*: *Canzona and Cappriccio* from the *Seconda aggiunta alli concerti* (Milan, 1617) and Nicolò Corradini, *Il primo libro de canzoni francese a 4. & alcune* suonate (Venice, 1624), ed. James Ladewig, Italian Instrumental Music of the Sixteenth and Early Seventeenth Centuries 29 (1995), 107.



Two last examples taken from fugal openings in ensemble music by Maurizio Cazzati illustrate the ongoing concern for the retention of the same intervals in subject and answer, as well as the hexachord-based conception of pitch organization later in the century. The first example shows how a fugal countersubject could also feature the same *voces* in the answer. In Cazzati's Op.8 (Venice, 1648), seven out of the fourteen pieces included in the collection are in G *durus*. Four of these pieces in G *durus* have fugal openings, all of which exhibit exact imitation in the answer. *La Lucilla* features a subject contained in the hard hexachord with a countersubject (in the first violin) spanning the hard and natural hexachords (see Fig. 2.6). The subject itself stresses the fifth g'-d'', which according to tonal answer theory calls for an answer that outlines the complementary fourth so as to maintain the boundaries of the eighth church tone. However, Cazzati chose to retain the same *voces* in the answer (bb. 4-6), with an answer starting on C (in that case, a twelve, or 5$^{th}$ below the subject), emphasizing the fifth c-g. In this case, the starting pitches of subject and answer do not match the notes of the modal octave of the church tone, but correspond to the two *do* degrees in *cantus durus* (G and C). However, the starting pitches of subject and answers state g' and d'', the notes included in the modal octave for tone eight, so that we still hear a modal marker of the tone when the second voice enters. As mentioned above, in this example, the countersubject in the answer also conserves the same *voces* as in the first statement of the countersubject, albeit within a single hexachord (the natural hexachord; compare bb. 2-5 with 6-8), thus showing the possible impact of the hexachord on melodic structure in composition in this particular case.

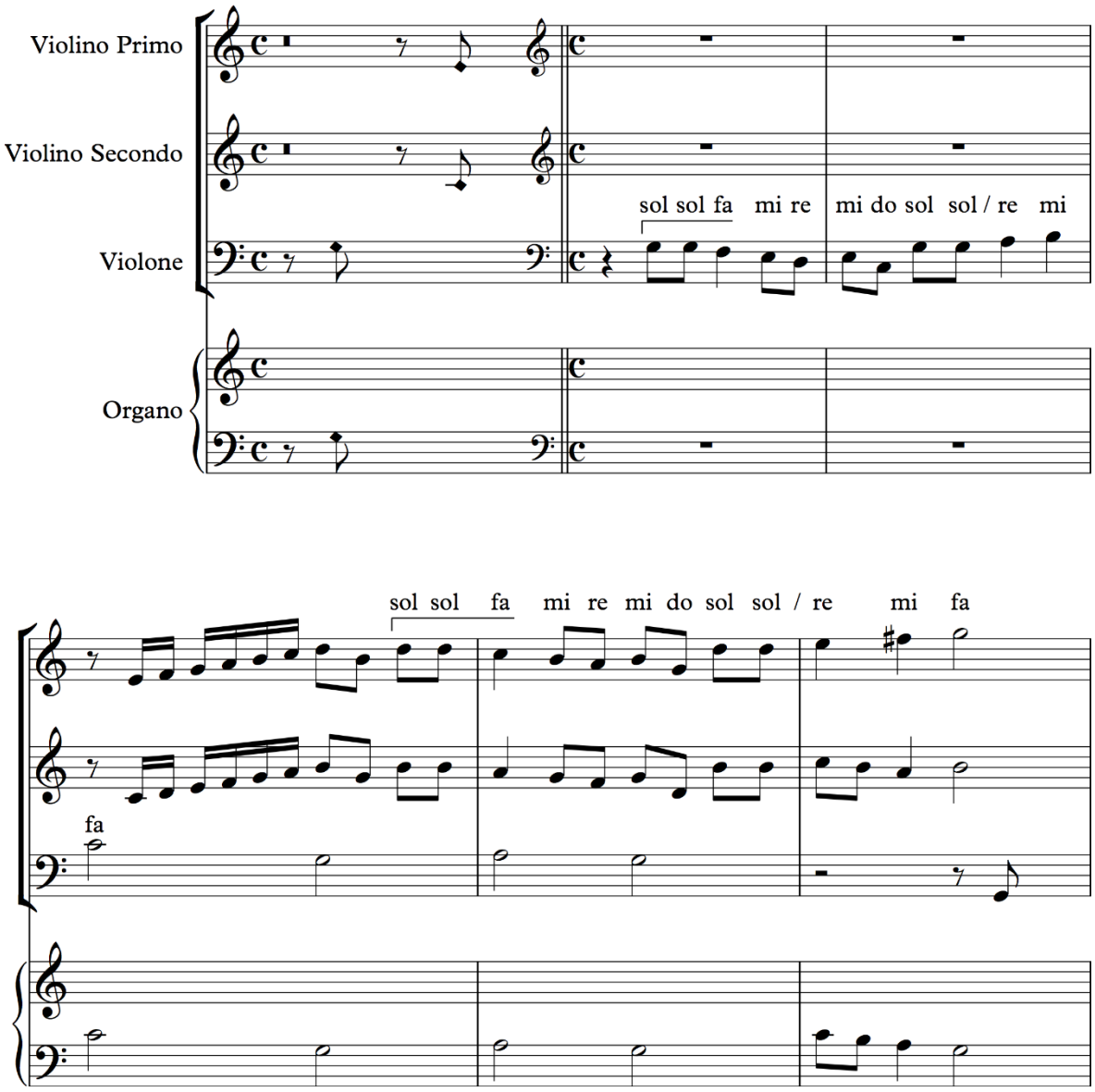
Figure 2.6. Maurizio Cazzati, ‘La Lucilla’, bb.1- 8. *Source*: reproduced from Robin Elise Armstrong, ‘*Il secondo libro delle Sonate*, Opus 8 (Venice: Alessandro Vincenti, 1648) by Maurizio Cazzati: Edition and Commentary’ (master’s thesis, California State University, 1984), 301.



Finally, one of Cazzati's G *durus* fugal openings in his Op.8 also illustrates ambiguity of final at the outset, still showing how a composer could play on G and C as dual tonal foci as late as 1648. The opening subject of *La Galeazza* is in the lowest voice, which is quite unusual (see Fig. 2.7). Just as in Corradini's *La Sartirana*, the subject features the c-g-c' octave first (starting on g, which is then disclosed as belonging to the c-c' octave), underscoring the descending *diapente* (g-c, bb.1-2) and ascending *diatessaron* (g-c', bb.2-3), so that C is perceived as an important goal in the subject's melodic contour and the listener is initially uncertain as to the tonal focus at the outset of the piece, until the two cadences on G (bb. 5 and 8). The answer, again, retains the same *voces* on the g'-d''-g'' octave at the fifth above. Here, however, Cazzati must add an F♯ in the scale in the second to last pitch (first violin b. 5), so as to maintain the same intervals as in the subject (whether this represents a transposition of the scale (modulation) or just a raised, *ficta* pitch at the cadence is difficult to determine).

The fact that Cazzati begins with a subject that emphasizes the c-c' octave followed by a real answer a fifth above stressing the g'-g'' (unlike most other sonatas in G *durus* which first feature a subject on G and the answer on C) suggests again that the concept of scale predominated over that of final. In this case, Cazzati seems more concerned with maintaining the same *voces* in subject and answer regardless of which hexachord comes first, so that here, the defining factors of pitch organization do not rest on a final in connection to a scale system, but solely on the scale system itself. The opening subject in the bass, the blurring of the final at the outset of the piece, and the fact that the subject is answered by a counter-subject upward flourish in the violin before the expected answer (which starts in the first violin on the last beat of b. 3) make this sonata opening particularly engaging, just as an orator using rhetorical devices to capture the attention of his audience.

Figure 2.7. Maurizio Cazzati, 'La Galeazza', bb. 1-5. *Source*: reproduced from Armstrong, '*Il secondo libro delle Sonate*, Opus 8', 241.




In summary this case study demonstrates how in pieces in G *durus*, early seventeenth-century composers in this sample tended to present the church tone of the piece via the starting pitches of subject and answer (D and G) as prescribed by Zarlino rather than the use of tonal answers. It also shows that in this church tone in the sample analyzed, hexachordal theory affected composers' conception of pitch organization in opening fugues by maintaining the same *voces* in subject and answer. Moreover, hexachordal considerations may explain the

focus on G and C (or C and G) in the melodic contour of subjects and answers in opening fugal sections in pieces in G *durus*, which represents an alternative approach to Gregory Barnett's claim that the emphasis on C in G *durus* may be derived from the eighth church tones reciting tone.

Corradini's *La Sartirana* and Cazzati's *La Galeazza* exhibit a subject stressing the C-G-C octave first (as opposed to G-D-G), and show how the scale system itself with its two interlocked hexachords could be used to blur the final, suggesting that the scale was not tied to the final as a starting point, contrary to the concept of tonic in functional harmony. This observation raises a question: would these fugue openings in G *durus* emphasizing the C-G-C octave in the subject have called the attention of a seventeenth-century listener as an unusual beginning? Even though this is a difficult question to address, it is noteworthy that these pieces remain exceptions, as most other pieces begin with an emphasis on the G as the opening tonal focus in the subject, suggesting that composers may have deliberately chosen to stress the C-G-C octave first as a way to capture the attention of their audience, or go against the norm. The fact that most pieces in G *durus* first stress G as a tonal focus in fugal openings also implies that the concept of final still represents a significant marker of pitch organization in that repertoire, even though the scale system seems to prevail in the general structure of a piece.

### 2.2 Case Studies in F *mollis* and g *mollis*.

**F *mollis***

There are only 10 pieces in F *mollis* with fugal openings in the sample analyzed. All of these pieces feature at least two of the notes of the modal octave of the church tone (F and C, or C and F) as starting notes of subject and answer, whereas none of these pieces has tonal answers showing a concern for correct projection of species of fourth and fifth of the 'mode'. Nine fugal openings have real answers (only one retains the same *voces* in subject and answer, whereas the remaining 8 cannot be solmized in the same *voces*). One imitative opening arguably does not explicitly show the species of fourth and fifth of a mode based on F, and does not feature the same intervals in subject and answer.

These fugal openings in F *mollis* present an interesting characteristic; 5 out of 10 fugal answers outline the B♭ hexachord, triad, or the B♭-B♭ octave in their melodic contour, whereas

only one brings out the F-F and C-C octaves, the two *do* degrees in *cantus mollis*, and there is not a clear emphasis on a specific hexachord, triad or octave species in the other 4 fugal entries. Cangiasi's *Canzon Ottava, La Grassa* (1614) exemplifies this emphasis on B♭. The subject spans the soft hexachord with a descending triad on f', followed by a stepwise ascent and descent on the all the degrees of the soft hexachord (see Fig. 2.8). Arguably, the emphasis on the soft hexachord at the outset would have been obvious to any musician familiar with solmization in the Guidonian system. The answer starting on F outlines the B♭ triad and keeps the same intervals as in the subject, albeit with different *voces*.

A second example shows the emphasis on the B♭-B♭ octave. In Corradini's *Canzon settima, La Bizzara* (1624), the subject covers the f'-f'' octave, thus spanning the range of 2 hexachords (see Fig. 2.9). In return, the answer covers the b♭-b♭' octave (see bb. 6-11) and, interestingly, indicates an E♭ in b. 10 so as to maintain the same semitone interval between the last two notes of the subject. [59] Just as in Cangiasi's *La Grassa*, the answer is real, retaining the same intervals, but with different *voces*. In both pieces, the subject and answer begin on two of the notes marking the modal octave of the sixth church tone (C and F).

[59] It is hard to know how the E♭ in b. 10 might have been solmized; there is some evidence that any ♭ could be solmized as *fa*, apparently regardless of whether the altered pitch was the actual *fa* degree of a hexachord or not. See Adriano Banchieri, *La Banchierina* (Venice, 1623), 33. On the other, some theorists complained about the inaccuracy of that practice of singing 'fa' at every flattened pitch; arguably, this could suggest that for these latter theorists, an accidental ♭ did not affect the solmization of the pitch since it did not theoretically stand for the *fa* degree of a hexachord.

Figure 2.8. Giovanni Antonio Cangiasi, ‘Canzon ottava, La Grassa’, bb.1-6. *Source*: Giovanni Antonio Cangiasi, *Scherzi foratieri per suonare a Quattro voci* (Milan, 1614), ed. Robert Judd, Italian Instrumental Music of the Sixteenth and Early Seventeenth Centuries 24 (1991), 48.

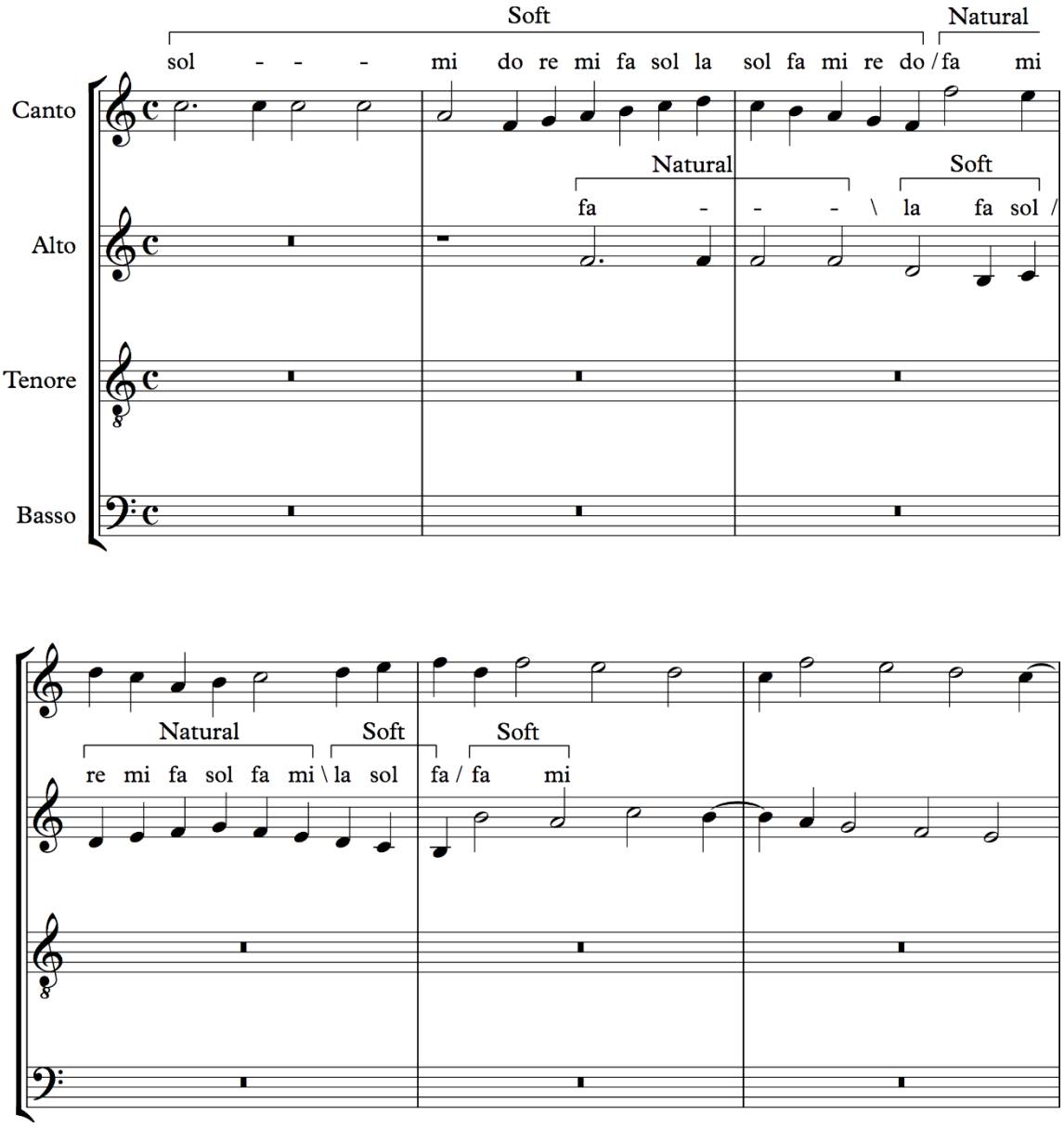
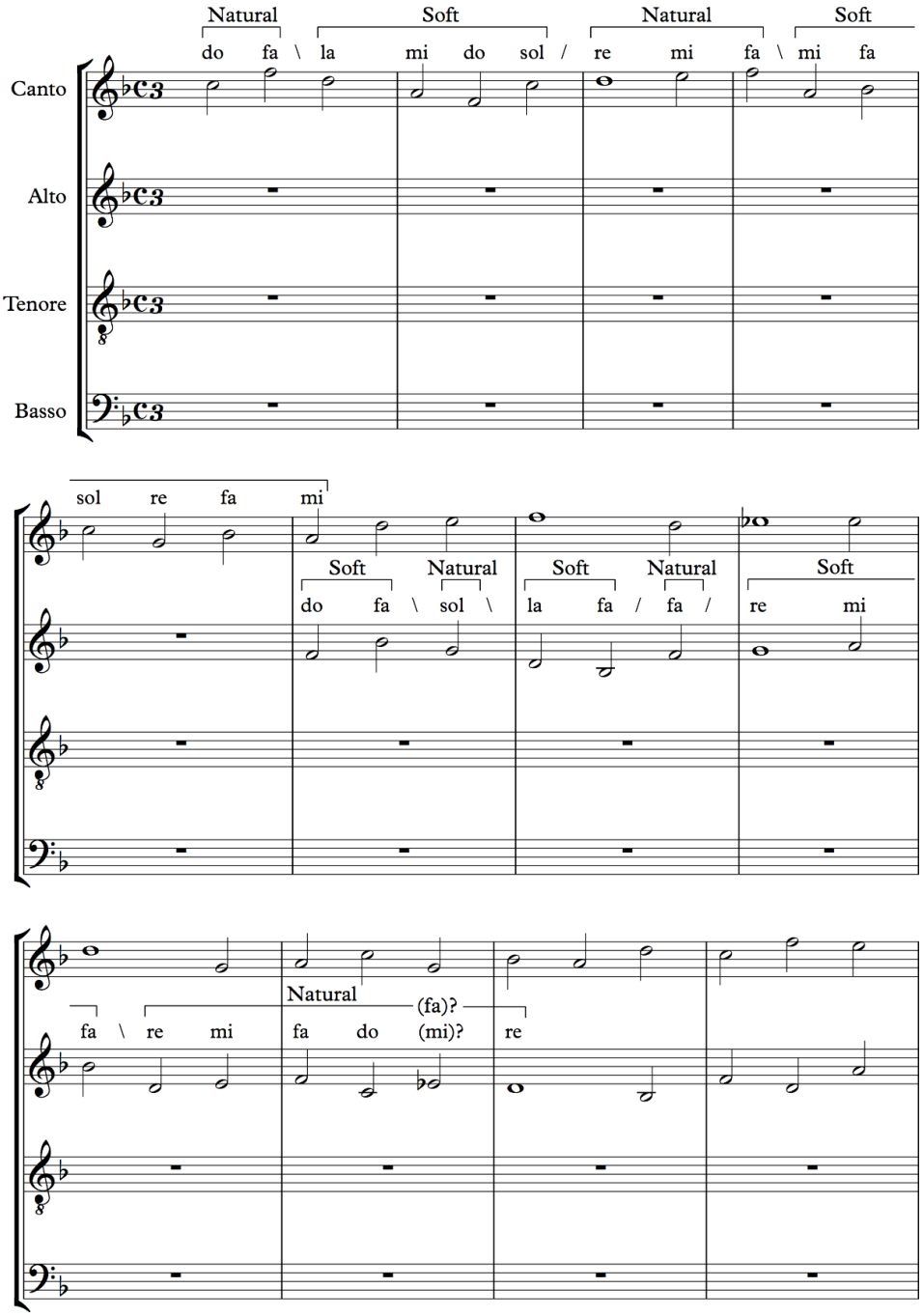


Figure 2.9. Nicolò Corradini, ‘Canzon settima, La Bizzara’. *Source*: *Canzona and Cappriccio* from the *Seconda aggiunta alli concerti* (Milan, 1617) and Nicolò Corradini, *Il primo libro de canzoni francese a 4. & alcune suonate* (Venice, 1624), ed. James Ladewig, Italian Instrumental Music of the Sixteenth and Early Seventeenth Centuries 29 (1995), 154.



This stress on B♭ in the melodic contour of 5 of these fugal openings calls for attention. Arguably, this emphasis is at odds with both church tone and hexachordal theory, since B♭ does not feature in the sixth tone's modal octave (c-f-c'), does not correspond to the tone's reciting tone (a) and is not the complementary *do* hexachordal degree to the final F in the *cantus mollis* system, as the two *do* degrees would be F and C, and B♭ is only present in the soft hexachord as the *fa* degree. Thus, the juxtaposition of the F and B♭ triads, octaves or hexachords may seem unexpected if one analyzes these fugal openings from the standpoint of hexachordal theory. What then could have motivated a seventeenth-century composer to give B♭ such a structurally important part in opening fugal sections in pieces in F *mollis*? The fact that F *mollis* here could have been conceived as a different modal transposition could constitute a plausible explanation. In his *Versetti per tutti li tuoni naturali, come trasportati per l'organo,* Op.2 (1687), Giovanni Battista Degli Antonii indicates F *mollis* as the transposition of G *durus* a major second below (and *vice versa*), which is an 'irregular' transposition according to our modern understanding, as noted by Gregory Barnett.[60] However, this emphasis on B♭ in F *mollis* would indeed correspond to the G *durus* emphasis on C if F *mollis* was conceived as the transposition of G *durus* a major second below. This stress on B♭ is also intriguing in the light of Penna's explanation of the *mi* degrees in *cantus mollis* noted earlier, and of Stein's observation that the ♭ system is not present in Carissimi's vocal music, whereas the ♭♭ system is common.[61] More research should be done to assess the commonality of this stress on B♭ in fugal openings in F *mollis* and to further investigate connections between theory and practice in fugal openings.

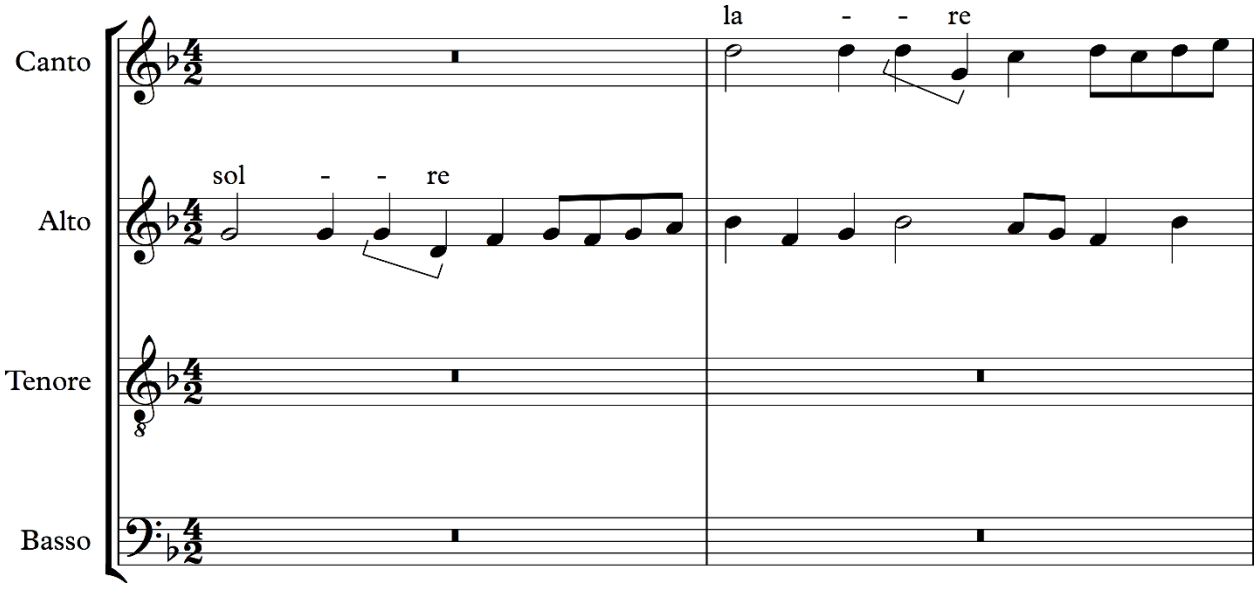
**g *mollis***

Out of 20 pieces with opening fugal sections in g *mollis*, 18 feature two notes of the modal octave of the second church tone (G and D) as the starting notes of subject and answer. Six of these 20 pieces feature tonal answers, with the species fourth and fifth of the mode clearly introduced at the outset, and 12 have real answers (with 5 retaining the same *voces* and 7 that would be solmized with different *voces*). Two fugal openings have modified intervals in the answer, but do not project any clear species of fourths and fifths.

[60] See Barnett, 'Modal Theory, Church Keys and the Sonata', 263.
[61] Stein, 'Carissimi's Tonal System', 287-288.

Andrea Cima's *Canzone la Gratiosa* illustrates an example of a tonal answer in g *mollis*, with the seventeenth-century 'proper' introduction of mode at the beginning of a piece: the subject, which starts with a canzona rhythm and leaps down a fourth (*diatessaron* g'-d'), is followed by the complementary *diapente* (d''-g') in the answer (see Fig. 2.10), bringing out the d'-g'-d'' plagal octave of the second church tone with a final on g.

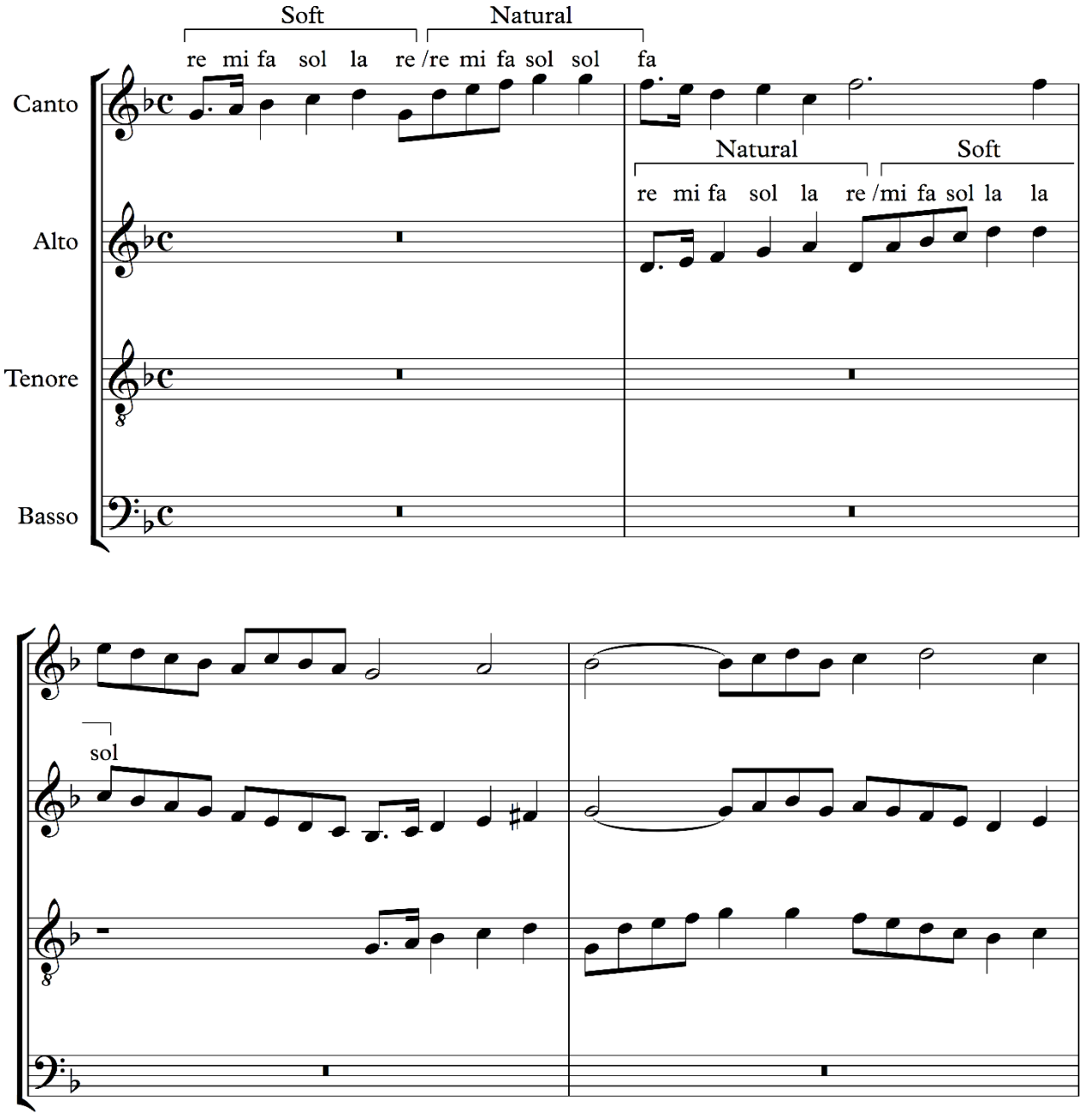
Figure 2.10. Andrea Cima, 'Canzone La Gratiosa' (1617). *Source*: *Canzona and Cappriccio* from the *Seconda aggiunta alli concerti* (Milan, 1617) and Nicolò Corradini, *Il primo libro de canzoni francese a 4. & alcune suonate* (Venice, 1624), ed. James Ladewig, Italian Instrumental Music of the Sixteenth and Early Seventeenth Centuries 29 (1995), 17.




These fugal openings in g *mollis* often emphasize g and d as important pitches in the melodic contour or subject and answer, just as C is stressed in G *durus* pieces. Casato's *Canzone La Pecchia* (1617) exemplifies this emphasis on d (see Fig. 2.11). In this case, the composer projected the church tone via the notes of the modal octave as starting notes of subject and answer (g'-d'), and the answer is real, as the intervals of the subject are kept in the answer, albeit with different *voces*. The subject outlines the g'-d''-g'' octave, and the answer the d'-a'-d'' octave. Just as pieces in G *durus* emphasized G and C (the two *do* degrees in

*cantus durus*), g and d are the two *re* degrees in *cantus mollis* (in the soft and natural hexachords, respectively). In this case, the two *re* degrees coincide with the notes of the modal octave of the second church tone, so that arguably, this emphasis on d could thus be partly explained via the theory of the church tones, or by hexachordal theory. Note that the *corde* of the eighth church tone, G *durus* (d-g-d') could not account for the emphasis on C in that church tone, nor could the emphasis on d in a *durus*; arguably, this could corroborate the idea that hexachordal theory may have influenced melodic structure in fugal openings.

Figure 2.11. Francesco Casato, ‘Canzone La Pecchia’ (1617). *Source*: *Canzona and Cappriccio* from the *Seconda aggiunta alli concerti* (Milan, 1617) and Nicolò Corradini, *Il primo libro de canzoni francese a 4. & alcune suonate* (Venice, 1624), ed. James Ladewig, Italian Instrumental Music of the Sixteenth and Early Seventeenth Centuries 29 (1995), 63.



In summary, in both F *mollis* and in g *mollis* fugal openings, the first notes of the subject and answer almost always correspond to *corde* of each church tone. The second and sixth church tones reciting tones (B♭ and a, respectively) appear to have had no impact on pitch organization in these opening imitative sections. The common emphasis on B♭ in the melodic contour of answers in F *mollis* cannot be explained via the system of church tones or via hexachordal theory. By contrast, both church tone theory and hexachordal theory could explain the emphasis on d in g *mollis* pieces, as explained above.

Thus, it appears that the composers considered here were strongly influenced by Zarlino's recommendations for correctly representing a mode, or church tone at the outset of an imitative piece, whereas they were not concerned with tonal answers. Exactness of imitation was also important to them, but not necessarily the retention of *voces* in subject and answer; arguably, the replication of exact *voces* may have limited a composers' creativity in fugal writing, as this implied that a subject remain within the boundaries of a single hexachord, whereas the mere use of similar intervals allowed for more freedom. Arguably, hexachordal structure may have influenced melodic organization in opening fugal sections, with the use of matching *do* or *re* degrees in the scalar system as discussed above. Just as in cadence degrees, all these composers seemed to have had a common understanding on how to treat a subject in imitation in opening fugues, which was shaped by Zarlinian fugal theory, the importance of exactness of imitation, and an awareness of hexachordal structure.

**Conclusion**

These analyses of cadence degrees and fugal openings in Italian ensemble music from the first half of the seventeenth century have brought to light general trends regarding how composers in this particular sample from the second and third decades of the seventeenth century conceived pitch organization in the tones most commonly used. The analyses of cadence degrees have shown that until at least 1630, the composers in this sample used the same cadence degrees in all the church tones in *cantus durus* (with the exception of tone 4, which seems more ambiguous). Thus, in *cantus durus*, cadences are not distinctive markers of the individuality of each tone; they express structurally the scale system that is common to all these tones. However, in this sample, a different situation prevails for *cantus mollis* church tones; these have more distinct cadence degrees, suggesting that they were not conceived

merely as transpositions of *cantus durus* tones. Observations on fugal openings have shown that the composers included in this sample had a very conservative understanding of how to present the 'tone' at the outset of a piece, since the great majority followed Zarlino's guidelines on how to project the mode and presented the same intervals in subject and answer. More research should be done to see if similar observations could be drawn from a bigger sample of ensemble pieces. Future research could also include a study of *inganni* in this repertoire.[62]

These observations on cadences and fugal openings inform some characteristic features of Italian ensemble music dating from later in the seventeenth century, such as movements in G *durus* in Giulio Cesare Arresti's Op.4, no.8 (1665), Giovanni Battista Vitali's Op.2, no.11, first movement (1667), or Giovanni Battista Bassani's Op.5, no.3, fourth and fifth movements (1683), all given as musical examples of what Barnett interprets as the impact of the reciting tone C in pieces in the eighth church tone, G *durus*.[63] Arguably, these examples show the continuing influence of the theory of the church tones, as well as hexachordal theory and older conventions for imitative writing throughout the seventeenth century. Pitch organization thus requires a multi-faceted perception, attentive to aspects that invoke sixteenth-century traditions, as well as to aspects immediately intelligible to present-day ears.

[62] For more on the use of *inganno*, see Massimiliano Guido, 'Giovanni Maria Trabaci and the *New Manner of Inganni*: A Musical Mockery in the Early Seicento Ricercare'. In *Interpreting Historical Keyboard Music: Sources, Contexts and Performances*, ed. Andrew Woolley and John Kitchen (Farnham: Ashgate, 2013), 43-64.
[63] Barnett, 'Modal Theory, Church Keys, and the Sonata', 266-274.

## Chapter 3

## 'A Definite Rule for Progressions': Harmonic Schemata in Instrumental Ensemble Music, 1610-1670.

In *Del suonare sopra il basso* (1607), Agostino Agazzari wrote the following in connection with the importance of figuring bass-lines:

> And even though certain writers, who treat of counterpoint, have defined the order of progression from one harmony to another, just as though one could not do differently, it is no good; they will pardon me, for they show that they have failed to understand that the chords and the entire harmony are subjected and subordinated to the words, and not the other way around; […] It is quite true that simply, and in general, it would be possible to give a definite rule for progressions, but where there are words, it is necessary to clothe them with suitable harmony to awaken or illustrate the sentiment.[1]

Agazzari firmly asserts that in music, the text should govern the choice of chords and succession of chords, an opinion shared by several seventeenth-century theorists such as Giovanni Battista Fergussio (1612) and Giovanni Brunetti (1625), among others.[2] Nonetheless, the second half of Agazzari's statement implies that, when there was no text, the principles of chord successions in music were more predictable. It is difficult to know what Agazzari had in mind when he declared that it would be 'possible to give a definite rule for progressions' in music without words (presumably instrumental music), and we should keep in mind that his contemporaries could have disagreed with him. In addition, Agazzari implies a dichotomy between vocal and instrumental music that may not always reflect the musical reality, since some instrumental genres such as the ricercar were inspired by vocal models, or dance music with more formulaic instrumental accompaniment sometimes included sung texts, such as the ciaccona (chaconne). Moreover, the seventeenth century saw the rise of the concerted style, whereby voices and

[1] 'E se bene qualche scritorre, che tratta di contraponto, habbia diffinito l'ordine di proceder da una consonanza all'altra,quasi che altrimenti non si passi fare, ne stia bene; mi perdonerà questo tale, perche mostra di non haver inteso, che le consonance, e tutta l'armonia, sono sogetto, e sottoposte ale parole, e non per il contrario […]. E ben vero, che semplicemente, e per lo più po trebbesi dar la certa regola di caminare, ma dove sono parole, bisogna vestir le di quell'armonia convenevole, che faccia, ò dimostri quell'effeto'. Agostino Agazzari, *Del suonare sopra il basso* (Siena, 1607), 4-5. This translation is partly based on F.T. Arnold, *The Art of Accompaniment from a Thorough-Bass as Practiced in the Seventeenth and Eighteenth Centuries* (London: Oxford University Press, 1931), 68. Note that the term 'semplicemente', which Arnold translated as 'in simple music' and which I have translated as 'simply', is ambiguous.

[2] Giovanni Battista Fergusio, *Motteti e dialogi per concertar a una sino a nove voci, con il suo basso continuo per l'organo* (Venice, 1612); Giovanni Brunetti, *Salmi intieri concertati a cinque, e sei voci…con il basso continuo per sonar nell'organo* (Venice, 1625). See Tharald Borgir, *The Performance of Basso Continuo in Italian Baroque Music*, Studies in Musicology 90 (Ann Arbor: UMI Research Press, 1987), 127.

instruments were brought together, making it likely that instruments would imitate the text-inspired lines of singers or convey an affect. At any rate, Agazzari's statement raises some questions: what kind of underlying principles, according to him, governed 'predictable' chord successions in instrumental music? Generally speaking, are there any references in seventeenth-century theoretical works to how chords should be connected?

The idea of 'predictable' chord successions anticipates the twentieth-century notion of 'schema' (pl. schemata), a term which originated in philosophy and psychology to denote a pattern of thought that helps to structure information.[3] The use of schemata in seventeenth-century music therefore implies the use of familiar melodic and/or harmonic patterns, which listeners and performers could use to orientate their perception of music. These patterns were useful for improvisation, allowing individuals within an ensemble to improvise over a well-known bass. Composers could also evoke these familiar patterns in fully notated music, allowing them to manipulate listeners' expectations by altering, truncating or prolonging the well-known patterns and formulae. Analyses emphasizing listeners' expectations partly stem from ideas developed by the philosopher Susanne Langer and the music theorist Leonard Meyer in the mid-twentieth century but also suit seventeenth-century notions of rhetoric, which will be further discussed in Chapter 6.[4] The term 'schema' was used in music by Johann David Heinichen to denote bass-lines transposed according to a 'model' ('schemate') given in a certain 'key'.[5] In this chapter, the term 'schema' denotes a bass-line with a specific or flexible chord succession (and occasionally coupled with a characteristic descant melody), that served as a basis for seventeenth-century improvisation and composition.

A brief word must be mentioned regarding concepts of improvisation and composition. In the sixteenth to eighteenth centuries, the notions of improvisation and composition were practically integrated as a single activity.[6] The seventeenth century inherited a long tradition of improvised vocal counterpoint, as well as bass patterns derived from the dance tradition that served as a basis for improvisation and instrumental

[3] Robert Gjerdingen, *Music in the Galant Style* (New York: Oxford University Press, 2007), 10.
[4] See Susanne Langer, *Philosophy in a New Key: A Study of the Symbolism of Reason, Rite and Art*, 3rd ed. (Cambridge, MA: Harvard University Press, 1957); Leonard Meyer, *Emotion and Meaning in Music* (Chicago: University of Chicago Press, 1957).
[5] Johann David Heinichen, *Neu erfundene und gründliche Anweisung…zur vollkommener Erlernung des General-Basses* (Hamburg, 1711), 201-204.
[6] Edoardo Bellotti, 'Composing at the Keyboard: Banchieri and Spiridion, two Complementary Methods', in *Studies in Historical Improvisation: From Cantare super Librum to Partimenti*, ed. Massimiliano Guido (Routledge: Abingdon, 2017), 115.

variations.[7] Instrumental music came from an oral, unwritten tradition; notated 'compositions' stemmed partly from improvisation practice, and improvisation could be seen as a non-written 'composition'. We do not know how much was lost in the transferral to a notated tradition, nor whether written compositions capture everything that was played in improvisation. The practice of melodic embellishments of notated compositions persisted throughout the seventeenth century, and we see instances where embellishments were partly notated. In addition, some notated compositions included passages featuring a single bass-line pattern upon which each instrument took turns to improvise, as is the case in some of Lelio Colista's *simfonie* and Agostino Guerrieri's *sonate*, for instance.[8] In the seventeenth century, instrumental *ritornelli* or *sinfonia* were frequently inserted in Italian operas, but sometimes only partly notated (with a bass alone, or bass and treble), suggesting improvisatory practice.[9] These few examples illustrate the loose boundaries existing between improvisation and written-down 'compositions', further showing the integration of both concepts at that period. It is with an awareness of this connection that this chapter initiates a reflection on the use of harmonic schemata in ensemble instrumental music.

Several scholars have studied schemata in music. An excellent and comprehensive study is Robert O. Gjerdingen's *Music in the Galant Style*, where the author identified and categorized about twelve schemata (always involving a bass-line and at least one contrapuntal line) typical of the late eighteenth-century galant style. Gjerdingen based his categorization partly on schemata found in contemporaneous treatises, as well as on schemata he uncovered (and named himself) in his own analyses.[10] Even though an equivalent comprehensive study of seventeenth-century schemata has not been done, some scholars have discussed some seventeenth-century musical patterns. Richard Hudson has extensively studied seventeenth-century standardized bass-line and harmonic schemes found in the dance and improvisation tradition, emphasizing the variants and evolution of

[7] For further information on improvised vocal counterpoint in the Renaissance and early Baroque, see Rob C. Wegman, Johannes Menke and Peter Schubert, *Improvising Early Music: The History of Musical Improvisation from the Late Middle Ages to the Early Baroque* (Leuven: Leuven University Press, 2014).
[8] Peter Allsop, *The Italian 'Trio' Sonata: From Its Origins until Corelli* (New York: Oxford University Press, 1992), 43-44. See also Eleanor McCrickard, 'The Roman Repertory for Violin before the Time of Corelli', *Early Music* 18, no. 4 (1990): 45; 194.
[9] *Oxford Music Online*, s.v. 'Improvisation', www.oxfordmusiconline.com (accessed March 10, 2017).
[10] Gjerdingen, *Music in the Galant Style*, 20.

these schemes.[11] Susan McClary has discussed seventeenth-century bass-line schemata outlining the crucial role of upper linear descents often found with these bass-line patterns, which, according to her, generate the bass and drive the harmony forwards.[12] Geoffrey Chew has brought to light patterns of parallel fifths and octaves in middleground structures in Monteverdi's madrigals that are, according to him, 'typical of this period but not of major-minor tonality'.[13] Likewise, Eva Linfield noted that Heinrich Schütz uses juxtaposition of stepwise 5/3 sonorities (such as an A triad followed by a G triad), resulting in implied consecutive fifths, a trait that she also recognizes as being typical of the period, along with certain chord successions used to expand compositions (such as sequentially related 'IV-V-I' successions).[14]

This chapter is one of the first studies of harmonic schemata in seventeenth-century instrumental ensemble music. It seeks to show how standardized patterns, which generally have been studied in relation to solo or improvisatory genres such as keyboard pieces or solo guitar music, were also used in Italian ensemble instrumental composition. It does not aim to provide a comprehensive list of all possible seventeenth-century schemata. An examination of seventeenth-century continuo treatises reveals that continuo players learned schemata of chord succession depending on linear motion in the bass at a local level (that is, involving only two or three chords), as well as larger schemata such as ascending or descending bass-lines over several bars. Significantly, just like mastering the rules of counterpoint, learning these principles of continuo accompaniment was mandatory for any musician who wanted to learn how to compose music, showing the importance of these schemata to seventeenth-century composers.[15] Rules of chord successions involving only two chords will be addressed in detail in Chapter 4 (with the exception of cadential

[11] See Richard Hudson, *The Folia, the Saraband, the Passacaglia, and the Chaconne: The Historical Evolution of Four Forms that Originated in Music for the Five-course Spanish Guitar*, Musicological Studies & Documents 35 (Neuhausen-Stuttgart: Hänssler-Verlag, 1982).
[12] See Susan McClary, 'The Transition from Modal to Tonal Organization in the Works of Monteverdi' (PhD diss., Harvard University, 1976), 36-38.
[13] Geoffrey Chew, 'The Perfections of Modern Music: Consecutive Fifths and Tonal Coherence in Monteverdi', *Music Analysis* 8, no. 3 (Oct. 1989): 247-273.
[14] Eva Linfield, 'Modal and Tonal Aspects in Two Compositions by Heinrich Schütz', *Journal of the Royal Musical Association* 117, no.1 (1992): 99-103; 119; 117 (the use of Roman numerals is Linfield's).
[15] Joel Lester discussed how the principles of thorough bass can help understand harmony and voice leading in some eighteenth-century compositions and explains how the mastery of these principles constituted the core of the art of composition. Joel Lester, 'Thorough Bass as a Path to Composition in the Early Eighteenth Century', in *Towards Tonality: Aspects of Baroque Music Theory*, Collected Writings of the Orpheus Institute (Leuven: Leuven University Press, 2007), 145-168. David Schulenberg also initiated a reflection on vertical versus linear thinking in the compositional process in the seventeenth century, by examining basso continuo treatises and basso continuo parts of that period. See David Schulenberg, 'Composition before Rameau: Harmony, Figured Bass, and Style in the Baroque', *College Music Symposium* 24, no. 2 (Fall 1984): 130-148.

formulae, which will be discussed here), and the present chapter focuses on the use of larger bass-line and harmonic schemata. In addition, the chapter also discusses standardized harmonic schemata derived from dance traditions and other improvisation practices, which were part of the musical environment for all seventeenth-century Italian musicians. The chapter explores two facets of the use of these seventeenth-century schemata: first, it illustrates how they were used and manipulated to build up instrumental ensemble compositions, often in a more contrapuntal context than when used in the solo instrumental repertoire; and second, it explores how standardized bass patterns derived from the dance tradition were harmonically and melodically varied in ensemble music.

The first part of the chapter addresses continuo treatises such as the third part of Lorenzo Penna's *Li primi albori musicali* (1679) and Bartolomeo Bismantova's *Compendio musicale* (1677), standardized bass-lines and harmonic schemes in seventeenth-century dance music, and treatises on keyboard improvisation such as Spiridion's *Nova instructio pro pulsandis organis* (1670-75), with an emphasis on similarities between the various patterns. The second part of the chapter examines how these various bass patterns and harmonic schemata were used in Italian ensemble instrumental pieces, thus helping foster, to a certain extent, sets of chord successions that create a clear sense of expectations in seventeenth-century listeners. It first illustrates how these schemata were often used as ready-made formulae to build up compositions. Second, it shows how embellishments of these bass-lines in instrumental ensemble music could shape chord successions and listeners' perception of harmony as an embellishment of the structural notes of a well-known pattern.

The case studies presented in this chapter do not intend to be representative of the ensemble music repertory, but show particular cases where improvisatory formulae were used in Italian ensemble music. Andrea Falconieri's *La Mirandola* (1650) is interesting for its use of the same formulae found in keyboard improvisation manuals such as Spiridion's *Nova instructio* in Italian ensemble music, and Maurizio Cazzati's *La Pepola* (1648) shows how the romanesca formula could be extended and used to shape the structure of a composition. Salamone Rossi's *Sonata terza sopra l'Arie delle Romanesca* (1623) illustrates how the romanesca formula could be used in different textures, and as a frame for various chord successions. These pieces are notated versions of the improvisatory practices that seem to have been common in ensemble music.

# I. Seventeenth-Century Harmonic Schemata.

## 1. Harmonic Schemata in Continuo and Keyboard Improvisation Treatises.

### 1.1 The Cadence.

Even though the most basic cadence formula involves only two bass notes, embellishments and extensions of that formula are so commonplace in seventeenth-century music that it cannot be overlooked in a discussion of seventeenth-century bass-line and harmonic schemata. The function of the cadence and its rhetorical implications in music have been already addressed in Chapter 2, along with its relative importance as a modal marker. This chapter focuses on standardized cadential formulae and on the function of the cadence as a building block in music composition.

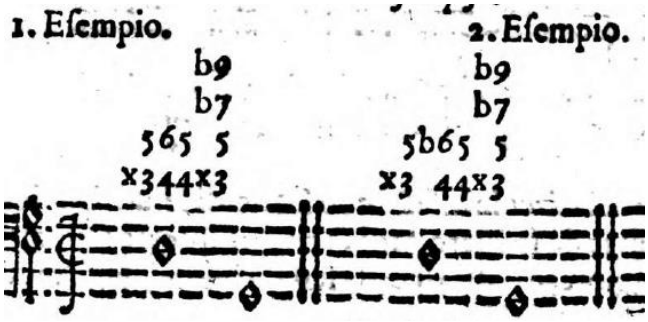
The term 'cadence' seems to have had a broader meaning in the seventeenth century than for modern-day western musicians. Lorenzo Penna's and Bartolomeo Bismantova's discussion of cadences usually involve formulae with two, three, or occasionally four bass notes. Spiridion a Monte Carmelo, a composer and organist native of Germany who spent some time as an organist for the Seminario Germanico in Rome from 1643 onward before returning to German-speaking lands, where he was active in Bamberg (a Catholic centre with strong links to Italy), used the term 'cadentia' to denote longer patterns of embellished ascending or descending bass-lines leading up to the 'cadence' at the end.[16] In the third part of *Li primi albori muscali*, Penna introduces four types of cadences ordinarily employed in continuo playing (see Fig. 3.1): 1) cadences where the bass leaps down a fifth (or up a fourth), 2) cadences where the bass leaps down a fourth (or up a fifth), 3) cadences where the bass descends by step, and 4) cadences where the bass has a 'suspension of a second and resolves it with the third' ('quando il Basso fà legatura di seconda, e la scioglie con la terza').[17] Penna specifies that cadences where the bass leaps down a fourth or up a fifth (the second type) are improperly called 'cadences', but that they are classified as such because they resemble other cadences.[18] For each cadence, Penna indicates standard chord formulae to be played. Beverly Stein argued that Penna's addition of several figures above the bass indicates that these cadence formulae

[16] Bruce Alan Lamott, 'Keyboard Improvisation According to "Nova instructio pro pulsandis organis" (1670-ca. 1675) by Spiridion a Monte Carmelo' (PhD Diss., Stanford University, 1980), 37; 41-42.
[17] Penna, *Li primi albori musicali* (1679), 165-175.
[18] Ibid., 168.

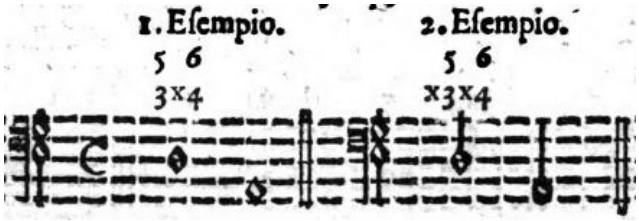
are to be conceived as musical phrases.[19] Nonetheless, Penna's addition of figures in the first cadence type, for instance, suggests harmonic adornment with contrapuntal processes implied in the upper voices on a pedal on the fifth degree above the cadence's final note, and not necessarily an entire musical phrase.

Figure 3.1. Lorenzo Penna's examples of the four types of cadences. *Source*: Penna, *Li primi albori musicali* (1679), 165; 169-170; 172.

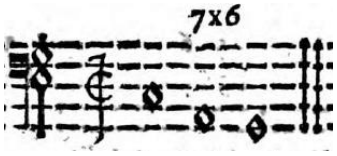
First type:



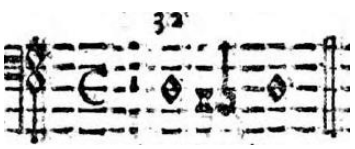

Second type:




Third type:



Fourth type:



[19] Beverly Stein, 'Between Key and Mode: Tonal Practice in the Music of Giacomo Carissimi' (PhD diss., Brandeis University, 1994), 9.

For each cadence type, Penna provides a chart with transpositions at all twelve chromatic levels in three instalments (each arranged in fifth motion going down) which he names the 'circle, or wheel of cadences' ('circolo, ò Ruota delle Cadenze'), as follows (see Fig. 3.2):

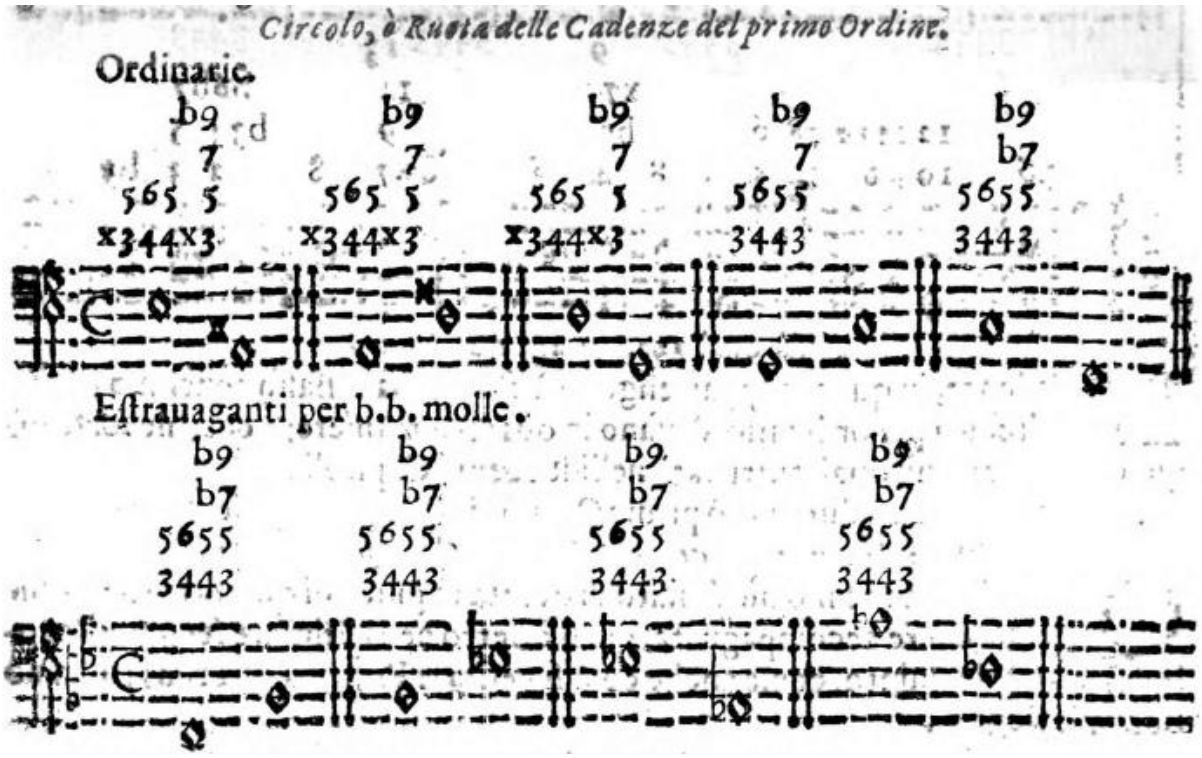
1) ordinary: cadences on A-D-G-C-F

2) extraordinary with ♭♭: cadences on B♭-E♭-A♭-D♭

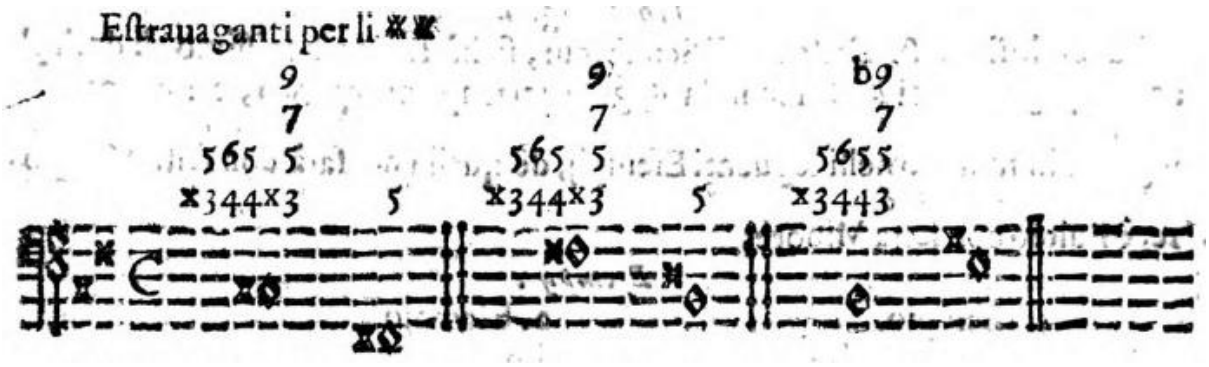
3) extraordinary with ♯♯: cadences on F♯-B-E.

Penna uses in each 'circle' (that is, for each cadence type) the same pattern of chord successions as in the original example of each cadence shown in Figure 3.1 above (with the possible addition of figures indicating the already implied thirds, fifths or octaves or one of their compounds above the bass note). Cadential formulae with similar chord successions are found in other continuo treatises of the late seventeenth century, such as Bartolomeo Bismatova's *Compendio musicale* (1677), showing how these formulae and their transpositions were commonly practised by continuo players.[20]

Figure 3.2. 'Circle' of cadences of the first order according to Penna. *Source*: Penna, *Li primi albori* musicali (1679), 166.




[20] Bartolomeo Bismantova, *Compendio musicale* (Ferrara, 1677), Archivum musicum, collana di testi rari 1 (Firenze: Studio per edizioni scelte, 1978), 77-78.




Although Beverly Stein notes that Penna's 'circle' is not continuous (unlike Diletskii's circle discussed in Chapter 1) – instead it is divided into three categories ('Ordinarie', 'estravaganti per ♭♭' and 'estravaganti per ♯♯') – Penna nonetheless adds that the representation is called a circle or wheel because when we go through all the cadences we come back to the first one 'without realizing it', so that the representation may implicitly show a continuous circle.[21] This underscores that transposition (most likely via the circle of fifths) was the most important skill for manipulating these schemata. Note, however, that meantone temperaments could not have been used for Penna's 'circle of cadences' (it seems that Penna saw D♭ and C♯ as enharmonic equivalent). The exact temperament Penna intended for this exercise could be the subject of further research.

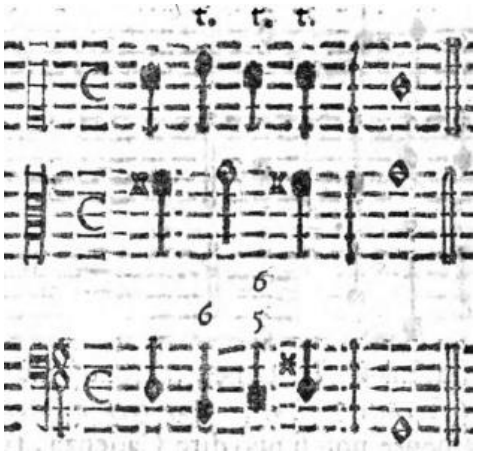
Both Penna and Bismantova also include examples of cadences that feature a short bass-line linear formula before what modern musicians would consider the cadence per se. Penna gives three additional examples of cadences of the first type (with the bass leaping up a fourth or down a fifth) that feature such short bass-line formulae and, arguably, seems to conceptualize these pre-cadential formulae as part of the cadences themselves (see Fig. 3.3). Penna describes the first formula as a 'cadence made of four crotchets with the last three ascending by step' and proceeds to explain the harmonisation proper to that cadence (with a 6 and 6/5 chords — see Fig. 3.3 no.1).[22] The second example, still featuring Penna's first cadence type, shows a cadence 'made of four crotchets that seem to form two cadences', and again explains what chords to use, with a 6/5 chord on the third crotchet (see Fig. 3.3 no.2).[23] Penna's last example illustrates 'four crotchets that leap' and shows a seventh chord on the third crotchet (see Fig. 3.3 no.3). Bismantova also includes similar

[21] 'Si Chiama Circolo, ò Ruota, perche girando và per tutte le Cadenze, e non accorgendosene, fe ritorno alla prima Cadenza'. Penna, *Li primi albori musicali* (1679), 166; Stein, 'Between Key and Mode', 8.
[22] 'Quando la Cadenza è fatta con quarto Semiminime, delle quali le trè ultime ascendono per grado ...'. Penna, *Li primi albori musicali* (1679), 167.
[23] '[Altre volte] si fà con quattro Semiminime, quali paiano formare due Cadenze'. Ibid., 168.

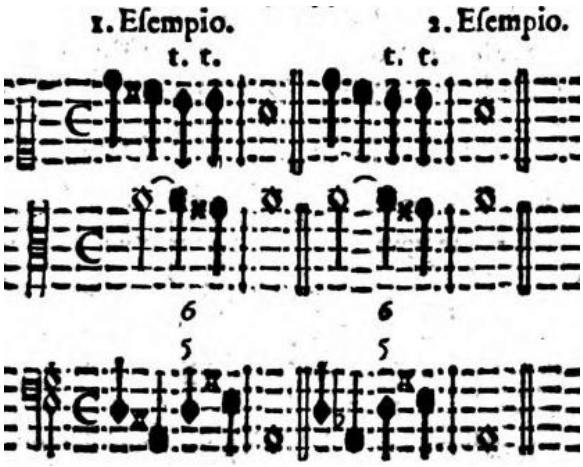
short cadential bass-line formulae, different from Penna's, but often involving, like Penna, the 6/5 chord on the third to last bass note. (Bismantova also includes 7/5 chords in his examples — see Fig. 3.4.)[24] Bismantova adds examples of cadences exemplifying diminutions in the bass-line (see Fig. 3.4). If these additional cadential formulae are representative of typical harmonic schemes for approaches to cadences, they do not show all the possible approaches to cadences; Penna and Bismantova had to choose the formulae that they deemed most useful to continuo students.

Figure 3.3. Penna's examples of cadences of the first type with various crotchet patterns in the bass. *Source*: Penna, *Li primi albori musicali* (Bologna, 1679), 167-168.

1)



2)




[24] Bismantova, *Compendio musicale*, 79-81.

3)

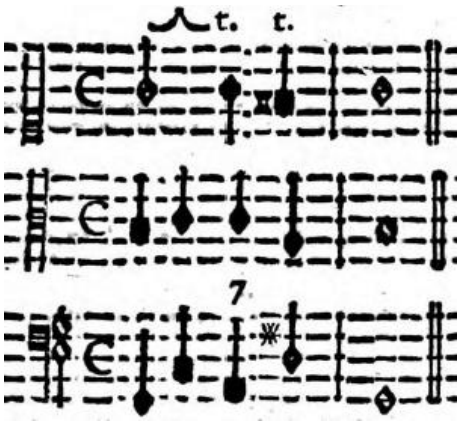
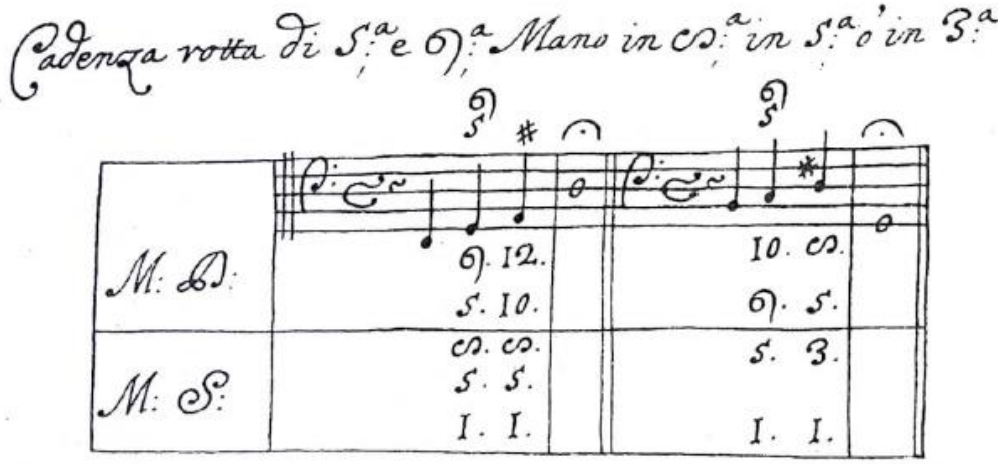
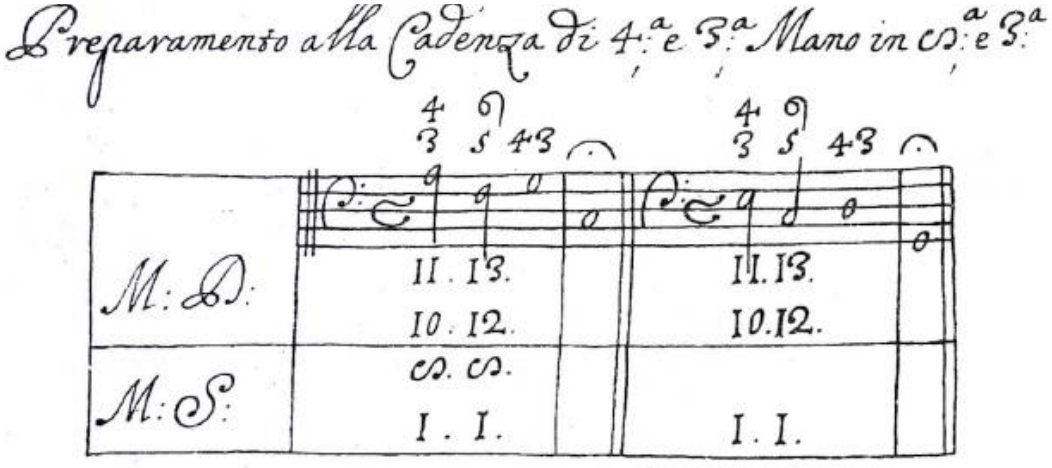



Figure 3.4. Bismantova's examples of cadences approached via various crotchet patterns in the bass. *Source*: Bismantova, *Compendio musicale*, 79-81.

1) p.79 top

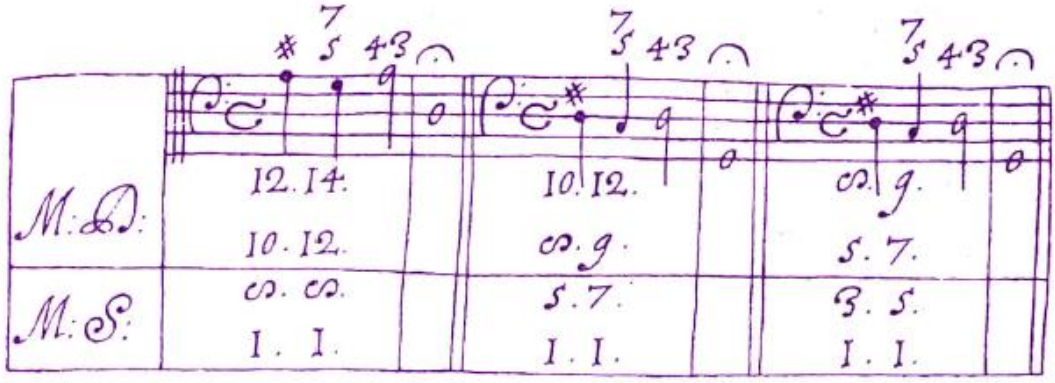



2) p.79 bottom

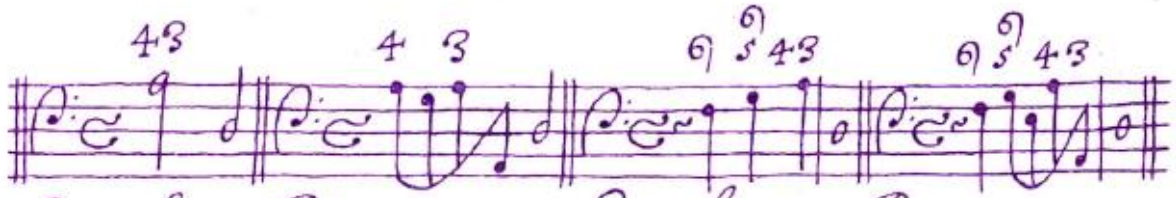


3) p. 80

Altri Preparamenti alla Cadenza di 4.a e 3.a
Mano in 8.a in 5.a et in 3.a

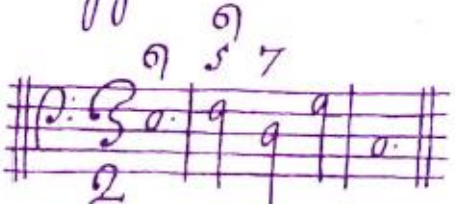



Cadenze; Semplici, e Diminuite.

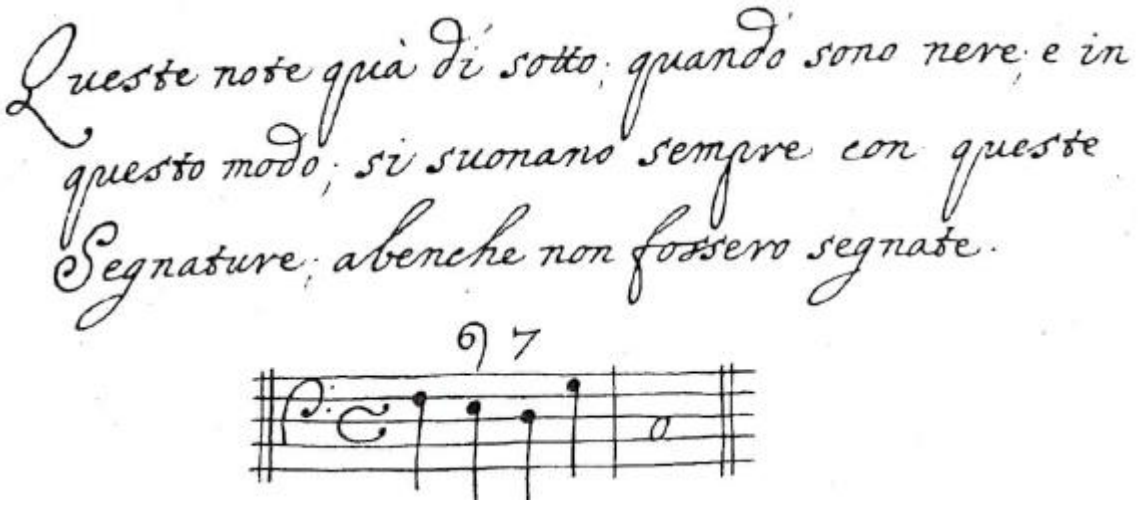


Semplice. Diminuita. Semplice. Diminuita.

In Trippola Diminuita.



4) p.81 top.




These various approaches to cadences indicate the type of linear and harmonic cadential schemata that were transmitted orally from teacher to students, and are found everywhere in seventeenth-century music. The addition of crotchets as preparation to (maybe even as part of) the cadence formula with specific voice-leading implications gives an idea of the variety of approaches that keyboardists practised on a daily basis. These cadential formulae, which are commonplace to modern musicians, were not as emphasized by earlier theorists, who were often still immersed in linear approaches to cadences found in modal theory. Penna also showed the techniques of transposition that allowed keyboardists and composers to manipulate these harmonic formulae. All these theoretical-pedagogical prescriptions laid the foundations of schemata that would far outlive the seventeenth century.

### 1.2 Spiridion's 'Cadentiae' and Patterns of Ascending and Descending Bass-lines.

Spiridion's *Nova instructio pro pulsandis organis* (c. 1670-75), the only extant handbook that focuses exclusively on the teaching of improvisation at the keyboard, presents an impressive number of harmonic schemata, allowing a much richer understanding of how many formulae underpin music of this period.[25] The fact that Spiridion was trained by Italian abbot Francesco of Spezia establishes a possible link with Italian pedagogical and musical practice, as suggested in the Introduction. *Nova instructio* includes material for

[25] Lamott, 'Keyboard Improvisation', 12. The treatise was published in three instalments in 1670, 1672 and ca. 1675-77.

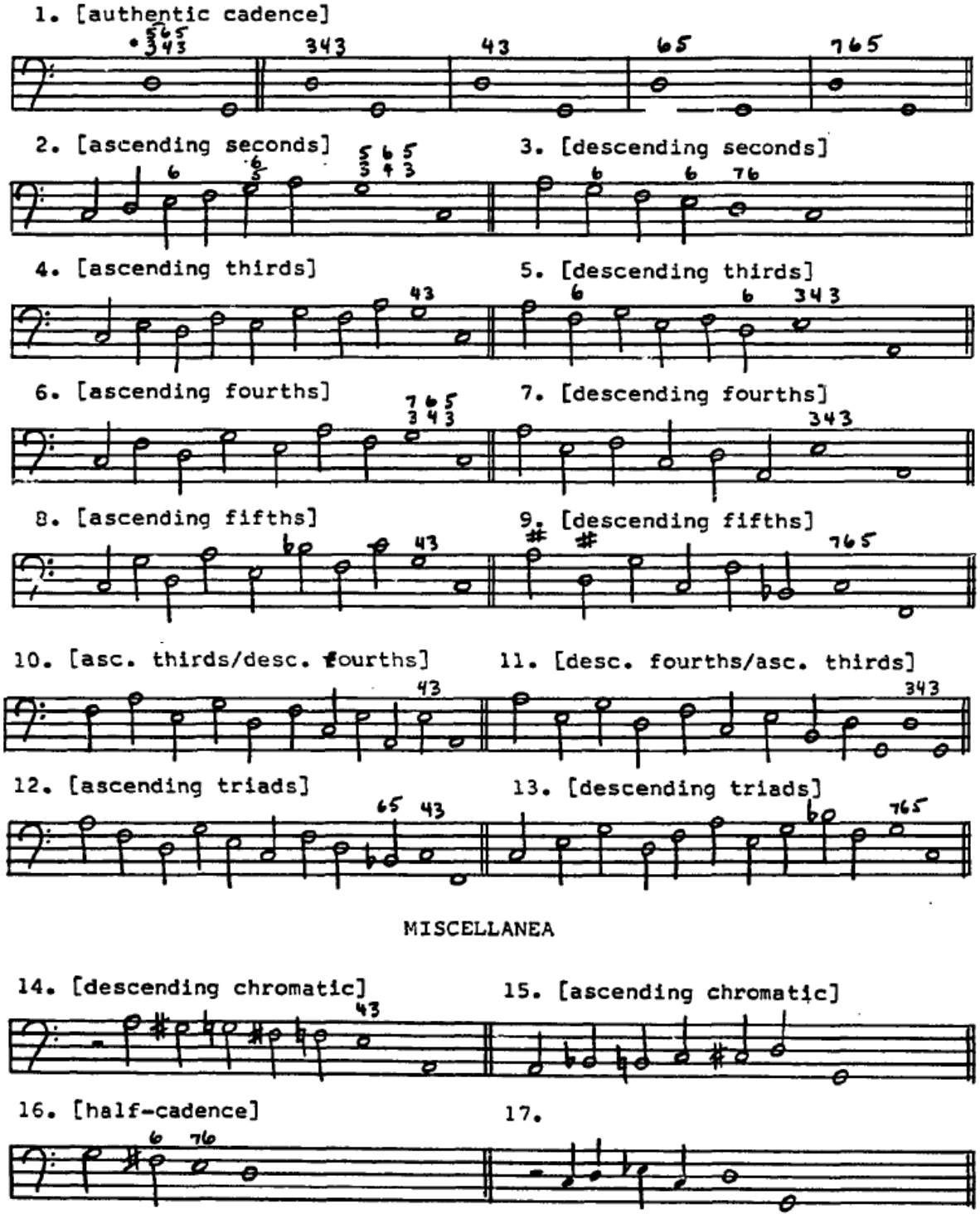
improvisation in the form of short musical excerpts, exemplifying the elaboration of basic harmonic formulae (*cadentiae*) and passage-work to be included between the cadences (*passagi*); both sets should be practised by the organist in all transposition levels.[26] The treatise also contains short pieces exemplifying what the apprentice improviser should aim for. Several of the excerpts and pieces are taken from the keyboard works of Frescobaldi.[27]

Spiridion's use of the term 'cadentia' suggests that the seventeenth-century concept of cadence could include linear or other patterns leading up to the cadence *per se*, and arguably, may modify the way modern analysts look at cadences in seventeenth-century music. For Spiridion, it appears that a 'cadentia' comprises a bass pattern leading up to a cadence including the figuration above it, as well as the cadence itself at the end of each musical example.[28] Bruce Lamott notes that the closest equivalent to the term is the Italian word 'cadenza', which according to him designates a short improvisation leading to a cadence.[29] He adds that Alessandro Poglietti also uses the term 'cadenza' in that sense in *Praeludia, cadenzen und fugen,* in which Poglietti provides *cadentiae* in each of the eight tones in the form of short musical phrases ending with a cadence with a specific bass pattern, as in Spiridion's handbook.[30] Spiridion's handbook features about 1251 such musical fragments exemplifying *cadentiae* that can be incorporated in improvisation (and, by extension, composition), classified according to the interval pattern used in the bass.[31] Many of his *cadentiae* include a sequential pattern in the bass-line and upper figurations, but some *cadentiae* simply feature a non-sequential bass pattern (e.g. *cadentiae* 17, 20-26 and 31). Figure 3.5 illustrates Spiridion's various *cadentiae* in the order in which they appear in *Nova instructio* (the numbering is Lamott's). Spiridion illustrates how to add and vary melodic figurations for each *cadentia* with what he calls 'variations'.[32] The first *cadentia* thus includes over 70 variations, a few of which are reproduced in Figure 3.6.

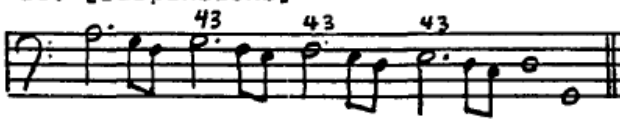
[26] Ibid., 37; 49.
[27] Ibid., 49.
[28] Ibid., 41.
[29] Ibid.
[30] Ibid., 42. See Alessandro Poglietti, 'Praeludia, Cadenzen und Fugen…über die acht Choral Ton…zu Vespern wie auch Ambtern sehr tauglich zu schlagen', in *Compendium oder kurtzer Begriff und Einführung zur musica* (Ms. Copy dated 1676; Kremsmünster, Benediktinerstift Regenterei L 146), 42-53.
[31] Lamott, 'Keyboard Improvisation', 37; 41.
[32] Ibid., 42.

Figure 3.5. Spiridion's *cadentiae* in *Nova instructio pro pulsandis organis (*1670-75).

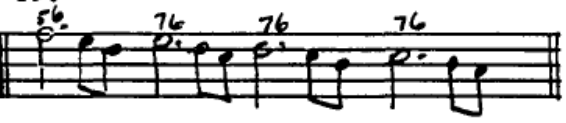
*Source*: reproduced from Lamott, 'Keyboard Improvisation', 44-45.



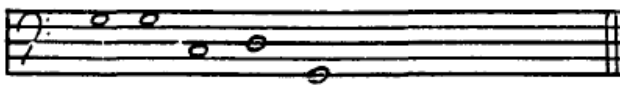
18. [suspensions]



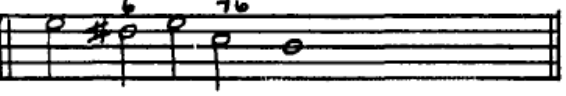
19.



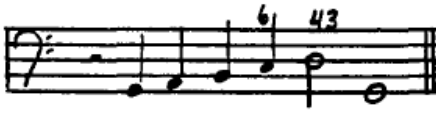
20. [I-IV-V-I]



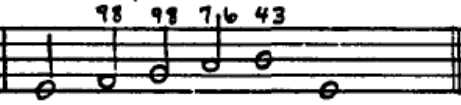
21. [half-cadence]



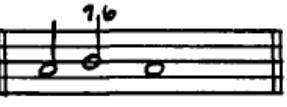
22. [I-V-I]



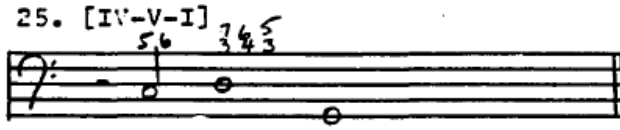
23. [I-V-I with suspensions]



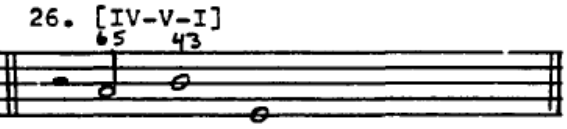
24.



25. [IV-V-I]

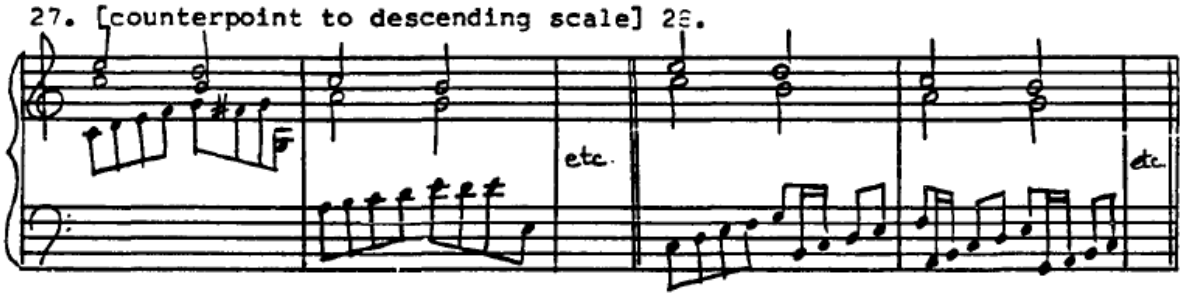


26. [IV-V-I]

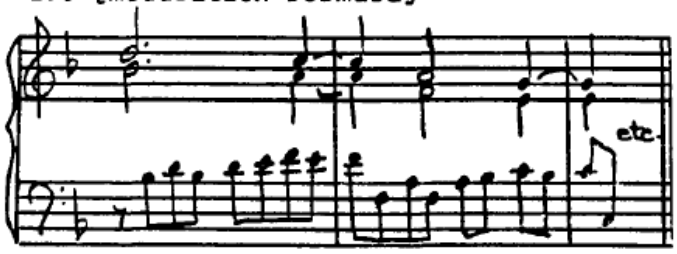


27. [counterpoint to descending scale]

28.




29. [modulation formula]




30. Ligaturae (III, 39-41)•

31. Trilli (III, 42-44)•

32. [canzona diminution]

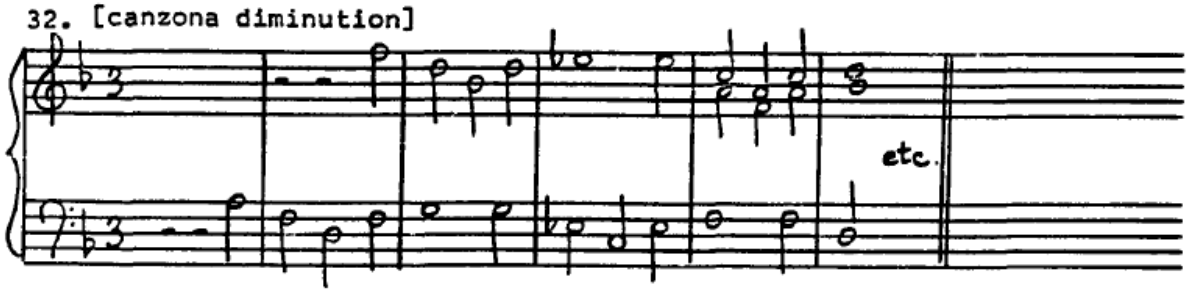
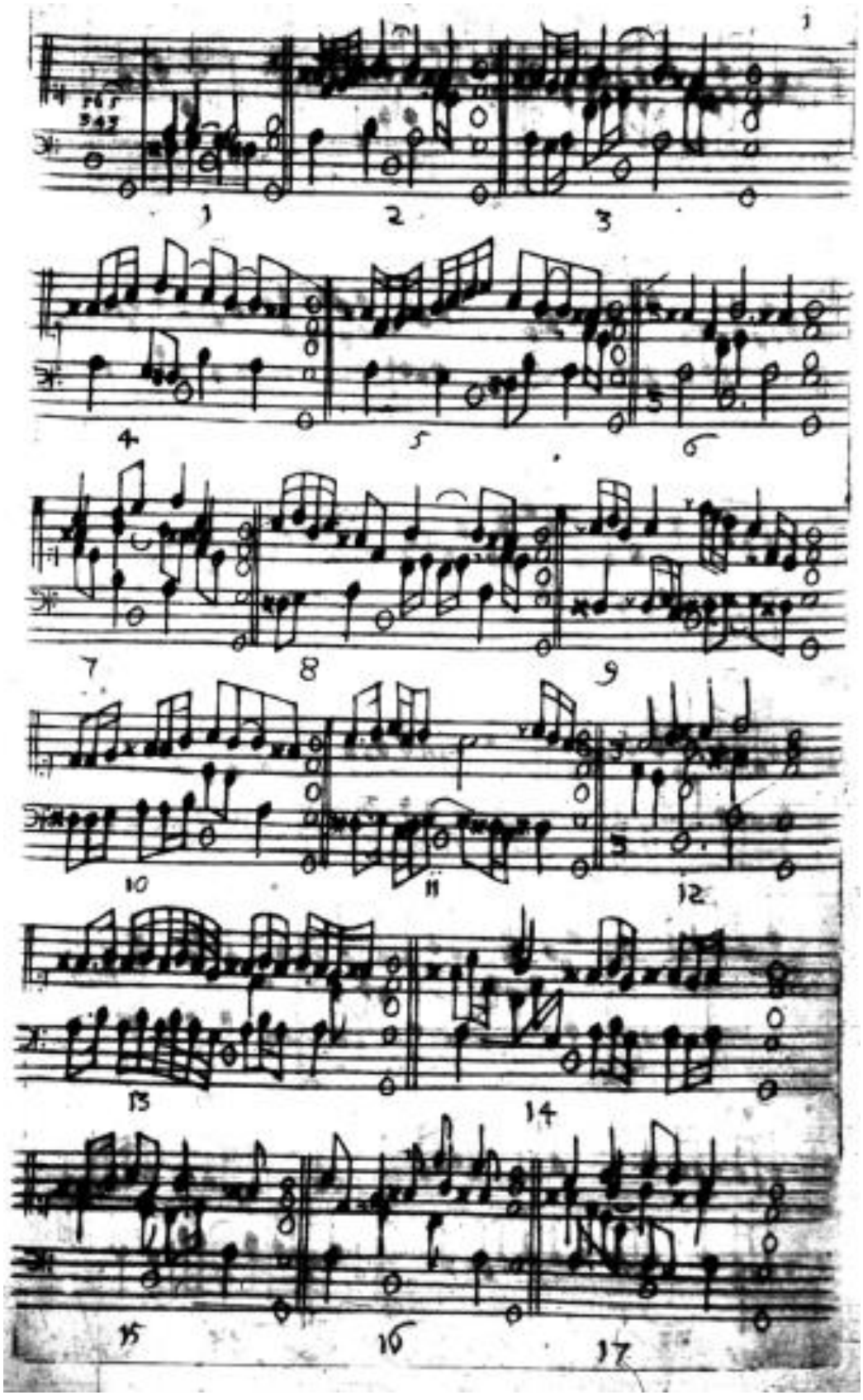


Figure 3.6. Examples of ‘variations’ for the first *cadentia*. *Source*: Spiridion, *Nova instructio pro pulsandis organis*, 1.



Some of Spiridion's cadentiae include just a few bass notes before the cadence per se (used here in the modern sense of the term), recalling Penna's and Bismantova's short bass-line formulae leading up the cadence, discussed above (e.g. *cadentiae* 17, 21, 24, 25 and 26), further illustrating the extent of the meaning of the generic term 'cadenza' in the seventeenth century. Most *cadentiae*, however, display patterns of sequences, which would become one of the most commonly-used harmonic device to build up compositions in the seventeenth and eighteenth centuries and show how patterns in the bass could gain their own logic and harmonic impetus. Some *cadentiae* feature simple ascending and descending lines (e.g. *cadentiae* 2 and 3, prefiguring what would be known as the 'Rule of the Octave'), with some chromatic patterns (*cadentiae* 14, 15) and one showing a descending tetrachord (*cadentia* 16). Other *cadentiae* feature decorations of descending lines, with a variety of sequential patterns with intervals of thirds (e.g. *cadentiae* 4, 5), fourths (e.g. *cadentiae* 6, 7, 11), or fifths (e.g. *cadentiae* 8, 9) in the bass. Some *cadentiae* display ascending and descending triads (e.g. *cadentiae* 12, 13) and others exemplify how to harmonize a descending line in harmonic thirds (e.g. *cadentiae* 27, 28). Spiridion's *cadentiae* feature formulae that allow harmonic movement up or down in fifths (e.g. *cadentiae* 5, 8, 9 or 29), which became one of the most commonplace harmonic schemes to extend or move towards new tonal areas, or to link sections of a piece, for instance. One of the most important aspects of Spiridion's formulae is that they always imply the use of upper contrapuntal voices, further emphasizing the importance of the bass in conceptualizing improvisation and composition.

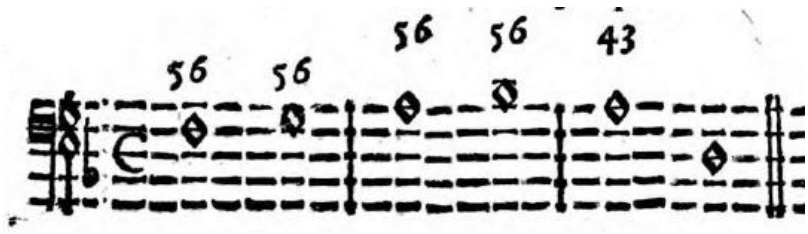
Penna also briefly discusses how to harmonize descending and ascending bass-line patterns. In *Li primi albori musicali*, he provides musical examples of linear, sequential bass-line patterns ascending and descending by step and by leaps of thirds (see Fig. 3.7).[33] The linear intervallic patterns (5— 6-5— 6 or 7— 6-7— 6, etc.) give impetus to these passages and imply, as in Spiridion's *cadentiae*, the use of melodic voices above the bass, creating contrapuntal patterns of dissonance and resolution. In *Compendio musicale*, Bismantova, who may have partly based his treatise on Penna's work, gives the same recommendations with musical examples for stepwise descending bass-lines (with the

[33] Penna, *Li primi albori musicali* (1679), 146-151. Interestingly, Penna indicates that the pattern of descending and ascending thirds in the bass he prescribes is in agreement with 'the true rules' ('Secondo le vere Regole'). Ibid., 148. In the 1679 edition, on which this discussion is based, Penna does not include similar musical examples of sequential bass-line patterns on other intervals (fourths, fifths, sixths or sevenths).

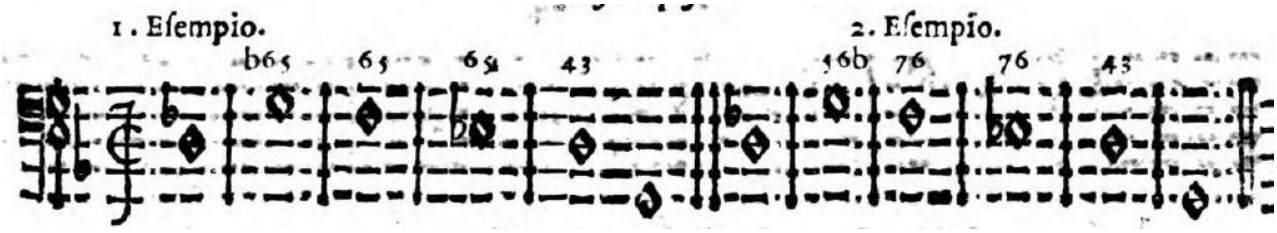
same two options as Penna, see Fig. 3.7 no. 2), and ascending and descending bass-lines in thirds.[34]

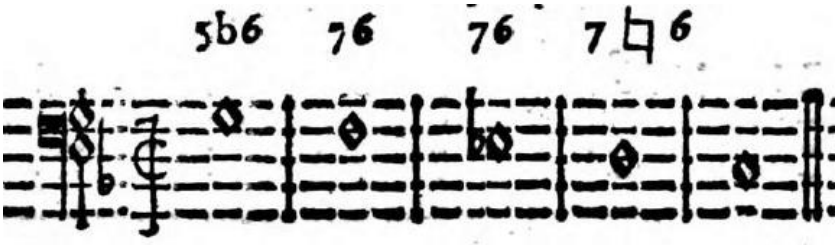
Figure 3.7. Ascending and descending linear and harmonic patterns in Penna's *Li primi albori musicali*. Source: Penna, *Li primi albori musicali* (1679), 146-149.

1) Bass ascending stepwise




2) Bass descending stepwise

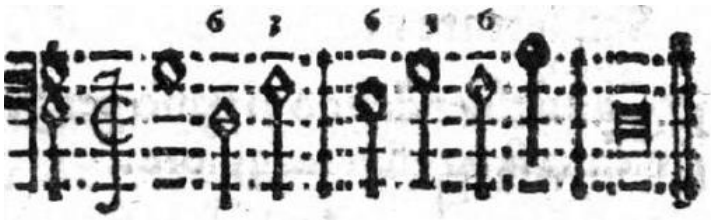



3) Bass descending in thirds


[34] Bartolomeo Bismantova, *Compendio musicale*, 72-73.

4) Bass ascending in thirds



Cadential linear and harmonic schemata discussed by Penna, Bismantova and Spiridion attest to the commonplace formulae that were practised at all transposition levels by apprentice continuo players and composers. These schemata formed a basis for improvisation and composition that allowed composers to write music fast and effectively, thus helping them satisfy the demands of patrons and churches for new music. The second part of this chapter will illustrate how composers used these schemata, sometimes to conceive entire compositions.

## 2. Standardized Bass-Lines in Dance Music and Improvised Repertoires.

Whereas treatises of the mid to late seventeenth-century list harmonic formulae that are often adornments of a perfect cadence, the musical repertoire of the sixteenth and early seventeenth century shows use of another group of formulae that arose from oral and improvised repertories and which tend to not be documented in treatises. Arguably, these bass-lines have fewer contrapuntal connotations than the linear intervallic patterns listed by Spiridion and Penna. In addition, bass-lines and harmonic formulae stemming from oral traditions tended to be written within a narrower range of possible transpositions in extant sources, in contrast to the formulae found in continuo treatises discussed above, where transposition at many tonal levels was crucial to mastering the different patterns.

Some of these bass patterns and formulae originating in oral traditions stemmed from dance music, and others have more obscure origins. These formulaic bass-lines were usually used as a basis for variations, a technique that became closely connected to instrumental music. Modern-day scholars have surveyed the variants in the linear contour and harmonic content of these standardized patterns as shown in surviving notated sources.[35] However, these patterns were rarely discussed in music theory of the period, instead presumably taught by rote and oral example. Some of the most commonly encountered formulae include dance-derived schemes such as the folia, chaconne,

[35] See for instance Hudson, *The Folia, the Saraband, the Passacaglia, and the Chaconne*.

passamezzo, saraband and bergamasca, and others born out of instrumental ritornelli or other improvisatory patterns, such as the romanesca or passacaglia.

Scholars have already noted that several of these schemes are closely related. Richard Hudson, for instance, identified four main 'chord rows' (his term), which represent variants of each other (three in *cantus mollis* and one in *cantus durus*).[36] Using anachronistic Roman numerals, Hudson named each chord row according to the first chord that distinguishes each from the others. Thus, in *cantus mollis*, schemes III, VII and V are found in the romanesca, passamezzo antico and folia, respectively, and in *cantus durus*, scheme IV is found in the passamezzo moderno.[37] However, Hudson warns that these schemes may appear in other forms, so it can be somewhat restricting to give them these Italian names.[38] Moreover, the use of these Italian terms may imply rhythmic and melodic characteristics associated with dance, as well as harmonic schemes. It is therefore with an awareness of these issues that, for convenience, I have decided to keep these Italian names to discuss similarities between some of the most well-known seventeenth-century harmonic schemes.

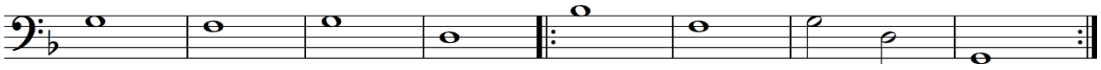
First, let us look at the resemblance between the passamezzo antico, the romanesca and the folia (the three *cantus mollis* schemes described by Hudson, mentioned above). The passamezzo was an Italian dance in duple meter that flourished from the mid-sixteenth through the first half of the seventeenth century, and whose bass-line and chord succession served as a basis for instrumental variations until about 1680.[39] The origins of the term are unknown, even though the most widely accepted hypothesis states that it is derived from the Italian words *passo e mezzo* (one step and a half step), which most likely referred to the steps of the dance. Two versions of passamezzo patterns developed (passamezzo antico and passamezzo moderno – see Fig. 3.8). The exact origin of the romanesca, on the other hand, is unknown. Sixteenth- and seventeenth-century sources show that the romanesca was used as a melodic and harmonic formula for instrumental variations, as well as an aria to sing poetry.[40] Unlike the passamezzo, the romanesca often includes a characteristic descant melody in addition to a standard bass-line (see Fig. 3.9).[41] However, it is uncertain

[36] Richard Hudson, 'Chordal Aspects of the Italian Dance Style, 1500-1650', *Journal of the Lute Society of America* 3 (1970): 35-36.
[37] Ibid., 35; 37.
[38] Richard Hudson, 'The Folia Melodies', *Acta musicologica* 45 (Jan-June 1973): 99. Even though here Hudson discusses the folia, this remark is applicable to other harmonic schemes.
[39] *Oxford Music Online*, s.v. 'Passamezzo', www.oxfordmusiconline.com (accessed October 13, 2016).
[40] *Oxford Music Online*, s.v. 'Romanesca', www.oxfordmusiconline.com (accessed October 13, 2016).
[41] Ibid.

whether the 'aria della romanesca' referred to the descant tune or the bass-line.[42] The folia (meaning 'mad'), which originated as a folk dance in Portugal, has been described in 1611 by Sebastián de Covarrubias as a very fast and boisterous dance involving young men dressed up as women.[43] The exact origin of the folia's harmonic scheme, which spread from Spain to Italy and served as a basis for instrumental variations in the sixteenth and seventeenth centuries, is unknown. Scholars such as Hudson make a distinction between the early and the late folia (see Fig. 3.10).[44] The majority of extant early pieces bearing the name 'folia' in Spain and Italy show, like the romanesca, a characteristic bass-line and melodic framework (reproduced in Figure 3.10), even though some harmonic and melodic variants are found from one piece to another.[45] The late folia first developed later in the 1670s in France and England, and spread throughout Europe in the late seventeenth and throughout the eighteenth centuries.[46]

Figure 3.8. Passamezzo antico and moderno.

Passamezzo antico



Passamezzo moderno

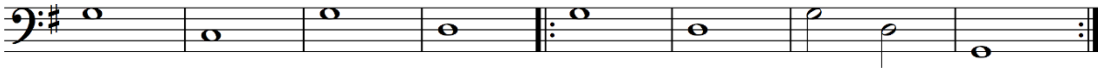
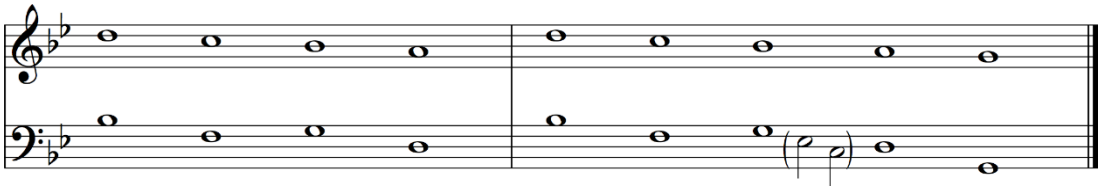


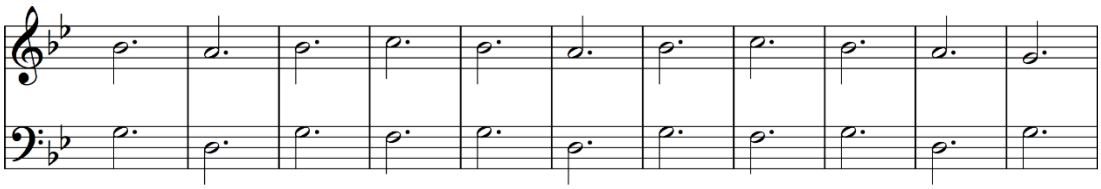
Figure 3.9. Romanesca bass-line and descending descant formula (typical descant and bass-line formula).



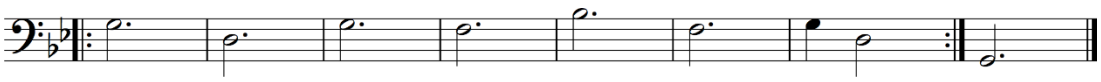
[42] Ibid.
[43] *Oxford Music Online*, s.v. 'Folia', www.oxfordmusiconline.com (accessed August 19, 2016).
[44] Richard Hudson, 'The Folia, Fedele and Falsobordone', *The Musical Quarterly* 58, no. 3 (July 1972): 399; Hudson, *The Folia, the Saraband, the Passacaglia, and the Chaconne,* vol. 1, *The Folia*, xv.
[45] Hudson, 'The Folia, Fedele and Falsobordone', 399; Richard Hudson, 'The Folia Melodies', 99. Several collections include pieces based on the early folia framework, such as Girolamo Montesaro, *Nuova invention d'intavolatura* (Florence, 1606), 24 and 25-26; Giovanni Ambrosio Colonna, *Intavolatura di chitarra spagnola del primo, secondo, terzo, & quarto libro* (Milan, 1637), 54.
[46] Ibid.

Figure 3.10. Early and Late folias.

Early Folia (reproduced here with simplified rhythm).



Late Folia (from 1670s onward).



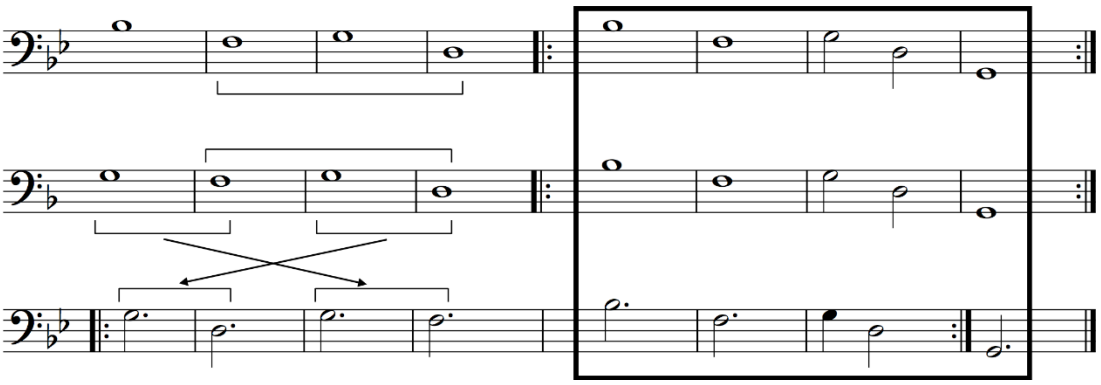
These three bass-line patterns present striking similarities. The passamezzo antico is nearly identical to that of the romanesca (see Fig. 3.11): both patterns are divided in two parts of equal length, and their notes and chord successions are the same, with the exception of the first chord of each pattern (g for the passamezzo, B♭ for the romanesca). In addition, the folia's bass-line and chord succession recall those of the passamezzo antico: the first and second notes of the folia correspond to the third and fourth notes of the passamezzo antico, and the third and fourth notes of the folia match the first and second notes of the passamezzo antico. Moreover, the late folia features the same closing chord succession formula as the passamezzo antico and the romanesca (B♭-F-g-d-g).

In his study on the musical characteristics of the early folia, the Italian Fedele (described as the Italian term for 'folia') and the falsobordone, Hudson concluded that the similarities between the three 'forms' (his term) suggests that 'some sort of historical relationship' existed between them.[47] Nonetheless, Hudson pointed out that similarities between the romanesca, passamezzo antico and folia bass-lines and harmonic schemes do not necessarily indicate a common origin, but the establishment of standard musical idioms that could appear in a variety of different genres. Alexander Silbiger and Giuseppe Gerbino also suggest that resemblances between certain seventeenth-century harmonic schemes hint at the common use of certain standardized chord succession patterns that cannot be exclusively attached to any specific genre.[48] Note that a formula close to the romanesca appears as an extended bass pattern (via the descending fourth sequence) in Spiridion's *cadentia* 7 (the only difference with the romanesca is the use of a semitone between the second and third notes of the pattern). The romanesca also appears as a descant formula

[47] Hudson, 'The Folia, Fedele, and Falsobordone', 411.
[48] *Oxford Music Online*, s.v. 'Passamezzo', www.oxfordmusiconline.com (accessed August 18, 2016).

and extended embellished bass pattern in *cadentia* 27 (see Fig. 3.5). Some of these patterns sometime appear in instrumental ensemble pieces without any reference to the original bass pattern in their title, showing their integration as well-known schemata in the seventeenth-century musical language, as will be shown below.[49]

Figure 3.11. Standard bass-lines of the romanesca (top), passamezzo antico (middle) and folia (bottom).



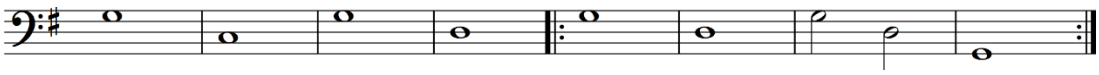
Another set of resemblances is between the standardized bass-lines of the passamezzo moderno and the saraband (which was at first characterized by a standard harmonic scheme, before the typical dotted rhythm became one of its trademarks in the 1630s). The origin of the passamezzo as an Italian dance has already been discussed above, as well as the passamezzo antico. The passamezzo moderno comprises two parts and is characterized by intervals of fourths and fifths moving to and from the tonal focus G (see Fig. 3.12). The saraband originated as a lascivious sung dance in Spain and Latin America, generally accompanied by the Spanish guitar and percussive instruments, before it spread to Italy and France in the first half of the seventeenth century.[50] Extant sources reveal that the saraband's harmonic framework could vary, and it is difficult to identify similarities between them.[51] Hudson distinguishes between the Spanish saraband (fast ostinato dance), the fast French saraband (slower, non-ostinato form), and the slow French saraband (slow dance with characteristic rhythmic motive).[52] For the purpose of this discussion, only the Spanish saraband, which spread in Spain and Italy in the first half of the seventeenth-

[49] Some of Lelio Colista ensemble pieces feature bass-lines for improvisation that feature elements of some of these bass patterns. See Allsop, *The Italian 'Trio' Sonata*, 257.
[50] *Oxford Music Online*, s.v. 'Sarabande', www.oxfordmusiconline.com (accessed October 13, 2016). For further discussion on the origin and history of the saraband, see Hudson, *The Folia, the Saraband, the Passacaglia, and the Chaconne*, vol. 2, *The Saraband.*
[51] Hudson, *The Folia, the Saraband, the Passacaglia, and the Chaconne*, vol. 2, *The Saraband*, xv.
[52] Ibid., xv-xvi.

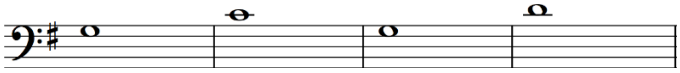
century, will be considered here. The Spanish saraband's harmonic scheme, which appears in many early seventeenth-century guitar books, is shown in Figure 3.12.[53] Like the passamezzo moderno, the Spanish saraband's ostinato bass-line features motion by fourths and fifths around a single tonal focus. Note that in both cases, the bass moves to the fourth degree above the tonal focus (whether it is played a fourth above or a fifth below), comes back to the tonal focus, leaps to the fifth degree above it (located either a fifth above or a fourth below), comes back to the tonal focus and so forth. The consistent return to the tonal focus and the fourth and fifth intervals recalls bass-line motion in cadential formulae, reinforcing the listener's perception of these notes as tonal poles.

Figure 3.12. Passamezzo moderno and saraband (transposed to G).

Passamezzo moderno



Saraband



A final resemblance that will be observed is between the harmonic scheme of one form of the passacaglia, the bergamasca, and the opening chord succession found in the ruggiero. The passacaglia originated in Spain and was originally a type of ripresa or ritornello, that is, a short improvised interlude played at the guitar in between the strophes of a song.[54] The passacaglia bass could take a number of different forms, three of which will be shown here: the earliest form (which will be discussed here, see Fig. 3.13) is found in Italian guitar tablatures and simply outlines a cadential formula, whereas the other two forms (discussed below) feature a segment of a descending minor scale (resulting from the addition of passing tones between the first and second notes of the original passacaglia bass line reproduced in Fig. 3.14), and were commonly used as an ostinato bass in Italian

[53] See Benedetto Sanseverino, *Involatura facile* (Milan, 1620), 29; Giovanni Ambrosio Colonna, *Intavolatura di chitarra alla spagnuola* (Milan, 1620), 17; Giovanni Paolo Foscarini, *Intavolatura di chitarra spagnola, Libro secondo (*Macerata, 1629), 49.

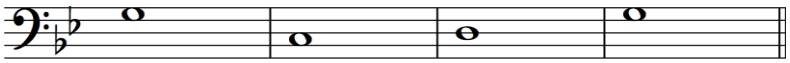
[54] Hudson, *The Folia, the Saraband, the Passacaglia, and the Chaconne*, vol. 3, *The Passacaglia*, xiii. It is believed that the term comes from the Spanish words *pasar* (to walk) and *calle* (street), suggesting outdoor performances by street musicians. *Oxford Music Online*, s.v. 'Passacaglia', www.oxfordmusiconline.com (accessed August 17, 2016).

instrumental variations in the seventeenth century.[55] The bergamasca was a tune, probably derived from a folk song or folk dance, that was often connected to a specific recurrent chord succession, which corresponds to the cadential formula featured in the first type of passacaglia discussed above (see Fig. 3.13). In the sixteenth and seventeenth centuries, bergamasca variations or contrapuntal fantasias based on the bergamasca were often written for keyboard instruments, built either on the bergamasca tune or its standardized harmonic scheme.[56] Lastly, the ruggiero was a harmonic bass-line probably used for singing poetry, which, again, was used in sets of instrumental variations in the late sixteenth and seventeenth centuries (see Fig. 3.13). It may derive its name from the opening words of a stanza in Lodovico Ariosto's poem *Orlando furioso* ('Ruggier, qual sempre fui'), but this is still uncertain.[57] The ruggiero's opening harmonic scheme corresponds exactly to that of the bergamasca, showing again the common use of that cadential formula in instrumental improvisation and variations. Again, note that Spiridion's *cadentia* 20 features a very common cadence formula which corresponds to the bergamasca and passacaglia type 1 bass-lines, as well as the opening chordal scheme of the ruggiero (see Fig. 3.5). The concordance of well-known standardized patterns with some of Spiridion's *cadentiae* suggests how widely established were these linear and harmonic idioms in the seventeenth century.

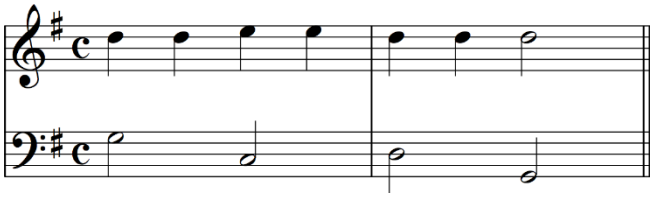
[55] *Oxford Music Online*, s.v. 'Passacaglia', www.oxfordmusiconline.com (accessed August 17, 2016). For a discussion of the early development of the passacaglia, see Richard Hudson, 'The Ripresa, the Ritornello and the Passacaglia', *Journal of the American Musicological Society* 24 (1971): 364-394. For an illustration of the development of the passacaglia bass line, see Hudson, *The Folia, the Saraband, the Passacaglia, and the Chaconne*, vol. 3, *The Passacaglia*, xvi-xvii. Giovanni Ambrosio Collonna, *Involatura di chitarra alla spagnola* (Milan, 1620) features several examples of the early form of passacaglia. Many other pieces feature this bass line, or variants of it, such as Pietro Millioni, *Seconda impression del quarto libro d'intavolatura di chitarra spagnola* (Rome, 1627), 9; Fabrizio Costanzo, *Fior novella, Libro primo* (Bologna, 1627), 75.
[56] *Oxford Music Online*, s.v. 'Bergamasca', www.oxfordmusiconline.com (accessed August 18, 2016).
[57] *Oxford Music Online*, s.v. 'Ruggiero', www.oxfordmusiconline.com (accessed August 18, 2016).

Figure 3.13 Passacaglia (type 1), bergamasca and ruggiero.

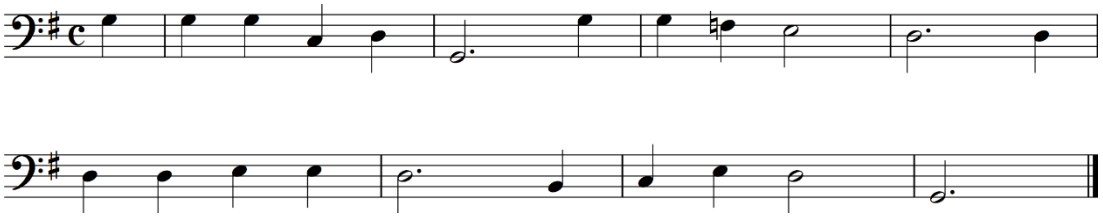
Passacaglia



Bergamasca



Ruggiero



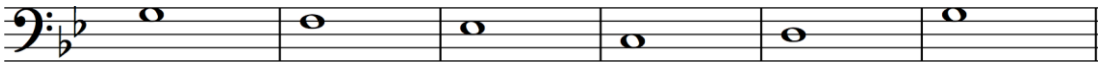
Other standardized bass-line patterns commonly used for sets of instrumental variations in the seventeenth century feature more individualized bass-lines that do not bear any striking resemblance with other patterns. This is the case of the other two types of passacaglias and the ciaccona. The two other types of passacaglia bass-lines, used in the seventeenth century as ostinato basses in instrumental variations, are closely related: both feature a minor descending line down to the fifth degree above the tonal focus (located a fourth below in the pattern – see Fig. 3.14). The only difference is that the pattern labelled as second type in Figure 3.14 includes an additional note (c) as compared to the third type. These two passacaglia patterns may be analysed as an embellishment of the g-d-g linear framework with an extra intermediary triad (on c) in the second type. These two types also feature what modal theory would designate as the descending *diatessaron*, outlining the two principal notes of the 'mode' (g and d). The ciaccona (or chaconne) was originally a dance-song accompanied by guitars and castanets popular in the new world in the late sixteenth century, apparently associated with lower-class people such as servants and slaves.[58] The ciaccona features several related types of harmonic frameworks.[59] The

[58] *Oxford Music Online*, s.v. 'Chaconne', www.oxfordmusiconline.com (accessed August 18, 2016). For an account of the erotic connotations of the ciaccona and its social history in Italian culture, see Susan McClary,

fundamental harmonic scheme is reproduced in Fig. 3.15 (C-g-a-g-C or c-g-a-g-c), and intermediary chords could be added in the different variants (see Fig. 3.15, which gives an example of a variant of the basic framework with the addition of two notes in the bass-line, c-g-a-***e-f***-g-c).[60] The movement to the fifth above (or fourth below) the tonal focus in the structural framework still recalls the fourth and fifth motion in the linear contour of other bass-lines, thus showing the common use of these intervals in harmonic schemes used for improvisation.[61]

Figure 3.14. Passacaglias (types 2 and 3).

Type 2



Type 3

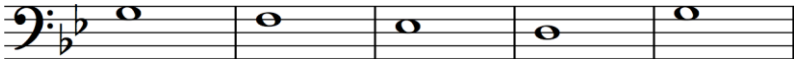
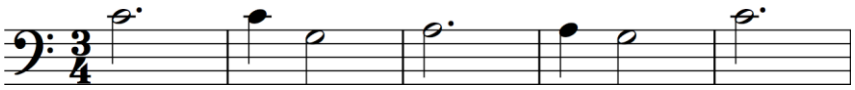
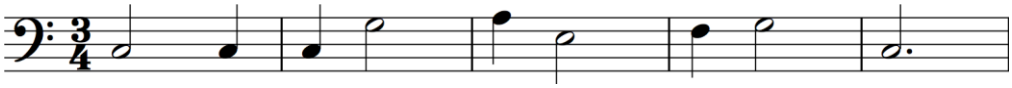


Figure 3.15 Ciacconas (types 1 and 2).

Type 1



Type 2



‘The Social History of a Groove: *Chacona, Ciaccona*, and the *Chaconne*’, in *Desire and Pleasure in Seventeenth-Century Music* (Berkeley: University of California Press, 2012), 193-214.

[59] See Hudson, *The Folia, the Saraband, the Passacaglia, and the Chaconne*, vol.4, *The Chaconne*, xiv-xvii.

[60] These frameworks are found in a number of early seventeenth-century guitar pieces, in collections such as those already cited above, among others: Giovanni Ambrosio Colonna, *Intavolatura di chitarra alla spagnuola* (Milan, 1620), 15; Benedetto Sanseverino, *Intavolatura facile* (Milan, 1620), 30; Pietro Millioni, *Quarta impression del primo, secondo et terzo libro d’intavolatura di chitarra spagnola* (Rome, 1627), 13; Andrea Falconieri, *Libro primo di villanelle a 1., 2.& 3 voci con l’alfabeto per la chitarra spagnola* (Rome, 1616), 25.

[61] Agostino Guerrieri’s *La Spinola a 2* (1673) includes bass patterns for improvisation that feature similar descending bass-lines. See Allsop, *The Italian ‘Trio’ Sonata*, 257.

In conclusion, these bass-line patterns almost always featured a strong tonal focus (except for the romanesca, which is more ambiguous). The patterns often (but not always) involved intervals of fourths and fifths, and could also feature descending stepwise motion. Most also have a strong 'V-I' relationships so that the basic perfect cadence is the structural core of several of these formulae; the passamezzo moderno and the saraband, for instance, feature bass-line motion of fourths and fifths below or above a given tonal focus, and the bergamasca, and the passacaglia type 1 feature a cadence with the addition of an intermediary chord, thus reinforcing the effect of closure at the end of the pattern. The other two types of passacaglias and the ciaconnas also display simple cadences with the introduction of several intermediary chords. The romanesca, the passamezzo antico and the late folia exhibit patterns that imply harmonic movement further away from a tonal focus, particularly with the introduction of B♭ in the second part of their pattern.

In a way, all these harmonic schemata establish a sense of tonal centre, recalling but not analogous to Dahlhaus's notion of 'subordinate structure' (where all the chords are hierarchically organized around a tonal centre) since they often give a strong sense of direction towards a cadence.[62] However, they also contain a logic within their own sequential patterns that does not necessarily allow for a hierarchical pitch relationship centred on a 'tonic'; each pattern could therefore also be perceived as a 'coordinate structure' in and of itself (Dahlhaus's term to denote chords that are not organized hierarchically around a tonal centre), since, arguably, each tone of the pattern derives its musical meaning from a relationship not to a 'tonic', but to the other tones of the pattern.[63] Even though all these patterns are unequivocally part of the seventeenth-century harmonic language, they are not necessarily always representative of seventeenth-century chord successions in general, as Carl Dahlhaus noted.[64] The second part of this chapter will illustrate how these harmonic schemata were used in ensemble music pieces.

## II. Uses of Standardized Bass-lines and Harmonic Schemata in Italian Ensemble Music.

### 1. Use of Bass-Lines and Harmonic Schemata to Build Compositions.

The linear and harmonic schemata outlined by Spiridion discussed in the first part of this chapter were the basis of improvisation for keyboardists and seem to have also influenced

[62] Carl Dahlhaus, *Studies on the Origin of Harmonic Tonality*, trans. Robert O. Gjerdingen (Princeton NJ: Princeton University Press, 1990), 141-151.
[63] Ibid.
[64] Ibid., 140.

improvisatory sections within the instrumental ensemble repertoire. In notated compositions, composers would also invoke these standardized bass-lines, even in compositions otherwise not exclusively based on these patterns. The following two examples show how these patterns could be used as compositional tools to generate musical material, thus showing the intersection between seventeenth-century pedagogical techniques, improvisation techniques and compositional practices. The first piece is *La Mirandola*, from *Il primo libro di canzone* (1650), an ensemble canzona for four undetermined instruments (two cantus, and two basses) by Italian lutenist Andrea Falconieri (also known as Falconiero), and the second is an ensemble sonata for two violins, violone and organ from Maurizio Cazzati entitled *La Pepola*, from *Il secondo libro delle sonate*, Op.8 (1648).

Andrea Falconieri's *Canzona a 3, La Mirandola* is in *cantus durus* with a final on C and comprises two main parts (bb. 1-71 and 72-95), marked by a change from common time to 3/2 in b. 72 (the piece is reproduced in Appendix A). Each of these two main sections comprises several subsections characterized by the use of different motives or bass-lines and loosely separated by cadences (see Table. 3.1). Note that the piece includes cadences on C, G, d, and a, which conforms with cadence degrees in C *durus* pieces as discussed in Chapter 2.

Table 3.1. Andrea Falconieri's 'Canzona a 3, La Mirandola' (1650) – General structure.

| Bar numbers / meter | | Cadences |
|---|---|---|
| 1-20 / **c** | Opening section in imitation | C |
| 20-54 | • New motive in imitation (20-40)<br>• Chromatic descending and ascending lines (29-54) | G, C, d, (a), (d), C |
| 54-62 | Cadential formulae | C, C, G, a, C |
| 62-71 | • Canon (62-67)<br>• Ciaconna type 2 (67-71) | C |
| 72-95 / ϕ 3/2 | • Ornamented ciaconna type 2 (72-75)<br>• Ornamented ascending and descending lines (76-95) | C, (G), C |

The first subsection of the canzona (bb.1-20) displays a contrapuntal texture with imitative entries on G, C, G, G, and C (doubled at the 10th in the cantus 1 part in bb. 13-16) in bb. 1, 6, 9, 13, 16, respectively. Here, bass-lines and harmonic formulae are less relevant since the texture is contrapuntally driven. The same may be said of the next subsection (bb.20-54), where the composer first introduces a new motive in the second and first cantus (bb. 22-23). In b. 29, Falconieri initiates a descending chromatic line in the bass from c' down to A (he harmonizes the line with a series of first inversion triads, with occasional root-position triads with repeated notes in the bass in bb. 31, 35, and 39, which feature resting points in the descending line). This chromatic descending line drives the progression forward in these bars until the end of the phrase with a cadence on d (b. 40), while the two upper voices interact in rhythmic imitation with short repeated-note figures. From a compositional standpoint, the bass-line, which is analogous to Spiridion's *cadentia* 14 in *Nova instructio* (see Fig. 3.5), propels and gives coherence to this passage. Arguably, Falconieri uses here a compositional device that he may have learned to play on the lute or the keyboard as an apprentice composer. This chromatic line is then taken up by the upper voices and this time moves upward (second cantus in bb. 39-47 and first cantus in bb. 46-52), showing the contrapuntal significance of chromatic lines, which could be used anywhere in the texture in a variety of contrapuntal formulae. Falconieri then moves to a cadence on C to close the section (bb. 52-54).

Falconieri relies on the repetition of cadential formulae to build up the next subsection (bb. 54-62), with cadences on C, G, a, and C (bb. 56, 58, 60 and 62, see Fig. 3.16). The bar leading up to the cadence on C (b. 55) features a characteristic melodic flourish in quavers in the first cantus (f''-e''-d''-c''-d''-e''-c'') along with the cadential formula in the bass and second cantus. Each subsequent cadential formula includes the same melodic flourish and similar cadential formulae, transposed at different levels with some variations in melodic contour. With regard to the bass-line, the first cadence on C displays the bergamasca formula (also the first four notes of the ruggiero bass-line), which is analogous to Spridion's cadentia 20 (bb. 54-55). The cadence on G (bb. 57-58) displays a four-quaver-notes pattern in the bass resembling what Penna prescribes at cadences, even though the harmonization might differ (see Fig. 3.3 no. 1), and the bass-line for the last cadence, on C (bb. 60-62), resembles one of Bismantova's recommendation for cadences with a 4-3 suspension on the penultimate note, as is the case here (see Fig.3.4 no2). The juxtaposition of cadences with the same formula in the upper voices with variants in the bass-line at different transposition levels is a reflection of the seventeenth-century notion

of *varietas* which will be discussed in Chapter 6; it propels the harmony until the last cadence of this section on C (b. 62).

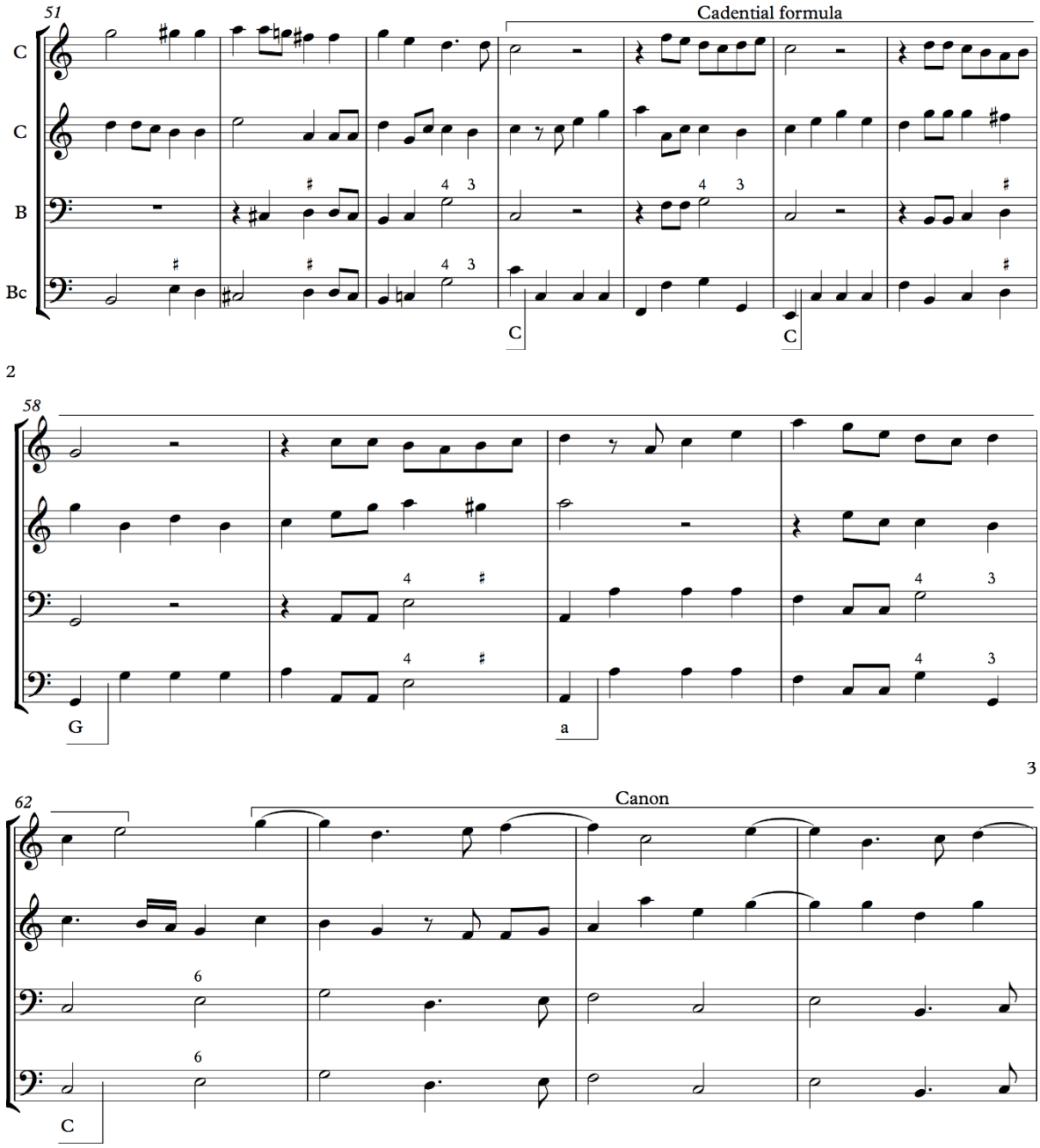
The following subsection (bb. 62-67) displays a canon at the octave (at the15th) where the first cantus (which leads the canon) and the bass are only one crotchet apart, while the second cantus fills in the harmony. The canon itself is a decorated g''-f''-e''-d''-c'' descending line, based on a linear intervallic pattern of descending fourths and ascending thirds (g''-d''-f''-c''-e''-b'-d''-a'-c''), which corresponds to Spiridion's *cadentia* 11 (see Fig. 3.5). This subsection ends with a straight-forward quotation of the type 2 ciaccona (reproduced in Fig. 3.15) in bb. 67-69, which functions like a short formula leading to the subsection's final cadence on C (b.71). In essence, Falconieri uses a formulaic contrapuntal device (the canon) and a harmonic schema (the ciaccona) in this section.

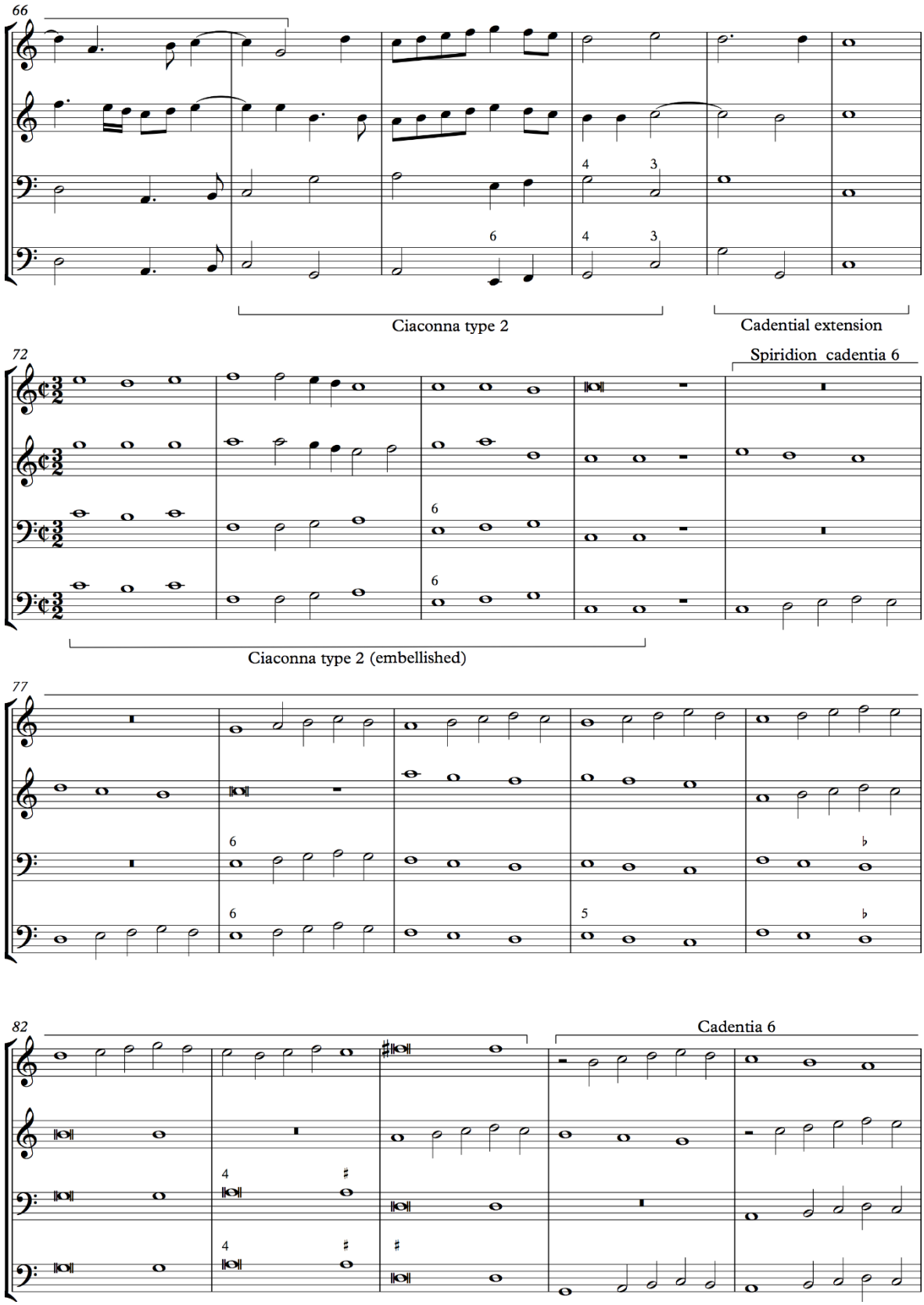
The second part of the piece begins with another statement of the type 2 ciaccona (bb. 72-75) which stands out, since it is preceded by the only change in time signature in the piece (ϕ 3/2) and followed by a whole beat of rests in all the parts (last beat of b. 75), in contrast to the dovetailed counterpoint elsewhere in the piece. This time, the ciaccona bass is embellished with intermediary notes: Falconieri adds a decorative G6 triad (b. 72) and an F triad (b. 73). The remainder of the section (bb. 76-95) features contrapuntal writing based on embellishment of ascending and descending lines that do not relate to the ciaccona previously heard. The ascending lines (from g' to f♯'' in the first cantus in bb.78-84, and G to f in the bass in bb. 85-91) are accompanied in counterpoint either in contrary or in parallel motion in the other parts. The decorated pattern used by Falconieri is analogous to Spiridion's *cadentia* 6, which features a pattern of ascending fourths and descending thirds (see Fig. 3.5). (Note that some passages feature consecutive fifths between the first beats of each bar (bb. 80-81; 83-84), similar to the patterns of consecutive fifths detected by Chew in Monteverdi's middleground structures).[65] Arguably, these two ascending lines (bb. 76-84 in the bass and cantus 1, and bb. 85-90 in the bass) may be considered *cadentiae*, in Spiridion's sense, as large-scale lines functioning as cadence preparation; the resolution of the first *cadentia* (bb. 76-85), expected on G, occurs in the bass (b. 85) but is avoided in cantus 1 (which remains on f♯'' in b. 84), and the second *cadentia* (bb. 85-90) is interrupted by the inclusion of a descending line (b. 91-93) leading

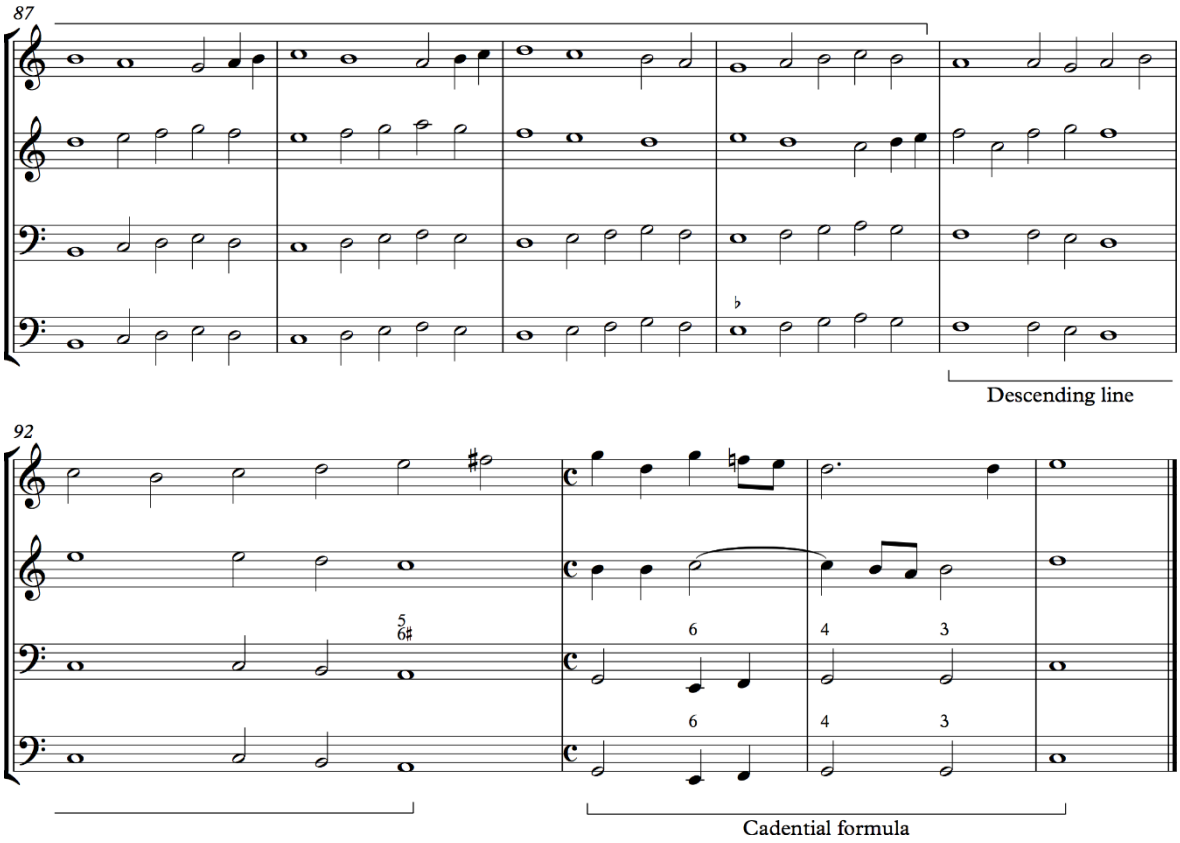
[65] Chew, 'The Perfections of Modern Music', 247-273.

to the final cadence on C (b. 95). Falconieri thus plays with the listener's expectations, increasing tonal tension until the final cadence of the piece.

Figure 3.16. Andrea Falconieri's use of schemata in 'La Mirandola' (1650), bb. 53-95.




66
Ciaconna type 2
Cadential extension
72
Spiridion cadentia 6
Ciaconna type 2 (embellished)
77
82
Cadentia 6




Falconieri's canzona is largely based on cadential patterns, contrapuntal devices and harmonic schemes that continuo players and apprentice composers would have rehearsed in various transpositions, as well as idioms of chord successions inherited from dance music and improvisatory traditions. However, the formulaic material is partly disguised by the contrapuntal working-out. Even though a seventeenth-century listener would have been familiar with all these formulae, Falconieri never tires the listener as he transposes and varies each occurrence of these formulae. He alternates between contrapuntal and vertical procedures: for instance the passage based on chromatic lines (bb. 29-54) is followed by a passage exclusively based on cadential formulae (bb. 54-62), which is in turn followed by a canon, which is a formulaic, linear-intervallic pattern (bb. 62-67) and a statement of the ciaccona formula (bb. 67-69). The composition thus attains *varietas*, as well as continuity and coherence.

Maurizio Cazzati's *La Pepola* for two violins, violone and organ, further exemplifies how linear and harmonic schemata could be used as practical devices to generate musical material in composition. This sonata in *cantus durus* with a final on G comprises four large sections (see Table 3.2 – the piece as a whole is reproduced in Appendix B).

Table 3.2. Maurizio Cazzati's 'La Pepola', Op.8 (1648) – General structure.

| Bar numbers / meter | | Cadences |
|---|---|---|
| 1-42 / **𝔠** | Contrapuntal opening section in imitation | G, G, G, (C), D, G |
| 43-60 Grave | Section based on the extended romanesca | D (non-conclusive), E (n.c.)*, d, g |
| 60-116 / 3 | Homophonic section built on<br>• phrase transposition (60-79)<br>• linear bass-line patterns (84-116) | D (n.c.), A (n.c), D, G, C, D (n.c) |
| 116-129 / **𝔠** | • Final cadence | G |

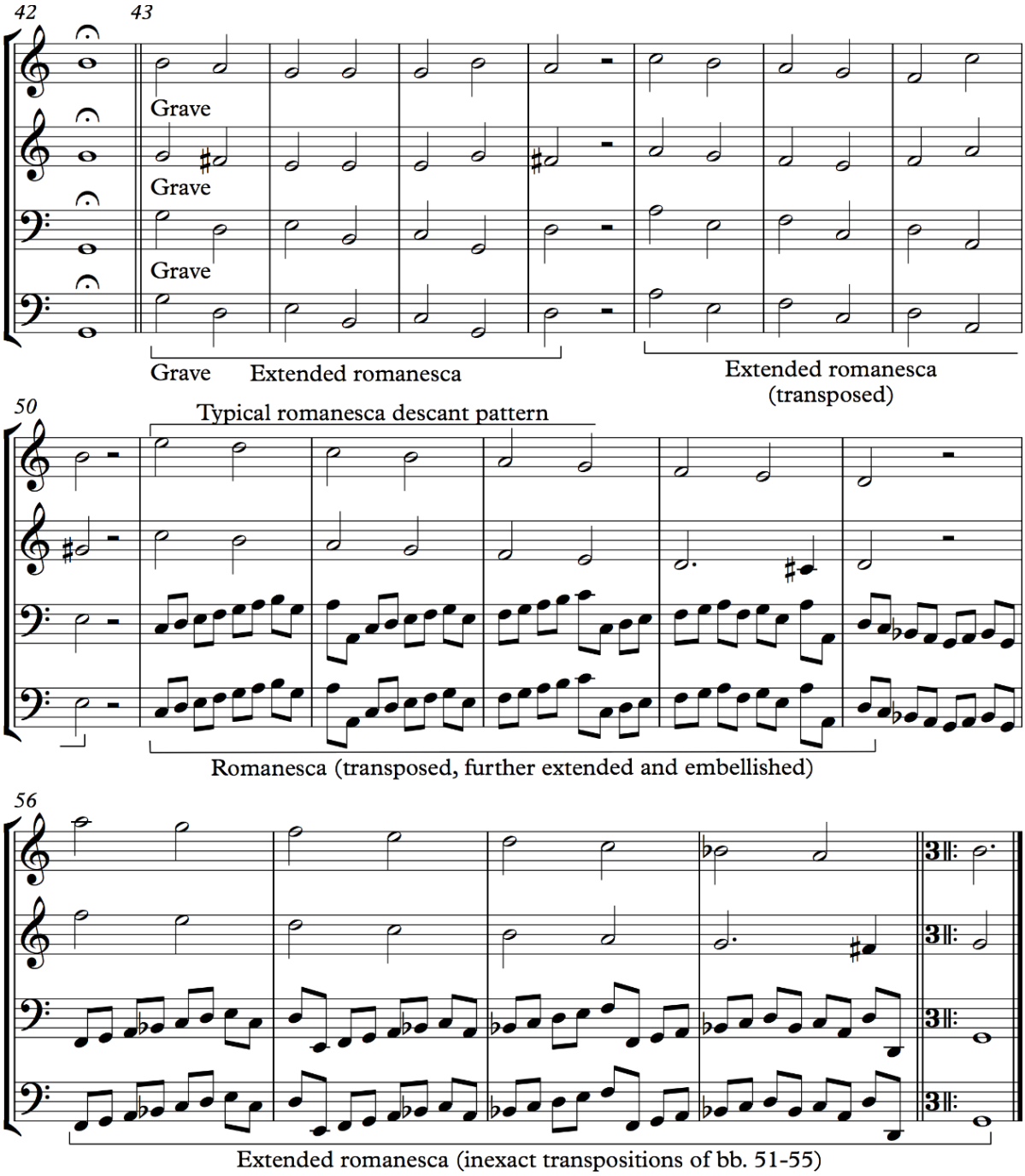
* n.c.= non-conclusive.

The piece begins, as expected, with a contrapuntal, imitative section (bb.1-42), which we will not discuss here. The following Grave section (bb. 43-60) is based solely on an extended romanesca descant and bass formula, which recalls Spiridion's *cadentiae* 7 and 27 (with an embellished bass-line, see Fig. 3.5). The section comprises four statements of the romanesca, extended with three more bass notes (and chords) (see Fig. 3.17). The first romanesca proceeds in the bass with g-d-e-B and is extended with c-G-d, thus ending non-conclusively on the fifth degree above the tonal focus G (bb. 43-46). The descant formula begins in the first violin a tenth above the bass, invoking the first three notes of this recognizable formula (bb. 43-46). Cazzati continues the section with a second statement of that romanesca pattern (bb. 47-50) in an inexact transposition starting on a in the bass (a-e-f-c-d-A-e), ending again on the fifth degree (e) above the local tonal focus (A). The romanesca descant formula in the first violin is this time stated in its entirety, with two notes added at the end. This transposition of the extended romanesca formula a step above, the relative tonal indeterminacy of the romanesca pattern itself, and the non-conclusive cadences at the end of these two phrases (in what we nowadays would call half cadences) create a sense of suspense for what is coming next, an appropriate effect for this Grave section. The next statement of the romanesca pattern (bb. 51-55) is even further extended and features an embellishment of the bass with constant quaver motion up to a cadence on d which closes the passage (b. 55). The structural notes of the pattern in the bass fall on the first and third beats of each bar, in conjunction with each note of the descending descant formula in the first violin, doubled a third below by the second violin.

This passage closely resembles Spiridion's *cadentia* 27, which also includes constant quaver motion in the bass with the descant tune in the upper voice, likewise doubled a third below (see Fig. 3.5). The start of the descant formula at a higher register, the extension of the pattern to five bars instead of four, and the first conclusive cadence on d (b. 55), all give a cumulative effect of closure in that passage. The last statement (bb. 55-60) is an exact transposition of bb. 51-55 (albeit with octave displacements) starting on F in the bass and a'' in the first violin, leading to a cadence on g (b. 60).

This section of Cazzati's piece demonstrates how a composer could use well-known patterns to generate musical material in composition. Here Cazzati uses extensions of the romanesca pattern, as well as exact or inexact transposition (which is unusual for the romanesca formula), and variation (in the bass-line, as well as in octave placements) to create tonal and melodic variety, and to drive the music forward towards the next section. In addition, the formula gives listeners a musical hint, something familiar around which they can organize their auditory perception.

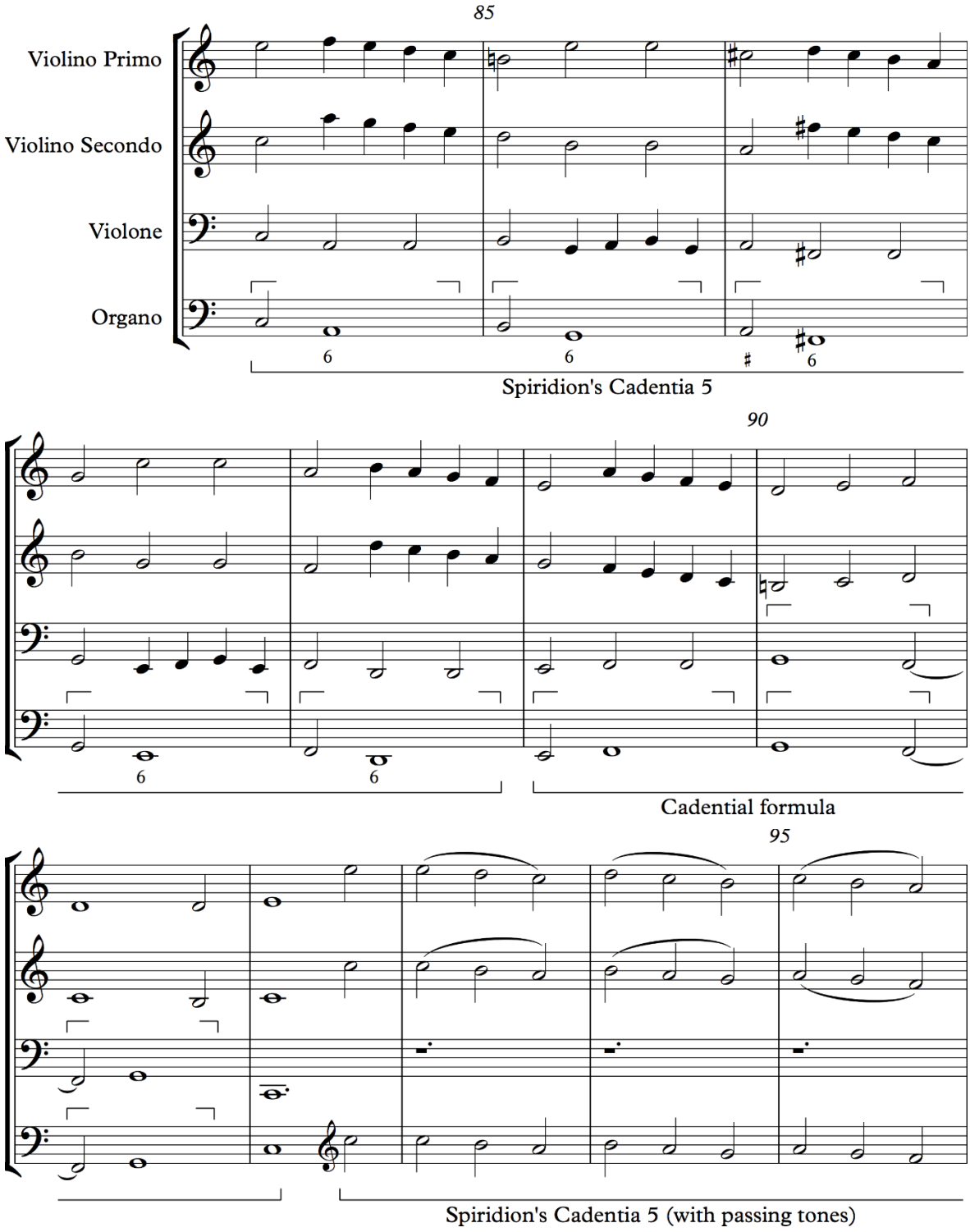
Figure 3.17. Maurizio Cazzati's use of the extended romanesca pattern in 'La Pepola' (1648), bb. 43-60.

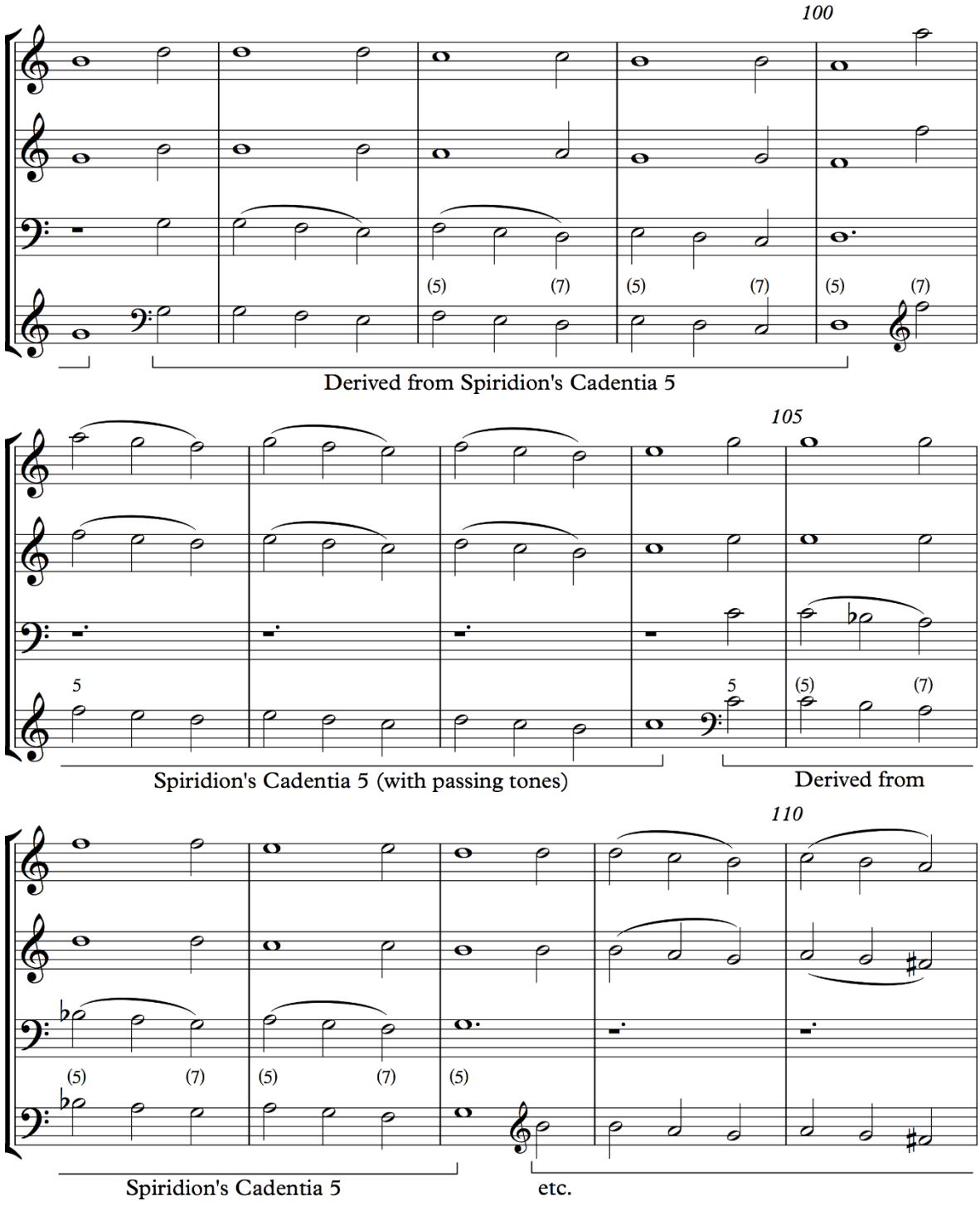


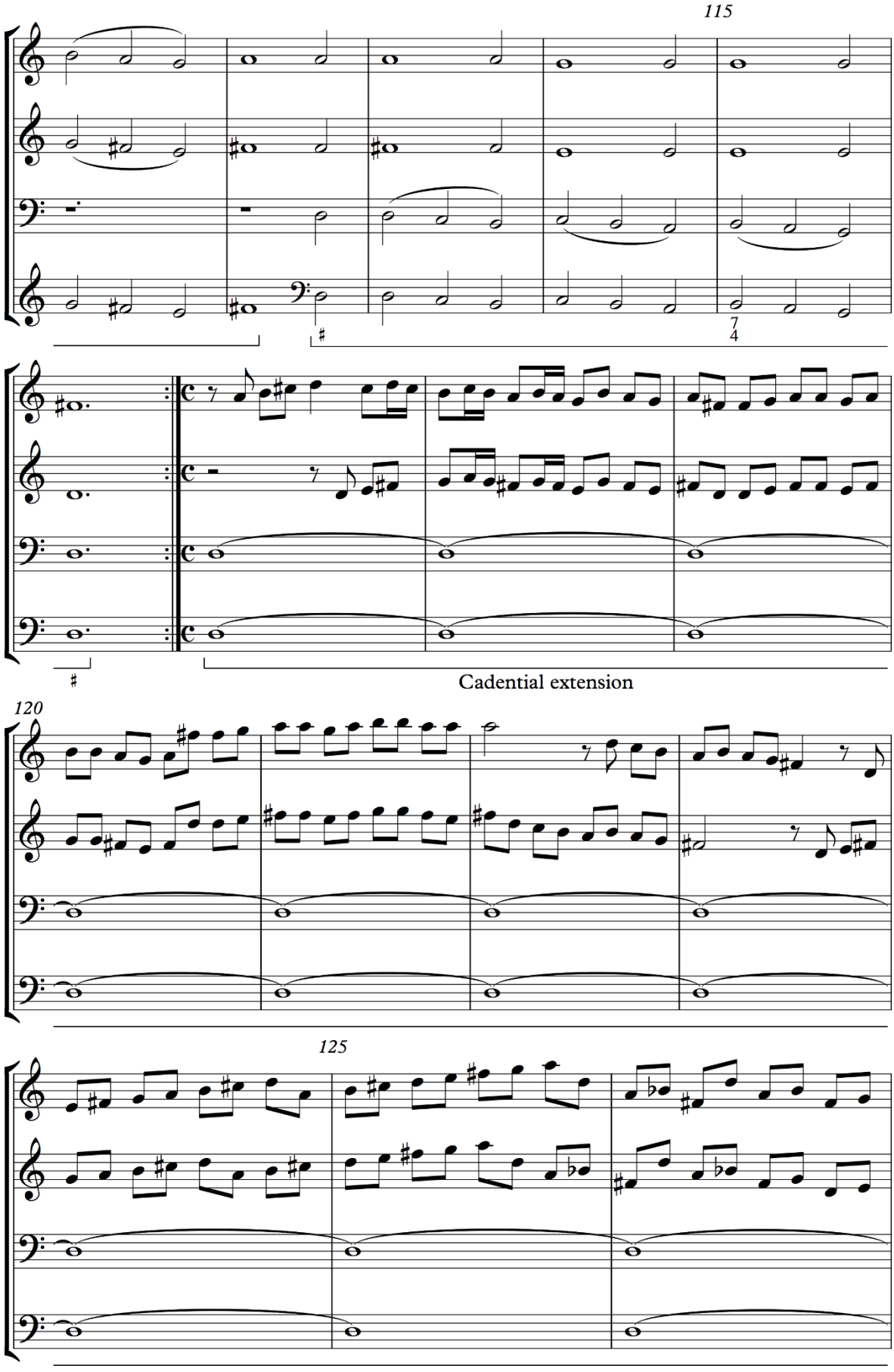

The following section is built on repetition of melodic and harmonic material via phrase transpositions (bb. 60-79), and linear embellishments of the bass (bb. 84-116, see Fig. 3.18). The linear descent in thirds in the bass in bb. 84-88 ending with a cadential formula in bb. 89-92 corresponds to what Penna and Bismantova prescribe for that pattern in the bass (see 5-6 chord succession for bass-lines in descending thirds in Fig. 3.7 no.3), as well as Spiridion's *cadentia* 5. The following bars (bb. 93-116) display a series of the

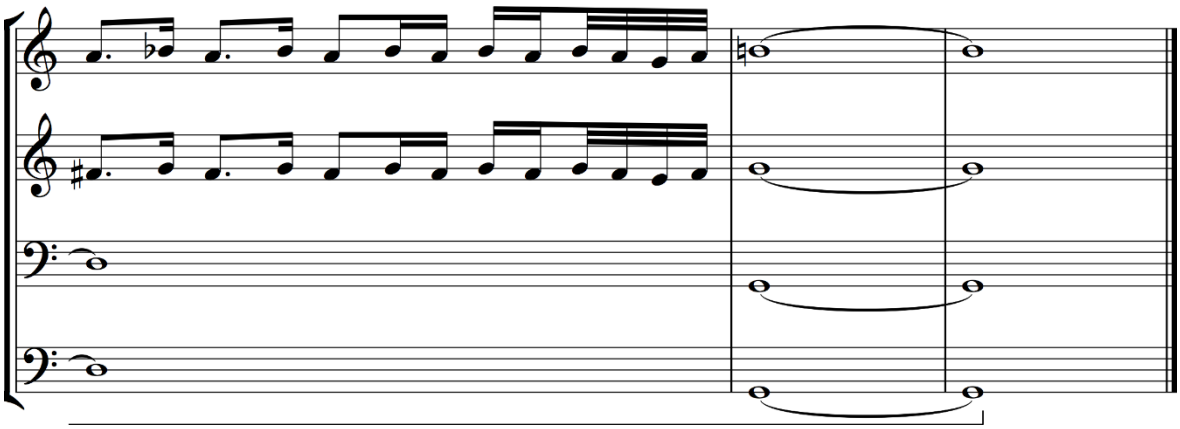
same descending-third pattern, decorated with passing tones. The pattern alternates at various transpositions between the first and second violins (doubled by the bass in *basso seguente*) and the two violins with the addition of the violone (doubled by the bass), thus allowing for a richer harmony, as follows (see Fig. 3.18): two violins a third apart (bb. 92-96); two violins and violone in 5-7 pattern (bb. 97-100); two violins a third apart (bb. 101-104); two violins and violone in 5-7 pattern (bb. 105-108); two violins a third apart (bb. 109-112); two violins and violone in 5-7 pattern (bb. 113-116). Note, again, that the 5-7 pattern features consecutive fifths between the first beats of each bar (see the intervals between the bass and the violin primo: g-d'', f-c'', e-b', d-a' in bb. 97, 98, 99, 100), recalling patterns of consecutive perfect consonances in Chew's middleground analyses of Monteverdi's madrigals. In this passage, Cazzati builds up the piece with a single descending-third pattern transposed and harmonized differently (in thirds, as opposed to a 5-7 linear intervallic pattern with a slightly different instrumentation). This allows the composer, with an economy of material, to move the piece forward and retain the listener's attention by displaying *varietas* in the composition. It also gives a sense of drive and direction, suitable for the triple-time excitement of this section. The last section of the piece (bb. 117-129) is an extended cadential formula with a long pedal in the bass and a variety of figurations in the upper voices to strongly mark the end of the piece, as was common in ensemble sonatas and canzonas of the period.

Figure 3.18. Maurizio Cazzati's use of patterns derived from Spiridion's *cadentia* 5 in 'La Pepola' (1648), bb. 84-116.




100
(5)
(7)
(5)
(7)
(5)
(7)
Derived from Spiridion's Cadentia 5
105
5
5
(5)
(7)
Spiridion's Cadentia 5 (with passing tones)
Derived from
110
(5)
(7)
(5)
(7)
(5)
Spiridion's Cadentia 5
etc.


115
7
4
Cadential extension
120
125



In short, these various formulae, embellished, varied and extended at will, constituted a pool of convenient devices for composers to use, at a time when the exigencies of patrons could require musicians to compose quickly and abundantly. These schemata, ingrained in the ear and mind of musicians and composers, partly fostered what constitutes the seventeenth-century harmonic language and musical style in that repertoire.

### 2. Embellishments of Bass-line Patterns.

The art of melodic diminution, which consisted of replacing a long note value with passage-work in shorter note values, was an essential part of the skill of seventeenth-century instrumental performance. This is documented throughout the sixteenth and seventeenth centuries by Italian treatises such as Sylvestro di Ganassi's *Opera intitulata Fontegara* (1535), a treatise on recorder playing including several examples of how to ornament a melodic line in improvisation (*passagi*). The prominence of melodic ornamentation in Italian performance practice is also manifest in foreign treatises such as *Musica practica* (1642) by Johann Andreas Herbst, a guide to singing in the Italian manner where the author discusses melodic ornamentation.[66] Whereas such linear decorations did not have any structural impact in upper voices, the addition of intermediate notes in the bass-line could potentially shape chord succession, depending on texture and harmonic rhythm. Several treatises addressed embellishments of bass-lines. For instance, Spiridion's *Nova instructio,* dicussed earlier, shows how embellishments in the bass-line — such as patterns of ascending or descending thirds, fourths or fifths — could shape chord successions and generate harmonic drive. Other treatises such as the second part of Friedrich Erhard Niedt's *Musicalische Handleitung*, entitled *Handleitung zur Variation*

[66] Johann Andreas Herbst, *Musica practica* (Nuremberg, 1642). The treatise is largely based on the chapter 9 of Michael Praetorius's *Syntagma musicum III* (Wolfenbüttel, 1619).

(1706), illustrates how to embellish various intervals in the bass with passage work in smaller note values.[67] Some early seventeenth-century guitar books, most likely intended for pedagogical use, illustrate how basic chordal frameworks could be elaborated via the addition of intermediary chords.[68]

The remainder of this chapter presents an analysis of Salamone Rossi's *Sonata terza sopra l'Arie della Romanesca*, from *Il terzo libro de varie sonate* (Venice, 1623). Scholars such as Susan McClary and David Gagné have analysed romanesca patterns in vocal music of Rossi's contemporaries. As mentioned earlier, McClary discusses expansions of the romanesca pattern in Monteverdi's vocal music with a very goal-oriented perspective. McClary asserts that the linear descending *diapente* in the upper part often found in conjunction with the romanesca formula generates the supporting harmonies implied by the bass-line, and she strongly emphasizes the sense of expectation (or denied expectation) that comes from that stepwise linear descent.[69] Gagné adopts a goal-oriented approach with a Schenkerian analysis of how the romanesca pattern is used in Monteverdi's vocal duet *Ohimè dov'è il mio ben*.[70] Gagné points out that the background structure of the pattern is 'unconventional', as compared to 'norms' of functional harmony, and he shows that, depending on the passage, some notes of the romanesca pattern take on a less structurally important function that others.[71] My analysis of Rossi's sonata avoids the teleological approach of McClary and Gagné; instead, it examines how the romanesca bass pattern could be used in various textures, leading to insights regarding how chord successions and chordal variations were conceived within a schema.

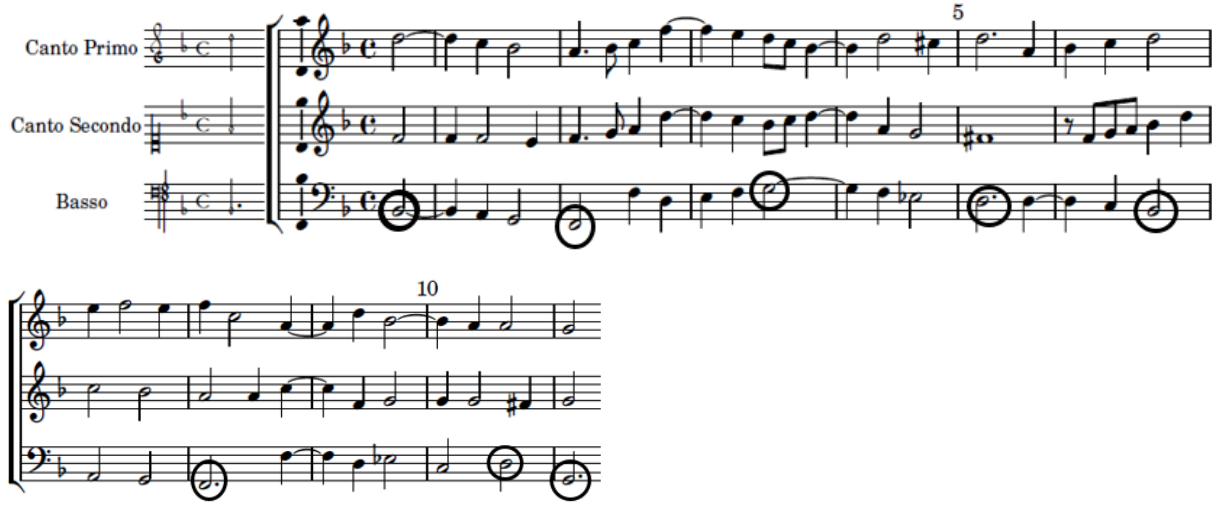
Rossi's *Sonata terza* features eight variations on this romanesca pattern in the bass (See appendix C). However, the basic romanesca bass-line does not appear once. Indeed, Rossi's first statement of the romanesca in the sonata's opening bars is already an embellishment of the well-known bass-line (bb. 1- 11, see Fig.3.19). In this first statement, the notes of the romanesca (circled in Fig. 3.19) are always given longer rhythmic values, along with some of the embellishing notes. Rossi adds passing tones between B♭ and F (bb. 1-2), and the other structural notes of the romanesca (g, d, B♭ and F, bb. 3-7), which are all connected via stepwise descents. In addition, the structural F and g in bb. 2-3 are decorated

[67] Friedrich Erhard Niedt, *Musicalische Handleitung*, (Hamburg, 1706).
[68] Many of these early seventeenth-century guitar books are mentioned earlier in this chapter in the discussion of standardized bass-line patterns.
[69] McClary, 'The Transition from Modal to Tonal Organization in the Works of Monteverdi', 36-38.
[70] David Gagné, 'Monteverdi's *Ohimè dov'è il mio ben* and the Romanesca', in *The Music Forum*, vol. 6, part 1, ed. Felix Salzer (New York, Columbia University Press, 1987): 61-91.
[71] Ibid., 66-72.

with an octave leap and an ascending melodic flourish, and Rossi modifies the g-d-G octave at the end of the pattern (bb. 9-11) with a descending-third pattern used in sequence until the final cadence on G (b. 11). These descending thirds are themselves a decoration of the f-e♭-d descending line (bb. 9-10), which could itself be analysed as the continuation of the descending line initiated in b. 4, albeit with an octave leap in b. 8 (F-f). This way of embellishing the romanesca scheme with passing tones between the framework notes is typical of many romanesca pieces and is found in Monteverdi's *Ohimè dov'è il mio ben*, previously mentioned, or Adriano Banchieri's *Sonata 1 sopra la romanesca* (1626) for two violins and spinetta, for instance.[72]

This first statement of the romanesca illustrates how vertical and horizontal procedures were brought together in the composition of instrumental ensemble sonatas. In addition to being granted longer note values, the notes of the basic romanesca pattern are implicitly harmonized with root position triads (even though often stated only incompletely in the upper parts), thus emphasizing their structural significance. On the other hand, the passing notes and flourishes between the notes of the romanesca pattern interlace with the upper voices into a contrapuntal texture, where the continuo player would probably double the upper parts without necessarily conceptualizing intermediary triads between the chords of the structural bass-line. This contrapuntal variation technique strongly contrasts with the vertical, chordal style ('rasgueado') featured in early seventeenth-century Spanish guitar music discussed by Hudson.

Figure 3.19. Rossi's first statement of the romanesca in 'Sonata terza sopra l'Arie della Romanesca'.



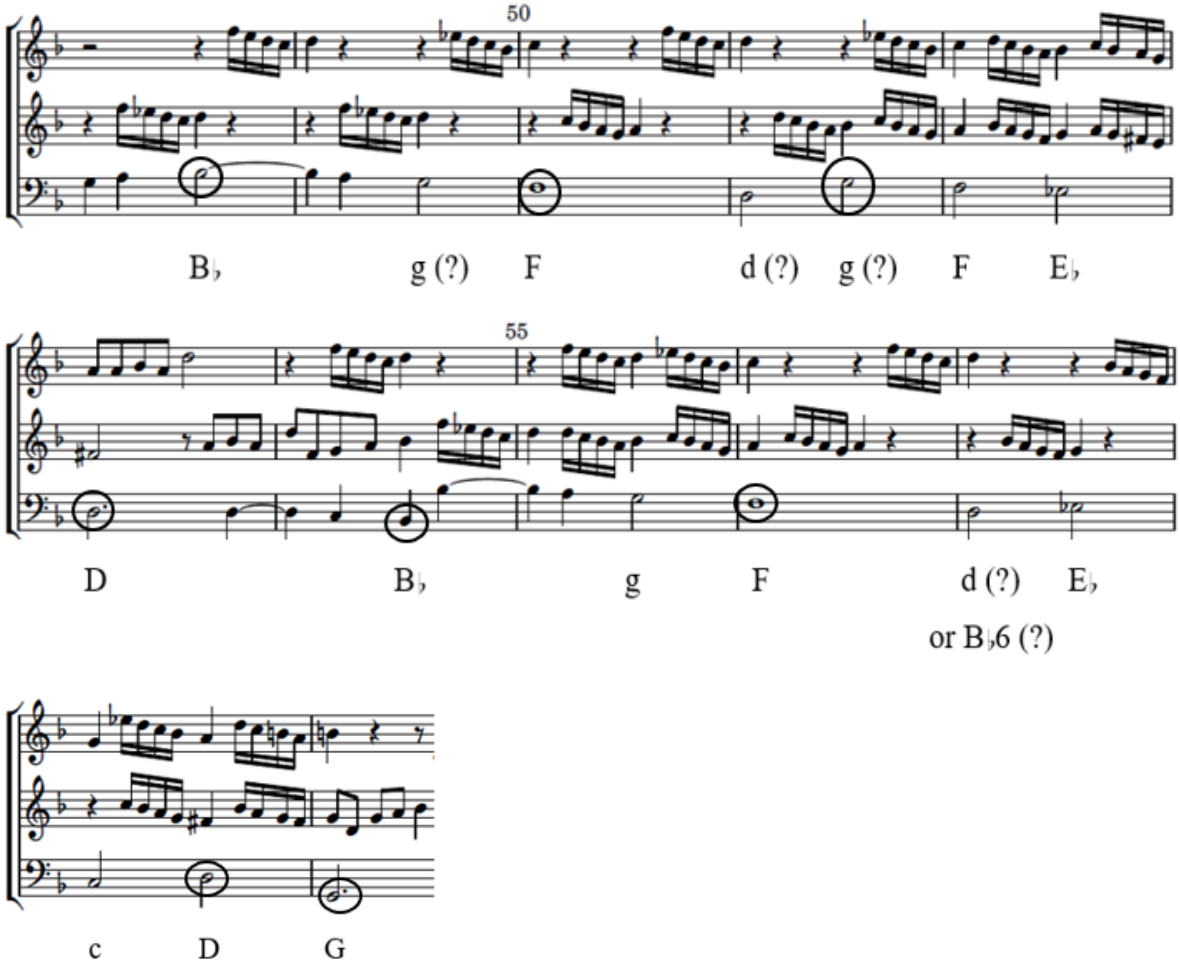

[72] Gagné, 'Monteverdi's *Ohimè dov'è il mio ben*', 65.

The second, third, and fourth statements of the romanesca (bb. 12-23, 24-35, 36-47) each present variations of the first statement's bass-line. For instance, Rossi changes the beginning of the bass-line in bb. 1-2 into a stepwise ascending motion to reach the structural notes of the romanesca in bb. 24-25, and he changes the descending third pattern of bb. 9-11 into a stepwise ascending motion between the structural notes of the romanesca pattern (g in b. 21 and d in b.22). In addition, each statement has different figurations in the upper voices (the second statement features a quaver motif in stepwise ascending motion, later mixed with upward and downward movement; the third statement features a similar motif in downward movement with the addition of a dotted rhythmic motive in bb. 33-34; and the fourth statement features suspensions). As in the first statement, the notes of the romanesca's basic framework in these statements could be harmonized with root position triads, while the other notes work in counterpoint with the upper voices.

The musical texture in the fifth variation, which displays stepwise descending semiquaver flourishes in the upper voices (bb. 48-59), is conceived vertically, so that here the chord successions could have been conceptualized differently. Of course, the continuo player could treat the bass-line with some freedom, so that incomplete triads could be realised in several ways. However, some bass notes that do not pertain to the basic romanesca pattern are now harmonized by the upper parts with complete root-position triads in strong metrical positions, whereas they were woven in the contrapuntal texture in previous variations. For instance, the f and e♭ in b. 52 are harmonized with root-position F and E♭ triads, respectively (note that the previous g in b.51 might also have been harmonized with a complete root-position triad to start the pattern), whereas these two notes were either conceived linearly as passing tones in other romanesca statements or might have been conceived as first inversion triads in some cases (see bb. 4, 16 and 28). Moreover, other notes embellishing the basic romanesca pattern in the bass have root-position triads either fully written (such as the g triad in b. 55) or strongly implied (such as the E♭ and triads in bb.57-58), thus granting more structural importance to these intermediary chords within the romanesca's harmonic scheme. (Figure 3.20 gives a hypothetical harmonization of this passage.) What were formerly passing notes in the bass-line are now given a harmonic importance, thus showing the flexibility in the conception of chord successions within the romanesca framework. The listener perceives these chord successions against the structural romanesca harmonic scheme, around which intermediary chords revolve. Arguably, seventeenth-century chord successions may thus sometimes be

explained within the larger framework of a well-known harmonic schema, a hypothesis that requires further research.

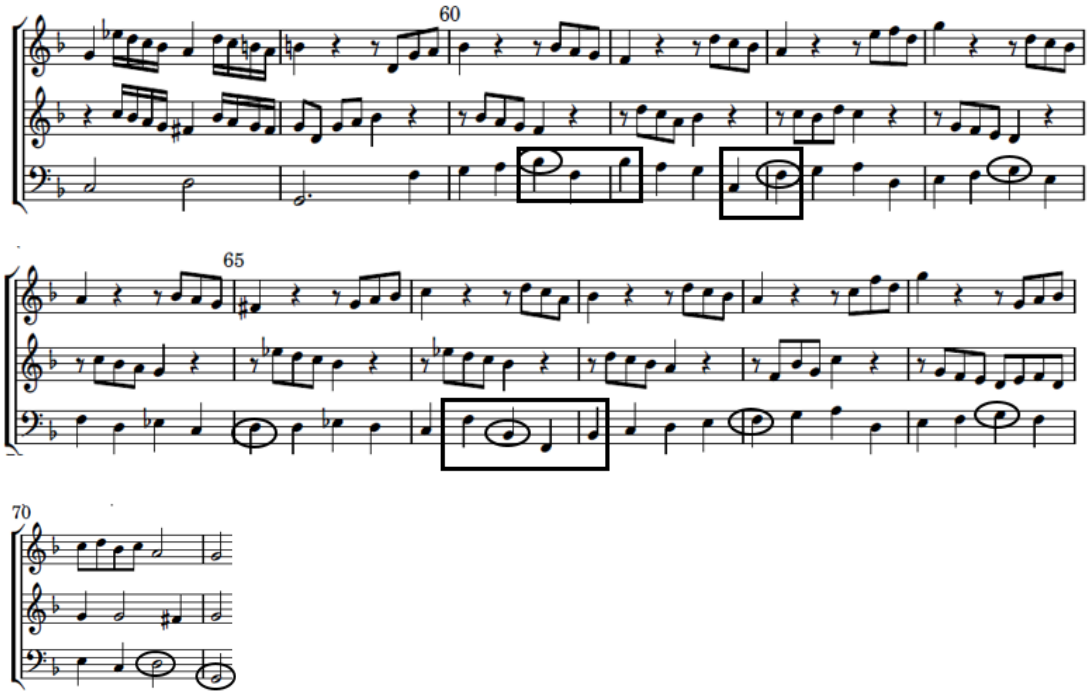
Figure 3.20. Rossi's 'Sonata terza sopra l'Arie della Romanesca' - hypothetical chord succession in the fifth romanesca variation.




The sixth variation displays a dialogue between the upper parts with a motive of three quavers and a crotchet (bb. 60-71), while the romanesca is highly decorated with constant crotchet motion in the bass. The linear contour of the bass-line presents some similarities with Spanish guitar music based on standardized bass-lines, in which Hudson identified a specific technique of chordal variation. In that repertoire, Hudson remarks, anachronistically using Roman numerals, that 'each chord of the framework may be preceded or followed (and returned to or not) by a chord that bears to it the relationship V-I, two chords that relates as IV-V to I, or on occasion (but not as frequently) more complex

groups such as iii-IV-V-I'.[73] Hudson then adds that 'this is not unlike secondary dominants or secondary groups in tonal theory'.[74] The bass-line in Rossi's sonata features mostly stepwise motion, with occasional descending third decorations recalling the contour of Spiridion's *cadentia* 5 linear (bb. 63-64), and leaps of fourths and fifths (bb. 60-62, 66-67) recalling the 'V-I' relationship to notes of the bass-line framework discussed by Hudson (see squares in Fig. 3.21). These leaps of fourths or fifths either prolong the structural notes of the romanesca bass (b♭-f-b♭ in b. 60-61) or anticipate them (c-f in b. 61-62), and other such relationships may arguably be identified linearly (such as the ascending fourth d-g filled in with passing notes d-e-f-g in bb. 62-63 and 68-69). Arguably, this illustrates the assimilation of the variation chord technique analysed by Hudson into a more contrapuntal texture (unlike the guitar pieces analysed by Hudson, which are completely chordal); in Rossi's piece, only the linear fourths or fifths in the bass around the notes of the romanesca framework are retained, but unlike in guitar pieces, all of these bass notes do not necessarily trigger implicit chord changes.[75]

Figure 3.21. Rossi's 'Sonata terza sopra l'Arie della Romanesca' – Sixth romanesca variation.




[73] Hudson, 'Chordal Aspects of the Italian Dance Style', 40-41.
[74] Ibid., 41.
[75] Indeed, Hudson specifies that the technique of chord variation he brings to light in seventeenth-century guitar music is implicitly present in sixteenth-century lute or keyboard pieces, even though hidden by more active melodic parts. Ibid., 40. However, Hudson does not mention seventeenth-century ensemble music.

In this sixth variation, a continuo player could play root-position chords (sometimes first inversions) on the first and third crotchet of each bar. As in other variations, the harmonic drive derives from the structural notes of the basic romanesca pattern, against which the lines and intermediary chords are organized so that certain notes and chords are perceived as more prominent than others. This organization creates a sense of hierarchy around the romanesca pattern, a sense that is nonetheless not comparable to hierarchical tonality; as Carl Dahlhaus put it, 'a tonal chord progression owes its integrity to the relation of the parts to the whole', whereas 'a bass formula represents nothing but itself'.[76]

The seventh variation (bb. 72-83) features bass decorations of ascending and descending crotchets leading up to each note of the romanesca pattern, doubled at the third (or one of its compounds) in the upper voices by a quaver and two semiquavers ascending motive. This suggests root position triads above the notes of the romanesca and doubling of the upper voices in between. Finally, the bass-line of the last romanesca variation (bb. 84-95) is very similar to the sixth (bb. 60-71), while the upper voices feature constant quaver motion in counterpoint with the bass. Again, as in the sixth variation, the continuo player may have doubled the upper parts or conceptualized various possible triads between the structural romanesca bass notes.

Rossi's piece exemplifies techniques of bass-line ornamentation, which could possibly result in varying chord successions, and it shows the license with which musicians conceptualized chord successions, with various continuo realisations possible within the framework of a harmonic schema. This observation suggests other avenues of research, where local chord successions could be analysed as harmonic elaborations of larger well-known harmonic schemata functioning as background harmonic structure. This analysis also shows that the techniques of chord variations identified by Hudson in the Spanish guitar repertoire were assimilated into other types of texture in seventeenth-century instrumental ensemble music, a repertoire not explored by Hudson.

## Conclusion

This chapter offers one of the first discussions of seventeenth-century harmonic schemata in ensemble instrumental music. Whereas the relationship between improvisation and composition is strongly evident in solo traditions such as keyboard and guitar repertoires, in ensemble music this relationship is a bit less clear. There were traditions of ensemble

[76] Dahlhaus, *Studies on the Origin of Harmonic Tonality*, 141.

improvisation that are now largely lost: all that survives are traces, such as the sections for improvisation in pieces such as sonatas by Colista and Guerrieri, among others. The pieces analysed in this chapter offer perspectives on how conventional schemata were used in composition, thereby illuminating the crossroads between oral and written traditions. These formulae may not be immediately obvious for a modern listener; nonetheless, the remarkably encyclopedic list in Spiridion's handbook helps us identify them. Consequently, the Falconieri and Cazzati pieces may be analysed as pieces where at least some sections are assembled from the musical equivalent of a kit of parts, and the modern listener may better appreciate the contrast between individuality and conventions in these pieces. The Rossi analysis suggests new perspectives on the organization of chord successions in the seventeenth century, and avoids the teleological reading of the romanesca (driven toward the pattern's final chord) favoured by McClary. The analysis also outlined similarities between bass-line embellishment in the piece and some of Hudson's observations in the solo guitar repertoire.

What Agazzari meant by a 'definite rule for progressions' in music without words remains uncertain. Nonetheless, lists found in continuo treatises and improvisation handbooks such as Spiridion's *Nova instructio* attest to the systematization in the seventeenth century of harmonic schemata inherited from improvisatory musical traditions; indeed, if these schemata appear most clearly as style-defining features in extant seventeenth-century music, they are not unique to the period. Schemata derived from dance and other improvisatory traditions gradually disappeared from use, but some such as the romanesca were still influential in the following century, as discussed by Robert Gjerdingen.[77]

[77] Gjerdingen, *Music in the Galant Style*, 25-43.

# Chapter 4
# The Seventeenth-Century Harmonic System: Perspectives from Continuo Treatises

Like many aspects of seventeenth-century music theory, the harmonic language of the period remains a challenge for modern analysts, as a system that cannot be approached from the standpoint of functional harmony without imposing anachronistic bias. Modern scholars have adopted various approaches to address the problem of seventeenth-century harmony. Eva Linfield, for instance, noted how chord successions in Heinrich Schütz's vocal music cannot be satisfactorily explained with expectations of functional harmony.[1] Most importantly, the triadic component of a piece features at the core of Carl Dahlhaus's 'modal-hexachordal' analysis, later expanded by Eric Chafe and used by other scholars such as Helmut Well and Lars Berglund.[2]

One of the main differences between Dahlhaus's and Chafe's harmonic analyses on the one hand, and that of other scholars on the other, is that their analysis of harmony is integrated in a model that examines harmony alongside the scalar system on which it depends and within which it operates; for instance, certain chord successions and *ficta* alterations may be explained in relation to the scalar system the composer uses in a given passage of music. Thus, Dahlhaus explains that the 'flexibility of the third' in seventeenth-century music, whereby minor chords were often altered to become major, is due to the common use of raised *ficta* notes at cadences, and he asserts that only six triads were used in a given scale due to the prohibition on a diminished triad on the seventh scale degree.[3] To Dahlhaus's model, Chafe added his conception of shifts of system, that is of *cantus* or 'key' signature, thus permitting the use of more than only six triads within a single 'key' signature.[4] Even though Chafe invoked some primary sources such as Athanasius Kircher's *Musrugia universalis* (1650),

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[1] Eva Linfield, 'Modal and Tonal Aspects in Two Compositions by Heinrich Schütz' *Journal of the Royal Musical Association* 117, no. 1 (1992): 86-122.
[2] Carl Dahlhaus, *Studies on The Origin of Harmonic Tonality*, trans. Robert O. Gjerdingen (Princeton, NJ: Princeton University Press, 1990); Eric Chafe, *Monteverdi's Tonal Language* (New York: Schirmer Books, 1992); Beverly Stein, 'Between Key and Mode: Tonal Practice in the Music of Giacomo Carissimi' (PhD diss., Brandeis University, 1994); Helmut Well, 'Klangvorrat und Akkordverknüpfung bei Schütz, Carissimi und Bernhard', *Schütz-Jahrbuch* 23 (2001): 55-68; Lars Berglund, *Studier I Christian Geists vokalmusik* (Uppsala: Acta Universitatis Upsaliensis, 2002).
[3] Dahlhaus, *Studies on The Origin of Harmonic Tonality*, 294.
[4] Chafe, *Monteverdi's Tonal Language*, 27.

Lorenzo Penna's *Li primi albori musicali* (1672) or Johann David Heinichen's *Neu-erfundene und gründliche Anweisung* (1711), he did not fully discuss other contemporaneous sources that could support his reflections.

Many scholars have recognized the value of Dahlhaus's and Chafe's models for the analysis of seventeenth-century music and have applied them in their own work. However, Chafe's lack of engagement with contemporaneous treatises has been criticized by scholars such as Tim Carter, who points out that, even though Chafe follows a so-called 'modal-hexachordal system' of analysis, he does not mention the mechanics of hexachord mutations and solmization as used by seventeenth-century composers.[5] Similarly, Paul Walker, while recognizing the value of Chafe's method, also noted the lack of historical background in his method of analysis.[6] Walker therefore suggested the following in order to strengthen Chafe's approach:

> First, the various writings on music that do exist in the 100 years between Zarlino and Bernhard need to be systematically mined for clues. I believe that useful information is to be found that can help us to understand this music more in terms that its contemporaries, and therefore perhaps its creators, understood it.[7]

Following Walker's suggestion, the present chapter proposes to examine 'clues' in principles of continuo accompaniment as found in seventeenth-century treatises and to explore their implications in relation to the scalar systems of the period (*cantus durus* and *cantus mollis*). The chapter argues that a close analysis of these sources at least partly corroborates and provides some historical foundations for Dahlhaus's and Chafe's models of analysis. The chapter begins with a discussion of treatises by Francesco Bianciardi, Agostino Agazzari, Adriano Banchieri, Galeazzo Sabbatini, Lorenzo Penna and Bartolomeo Bismantova, with an emphasis on guidelines for chord successions at the local level (usually only two chords, as opposed to longer harmonic schemata discussed in Chapter 3), and alterations allowed in the bass in *cantus durus* and *cantus mollis*. The second part of the chapter presents Dahlhaus's and Chafe's models of harmonic hexachordal analysis, and relates them to my findings in continuo treatises. Two musical examples, taken from Tarquinio Merula's *Il quarto libro delle canzoni*

[5] Tim Carter, review of *Monteverdi's Tonal Language* by Eric T. Chafe, *Early Music* 21, no 2 (May 1993): 277.
[6] Paul Walker, review of *Monteverdi's Tonal Language* by Eric Chafe, *Journal of Music Theory* 40, no. 1 (Spring 1996): 167-168.
[7] Ibid., 168.

*da suonare* (1651), illustrate how principles of chord successions found in treatises partly governed aspects of seventeenth-century harmonic language in instrumental music, and offers historical grounding for Dahlhaus's and Chafe's models. These two examples epitomise the conventions described in this chapter, but are not necessarily representative of the Italian ensemble music repertoire, as composers could still use major or minor consonances as they wished, as noted by Bianciardi (see quote p.216).

## I. Principles of Continuo Playing as Indicators of Harmonic System.

Even though the first extant documents informing continuo practice date from the beginning of the seventeenth century, the practice itself was undoubtedly older. Early seventeenth century Italian sources show as many figured as unfigured basses, suggesting a long-standing practice that was not always explicitly notated and was transmitted orally from master to student.[8] Several theorists, such as Agostini Agazzari and Adriano Banchieri in the early seventeenth century and Lorenzo Penna later in the century, mentioned that as a prerequisite, a continuo player had to understand elementary principles of counterpoint, such as how to resolve dissonances properly and how intervals naturally succeed each other.[9] With these basic principles in mind, a continuo player could understand the harmonic implications of the melodic motion of an unfigured bass-line. The ongoing establishment of these harmonic conventions in relation to the bass-line, along with rules of *musica ficta* and standard chord successions resulting from the harmonization of conventional bass-lines and at the approach to cadences (as discussed in Chapter 3) clarify the harmonic language used more widely throughout Italian music of the early seventeenth century. A closer examination of seventeenth-century Italian treatises describing these conventions is essential to understand

[8] Tharald Borgir, *The Performance of The Basso Continuo in Italian Baroque Music*, Studies in Musicology 90 (Ann Arbor: UMI Research Press, 1987), 126. In his *Concerti ecclesiasti à 1—8 voci con il suo Basso seguido* (Venice, 1610), Giovanni Piccioni said he did not add figures to the bass because 'to such organists as are not expert, they are a source of confusion…[whereas] to competent men, such accidentals are not necessary, since they play them correctly by ear and by art'. See F.T. Arnold, *The Art of Accompaniment from a Thorough-Bass as Practiced in the Seventeenth and Eighteenth Centuries* (London: Oxford University Press, 1931), 66.

[9] Several early seventeenth-century theorists such as Agostino Agazzari and Adriano Banchieri acknowledged that the principles of thorough bass stemmed from the rules of counterpoint. Agazzari, however, insisted that in vocal music, the words should have the preeminence over rules of counterpoint and had to dictate harmonic choices, as discussed in Chapter 3. Borgir, *The Performance of The Basso Continuo*, 134; 127. An excellent study of the development of harmonic theory in relationship to counterpoint is Benito Rivera, 'Harmonic Theory in Musical Treatises of the Late Fifteenth and early Sixteenth Centuries', *Music Theory Spectrum* 1 (Spring 1979): 80-95.

how composers may have conceptualized collections of triads that were commonly used in tones in the *cantus durus* and *cantus mollis* scales.

In the early seventeenth century, four published treatises concerning thorough bass realization are particularly informative with regard to harmonic conventions of the early seventeenth century. These include the 1607 broadsheet *Breve regola per imparar a sonare sopra il Basso con ogni sorte d'instrumento* ('Short guide to learn how to play above the bass with any kind of instruments') by Francesco Bianciardi, a native of the region of Siena who was praised by Adriano Banchieri and served as *a maestro di cappella* at the Siena Cathedral. As the title and the picture at the top of this broadsheet suggest by showing different instruments that could be involved in the realization of a continuo, the rules outlined in this very short treatise may apply to all kinds of continuo instruments.[10] Even though this broadsheet was aimed at beginners and cannot inform advanced continuo practice (it was probably intended to be displayed on the wall of a classroom or by a teacher's keyboard), it provides useful information regarding the basic concepts governing the realization of an unfigured bass in early seventeenth-century Italy. Also in the same year, Agostino Agazzari's *Del suonare sopra il basso con tutti stromenti & uso loro nel concerto* (Siena, 1607) was published.[11] Even though this treatise is less informative with regard to how to harmonize an unfigured bass, it will nevertheless be mentioned here. Another treatise, Banchieri's second edition of *L'Organo suonarino* (Venice, 1611), contains an important addition as compared to the first edition of 1605.[12] This addition, entitled 'Musical dialogue between […] Adriano Banchieri of Bologna and a friend of his who desires to play securely a basso continuo at the organ in all the styles', suggests that the principles described therein were appropriate to several, if not all styles of music, and contains informative guidelines in the form of a dialogue between Banchieri and his friend.[13] The fourth early seventeenth-century Italian treatise that will be discussed below is the first part of Galeazzo Sabbatini's *Regola facile e breve per*

[10] The picture shows an organ, a spinet, a harp, a chitarrone (or theorbo), three lutes of various sizes, two violones, a viola da gamba, and another unidentified instrument of the viol family. Arnold, *The Art of Accompaniment*, 74.
[11] This short treatise was reprinted in Agazzari's preface to *Sacrae cantiones quae binis, ternis, quaternisque vocibus concinendae, liber II, opus V, motectorum, Venetiis apud ricciardum amadinum*, 1609. Ibid., 67-68.
[12] Ibid., 82; *Oxford Music Online*, s.v. 'Banchieri, Adriano', www.oxfordmusiconline.com (accessed March 16, 2016).
[13] 'Dialogo musicale del R.P.D. Adriano Banchieri Bolognese con un amico suo, che desidera suonare sicuramente sopra un Basso continuo nell'Organo in tutte le maniere'. Adriano Banchieri, *L'organo suonarino* (Venice, 1611), 59.

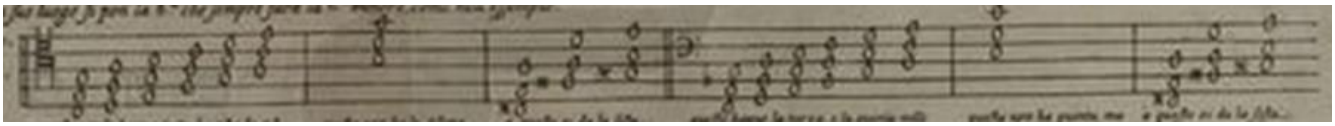
*sonare sopra il basso continuo nell'Organo, Manacordo, ò altro Simile Stromento* (Venice, 1628). The second part of Sabbatini's treatise, which is not extant and may never have been published, was aimed at continuo players who had mastered the basics.[14] The first part of Sabbatini's *Regola* aims to instruct beginners to learn by themselves the fundamentals of continuo accompaniment, as specified in the title.[15] These Italian treatises provide similar insights in fundamental aspects of the early seventeenth-century harmonic language. In addition, two sources from the second half of the seventeenth century will be discussed. The first is Lorenzo Penna's *Li primi albori musicali* (Bologna,1679), a primer already introduced earlier in this thesis that teaches the fundamentals of *canto figurato* and provides rich information on the establishment of standardized harmonic patterns in the late seventeenth-century. The second is Bartolomeo Bismantova's *Compendio musicale* (Ferrara, 1677), also a primer that teaches the basics of *canto figurato* and *canto fermo*, as well as elementary instructions on how to play various instruments.[16]

Most theorists discussing the realization of unfigured basses focus on melodic motion in the bass-line as the clue to knowing how to harmonize the bass. For the purpose of the following argument, principles that involve chromatic alteration of diatonic chords in connection to specific melodic movement in the bass are emphasized.

In his *Breve regole*, Bianciardi prescribes that bass notes should be harmonized with a perfect fifth and third above whenever possible ('And this is to be observed in the cases of all the notes of the bass which can have such consonances').[17] Nevertheless, he acknowledges that a sixth must replace the fifth when the bass note does not naturally have a perfect fifth above it (such as B in *cantus durus* and E in *cantus mollis*, as he later explains), and when the bass note is altered with a ♯ sign. Bianciardi gives the following examples to illustrate his point, showing the standard harmonization of diatonic and chromatically altered pitches in *cantus durus* and *cantus mollis* (see Fig. 4.1):

[14] Arnold, *The Art of Accompaniment*, 110.
[15] […] Dalla quale in questa Prima Parte ciascuno da stesso potrà imparare da i primi principij quello che sarà necessario per simil effeto'. 'From which, in this first part, anyone can, by himself, learn from the very beginning whatever is necessary to the end in question'. Ibid.
[16] Bartolomeo Bismantova, *Compendio musicale* (Ferrara, 1677), Archivum musicum, collana di testi rari 1 (Firenze: Studio per edizioni scelte, 1978)
[17] 'E questo si deve osservare in tutte le corde del Basso, che possono haver tal consonanze' Bianciardi, *Breve regola per imparar a sonare*', Ibid., 75.

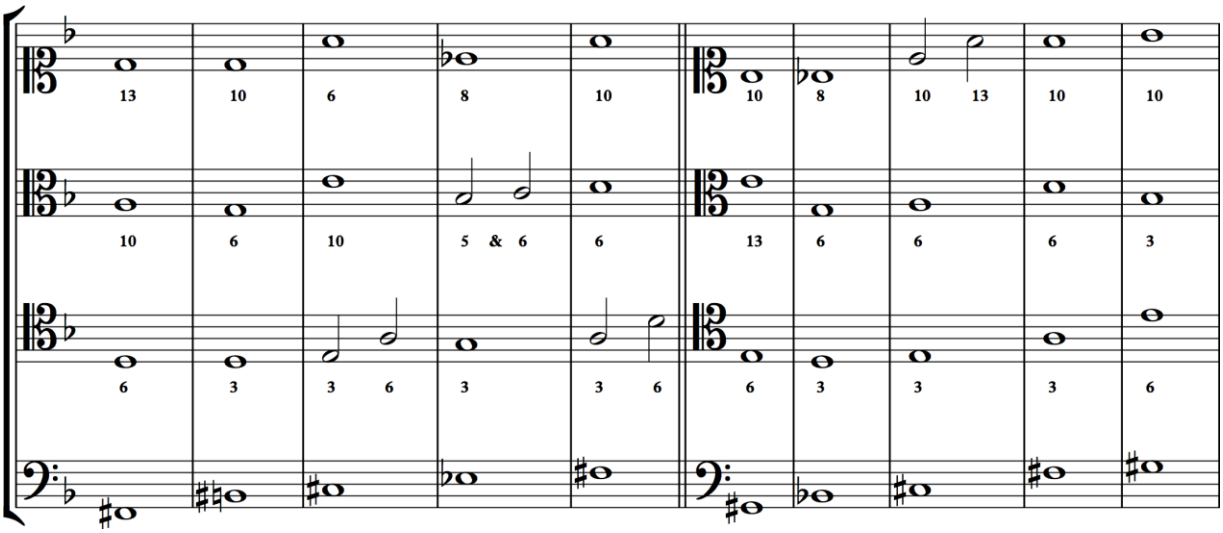
Figure 4.1 Bianciardi's musical examples for scale degrees to harmonize with a 5th chord, and cases when a 6th chord should be used above the bass in place of a 5th chord in *cantus durus* and *cantus mollis*. *Source*: Bianciardi, *Breve regola*.



In *L'organo suonarino*, Banchieri, who acknowledges his indebtedness to Viadana, Bianciardi and Agazzari, also explains that the B *quadro* (♮) in *cantus durus* and E la in *cantus mollis* do not have a perfect fifth above and therefore require a sixth instead of a fifth.[18] Banchieri then addresses cases when the bass note is altered by an accidental ♯ or ♭ (unlike Bianciardi who only mentions accidental sharps), explaining that in the case of the accidental ♯, the fifth must be replaced by a sixth and the bass note cannot be doubled, and for the accidental ♭, the player may add either the third and the fifth (when it is naturally in the scale) or the third and the sixth and their doublings as preferred.[19] In his musical examples, Banchieri adds a B♭ in the bass as an accidental ♭ in *cantus durus* (realized as a 6 chord), and in *cantus mollis*, he shows the E♭ in the bass (realized as a root position chord moving to a 6 chord, see Fig. 4.2).[20] Note that Banchieri's examples of chromatically altered bass notes are the same as Bianciardi's (F♯, G♯, C♯), except for Banchieri's addition of accidental flats.

[18] Ibid., 85.
[19] Ibid., 86.
[20] Ibid.

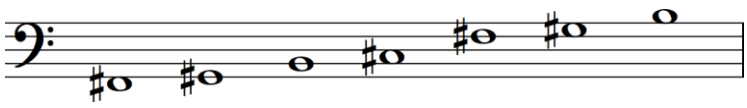
Figure 4.2 Banchieri's examples of how to harmonize chromatically altered bass notes in *cantus mollis* and *cantus durus*. *Source*: Banchieri, *L'organo suonarino* (1611), 62.



Likewise, Sabbatini gives similar prescriptions regarding the harmonization of scale degrees in his *Regola facile*. In the fourth chapter of his treatise, entitled 'Delle Precognitioni della Regola', Sabbatini instructs that all bass notes including those that are preceded by a ♭ should be harmonized with the third, fifth and octave. The only exceptions are B *quadro*, as well as bass notes that are chromatically altered with a ♯, which call for the third, sixth and octave.[21] (Unlike Banchieri, Sabbatini does not mention the use of a 6 chord for bass notes preceded by a ♭.) Sabbatini includes a musical example showing the notes in the bass that should be harmonized with a 6 chord. Again, like Bianciardi and Banchieri, Sabbatini shows B♮ (diatonic), and the chromatically raised F♯, G♯, and C♯ (see Fig. 4.3).[22] Sabbatini does not give examples for chromatically altered bass notes in *cantus mollis*, but later explains that in *cantus mollis*, E mi should be harmonized with a third, sixth and octave, unless a ♯ sign is placed over it, in which case it should be harmonized with a third, fifth and octave as if there was no ♭ in the signature.[23]

[21] Ibid., 111-112.
[22] Ibid., 111.
[23] Ibid., 124-125.

Figure 4.3 Sabbatini's example showing the bass notes that require a 6 chord in *cantus durus*. *Source*: Sabbatini, *Regola facile* (1644), 9.



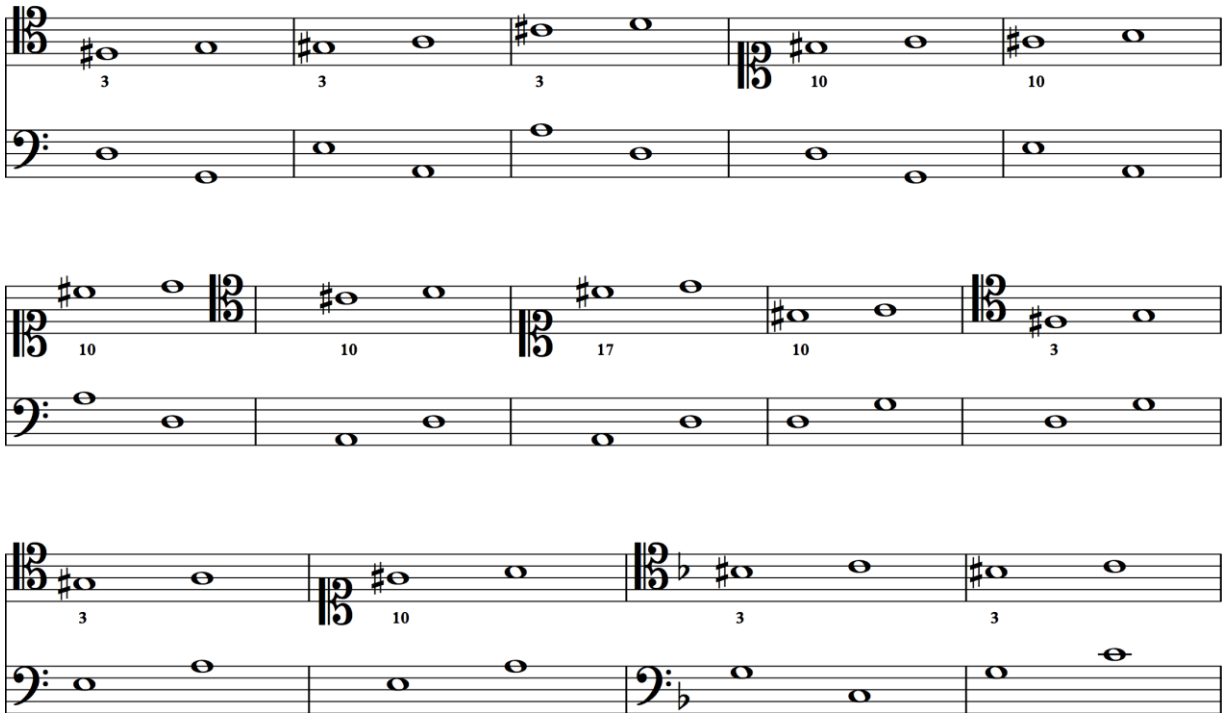
The examples that Bianciardi, Banchieri and Sabbatini give to illustrate their instructions are not coincidental; in *cantus durus*, F♯, G♯, and C♯ represent all the possible sharp alterations of bass notes that can be found without compromising the integrity of the *cantus durus* scale, and the D♯, E♯ and A♯ are problematic in any form of meantone temperament, which further accounts for their exclusion here. Indeed, if we consider the other three degrees of the natural hexachord, which Bianciardi and Banchieri give as the basis for the chord collection in *cantus durus*, a sixth chord built on the raised D would result in a diminished third between D♯ and F, and a tritone between F and B (although the F♯ could be raised according to *ficta* principles), the raised E would have been incompatible with tuning systems (the E♯ was only used experimentally in music of that era), and the raised A would also create a diminished 3rd between A♯ and C. The same could be said of *cantus mollis*, which shows the same raised scale degrees transposed to *cantus mollis* (that is, F♯, C♯, both also found in *cantus durus*, and B♮ instead of G♯ in *cantus durus*, see Fig. 4.1 and 4.2). Banchieri's flatward expansion of the altered bass pitches that may be used in each *cantus* with his addition of B♭ in *cantus durus* and E♭ in *cantus mollis* as examples of accidental flats hints that the B♭ hexachord might have been permitted within *cantus durus*, a notion developed by Chafe in his model of modal- hexachordal analysis, as will be discussed below and in Chapter 5.

Another principle of continuo playing must be discussed here in relation to the chromatically altered bass notes discussed above, as both are related and shed light on the basic collections of triads commonly used in *cantus durus* and *cantus mollis*. The Italian theorists mentioned above discuss the harmonic implications resulting from the movement of the bass-line. Bianciardi specifies that when the bass moves up a fourth or down a fifth, the first chord should take a major third, and if this does not occur diatonically, a ♯ should be

added, 'because it is through this movement that the cadence is made'.[24] Even though Bianciardi specifies that cadences are reached by this movement of the bass, it is unclear whether his advice applies only at cadence points or anywhere in a piece where this movement of the bass is found. Other Italian treatises give further insights regarding this question. In *Del suonare sopra il basso*, Agazzari claims that 'all cadences, whether medial or final, demand the major third; some people, therefore, do not indicate it, but, for greater safety, I advise putting the sign, especially in medial cadences'.[25] Agazzari's term 'medial'(*mezzane*) is ambiguous; it could suggest that the third was to be raised whenever this melodic motion is found in the bass in the middle of a phrase (which is often manifest in the repertoire itself), simply in the middle of a composition, or on another degree than the final. In *L'organo suonarino*, Banchieri unequivocally specifies that there are three positions in the scale when the third of the chord ought to be sharpened when the bass leaps up a fourth or down a fifth, and later proceeds with his musical examples, saying, 'here they are, distinctly in all the positions, and arranged in order; noting that, when there is a flat in the key, there are two more of them, one falling a fifth and one rising a fourth, but the effect is the reverse, the change being from black key to white'.[26] He gives the following examples of the three possible leaps up a fourth and down a fifth in various clefs in *cantus durus*, with the two further examples in *cantus mollis*:

[24] '[…] perche in questo movimento si fa la cadenza'. Translated by Aidan O'Donnell, www.bassus-generalis.org (accessed March 16, 2016).
[25] 'Tutte l'accadenze, ò mezzane, ò finali, voglion la terza maggiore, e però alcuni non le segnano: ma per maggior sicurezza, conseglio à farvi il segno, massime nelle mezzane'. Agostino Agazzari, *Del suonare sopra'l basso* (Siena, 1607; facsimile, n.p.: Arnaldo Forni editore, 1979), 6. Translated in Arnold, *The Art of Accompaniment*, 69.
[26] 'Eccoli distintamente in tutte le positioni, & ordinate; Avertendo che nella Chiave di b. molle dui ne hà di più uno discendente di Quinta, & ascendente di Quarta, ma fanno effeto contrario, che di tasto negro si pongono nel bianco'. Banchieri, *L'organo suonarino* (1611), 63. Translated in Arnold, *The Art of Accompaniment*, 87.

Figure 4.4 Banchieri's examples of the three positions (with two additional in *cantus mollis*) where the upper parts should be sharpened. *Source*: Banchieri, *L'organo suonarino* (1611), 64.

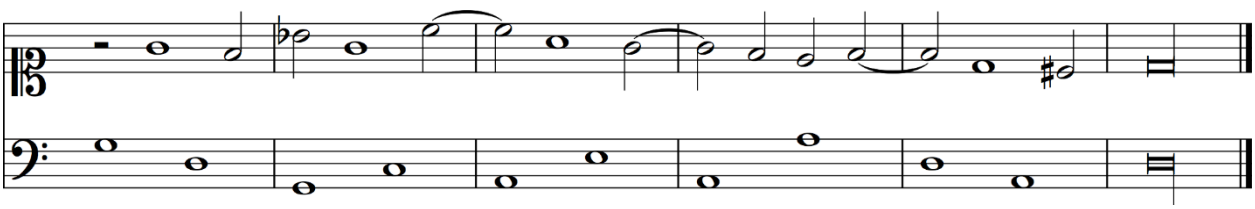


Banchieri clarifies that there are only three possible cases when the third of the chord is raised in *cantus durus*, namely, the chords on d, e and a (which would be minor chords in the diatonic scale), and a fourth one in *cantus mollis* (the chord on g, requiring the B♭ to be raised). In short, Banchieri allows for the third of a triad to be raised whenever it is diatonically a minor third. Note that whereas the D major and A major chords may be used with rising fourths or falling fifths in the bass (D-G and A-D, respectively) in both *canti*, the E major chord in *cantus durus* used for the E-A bass-line motion may not be used in *cantus mollis* due to the E diminished triad in that scale system. Moreover, the F♯, G♯ and C♯ also correspond to the three sharp alterations that may be found in the bass-line in *cantus durus*, as discussed earlier.

Banchieri's subsequent discussion informs the context in which this principle should be applied. As his friend questioned the necessity of using figures when the bass rises a fourth or leaps down a fifth, Banchieri responded that figures are still necessary to specify intervals, and because composers are free to use any chords to enhance the meaning of the words; to that

end, composers may avoid using a cadence if necessary.[27] Banchieri's ensuing musical example, captioned 'The free mind of the composer in sometimes avoiding a cadence' demonstrates what he has in mind; it features a series of rising fourths and falling fifths in the bass line that do not include raised thirds, except at the very end (see Fig. 4.5).[28] In this example, the two voices never reach a cadence when the bass rises up a fourth or leaps down a fifth (that is, an octave between the two voices with a raised third above the first bass note), except at the end where the c♯' resolves to d' in the upper part. Otherwise, the cadences are avoided, and the third of the first chord remains minor whenever the bass rises up a fourth or leaps down a fifth. [29]

Figure 4.5 Banchieri's illustration of 'the free mind of the composer in sometimes avoiding a cadence.' *Source*: Banchieri, *L'organo suonarino* (1611), 64.



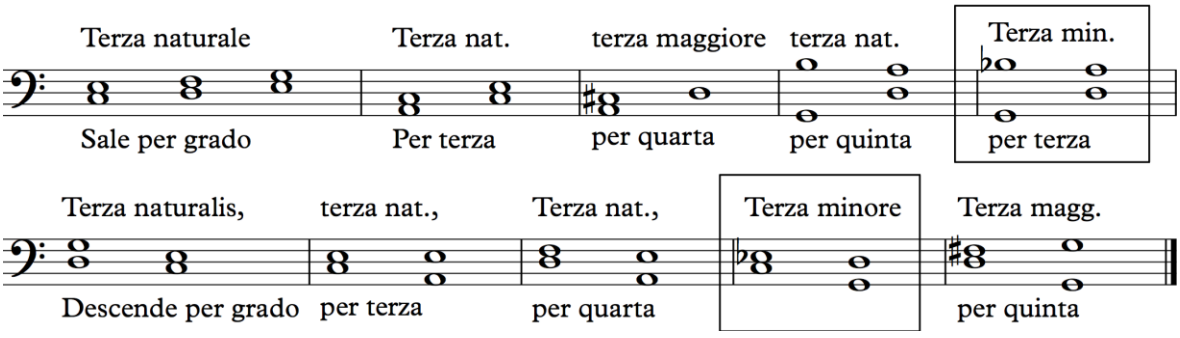
One last theorist from the early seventeenth century also mentions this principle. Sabbatini explains in his *Regola facile* that the bass rising a fourth or falling a fifth usually signals a cadence, and that the third of the first chord should be raised.[30] In addition, he explains that the use of a ♭ above the first note of the bass in that context explicitly indicates that the third should be minor so as to avoid a cadence (since a raised note calls for resolution upward by step).[31] As mentioned above, the repertoire shows that the use of a ♭ sign (specifying the use of a minor chord) in conjunction with melodic motion up a fourth or down a fifth is often found anywhere in a piece, regardless of whether the passage features a cadence

[27] Arnold, *The Art of Accompaniment*, 88.
[28] 'Mente libera del Compositore in sfuggire tal fiata l'accadenza' [*sic*]. Banchieri, *L'organo suonarino*, 64. Translated in Arnold, *The Art of Accompaniment*, 88.
[29] The fact that composers sometimes specified that the third should not be raised by adding a ♭ over the bass when the bass-line rises a fourth or falls a fifth regardless of voice leading in the written upper parts suggests that this principle was generally understood to apply anywhere in a piece.
[30] Arnold, *The Art of Accompaniment*, 122.
[31] Ibid.

or not. This suggests a conventional understanding among composers and performers that the third was to be raised by default whenever that melodic motion was found in the bass.

Another principle that may be important regarding the basic collections of triads commonly used in the *cantus durus* and *cantus mollis* scales, is that of the chord used to harmonize a bass note followed by a leap up a fifth or down a fourth. Whenever this motion is found in the bass, Bianciardi advocates the use of a diatonic third, but mentions that a minor third may be used, especially when approaching a cadence. Bianciardi's musical examples for the use of a minor third in this case show an ascending G—d in the bass harmonized with b♭—a in the upper part (highlighted in the upper staff in Figure 4.6), and a descending c—G in the bass harmonized with e♭—d in the upper part (framed in the lower staff in Fig. 4.6). Bianciardi's examples of chords for specific melodic motions in the bass are all set in *cantus durus*, so it is unclear whether some examples may also apply to *cantus mollis*. Indeed, if the example featuring the G / b♭ interval resolving to d / a could be understood in a d *durus* context (since that tone almost always features the presence of B♭ written in the composition), in the other example (c / e♭ interval resolving to G / d) the e♭ could be understood as a temporary *ficta* colour in G *durus*, or as pertaining to a g *mollis* type tonality.[32] Nonetheless, this minor colour in connection with the bass moving up a fifth or down a fourth is often found as a 'plagal'-type cadence added after the perfect cadence on the final, at the very end of pieces in *cantus durus* tones.

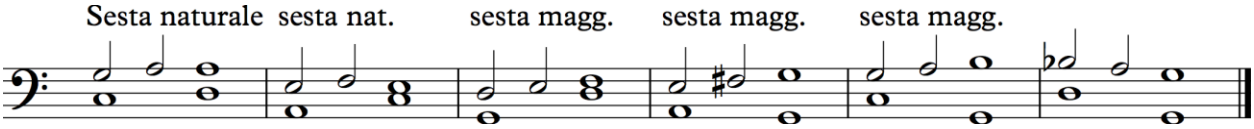
Figure 4.6 Bianciardi's examples of how to harmonize specific melodic motions in the bass-line. *Source*: Bianciardi, *Breve regola*.




[32] Penna specifies that with that melodic motion in the bass, the third should be major or minor, according to the 'nature of the composition', showing that for him, only diatonic triads should be used, major or minor, depending on the scale degree. Penna, *Li primi albori musicali* (1679), 151.

Finally, Bianciardi discusses the use of the interval of a sixth in connection with melodic motion in the bass. The uses he describes and his musical examples feature the sixth as a non-harmonic tone (what we would nowadays refer to as anticipation, upper neighbour, or passing tones, see Fig. 4.7). Bianciardi indicates that the interval of the sixth should be diatonic except when the bass moves down a step, down a fifth or up a fourth, in which case a major sixth must be used (with the addition of a sharp if necessary). He adds that a minor sixth may be used if it resolves to a perfect fifth (see last example in Fig. 4.7). These explanations, though important from a contrapuntal standpoint, are less relevant to the present discussion of the collections of triads commonly found in *cantus durus* and *cantus mollis*, since Bianciardi's discussion seems to focus on the sixth as a non-harmonic tone. Indeed, diminished triads may result from the contrapuntal motion of lines (that is, from non-harmonic tones, such as raised passing sixths to permit smooth voice leading in contrapuntal cadences, or so-called 'tenor' cadences). Bianciardi allows that type of diminished triad, as opposed to those diminished triads essential to the scale, which he forbids (such as the harmonization of B♮ in *cantus durus* or E in *cantus mollis*).

Figure 4.7 Uses of the interval of a sixth in continuo realization according to Bianciardi. *Source*: Bianciardi, *Breve regola*.




Finally, a glimpse into two treatises from the late seventeenth century – Penna's *Li primi albori musicali* (1679) and Bismantova's *Compendio musicale* (1677) – attests to the ongoing relevance of these basic harmonization guidelines given by earlier theorists. In *Li primi albori musicali,* Penna includes the same elementary principles, along with more elaborate suggestions to harmonize specific motions in the bass-line (discussed in Chapter 3), reflecting the continuing use of standardized harmonization patterns in the second half of the seventeenth century. Like previous Italian theorists, Penna expects the student to know the rules of counterpoint, taught in the second book of his treatise, as a prerequisite to learning

basso continuo.[33] As in the treatises of Bianciardi, Banchieri and Sabbatini, Penna instructs the students that all bass notes should be harmonized with a third and a fifth except for the *mi* degrees, to which the third and sixth must be added.[34] However, unlike Bianciardi and Banchieri who advocated the use of diatonic 6 chords only on the diminished triad in *cantus durus* (diminished triad on B♮) and *cantus mollis* (diminished triad on E), Penna specifies that there are not one, but two scale degrees that call for a 6 chord in each *cantus*: the two *mi* degrees in *cantus durus* (E and B) and in *cantus mollis* (A and D).[35] As noted in Chapter 2, it is striking that Penna indicates D (D lasolre) as one of the *mi* degrees in *cantus mollis*, and his examples show indeed some E♭s, hinting at the use of the B♭ hexachord in *cantus mollis*.[36] In addition, Penna also recommends the use of 6 chords when the bass note is altered with a sharp.[37] Arguably, this increasing use of 6 chords shows a move away from the early seventeenth-century preference for a non-hierarchical harmonic language mainly consisting of root-position triads, and a new preference for subordinate, hierarchical harmony. Two other principles found in early seventeenth-century treatises are also mentioned by Penna. First, he prescribes the systematic use of a major third above the first note of the bass when it rises a fourth or falls down a fifth, mentioning that if a minor third is to be used, it will be specified with a flat.[38] However, unlike earlier theorists, Penna does not link this principle to cadential movement. The second principle is the possible use of a minor third when the bass rises a fifth or drops a fourth. Penna explains that the minor third is used, but that in some cases, the major third may be used, and that 'the nature of the composition' dictates the quality of the third to be used;[39] indeed, his musical examples, all in *cantus durus*, show the first bass note harmonized with diatonic chords in root position, major or minor, depending on the scale degree.[40] Unlike Bianciardi's musical examples for this principle, there is no ambiguity in Penna's treatise.

Penna also introduces principles that differ from those found in earlier treatises, such as how to harmonize a bass-line that leaps up and down in thirds. Whereas Bianciardi

[33] Penna, *Li primi albori musicali* (1679), 135.
[34] Ibid., 136.
[35] Ibid.
[36] Ibid., 137.
[37] Ibid.
[38] Ibid., 154.
[39] Ibid.,151.
[40] Ibid.

prescribed to harmonize the bass with natural (diatonic) thirds in this case, Penna instructs that when the bass leaps down a major third (whether diatonic or involving a ♯), the first chord should take on the minor third and minor sixth, and the second chord should be harmonized with a root position triad, and vice versa for leaps up a major third in the bass.[41] His prescriptions result in the use of the same chord and its first inversion for leaps up or down a major third, again creating a more hierarchical harmonic language. However, for leaps down a minor third in the bass, Penna says that the first bass note should be harmonized with a major third, and the second should be major or minor 'according to the occasion', while in leaps up a minor third, the first note should take on the minor third, and the second, the major third.[42] Penna's musical examples for these principles show leaps up and down a minor third in the bass harmonized with diatonic root position chords, similar to Bianciardi's examples seventy years earlier.

The chapter on continuo accompaniment in Bismantova's *Compendio musicale* (1677) is very similar to Penna's treatise. Like previous theorists, Bismantova indicates that all notes should be harmonized with a root position triad, except B fa B mi in *cantus durus* and E lami in *cantus mollis*, which must take a 6 triad, as well as all notes altered with a sharp in the bass.[43] In addition, Bismantova specifies that every *mi* followed by a *fa* must be harmonized with a 6 triad.[44] The theorist also refers to the mandatory major third when the bass leaps up a fourth or drops a fifth, and the minor third when the bass leaps up a fifth or down a fourth (although he adds that in some cases, it is possible to give the major third, when this is diatonic).[45]

In summary, early seventeenth-century treatises describing the fundamentals of continuo accompaniment reveal that the collections of major and minor triads that could be used in the *cantus durus* and *cantus mollis* scales without compromising the integrity of each scale system is as follows (for clarity and for the sake of the argument that follows, the word 'triad' here is used in the modern understanding of the term, as a chord that may be found in root position or in any of its different inversions):

[41] Ibid., 148-149.
[42] Ibid., 150.
[43] Bismantova, *Compendio musicale*, 63.
[44] Ibid.
[45] Ibid., 74-75.

*Cantus durus*: C, d/D, e/E, F, **g**/G, a/A, **(B♭?)**

The chord built on B♮ is always a 6 chord (a G chord in first inversion) to avoid the diminished triad, and according to Banchieri, the g and arguably B♭ triads may be added (in bold above). The D, E and A triads are present when the bass note is chromatically altered with a sharp sign and a 6 chord is used (with bass notes on F♯, G♯, and C♯), and when the bass rises a fourth or leaps down a fifth (D-G, E-a and A-d). It is unclear whether major diatonic thirds in *cantus durus* can always be altered with a flat to become minor when the bass rises a fifth or drops down a fourth, as hinted at by Bianciardi. Diminished triads resulting from contrapuntal motion of the voices are considered non-essential, as suggested earlier.

*Cantus mollis*: F, g/G, a/A, B♭, **c**/C, d/D, **(E♭)**

The chord built on E is always a 6 chord (a C chord in first inversion) to avoid the diminished triad and according to Banchieri, the E♭ and c triads could be added (in bold above). The G, A and D triads are present when the bass note is chromatically altered with a sharp or natural sign, in which case a 6 chord must be used (with bass notes on B♮, C♯, and F♯), and when the bass rises a fourth or leaps down a fifth (G-C, A-d and D-g).

From these observations, we can deduce that the basic collections of triads in the *cantus durus* and *cantus mollis* scales (which include diatonic triads and triads resulting from the most common *ficta* chromatic alterations) allows for motion by fifth downward or upward. Downward motion by fifths can be done via cadential motion with raised thirds, as five out of the six root position triads in each scale has a major triad a fifth above it (in *cantus durus*, only E does not have a diatonic major triad a fifth above it since the B triad is diminished, and the same may be said of its analogous tone in *cantus mollis*, A, since the E triad *cantus mollis* is diminished). In *cantus durus*, for instance, motion by fifths on major chords could start on E in the bass and move downward to A, D, G, C, and F with melodic motion of rising fourths or falling fifths in the bass-line, by virtue of the continuo principle that prescribes raising the third when that melodic motion is found in the bass. Arguably, if we consider Banchieri's conceptualization, the B♭ chord could possibly be added a fifth below the F chord. Nonetheless, if Banchieri indicates the possibility of introducing an accidental B♭ in *cantus durus*, he does not specify the melodic and harmonic context in which this B♭ could be used

(e.g. *fa sopra la*, accidental to avoid a tritone, or minor third inflection at a cadence). On the other hand, cadential motion on B♭ in *cantus durus* (that is, by descending fifth or ascending fourth) would result in the inclusion of the B♭ triad in *cantus durus*, but as discussed in Chapter 2, it seems that cadences on B♭ are rarely, if ever, found in *cantus durus* tones in Italian ensemble music. Therefore, although triads including the note B♭ may sometimes be found in *cantus durus*, downward motion by a fifth beyond F in *cantus durus* would most likely require a shift of signature (*signatio*) to the *mollis* system.[46] At the sharpest extremity of the hexachord, a perfect cadence on E (to borrow the modern term) is not possible either without compromising the integrity of the scale since it requires a B chord with a perfect fifth above it (F♯), which is non-diatonic in the *cantus durus* scale (and poses a problem since the F♯ is the fifth and not the third of the chord). Therefore, E, the *mi* degree in the hexachord, technically calls for a Phrygian cadence. Likewise, in *cantus mollis*, a similar chain of fifths could start on A and move downward to D, G, C, F and B♭, with the possible addition of E♭ according to Banchieri, with A as the *mi* degree requiring a Phrygian cadence. It is to be noted that the basic collections of triads in *cantus durus* and *cantus mollis* include major thirds on E, A, D, G, C, F, B♭ and E♭, which correspond to the pure (or almost pure) major thirds possible in meantone temperament.

An incidental observation can be made here in relation to the emphasis on *do* and *re* degrees of hexachords in Italian ensemble music discussed in Chapter 2. Early seventeenth-century theorists indicate that the scale degree above *la* in the natural hexachord in *cantus durus* (B) and the scale degree above *la* in the soft hexachord in *cantus mollis* (E) both call for a 6 chord above the bass note so as to avoid the diminished triad. The 6 chord on B in *cantus durus* has a leading tone function, as it calls for a resolution to the chord built on the tone that naturally comes a semitone above (C). The other chromatically altered notes given by theorists for *cantus durus* create similar 6 chords with C♯, F♯ and G♯ in the bass, calling for resolutions

[46] However, note that in his treatise *Nova instructio pro pulsandis organis* (1670-75) discussed in Chapter 3, Spiridion gives examples of cadences in the transpositions of some church tones in his cadential formulae. Spiridion includes cadences on D, G, C, F and B♭ in both *cantus durus* and *cantus mollis*. Interestingly, he labels both cadences on B♭ as 'mixed tones' ([tonus] mixtus). See Bruce Alan Lamott, 'Keyboard Improvisation according to "Nova instructio pro pulsandis organis" (1670-ca 1675) by Spiridion a Monte Carmelo' (PhD diss., Stanford University, 1980), 64. According to Lamott, the term 'mixtus' may refer to the convergence of both *canti* (since both reach a cadence on B♭ via downward motion in fifths), or the transposition of a final outside the normal modal finals found in a *cantus*. Ibid., 66.

on d, G and a chords, respectively. From the standpoint of hexachordal theory and in the light of previous observations on cadences degrees in *cantus durus* included in Chapter 2, the bass note in all these 6 chords call for resolution on (and thus emphasize) C, d, G, and a, which are the *do* and *re* degrees in the natural and hard hexachords comprising *cantus durus*. Likewise, in *cantus mollis*, the 6 chord on E calls for a resolution to the F chord, and the other chromatically altered notes indicated by Bianciardi for *cantus mollis* are the 6 chords on F♯, B♮, and C♯, which lead to resolutions on the g, C, and d chords, respectively, so that the four 6 chords resolve to F, g, C, and d chords, corresponding to the *do* and *re* degrees in the soft and natural hexachords comprising *cantus mollis*.

In short, according to continuo treatises, the basic harmonization of a diatonic scale in the first half of the seventeenth century comprises only six triads (three major, three minor). The commonly found chromatic inflections in the diatonic scale result in the possible addition of a seventh triad (B♭ in *cantus durus*, E♭ in *cantus mollis*, as given by Banchieri) and the flexibility of minor-third chords, which may become major in some instances. Therefore, any occurrence of triads other than those listed above for each *cantus* may arguably reflect either a less common temporary chromatic inflection, or a transposition of the diatonic scale.

The basic principles outlined above show how seventeenth-century theorists and composers conceptualized for beginners the collections of triads that could be used in the *cantus durus* and *cantus mollis* scales. Nonetheless, theorists acknowledged that experienced composers could use much more licence. Towards the end of the *Breve regola*, Bianciardi writes:

> […] although these little rules have been written according to the style in which, ordinarily, pieces of all sorts are composed, the composer has nonetheless the freedom to use major consonances and to mix different kinds of dissonance; to give absolute directions for these is impossible.[47]

Indeed, composers did not always abide strictly by the principles outlined above. Moreover, the degree of harmonic freedom in a composition may have depended on genre and venue. For instance, church music may adhere more closely to harmonic conventions than opera; the

[47] '[…] [avvertendo, che] se bene habbiano scritto queste regolette, secondo lo stile, che ordinariamente si compongono i canti d'ogni sorte; resta nondimento la libertà al compositore d'usar le consonanze delle maggiori, mescandolando diverse spetie di dissonanza; delle quali il darne sicuro ordine, è impossibile'. Bianciardi, *Breve regola*.

same could be said of a dance movement versus a capriccio or fantasia, since these latter genres gave a premium to exploration and extravagance in all aspects of the music. However, an understanding of harmonic principles derived from the rules of continuo accompaniment can offer a historical grounding to modern attempts to analyse the chord collections in seventeenth-century music.

## II. Dahlhaus's and Chafe's Models for Modal-Hexachordal Analysis.

The model of modal-hexachordal analysis first developed by Dahlhaus and later expanded by Chafe is one of the most effective methods for analyzing pitch organization in early to mid-seventeenth-century repertoire. Nonetheless, the connections between Dahlhaus's and Chafe's models and seventeenth-century treatises discussing the principles of continuo accompaniment have not been examined. I here argue that Dahlhaus's and Chafe's models can be partly historically validated by the similarities with seventeenth-century Italian rules for continuo accompaniment.

Chapter 2 introduced Dahlhaus's model in relation to the cadence degrees in Italian ensemble music (pp. 100-103). For Dahlhaus, the 'system' on which a piece of music is based is defined by the range of its cadence degrees, which can be ordered stepwise to form a hexachord. Each cadence degree of this hexachord may be conceived as the final of a 'component key'. The *mi* and *fa* degrees of that hexachord characterize the system, and Phrygian cadences always occur on the *mi* degree of the hexachord, as discussed in Chapter 2. By extension, Dahlhaus also conceived a harmonic interpretation of the hexachord, with each hexachordal degree functioning as the root of a triad.[48] Thus, as with the study of cadence degrees, an analysis of the harmonic (triadic) content of a piece and the reordering of each triadic root to form an *ut-re-mi-fa-sol-la* sequence can also define the hexachordal system on which a piece is based.

Dahlhaus's observation of the use of a basic system of six cadence degrees and six corresponding triads conforms with early seventeenth-century theorists' explanations of how to harmonize diatonic scale degrees in discussions of the principles of continuo accompaniment. Bianciardi, Banchieri and Sabbatini all state that all diatonic bass notes in a scale may be harmonized with a third and fifth except for the scale degree that does not have a

[48] Dahlhaus, *Studies on the Origin of Harmonic Tonality*, 292.

perfect fifth above it, as explained earlier. In other words, all diatonic scale degrees can be harmonized with a root position chord except for the diminished chord (harmonized with a 6 chord).

In addition, Dahlhaus specifies that since the chordal system he identifies is founded on triadic roots forming a hexachord, the chromatic alteration of the thirds of chords does not affect the system of component keys.[49] Thus the minor chords (*re*, *mi* and *la* degrees) in the hexachord may freely become major, via the use of the Picardy third or by virtue of what he calls the 'principle of the dominant', whereby a chord may function as a 'secondary dominant' to the chord immediately following it.[50] Again, his observation is in line with seventeenth-century theoretical guidelines for continuo accompaniment, since as discussed earlier, early Italian theorists prescribe that all diatonic minor triads may become major if the bass line leaps up a fourth or down a fifth, or if found at the end of a section or entire piece (Picardy third).

Finally, in his analysis of Monteverdi's *O Mirtillo,* Dahlhaus noticed the ambiguity of the B♭, which could occasionally appear in the natural system.[51] Based on this observation, Dahlhaus suggested that, if the use of a B♭ as a cadential degree in the natural system undeniably triggered a shift to the ♭ system (that is, the hexachord based on F), the B♭ chord could possibly be included as a supplementary chord (even though not as a cadential degree) in the natural system.[52] Moreover, Chafe also pointed out that certain modes in *cantus durus* (with finals on C, d and F) tend to feature passages where B♮ predominates and others where B♭ predominates, which suggests that the presence or absence of B♭ in the key signature does not determine the full range of possible pitches.[53] Chafe added that in *cantus mollis*, there is an analogous tendency in passages where E♭ predominates (in modes with finals on B♭, d, g, and F).[54] Interestingly, Banchieri's musical examples of accidental ♭ in the bass-line are B♭ in *cantus durus* and E♭ in *cantus mollis*.[55] Nonetheless, his example shows a B♭ in the bass harmonized with a 6 chord, which from our modern standpoint is a g minor chord in first inversion. On the other hand, his analogous example of an accidental ♭ in *cantus mollis* features an E♭ chord in root position which becomes a 6 chord on the second part of the beat,

[49] Ibid., 294.
[50] Ibid., 295.
[51] Ibid., 296.
[52] Ibid.
[53] Chafe, *Monteverdi's Tonal Language*, 25.
[54] Ibid.
[55] See Fig. 4.2.

suggesting that accidental ♭ in the bass could be harmonized both ways. Thus, my investigation of treatises such as Banchieri's provides historical support for Dahlhaus's and Chafe's observations, as they noticed the common inclusion of B♭ in pieces in *cantus durus* and E♭ in pieces in *cantus mollis*.

If these connections provide historicized support for Dahlhaus's and Chafe's models, some elements discussed by seventeenth-century theorists may not be as easily connected to their ideas. For instance, Bianciardi indicates that when the bass-line leaps up a fifth or down a fourth, the first bass note may be harmonized with a minor chord. However, his musical examples do not clarify whether the flattened pitch is meant as a temporary expressive inflection or if the *cantus mollis* scale system is implied. On the other hand, in the late seventeenth century, Penna specifies that in that situation, the first note in the bass should be harmonized with a major or minor chord, and recommends following 'the nature of the composition', suggesting the use of diatonic chords, as discussed earlier. Chafe noted that if minor chords could freely become major without altering the scale, the alteration of a major chord to make it minor signals either a shift of hexachord or an incidental inflection for expressive purposes.[56]

According to Dahlhaus's model, the six component keys mentioned above (which correspond to the six cadential degrees of a hexachord) form a *closed* society, hypothetically limited by the *mi-fa* contrast that set the boundaries of the system.[57] The musical significance and meaning of each chord, or component key, depends on its position on the hexachord. Thus, in a piece written in the ♮ system (that is, in the natural hexachord), an E major (or minor) chord represents the *mi* degree, and an F major chord represents the *fa* degree in that system. Dahlhaus's conception of a closed system limited by the *mi* and *fa* degrees of the hexachord corresponds to what may be deduced from the principles of continuo accompaniment as discussed earlier, whereby a triad other than one of the six triads of the diatonic scale and their most common chromatic inflections triggers a change of diatonic scale.

As mentioned earlier in relation to the presence of B♭ in pieces in *cantus durus*, Chafe argued that in the seventeenth century, the key signature did not determine the range of

[56] Chafe, *Monteverdi's Tonal Language*, 27.
[57] Dahlhaus, *Studies on the Origin of Harmonic Tonality*, 292-294.

available pitches in a piece. His remarks led him to expand Dahlhaus's model with two adjacent hexachords on each side of the main hexachord, thus widening the range of possible triads within a system (see Chapter 5, p.252-253); for instance, according to Chafe's model, the B♭, g, and b (or B) triads may be found in *cantus durus*, and the E♭, c, and the e (or E) triads may appear in *cantus mollis* (see Appendix J).[58] Because Chafe's model relates to the principle of seventeenth-century modulation, I have chosen to discuss it in detail in Chapter 5 (see pp. 252-257). Chafe's remarks are particularly pertinent in the light of Banchieri's inclusion of the g (and arguably B♭) triads in *cantus durus*, and the E♭ and c triads in *cantus mollis*. However, the possible inclusion of a hexachord in the sharp direction (with the inclusion of a b/B triad) may arguably not be in agreement with what early theorists described for triads that are allowed in *cantus durus*. On the other hand, Chafe's observation of the use of this triad in *cantus durus* in Monteverdi's vocal music may reflect the beginning of the extension sharpward clearly observable in music later in the century.

In conclusion, some scholars such as Well and Berglund have found Dahlhaus's and Chafe's models to be effective for the analysis of seventeenth-century music. However, these models have a strong modern (or 'presentist') bias as they take the *root* of each chord as a means of identification of that chord, at a time when there is no evidence that composers and theorists conceived a chord and its inversion as harmonically identical. Moreover, their ideas do not satisfactorily explain scalar and other linear procedures, which were at the heart of seventeenth-century musicians' conception of tonal space, or the emphasis on specific cadence degrees, as discussed in Chapter 2. In spite of these limitations, their models have clarified the seventeenth-century system of harmonic pitch organization in an unprecedented way. Most importantly, this chapter has shown that a historical foundation for their model can be found in principles of continuo accompaniment as described by seventeenth-century Italian theorists such as Bianciardi, Agazzari, Banchieri, Sabbatini and Penna.

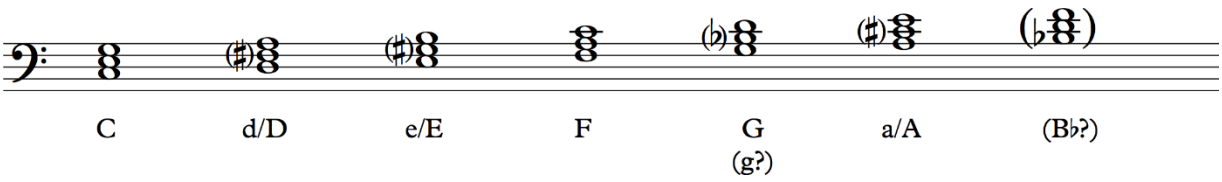
[58] Chafe, *Monteverdi's Tonal Language*, 27.

## III. Musical examples.

Two ensemble pieces (one in each *cantus*) by Tarquinio Merula, an Italian organist, violinist and composer who was organist at the court of Sigismung III, king of Poland, and later *maestro di capella* in Cremona and Bergamo, are representative of the basic principles outlined above.

### 1. *Cantus durus*: Merula's 'Sonata seconda per camera', from *Il quarto libro delle canzoni da suonare,* Op. 17 (1651).

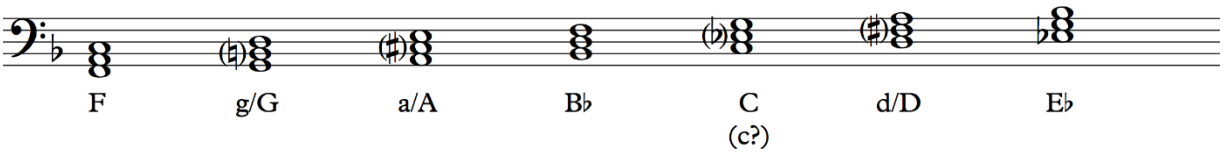
Merula's 'Sonata seconda' (see score in Appendix D) is in G *durus* and is divided in three large sections marked by repeat signs. From a seventeenth-century standpoint, the *durus* scale is based on the natural and hard melodic hexachords with possible major and minor triads as follows:




A harmonic analysis of the piece shows the use of these triads, as well as triads featuring B♭s in the bass, arguably to avoid false relations or tritones in the bass-line or with upper voices (bb. 10, 41-42, 51, 61), as linear *fa sopra la* (bb. 30), or approaching a cadence on F (b. 43). At any rate this presence of B♭ in *cantus durus* aligns with Banchieri's prescriptions for accidental signs in the bass in *cantus durus*, as well as Dahlhaus's and Chafe's observations. Merula almost always raises the thirds of the chords when the bass leaps up a fourth or down a fifth (see for instance bb. 13-14, 23-24), or instructs the player not to do so with a ♮ (bb. 2, 6, 16, 58), suggesting the quasi-conventional application of this principle. Voice-leading considerations account for most other uses of the ♯ (such as in bb. 17 with the f♯'' resolving upward to g'', or 29, with the c♯'' resolving to d'').

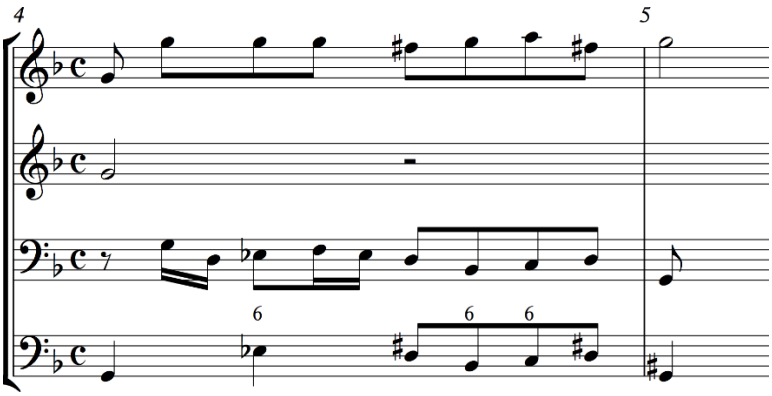
## 2. *Cantus mollis*: Tarquinio Merula's 'La Loda', from *Il quarto libro delle canzoni da suonare*, Op. 17 (1651).

Merulas's 'La Loda' is in g *mollis* and may divided in four sections marked by change of meter and/or repeat signs, with smaller subsections characterized by the introduction of new motifs within each section (see score in Appendix E). From a seventeenth-century standpoint, the piece is based on a scale comprising the soft and natural melodic hexachords with possible major and minor triads as follows:




An analysis of the triadic content of the piece confirms the use of these triads, including the use of the E♭ and c triads in different inversions (E♭ in bb. 8, 15-16, 21, 28, 35 etc. and c in bb. 3-5, 7, 20, 31-32 etc.). Again, this inclusion of E♭ corresponds to Banchieri's prescriptions and Chafe's remarks. The raising of the chords' third when the bass leaps up a fourth or down a fifth is almost always applied when the first chord is not diatonically major (see for instance bb. 2-3 and 7-8). Note that intermediary triads may be added in that chord succession; for instance, in bb. 4-5, the raised third in the D triad (3rd beat of b. 4) is prolonged via the insertion of two 6 triads before the reiteration of the D triad and its resolution to the cadence on G (b. 5), prolongation which is also visible in the violin 1 part (in b.4, the f♯'' is prolonged in the line f♯''-g''-a''- f♯'' before the final resolution to g'' at the cadence, see Fig. 4.8). Merula similarly adds intermediary triads at various places throughout the piece, often at cadences (see for instance bb.3-4; 10-11; 18-19; 49-50). Note that Merula uses the flattest triad (E♭) to mark the beginning of a section in b. 46, thus exemplifying the expressive nature of harmony as conceived in Dahlhaus's model.

Figure. 4.8. Merula's extension of the D triad with intermediary chords before the resolution to G at the cadence.




**Conclusion**

This chapter has shown that a study of the theoretical implications of seventeenth-century continuo treatises and a pedagogical broadsheet provides insights into the seventeenth-century harmonic system in relation to hexachords and scales. It has argued that an examination of these sources supports Dahlhaus's and Chafe's models of modal-hexachordal analysis for seventeenth-century music. Arguably, some of the observations made in this chapter should prompt scholars to re-think how they envisage seventeenth-century modulation as a principle involving both vertical and linear procedures; this is the object of study of Chapter 5. The models of Dahlhaus and Chafe could not have been conceived without notions of triadic inversion that were first articulated by Rameau in the early eighteenth century. Their attention to the vertical dimension of music might accordingly seem to be a 'presentist' method of listening, informed primarily by modern-day ears. This chapter, however, has sought to create a dialogue between the models of Dahlhaus and Chafe and the historic principles of continuo realization; through such a dialogue, modern ears can be re-educated, and the theoretical models developed beyond those which are articulated by seventeenth-century musicians.

## Chapter 5

## Examining Seventeenth-Century 'Modulation': Multiple Approaches to Analysis.

As with many other aspects of seventeenth-century pitch organization, the analysis of 'modulation' poses several problems. In this period, the concept of 'modulation' itself is ambiguous and can be identified at a variety of levels (melodic and harmonic) in surviving compositions. The very rare allusions to the principle of *mutatio* (the term used in seventeenth-century treatises to describe concepts that seem to relate to notions of 'modulation') show that it could denote either a change of mode within the same scale (for instance, a shift from Dorian to Aeolian 'modes' within the same piece while remaining in *cantus durus*), or a shift of the scale transposition itself within a piece of music (e.g., from *cantus durus* to *cantus mollis*). The first meaning implies a change of modal final, ambitus and octave species while remaining in the same scalar system, whereas the second meaning implies a change of melodic hexachords in a new diatonic scale (which by extension could also result in a change of octave species, depending on the new final in the transposed scale). The best-known such allusions are found in Christoph Bernhard's *Tractatus compositionis augmentatus* (ca. after 1657), in which the author addresses the concepts of *alteratio modi* and *mutatio toni*, and Athanasius Kircher's *Musurgia* (1650), where Kircher discusses *mutatio toni*, along with *mutatio modi*.[1]

The exact meaning of these Latin terms has been debated among scholars such as Eva Linfield, Beverly Stein and Eric Chafe, as Bernhard's and Kircher's rather unprecise definitions and sometimes seemingly contradictory musical examples inevitably yield differing interpretations, as will be discussed below. Linfield and Stein have provided possible definitions of these terms and applied them to the vocal music of Heinrich Schütz and Giacomo Carissimi, respectively, in connection with the rhetorical implications of the text and remarks on chord successions and modulatory procedures.[2]

In contrast with these melodic conceptions, and following Carl Dahlhaus's lead, Chafe has designed a modern-day method to analyze seventeenth-century modulation from a

[1] Christoph Bernhard, *Tractatus compositionis augmentatus* (ca. 1657); Athanasius Kircher, *Musurgia universalis* (Rome,1650).
[2] Eva Linfield, 'Modulatory Techniques in Seventeenth-Century Music: Schütz, a Case in Point', *Music Analysis* 12, no. 2 (July 1993): 197-214; Beverly Stein, 'Between Key and Mode: Tonal Practice in the Music of Giacomo Carissimi' (PhD diss., Brandeis University, 1994), 193-197.

harmonic standpoint, based on the collection of triads used to harmonize a diatonic scale.[3] Chafe's harmonic model of analysis accounts for *ficta* inflections, showing his awareness of seventeenth-century conceptions, as discussed in Chapter 4. His method of harmonic analysis, which reflects yet another level of analysis of seventeenth-century modulation, has also been applied by Helmut Well to the music of Carissimi, Schütz and Bernhard, and Lars Berglund to the music of Christian Geist.[4]

This chapter first aims to point out an aspect of the seventeenth-century theoretical discourse that has never been discussed by modern scholars in the context of a study of modulation, namely, descriptions of the mechanics of scale transposition to accommodate singers. Indeed, the terminology employed for modulation in the eighteenth century (that is, scale transposition to a new essential scale in the course of a piece, as defined in the Introduction) often appears in seventeenth-century treatises in connection with transposition, hinting at a connection between the two concepts. As we shall see in this and the following chapter, these seventeenth-century discussions of scale transposition shed light on certain modulatory passages in ensemble music and on how composers may have conceptualized them. In addition, this chapter also seeks to emphasize that an awareness of *ficta* accidentals, complemented by a Chafe-style harmonic analysis and a linear analysis, can lead to a more global, multi-leveled understanding of modulation which, arguably, may represent a more sensitive approach to seventeenth-century modulation. The chapter presents two musical examples which do not intend to be representative of the wider repertoire, but which illustrate specific theoretical/analytical issues discussed here.

The terms 'scale', 'transposition', 'modulation' and 'tonal focus' used in this chapter are defined in the Introduction (see pp. 21-22). Note that the notion of 'scale', understood as two interlocked hexachords forming a 'great scale' (*scale grande*) that can repeat itself infinitely with no fixed beginning and end (as defined by Penna in *Li primi albori musicali*), differs from the notion of 'mode' since it does not have a final.[5] Note also that the notions of

[3] See Eric Chafe, *Monteverdi's Tonal Language* (New York: Schirmer Books, 1992).
[4] See p. 195.
[5] Penna explains the *scala grande* in relation to solmization and writes the following: 'This grand scale can ascend and descend infinitely by means of the mutations (as I said), changing either the *sol* into *re*, or the *la* into *re* going up, and going down, changing either the *mi* into *la*, or the *re* into *la*.' 'Questa Scala Grande può ascendere, e discendere per mezo delle Mutazioni, (quasi dissi) in infinito, mutando hora il Sol in Re, hora il La in Re nel salire, e nel discendere; mutando hora il Mi in La, hora il Re in La'. Lorenzo Penna, *Li primi albori musicali* (Bologna, 1679), 21.

'transposition' and 'modulation' as defined in the Introduction are not necessarily mutually exclusive; an exact or inexact transposition of a musical entity (motive, phrase, etc.) to a new essential scale may also be considered a modulation. However, a modulation may also occur in the course of a phrase independently from melodic and harmonic material.

It is important to stress the difference between my use of the term 'modulation' and Eva Linfield's use of the same term. Linfield discusses 'establishing a tonal center by modulation', which she defines as 'moving away from and returning to a primary "key" by activating related or even remote tonal areas'.[6] Linfield's definition is influenced by notions of modulation in common practice tonality, and is arguably anachronistic and inappropriate for early- to mid-seventeenth-century music. On the contrary, my usage of the term modulation here simply denotes a transposition of scale conceived as an infinite sequence of tones and semitones without any implications of tonal focus, and even less 'key', although sometimes a modulation may coincide with a shift of tonal focus. A modulation will therefore be explained as a shift from a scale comprised of two interlocked hexachords to another scale with two different interlocked hexachords.

The chapter first briefly addresses *musica ficta*, followed by an account of seventeenth-century descriptions of the role and function of accidental signs in relation to scale transposition, and what we know of descriptions of modulation in seventeenth-century treatises, as all three aspects must be considered in a study of seventeenth-century modulation. It then argues that the problem of analyzing seventeenth-century modulation stems above all from the difference between *ficta* accidentals on the one hand, versus the use of ♯ and ♭ signs as indicating transposition to a new essential scale in the other hand. In that context, it contrasts Chafe's method of harmonic analysis with a linear approach to modulation as discussed in the first part of the chapter. Finally, the chapter illustrates with musical examples how an awareness of *ficta* accidentals, combined with Chafe's model of analysis and linear analyses can lead to a more nuanced and multi-levelled understanding of modulation.

[6] Linfield, 'Modulatory Techniques in Seventeenth-Century Music', 197.

## I. Musica ficta, Scale Transposition and Conceptions of 'Modulation'.

### 1. Musica ficta

Much remains to be uncovered regarding seventeenth-century musical notation in general, as conventions of notation were largely undefined and could vary from one composer and/or geographical area to the next, and little research has been done on principles of *musica ficta* in the seventeenth century. Even though there is evidence that some unwritten alterations were still added in performance, extant seventeenth-century pieces generally tend to show in notation chromatic alterations that would have been left at the performer's discretion in the previous century. Arguably, the development of transposing instruments and especially the increasing use of scale transposition within pieces may also have affected the way music was notated.[7]

It seems that the most common uses of *ficta* ♯ accidentals were as follows: the raising of the third of a triad when the bass drops a fifth or leaps up a fourth, as discussed in Chapter 4; the altering of a minor sixth to major sixth when the bass and one other part move toward a harmonic octave (similar to the so-called sixteenth-century 'tenor cadence'); the raising of certain pitches in melodic flourishes or to avoid augmented seconds in ascending lines. On the other hand, the ♭ accidental sign could still assume a *fa sopra la* function when a melodic line exceeded the range of a hexachord by only one note, and could also appear to correct melodic or harmonic tritones in the texture. Just like the ♯, the ♭ could also have been used in melodic flourishes, as well as to avoid augmented seconds in descending lines. The examination of other possible uses of *ficta* accidentals in the seventeenth century would merit careful in-depth study, which is beyond the scope of this thesis.[8]

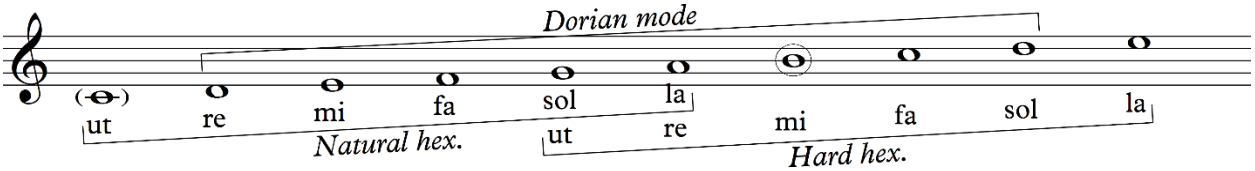
[7] On general views of notation as increasingly specific, see John Butt, 'Negotiating between Work, Composer and Performer: Rewriting the Story of Notational Progress', in *Playing with History: The Historical Approach to Musical Performance* (Cambridge: Cambridge University Press, 2002), 96-122. Butt also presents several counter-arguments, such as viewing notation as purposely incomplete, notation as 'fitted suit', notation as example, or notation as record of a performing tradition etc.

[8] Most accounts of *ficta* stop at the fifteenth century (or at the latest, sixteenth century). For further information on the use of *ficta* accidentals in these centuries, see Karol Berger, *Musica ficta: Theories of Accidental Inflections from Marchetto da Padova to Gioseffo Zarlino* (Cambridge: Cambridge University Press, 1987); Karol Berger, '*Musica ficta*', in *Performance Practice: Music before 1600*, New Grove Handbooks in Music (Basingstoke: Macmillan, 1989), 107-125; Robert Toft, *Aural Images of Lost Traditions: Sharps and Flats in the Sixteenth Century* (Toronto: University of Toronto Press, 1992).

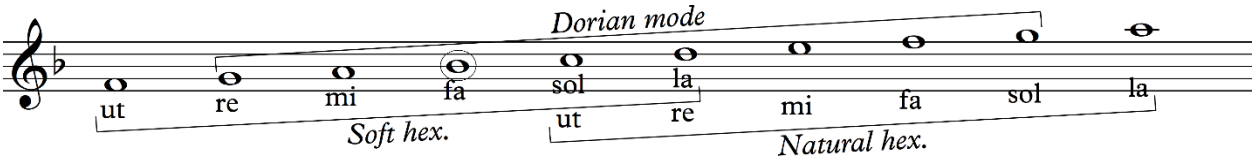
### 2. Scale Transposition

Theorists and musicians realized in the early centuries of notated music that the consistent addition of ♭ signs to the B (the *mi* degree in the hard hexachord) in *cantus durus* resulted in the transposition of a mode down a fifth or up a fourth. Thus, the Dorian mode with d as a final in *cantus durus* could be transposed to *cantus mollis* with g as a final (down a fifth, or up a fourth), simply by changing the *mi* in the hard hexachord (B *quadro*, *mi*) to *fa* in the soft hexachord (B *molle*, *fa*).

Figure 5.1 Dorian mode and its transposition in *cantus mollis*.




a) Dorian mode in *cantus durus*




b) Dorian mode in *cantus mollis*

In sixteenth-century vocal music, scale transposition was also done via changes in clef combinations, among which the most commonly used were the *chiavi naturali* (natural clefs, a combination of soprano, alto, tenor and bass clefs) and the high clefs, or so-called *chiavette* (treble, mezzo-soprano, alto and baritone clefs).[9] This system of clef transposition allowed for the transposition of whole compositions up or down without the addition of ledger lines; for instance, the use of *chiavette* clefs often implied a downward transposition of a fourth, to move a piece to the same tessitura as used in the *chiavi naturali*. Along with these changes in clefs, the possible addition of a ♭ in the signature allowed for transposition of the scale itself up

[9] The origin and meaning of clef transposition is a very highly debated topic among scholars of sixteenth century vocal music and music theory, who often offer varying interpretations. For further study of transposition via clef combination, see Harold Powers, 'Tonal Types and Modal Categories in Renaissance Polyphony', *Journal of the American Musicological Society* 34 (1981): 428-470; Patrizio Barbieri, '*Chiavette* and Modal Representation in Italian Practice, (c.1500-1837)', *Recercare* 3 (1991): 5-79.

a fourth or down a fifth. The continuing use of *chiavette* transposition in relation to certain instrumental parts in the seventeenth century has been shown by Andrew Parrott and Jeffrey Kurtzman with regard to Monteverdi's Vespers.[10] Discussions of transposition via clef changes persisted throughout the seventeenth century, along with discussions of scale transposition using hexachordal terminology for instrumentalists to accommodate singers. These discussions of transposition to accommodate singers established principles that would later be applied within the course of a piece, as will be shown below.

After serving in Madrid at the court of Philip II and later Philip III, Italian theorist Pietro Cerone came back to his home land and wrote *El melopeo y maestro* (Naples, 1613), where he explained the process of scale transposition.[11] In a chapter showing how to transpose the modes, Cerone gives the following rule of thumb to remember how to transpose a scale:

> We warn that all the accidental formations are done by saying Fa in the Mis, by virtue of that ♭ sign of ♭ molle, or by saying Mi by virtue of that other ♯ sign, which is of b quadro.[12]

Cerone's musical examples show the first and eighth modes in Glarean's system of modal classification (d Dorian and G Hypomixolydian) with their octave division in the natural scale, and transposed down a fifth with the addition of a B♭, up a fifth with one ♯, down a major second with two ♭♭, up a major second with two ♯♯, and down a minor third with three ♯♯♯. Here, Cerone equates the function of the ♯ to that of the ♮ quadro (which is to restore the *Mi* syllable after it has been altered to *Fa* with a ♭ sign), and he also extends these ♮, or ♯ signs to other notes than b fa b mi, so that *Fa* on any note (even without a ♭ sign) may in turn become *Mi* with the addition of a ♯ sign. Cerone's extension of the principle of transposition of whole pieces to both flat and sharp sides implicitly conceptualizes the principle of modulation (which is, in essence, a scale transposition in the course of a piece) towards both flat and sharp sides as well, as will be further discussed below.

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[10] Andrew Parrott, 'Transposition in Monteverdi's Vespers of 1610: an "Abberation" defended', *Early Music* 12 (1984): 490-516; Jeffrey Kurtzman, 'An Aberration Amplified', *Early Music* 13, no. 1 (February 1985): 73-76.
[11] Cerone wrote his treatise partly in Spanish, most likely to please his Spanish patron in Naples. See *Oxford Music Online*, s.v. 'Cerone, Pietro', www.oxfordmusiconline.com (accessed February 18, 2017).
[12] 'Adviertan que todas las formaciones accidentals, se causan con dezir Fa en los Mies, por la fuerça desta b señal de be molle: ò con dezir Mi, con la fuerça destra otra ♯ señal, que es de b quadrado'. Pietro Cerone, *El Melopeo y Maestro* (Naples, 1613), 925.

Later in the seventeenth century, Lorenzo Penna described two effects of the ♭ and ♮ in *Li primi albori musicali* (1672):

> The ♭ *molle* has two effects, the first is to diminish the note, and the second is to say *fa* on the following note. The ♮ has two other effects, the first is to raise or increase the note, and the second is to give the name of *mi* to the note by which the said *quadro* is placed.[13]

Penna then simply added the following regarding the ♯ sign:

> The sharp similarly sustains or raises the note.[14]

Chafe interprets Penna's explanation of the ♯ as having the exact same function as the ♮, that is, changing the solmization syllable of the note to which it is applied to *mi*.[15] Even though this interpretation is very plausible, Penna is not explicit in this regard. Arguably, this may reflect the lingering of an old conception of the primacy of the ♭ and ♮ signs as triggering scale transposition (from *cantus durus* to *cantus mollis* and vice versa), as opposed to the ♯ which, in musical practice, was used mostly for *ficta* inflections.

This difference in conceptualization of the flat and sharp signs may arguably also be implicit in Penna's discussion of scale transposition. As he addresses clefs with sharps and flats in the eighth chapter of the first book of *Li primi albori musicali,* Penna acknowledges that modern musicians often write in the chromatic style, and often add up to three sharps or flats right after the clef so as to avoid overloading the parts with accidental signs throughout the composition.[16] He adds that this chromatic style is, in effect, a transposition of the natural tone at the fourth or the fifth, or one, two or three notes up or down, depending on the number

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[13] 'Il ♭ molle fà due effeti, il primo è di diminuire la voce, & il secondo è di far dire fa alla Nota sequente. Il ♮ fà altri due effete, il primo, è di solevare, ò crescere la voce, & il secondo è di dar nome di Mi alla nota, avanti à cui è posto il detto ♮ quadro'. Lorenzo Penna, *Li primi albori musicali* (Bologna, 1672), 44. In the 1696 edition, Penna adds the following regarding the names and affective qualities of the ♭ and ♮ signs: 'It is called ♭ *molle* because it makes the composition soft, sad and languorous, and it is round, and that is why it is called round ♭ […] It is called ♮ *quadro* because it has a square shape. And they call it *durus* because it makes the melody hard and harsh'. 'E chiamato ♭ molle, perche rende molle, mesta, e languida la Composizione, è di forma tonda, e perciò è anche ♭ tondo […] Si chiama ♮ quadro, perche è di forma quadra. E anche detto ♮ duro, perche aspra, e dura rende la Cantilena'. Penna, *Li primi albori musicali* (Bologna, 1696), 34-35.

[14] 'Il Diesis similmente fà sostentare, ò alzare la voce'. Penna, *Li primi albori musicali* (1672), 45.

[15] Chafe, *Monteverdi's Tonal Language*, 362.

[16] Penna, *Li Primi albori musicali* (1672), 35. Penna notices that this style, even though it seems new, is not that new, mentioning his first opera dating from 1656 as an example, and specifying that even before that date, manuscript compositions written in the chromatic style can be found. See Penna, *Li primi albori musicali* (1679), 22.

of sharps or flats added.[17] Penna refers the reader to the nineteenth chapter in the third book of his treatise, where he demonstrates that principle with musical examples.[18] In this chapter, which deals exclusively with scale transposition, Penna instructs that in order to transpose a piece, one must first identify if the piece proceeds with minor thirds (*re-fa-la*) or major thirds (*do-mi-sol*).[19] If the piece proceeds with minor thirds, Penna says the following:

> If [the composition] is of the first type [minor third], one must imitate the *re-fa-la* in the transposition, and since it is missing in the natural scale, the *mi* must be helped with the ♭ *molle*, which will thus change the *mi* to *fa*. […] Before starting playing the composition, one must pretend that the clef has one ♭ *molle*, or two ♭ ♭ *molle*, or three etc. according to the places of the *mi*, that must be changed to *fa*, and these signs must be placed at the clef.[20]

It is intriguing that Penna prescribes something different for pieces which proceed with major thirds:

> If the composition is of the second type, that is, if it proceeds naturally with a major third, forming *ut-mi-sol*, when transposed, one must imitate with *ut-mi-sol*, but because there are not any [♯ signs], one will have to help the *fa* with the ♯, and these [♯ signs] will still be supposed to be placed by the clef with one ♯, two ♯♯, to three ♯♯♯ etc.[21]

Two things may be noticed here. First, Penna does not connect the ♯ to a change of solmization syllable whereas he clearly specifies that the flat signs indicate the places where the *mi* must be changed to *fa*. Again, this may reflect the theoretical primacy of ♭ transposition (and modulation).[22] Second, it appears that Penna seems to associate the transposition of *re* (minor

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[17] Ibid., 22-23.
[18] Ibid., 23.
[19] Penna, *Li primi albori musicali* (1672), 77. In modern terms, one has to check if the piece is in the minor or major mode.
[20] 'Se sarà nel primo modo, ancora trasportata, deveimitarla con Re fa la, e non vi essendo per natura, deve aiutare il mi, col b. molle, che in tal modo diventerà quel mi un fa. […] Avanti di principiare à suonare la Composizione si finga, che la Chiave habbi un b. molle, ò due b.b. molli, ò trè, &c. conforme li luoghi delli mi, che devono mutarsi in fà, e questi stimi, siano posti attacco alla Chiave […]'. Ibid.
[21] 'Se poi sarà nel secondo modo, cioè se andarà di natura con terza Maggiore; formando Ut, mi, sol, anche trasportata, deve imitarla con ut, mi, sol, mà non essendovi, dovrà aiutare, li fà con il [♯]; e questi ancora dovrà supporre, esser posti vicino alla Chiave un ♯, ò due ♯♯, ò trè ♯♯♯; &c.'. Ibid.
[22] In the eighth chapter of the first book, Penna remarks that because of the increased number of accidental ♯ and ♭, pieces in the chromatic style become very difficult to solmize 'on the ordinary clef'. To solve this problem, he recommends to read and sing the notes in clefs with multiple accidentals as if they were written in the ordinary clefs (clefs commonly used, in both *cantus durus* and *cantus mollis*), and gives the solmization equivalent chart reproduced in Chapter 1 as Figure 1.9. In effect, this results in solmizing the chromatic scale as if the inflected notes were essential, and not altered degrees of the *durus* or *mollis* diatonic scales. Thus, it seems that in the older

third) tonality compositions with ♭ alterations, while *ut* (major third) tonality transpositions are linked to ♯ alterations, although his musical examples for both *re* and *ut* tonality transpositions involve the addition of both flat or sharp signs right after the clef, according to the level of transposition. Arguably, this link of flat accidentals with minor-third tonalities could be due to the fact that minor-third tones had long been associated with *cantus mollis*. As with Cerone, arguably, these discussions of scale transposition implicitly suggest the possibility of flatward as well as sharpward modulation in music.

One last example may be mentioned here. In *Musico Prattico* (1673), published only one year after the first edition of Penna's treatise, Giovanni Maria Bononcini more explicitly addressed the mechanics of scale transposition in terms of solmization with both the ♭ and the ♯ signs by assigning accidentals to specific notes. In his discussion of accidental signs, Bononcini explains the following:

> The proper place[s] of the ♭ *molle* are the notes where the mi enters naturally to change the mi to fa, that is, on the notes B mi, E lami, & A lamire. The proper place of the ♮ quadro are the same notes B mi, E lami, & A lamire to change the fa to mi, in case you had a ♭ previously. The proper place of the chromatic Diesis are [on] the notes where the fa enters naturally to change the natural fa to mi, that is, on the notes C faut, & F faut. […] the difference between ♮ quadro and the said Diesis is that the ♮ quadro cannot be placed on the notes C faut, & F faut, & the aforementioned Diesis [cannot be placed] on the notes B mi & E lami, if the ♭ molle does not appear previously, as these are the proper places for the B quadro.[23]

Here again, Bononcini refers to the process of changing *mi* to *fa* and *fa* to *mi* with the addition of ♭ and ♮ signs inherited from earlier theorists. This time, just as in Cerone, a structural function is also clearly ascribed to the ♯ sign, as Bononcini describes its capacity to change a *fa* degree to *mi*. From the standpoint of hexachordal theory, Bononcini assigns specific notes to specific accidentals as follows:

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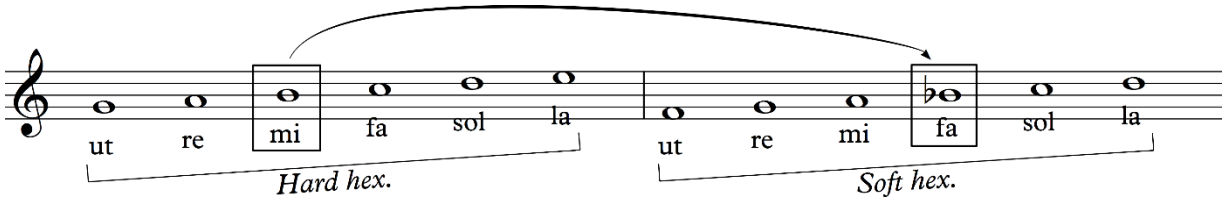
language based on the *cantus durus* and *cantus mollis* scales, the accidental ♯ generally did not affect solmization and did not indicate scale transposition, but was a momentary *ficta* alteration; by contrast, in the more modern chromatic style (implying the possibility of sharpward tonal movement), solmization was affected by the extensive use of both ♭ and ♯ signs, as this style implied a displacement of the semitones in the new, transposed essential scale.

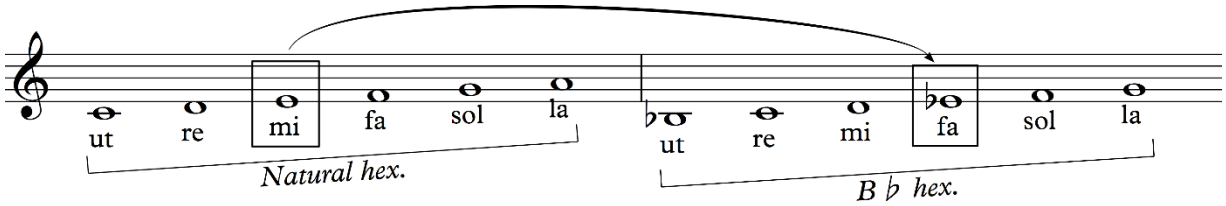
[23] 'Il proprio luogo del B molle sono le corde dove naturalmente entra il mi per mutare il mi in fa, cioè nelle corde B mi, E la mi, & A la mi re. Il proprio luogo del B quadro sono l'istesse corde B mi, E la mi, & A la mi re per mutare il fa in mi, allora quando vi è primi il B molle. Il proprio luogo del Diesis Cromatico sono le corde, dove naturalmente entra il fa per mutare il fa naturale in mi, cioè nelle corde C fa ut, & F faut. […] trà il B quadro, & il detto Diesis vi è questa differenza, che il B quadro non hà luogo nelle corde C fa ut, & F fa ut, & il predetto Diesis nelle corde B mi, & E la mi, se prima non vi è il B molle, che se bene è luogo più proprio del B quadro'. Giovanni Maria Bononcini, *Musico prattico* (Bologna, 1673), 27.

The accidental ♭ (♭ *molle*) is allowed on three notes to change *mi* to *fa*:

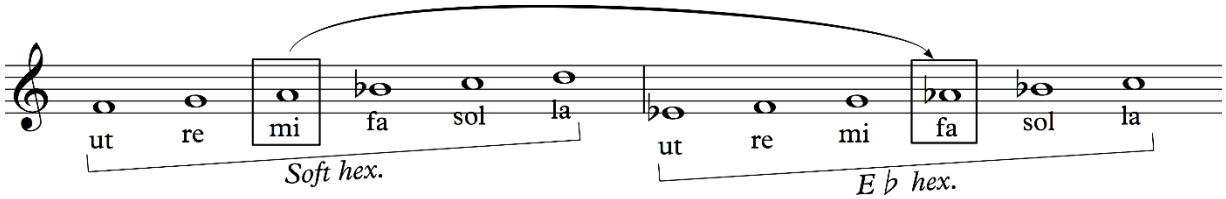
1) B mi




2) E lami



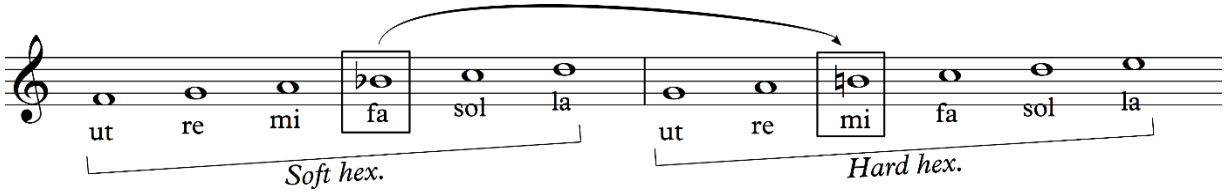

3) A lamire



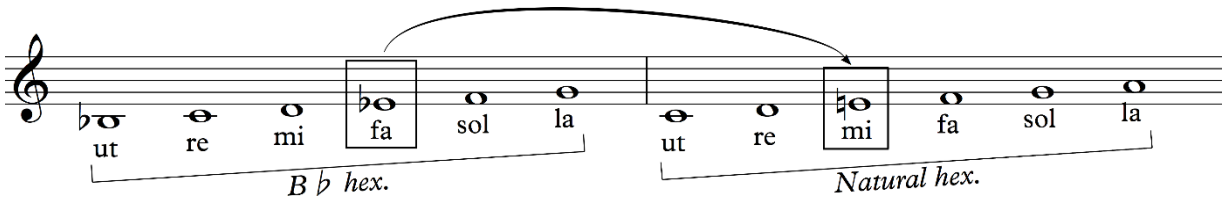

B mi, E lami and A lamire correspond respectively to the *mi* degrees in the hard hexachord (only found in *cantus durus),* and in the two hexachords comprising *cantus mollis* (namely, the natural hexachord (E lami) and the soft hexachord (A lamire)). The B♭, E♭ and A♭ all become *fa* degrees in the soft, B♭ and E♭ hexachords, respectively.

The ♮ (b, quadro) is allowed on three notes to change *fa* to *mi*, to cancel a ♭ found previously of any of these notes:

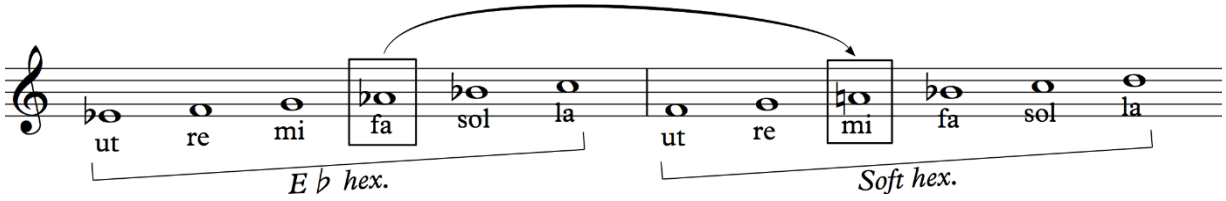
1) B mi [*sic*]



2) E lami



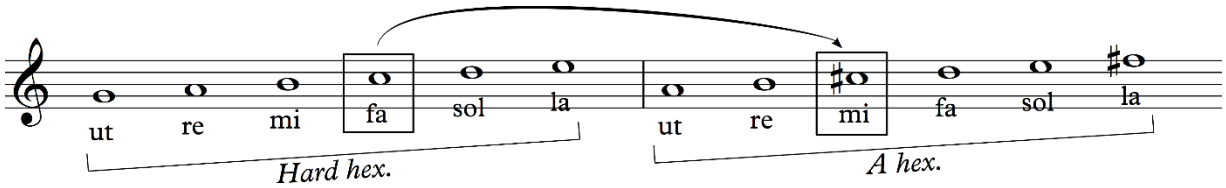

3) A lamire



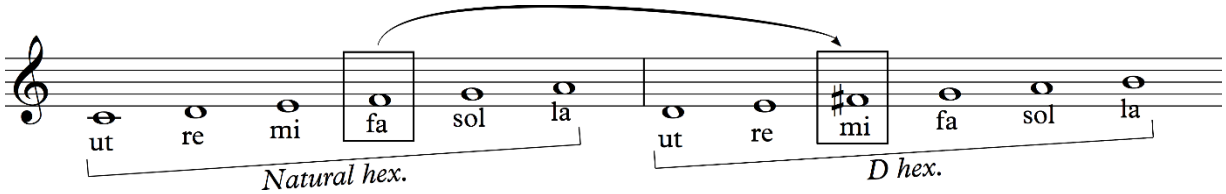

The ♮ sign is used to cancel the ♭ and restore B♭, E♭ and A♭ to their initial, unaltered form (B, E, A).

Finally, Bononcini specifies that the accidental ♯ (*diesis cromatico*) is normally allowed on two notes in the gamut to change *fa* to *mi*, as follows:

1) C solfaut




2) F faut




C solfaut and F faut both correspond to the *fa* degrees in the two hexachords comprising *cantus durus*: the hard hexachord (C solfaut) and the natural hexachord (F faut). The C♯ becomes *mi* in the hexachord on A, and F♯ becomes *mi* in the hexachord on D.

Bononcini then explains the uses of these accidental signs:

> The ♭ molle, ♮ quadro, and chromatic Diesis function in music accidentally, to change any consonance from major to minor, or from major to minor […], and also to transpose sometimes the pieces outside of their natural notes to accommodate the singers.[24]

Bononcini specifies two uses of these accidental signs. The first is connected to principles of counterpoint inherited from the sixteenth century, whereby certain intervals had to be altered from major to minor (or vice versa) with the use of *ficta* accidentals, depending on the shape and direction of melodic lines. This first description of the use of accidentals also refers to the flexibility of the third in seventeenth-century harmony, whereby minor chords could freely become major at the discretion of the composer or the performer, as discussed in Chapter 4. The second use of accidentals has to do with instrumental transposition to accommodate singers, by changing *fa* degrees into *mi*, and vice versa, as explained above. A few years later, Angelo Berardi repeated almost verbatim Bononcini's explanations on transposition in *Miscellanea musicale* (1689), including specifying that accidentals ♭, ♮ and ♯ could be used to create major or minor sonorities, or to transpose a tone outside its natural notes.[25]

In summary, it seems that the mechanics of scale transposition, originally conceived primarily as down a fifth (or up a fourth) towards the flat side for transposition of modes from *cantus durus* to *cantus mollis* (and towards the sharp side only to revert back from *cantus mollis* to *cantus durus*), were gradually extended to other transposition levels in the seventeenth century. This extension was made partly for practical reasons (to accommodate singers and instruments within the new concerted style of the early seventeenth century), and partly as a result of an expansion of the tonal system. The slower emergence of sharp modulation as a theoretical concept in the seventeenth century has, to my knowledge, only been addressed by Chafe. In his remarks regarding the emergence of sharp key signatures, Chafe noticed that in what he describes as 'Renaissance theory', pieces with sharp signatures were never written originally with that signature, but were always linked to the transposition

[24] 'Il B molle, B quadro, e Diesis Cromatico servono nella Musica per accidente, cambiando alcuna consonanza di maggiore in minore, o di minore in maggiore […], e per trasportare alle volte le Cantilene fuori delle sue corde per comodità de' Cantori'. Ibid., 27.
[25] Angelo Berardi, *Miscellanea musicale* (Bologna, 1689), 58-59.

of already existing pieces.[26] In addition, he pointed out, among other things, that Kircher indicated his modal transposition towards the flat side by adding the necessary flat signs right after the clef, whereas he added sharp signs to every raised pitch (not at the clef) in his examples of modal transpositions towards the sharp side.[27] Moreover, Chafe also noticed that Kircher's examples of *mutatio modi* (or movement to distant 'keys') always involve the addition of ♭ signs, as will be shown below. Finally, Chafe observed that it was common in *cantus mollis* pieces in Monteverdi's generation to see the inclusion of the ♭♭ hexachord, while the equivalent tonal expansion in *cantus durus* toward the sharp side was much less common.[28] He thus concluded that 'sharp key signatures and modulations were rare in the earlier part of the seventeenth century; when such signatures appear they tend to be used as a device of postcompositional transposition via clef changes, a situation that reflects the slower appearance of sharp modulations in the music.'[29]

Even though none of the four Italian theorists discussed above (Cerone, Penna, Bononcini and Berardi) related their discussions of transposition to the practice of modulation (shifts of scale transposition during the course of a piece), their explanations help illuminate certain modulatory passages in seventeenth-century ensemble music (as will be illustrated below and in the following chapter), showing how composers could use fundamental techniques of hexachordal transposition to build up tonal structure in their compositions. Most importantly, these explanations on scale transposition are strikingly similar to descriptions of modulation found in treatises in the next century as will be discussed below, showing the relation between the two concepts.

### 3. Notions of 'Modulation' in the Long Seventeenth Century.

As mentioned above, notions describing shifts of mode or scale transposition within the course of a piece are scant in seventeenth-century sources. The concepts of *mutatio* and *alteratio* are, to my knowledge, only discussed by Christoph Bernhard in *Tractatus compositionis augmentatus* (after 1657) and Athanasius Kircher in *Musurgia universalis* (1650), and occasional other references to shifts of scale transposition within a piece appear in treatises

[26] Chafe, *Monteverdi's Tonal Language*, 386.
[27] Ibid.
[28] Ibid., 27.
[29] Ibid., 386.

such as Angelo Berardi's *Miscellanea musicale*, as will be shown below. These seventeenth-century explanations of 'modulation' will first be addressed here mainly so as to contextualize how 'modulation' was conceived in the seventeenth century along with discussions of scale transposition just discussed. A brief discussion of eighteenth-century treatises will then show the connection between these conceptions of scale transposition using hexachordal terminology and the principle of modulation as defined in the introduction to this chapter (shift of scale transposition in the course of a piece).

### 3.1 Mutatio Toni

Kircher refers to the term *mutatio toni* in at least three different parts of *Musurgia universalis* (1650). In the first, he defines *mutatio toni* as follows:

> They call it a mutation of the tone, when the system has been changed drastically.[30]

This definition is unclear and open to a number of interpretations. Based partly on this definition and Kircher's musical examples (given in other parts of *Musurgia*), Eva Linfield interpreted the word 'system' used here by Kircher as 'the location of the scale', or in her own words, 'a complete change of the mode, that is, a change of its octave species and therefore a change of scale and *finalis*'.[31] However, if we consider the idea of scale as conceived in this thesis (a limitless sequence of tones and semitones with no fixed beginning or end), the scale itself does not change, only the location of the *finalis* and octave species. Arguably, it is therefore more appropriate to define the term 'system' used here by Kircher simply as change of mode (new location of the *finalis* with new octave species), still within the same scale. Kircher does not give any specific musical examples of *mutatio toni* at this point in his treatise, but gives some later on.

The musical examples for *mutatio toni* that Kircher gives later in the treatise in a chapter entitled 'De mutatione Tonorum in una & eadem cantilena sive Mixture tonorum' (Of the Mutation of Tones in One and the Same Song, or of the Mixture of Tones) suggest that the term may indeed denote a change of mode within a given scale, as claimed by Chafe and

[30] 'Mutationem toni discunt, quando systma toni penitus mutatur'. Kircher, *Musurgia universalis*, I, 672. Translated in Linfield, 'Modulatory Techniques in Seventeenth-century Music', 202.
[31] Linfield, 'Modulatory Techniques in Seventeenth-Century Music', 202.

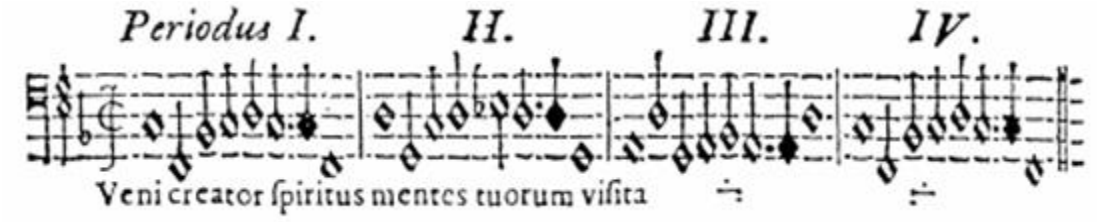
Stein.[32] Kircher's examples feature a bass-line for the plainsong hymn *Veni creator spiritus*, which forms the basis for many of his musical examples in the eighth book of *Musurgia*. Figure 5.2 a illustrates *mutatio toni* in *cantus mollis* in four *periodi*, the first with a tonal focus on F (*do* in the soft hexachord), the second on g (*re* in the soft hexachord) with an E♭ as *fa sopra la*, the third on d (*re* 'mode' in the natural hexachord, with some notes of the *periodus* transposed by an octave), and the last coming back to the original one on F, so that from the standpoint of hexachordal theory, only the tonal focus on C (*do* 'mode' in the natural hexachord) is missing. The very use of the term *periodus*, which seems to imply a unit or section of music, and the fact that the fourth *periodus* returns to F may indicate, arguably, that the example as a whole does not intend to give an exhaustive illustration of all the possible *mutatio toni* of F *mollis*, but rather to show how in a piece, one can depart from an opening mode via *mutatio toni*, use other hexachordal degrees in the same scale as different tonal *foci* and come back to the original to close the piece.

Figure 5.2 b illustrates what Kircher calls the first *musarithmus* in the second tone (g *mollis*, the second church tone). One aspect of Kircher's *musarithmus* was a scheme of automatic composition, so a chant could be accompanied mechanically according to rules of figured bass harmonization or counterpoint, as exemplified at the outset of Kircher's chapter. Thus, this second staff shows arguably all the possible *mutatio toni* of the second tone in the first *musarithmus*, that is, with a specific, implied voice leading for the cantus, altus, tenor and bass voices with that bass-line, as specified earlier in the book.[33] The example consists of a phrase transposed upward by various steps, showing again the link between transposition and notions of '*mutatio*'. From the standpoint of hexachordal theory, the example is based on g *mollis* (*re* 'mode' in the soft hexachord), and includes *mutatio toni* on C and d (*do* and *re* 'modes' in the natural hexachord), as well as on B♭ (*do* 'mode' in the B♭ hexachord). Unlike the example in the first staff, this example uses pitches from three different hexachords. Interestingly, the transposition to B♭ may reflect the emphasis on B♭ (through cadences on that pitch) which is always found in pieces in g *mollis* in the first half of the seventeenth century in north Italian ensemble pieces, as shown in Chapter 2 (Table 2.10). Even though the addition of an E♭ in this second example could arguably indicate a change of scale, according to Banchieri

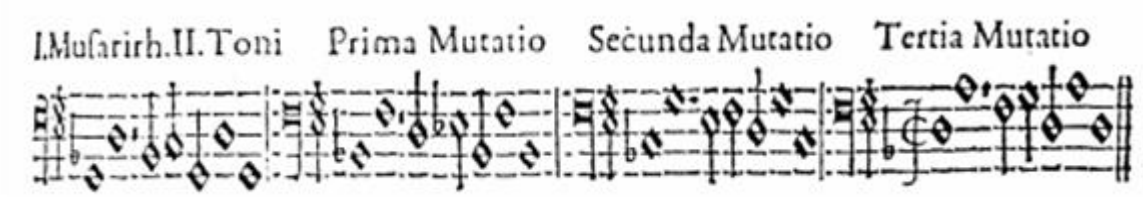
[32] See Kircher, *Musurgia universalis*, II, 72-73; Chafe, *Monteverdi' Tonal Language,* 23; Stein, 'Between Key and Mode', 193.
[33] See Kircher, *Musurgia universalis*, II, 54-61.

the E♭ is allowed as an accidental in *cantus mollis*.[34] In this example, *mutatio toni* appears to involve the transposition of a phrase preserving the melodic contour and intervals to give a change of tonal focus; but when considered alongside the first example (where the intervals are sometimes modified), the exact meaning of *mutatio toni* remains open to interpretation. As Stein points out, Kircher's discussion of *mutatio toni* here describes a technical procedure of tonal organization with no explicit connection to the expression of emotion.[35]

Figure 5.2 Kircher's examples of *mutatio toni*. *Source*: Kircher, *Musurgia universalis*, II, 72-73.




a) *Mutatio toni* in four *periodi*.




b) Possible *Mutatio toni* in the first *musarithmus*, second tone (g *mollis*).

The last reference to *mutatio toni* appears in a chapter addressing the expression of affections in music, as Kircher illustrates how *mutatio toni* can be used to enhance the dramatic affect of a story, with reference to Carissimi's *Jephte*.[36] According to Stein's analysis, as Jephte comes back victorious from war, the chorus celebrates his triumph in the G Mixolydian mode in the chorus *Cantemus omnes Domino*.[37] However, Jephte soon slips into

[34] See Chapter 4, Fig. 4.2.
[35] Stein, 'Between Key and Mode', 196.
[36] Linfield, 'Modulatory Techniques in Seventeenth-Century Music', 203.
[37] Stein, 'Between Key and Mode', 194. The attribution of modal categories in this analysis is Stein's.

despair as he sees his daughter and remembers his promise that he would sacrifice the first person passing his door if he won the battle. At this point, Stein analyses an immediate shift to the A Aeolian/Phrygian mode (tones three and four).[38] As Linfield and Stein point out, this stands as an example of a large-scale *mutatio toni*, whereby the juxtaposition of two affectively opposite modes reflects the stark contrast in Jephte's emotional states.[39] Moreover, the Phrygian connotation evokes the mode's customary association with lament and sorrowful emotions, thus matching Jephte's distress. This example of large-scale *mutatio toni* is much more drastic than Kircher's previous two examples, which are simple transpositions, and further supports the interpretation of *mutatio toni* as a shift of tonal focus within the same scale. This large-scale *mutatio toni* clarifies Kircher's definition of the term, as it implies that the *mutatio toni* denotes a shift of mode (or tonal focus) and, possibly, octave species, but not necessarily a transposition of melodic contour (as could be inferred from his previous musical examples).

Seventeenth-century theorist Christoph Bernhard also refers to *mutatio toni* in his *Tractatus compositionis augmentatus*, probably written after Bernhard spent some time in Rome (after 1657), where Kircher was active as a professor at the *Collegio Romano*. Bernhard briefly describes what he calls *mutatio toni* as follows:

> It was recommended that every voice should conform to one of the twelve modes. Contemporary composers depart from this rule not infrequently, insofar as they not only mix an authentic mode with its own plagal (which composers of former times also did), but also jump from an authentic or plagal mode to another in the middle of a composition.[40]

Bernhard does not expand on what *mutatio toni* exactly consists of, but later in his treatise, he describes five procedures that affect the mode of a composition: transposition, association, equalization, extension and alteration.[41] Bernhard describes the transposition of modes as a

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[38] Ibid.

[39] Ibid.; Linfield, 'Modulatory Techniques in Seventeenth-Century Music', 203; Stein, 'Between Key and Mode', 194.

[40] '[Im anderen kapitel No.7] ist geboten, daß seine jede Stimme sich nach einer derer 12 *Modorum* richten solle. Von solcher Regel schreiten die heutigen *Componisten* nicht selten ab, indem sie nicht allein /: welches auch die Alten gethan /: *authenticum cum suo plagali* vermengen, sondern auch aus einem authentico oder plagali in einen andern in der Mitte der Composition springen'. Bernhard, *Tractatus*, Chapter 31, 79. Translated in Walter Hilse, 'The Treatises of Christoph Bernhard', in *The Music Forum*, vol.3, ed. William J. Mitchell and Felix Salzer (New York: Columbia University Press, 1973), 105.

[41] *Oxford Music Online*, s.v. 'Bernhard, Christoph', www.oxfordmusiconline.com (accessed October 13, 2015); Linfield, 'Modulatory Techniques in Seventeenth-Century Music', 198.

purely practical device to use so that the tenor voice may lay at a comfortable range for the convenience of performers.[42] The association of modes has to do with the authentic and plagal pairing of voices and how to write fugues in accordance with the modes. The equalization of modes also deals with fugal writing, and the extension of modes has to do with the stretching of mode to all the sounds of the octave with an emphasis on the principal notes in the course of a piece after the mode has been clearly presented at the outset.[43] Bernhard explains that the 'alteration of mode' denotes the procedure whereby a piece begins in a mode and ends in another mode, which, as Linfield suggests, is similar to his earlier definition of *mutatio toni*.[44] Bernhard's musical examples are all taken from Palestrina's Offertories a 5. He often includes only the beginning of the piece (before the 'alteration' of the mode occurs) and explains in prose how the piece ends differently than it began. In summary, Bernhard emphasizes that such shifts of modes often take place between modes with finals on e and a, and between modes with finals on C and G, while they are rare between modes with finals on d and a, and F and C.[45] Bernhard gives a purely technical description of the process and does not link his remarks to the expression of affect in music. Nonetheless, his discussion of the emotional quality of each mode elsewhere in the treatise could imply that these 'alterations' of mode do have an affective impact.

### 3.2 Mutatio Modi

The concept of *mutatio modi* discussed by Kircher is worth addressing here as one of the rare references to shifts of scale transposition within a piece of music, and because it arguably confirms the primacy of flatward modulation (originating in practices of scale transposition from *cantus durus* to *cantus mollis*, as suggested earlier in this chapter). In *Musurgia universalis*, Kircher defines *mutatio modi* as follows:

[42] See Hilse, 'The Treatises of Christoph Bernhard', 132-151.
[43] Ibid., 132-146. What Bernhard means by the 'extension of modes' is slightly unclear. Hilse presents his opinion that the 'extension of modes' refers to the fact that subsequent points of imitation in a piece may start on any degree of the mode. Ibid., 193.
[44] Linfield, 'Modulatory Techniques in Seventeenth-Century Music', 198.
[45] Bernhard carefully specifies the authentic or plagal qualities of the modes in his discussion, but for clarity's sake, only modal finals are reported here.

> It is called *mutatio modi* when a note natural to the tone changes to one that is not natural [to the tone].[46]

This definition suggests that for Kircher, *mutatio modi* refers to the process of changing the natural notes of a scale to 'unnatural' ones via the addition of accidentals. This rather unspecific definition is complemented by several 'paradigms' or musical examples that Kircher gives to illustrate his point, one of which indicates that *mutatio modi* may denote a change of scale transposition via the addition of accidentals.

The first example is from Carissimi's cantata 'I Filosofi' (see Fig. 5.3). The excerpt, taken from 'A pie d'un verde alloro', shows how Carissimi sets musically the contrasting feelings of Democratus and Heraclitus via *mutatio modi* on the words 'ridere' (laughing) and 'piangere' (weeping).[47] The example opens on the words 'E pur da ridere' in *cantus mollis* in the ♭ scale with a tonal focus on F (*do* cadence on F in b. 6 in the excerpt), shifts on the words 'E pur da piangere' to the ♭♭♭♭ scale (E♭ and A♭ hexachords), and concludes with a *re* cadence on f in b. 11. Carissimi then resets the same contrasting effect with the same words a fourth higher (but there is no exact transposition) in the ♭♭ scale (soft and B♭ hexachords, with a *do* cadence on B♭ in b. 16) and in the ♭♭♭♭♭ scale (A♭ and D♭ hexachords), with a *re* cadence on b♭ in b. 20. According to Stein, the underlying tonal organization in this passage is based on the ♭♭ 'system', to use her terminology (soft and B♭ hexachords), with a tonal focus on F (*do* in the soft hexachord) in the first 6 bars, and on B♭ (*do* in the B♭ hexachord) in bb. 11 to 16; the shift to minor-third 'modes' on f and b♭ on the words 'E pur piangere' are according to Stein only used to reflect the affect of the text.[48] This major-third/minor-third contrast with a common tonal focus (F/f and B♭/b♭) in this first example has led Linfield to conclude that *mutatio modi* implies a change 'in the natural order of tones and semitones of a mode whose *finalis* or octave species remains fixed'.[49] It is true that the shift from major to minor in conjunction with the affect expressed in the text is probably the most striking aspect of this excerpt. However, Kircher does not mention that the same octave species must be preserved in the procedure, and as will be discussed below, his other musical examples do not include such

[46] 'Modi mutatio dicitur, quando fit processus a chorda naturalis toni ad non naturalem'. Kircher, *Musurgia universalis*, I, 672.
[47] Stein, 'Between Key and Mode', 203.
[48] Ibid., 205.
[49] Linfield, 'Modulatory Techniques in Seventeenth-Century Music', 204.

major/minor contrast, suggesting that *mutatio modi* denotes another aspect of his first example.[50]

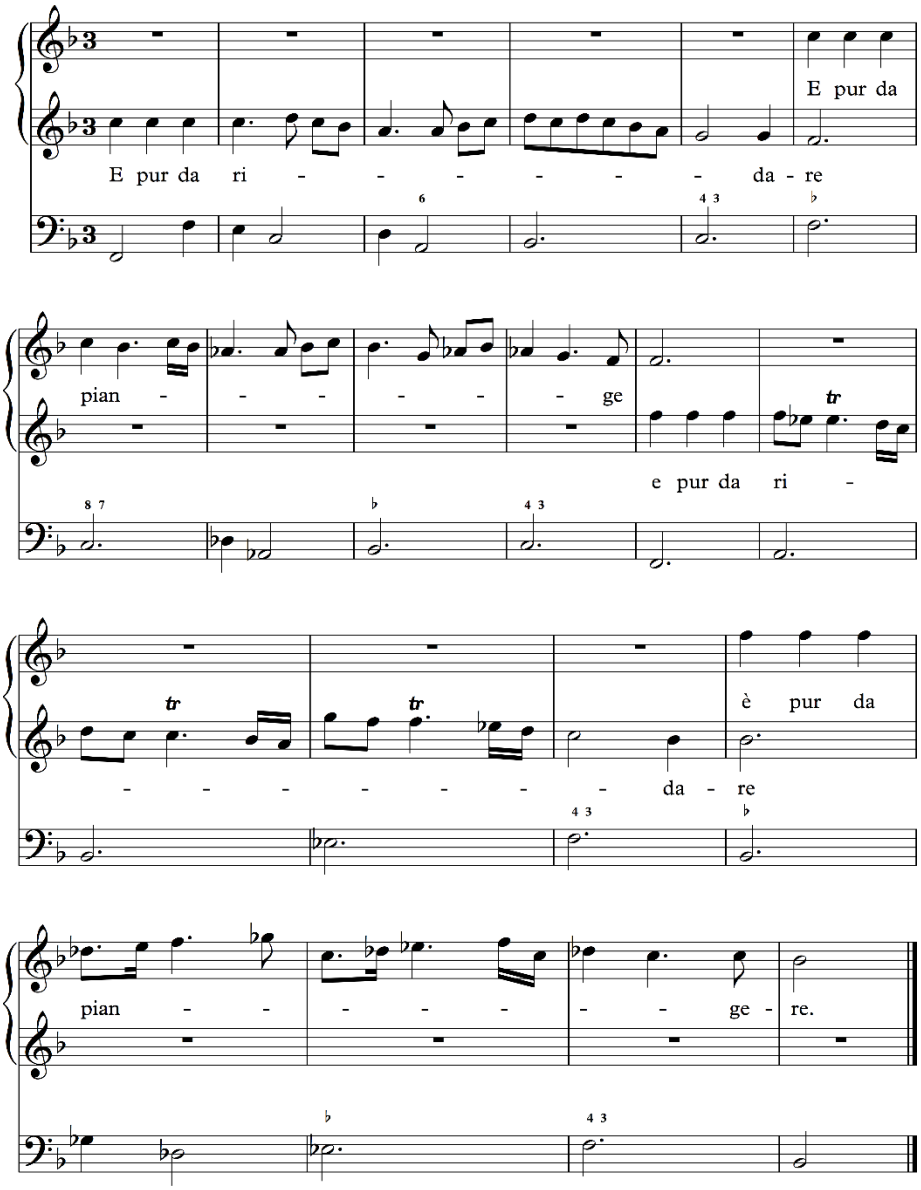
In his comments on *mutatio modi* in connection with the example in Carissimi's cantata 'I Filosofi', Kircher only specifies the following:

> The one who has used this kind of style with the greatest taste is Giacomo Carissimi, the celebrated prefect of choral music in the German College, when he portrays Heraclitus and Democritus, the latter weeping and former laughing, aptly and ingeniously with *melismate metaboli* in succession, where there occur frequent *b mollia*, not chromatic or enharmonic, but constantly chang[ing] the tonus.[51]

Kircher's comment implies that *mutatio modi* involves the addition of flattened notes that become essential notes of a new scale ('changing the tone') as opposed to non-diatonic chromatic or enharmonic notes. This passage confirms that *mutatio modi* may have designated a transposition of the scale itself in the course of a piece, a meaning that not only Stein but also Chafe attribute to this term.[52] Note that the scale transposition occurs in the flat direction, as in Kircher's next example of *mutatio modi* discussed below. However, Kircher's next example of *mutatio modi*, taken from Domenico Mazzochi's *Dialogo della Maddalena* could be interpreted in another way, as will be discussed below.

[50] Stein, 'Between Key and Mode', 207.
[51] Kircher, *Musurgia universalis*, I: 673. Translated in Lowell Beveridge, 'Giacomo Carissimi (1605-1674): A Study of his Life and his Music with Latin Text in the Light of the Institutions which he Served and through the Perspective of Liturgical, Literary, and Musical Theory and Practice' (PhD diss., Harvard University, 1944), 90. See Stein, 'Between Key and Mode', 203-205.
[52] Chafe, *Monteverdi's Tonal Language*, 23; Stein, 'Between Key and Mode', 203.

Figure 5.3. Kircher's first paradigm for *Mutatio modi* – Carissimi's 'A Pie d'un verde alloro', cantata *I Filosofi. Source*: Kircher, *Musurgia universalis*, I, 673-674.



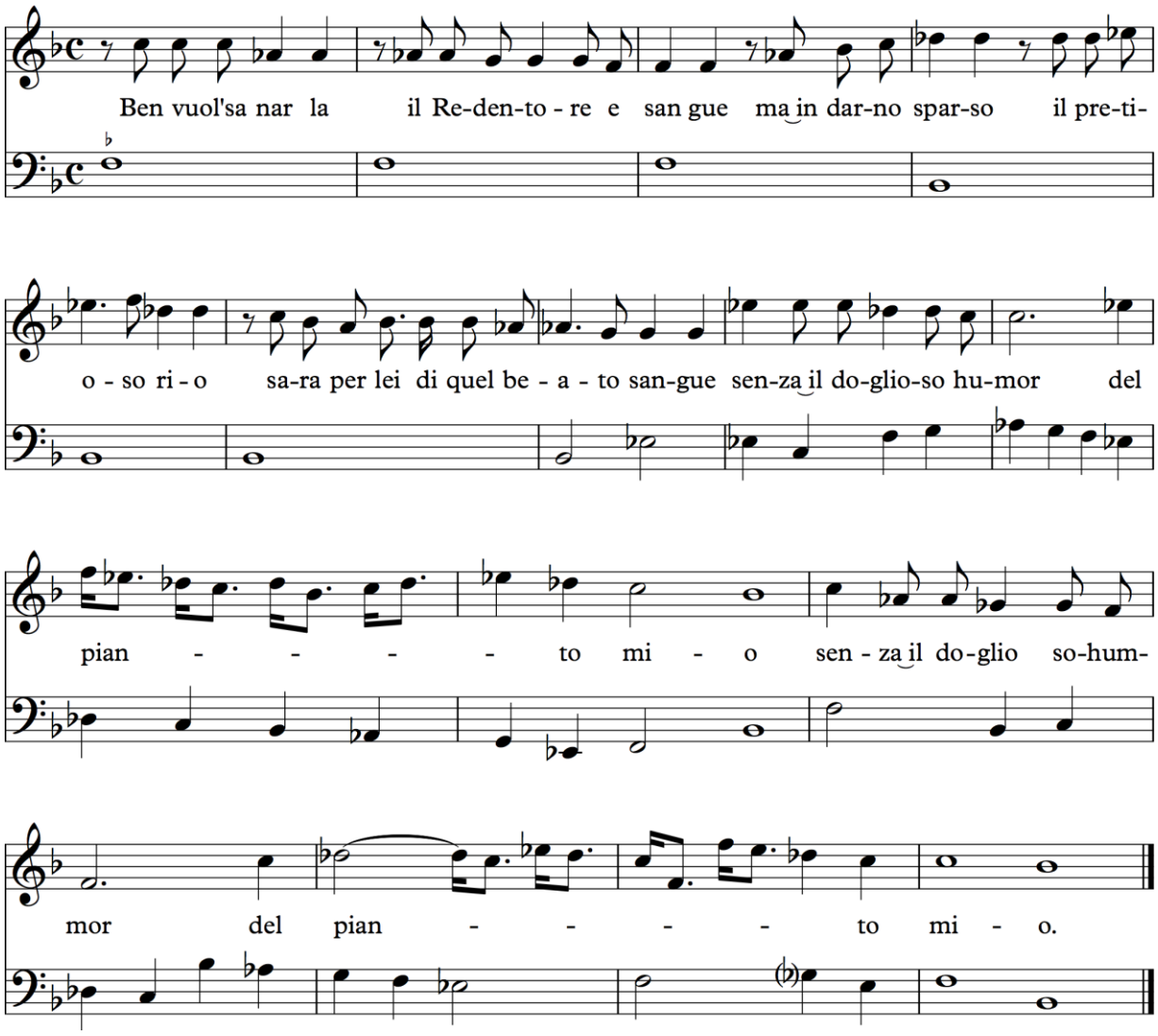

Kircher gives two additional examples of *mutatio modi*. First, he refers to Domenico Mazzochi's *Dialogo della Maddalena*, with an excerpt taken from *Lagrime amare* (Bitter tears). The text, which evokes the necessity of showing sorrow and a repentant attitude for the Redeemer's blood to heal the sinner, naturally calls for a strongly emotional musical setting. Arguably, this excerpt could be analyzed in at least two different ways. First, one can analyze

this passage as staying in the ♭♭♭♭ scale (E♭ and A♭ hexachords) the whole way through, in spite of the G♭ in b.12 (see Fig. 5.4), which seems to represent a momentary inflection that does not affect the system. Mazzochi begins with an f minor chord (*re* in the E♭ hexachord), moves down in the circle of fifths towards b♭ (*re* in the A♭ hexachord, bb.4-7), E♭ (b. 7), and finally reaches a stable cadence on b♭ on the word 'mio' at the end of the sentence in the text (b. 11). The last sentence of the text is then repeated (but not the music) until the final cadence of the excerpt on b♭ (b. 16). If analyzed in this manner, it is unclear what *mutatio modi* could be in this excerpt. Second, this passage could be analyzed differently if one considers the possible addition of G♭s in some descending bass lines (as in bb. 9, 11, and 14) to avoid tritones with the upper part (as in bb. 14, 15 - note also that the E in b. 15 may have been played as E♭). Arguably, in this case, *mutatio modi* would occur with the shift from the ♭♭♭♭ scale (E♭ and A♭ hexachords) to the ♭♭♭♭♭ scale (D♭ and A♭ hexachords), thus illustrating *mutatio modi* as shift of scale transposition in the flat direction. With this analytical interpretation, the musical setting would perfectly render the sinner's weeping (*pianto*) as it arguably coincides with a *mutatio modi* in the flat direction, which was often associated with softness or sadness.

Kircher's last example for *mutatio modi* is a piece by Pietro da Valle written specifically for the lyra barberina, an instrument invented by Doni to accommodate modulation between certain modes.[53] Because this last example involves complex, arcane usage of notation, it will be left out here.[54] According to Chafe, the only common feature of these three examples is that they all show an extreme flat region, whether the example illustrates the actual shift flatwards (as in the Carissimi example), or only features the extreme flat region itself, arguably after the shift has already taken place (as in the Mazzochi example).[55] The exact meaning of *mutatio modi* therefore remains open to interpretation. However, as already mentioned in the first part of this chapter, the fact that all of Kircher's examples feature either tonal movement towards the flat side or the flat region itself hints at the primacy of flatward shifts of scale transposition in traditional conceptions of modulation.

[53] Chafe, *Monteverdi's Tonal Language*, 376. See Kircher, *Musurgia universalis*, I: 675.
[54] Chafe describes the Pietro da Valle's example as follows: 'The da Valle excerpt begins in d (headed dorian) and shifts to b after an internal cadence to f♯ (these latter two phrases headed Phrygian are notated as if in d and g)'. Chafe, *Monteverdi's Tonal Language*, 376.
[55] Stein, 'Between Key and Mode', 207; Chafe, *Monteverdi's Tonal Language*, 376.

Figure 5.4 Kircher's second paradigm for *Mutatio modi* – Mazzocchi's 'Lagrime amare', from *Dialogo della Maddalena* (1634).




### 3.3 Modulation as Musical 'Artifice'.

Other references to modulation as shift of scale transposition in the course of a piece are present in seventeenth-century treatises in connection with the demonstration of musical *artifici*, a term used by Italian theorists to denote refinement in compositional skills, particularly in connection with esoteric uses of musical notation and accidental signs. Continuing experiments with tuning systems throughout the sixteenth and seventeenth centuries, along with an ongoing taste for musical riddles and enigmas, inspired some

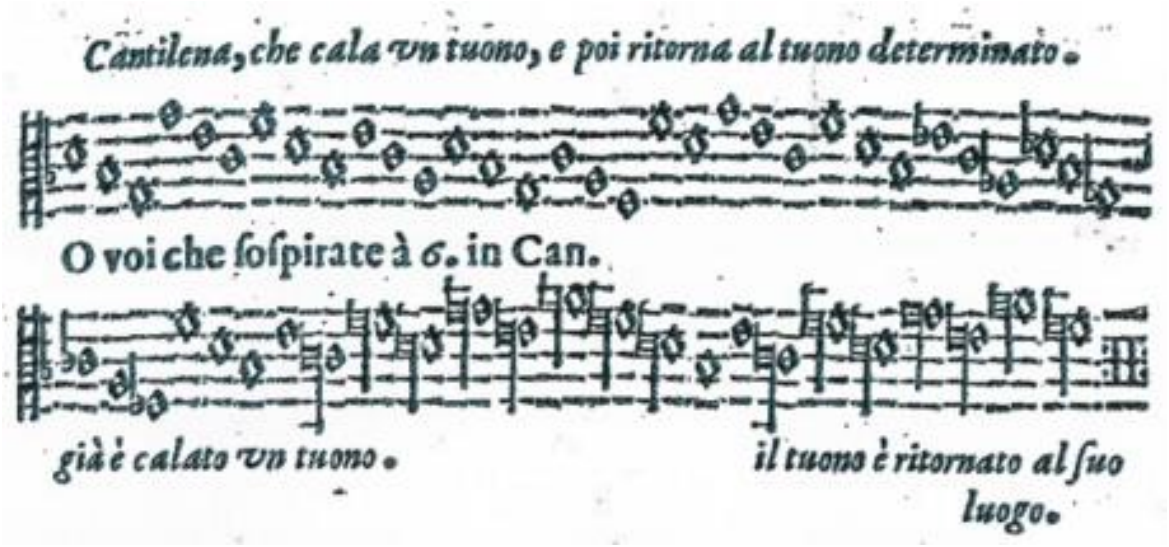
seventeenth-century composers to write short compositions featuring complex modulations to expose their skills, as well as to demonstrate the theoretical potential of certain temperaments. For instance, Romano Micheli, a Roman composer who specialized in complex canon writing, published in 1621 a six-part canonic madrigal modulating through the entire circle of fifths downward (with a sequence based on a descending triadic motive) and then upward (with a motive based on an ascending fourth) to end where it started.[56] In the title of the piece, Micheli explains that 'the harmony by means of accidentals descends one tone and then ascends again'.[57] It appears that Micheli was inspired by Adrian Willeart's *Quid non ebrietas designat*, a composition designed to show the potential of Aristoxenus's tuning system, which advocated the division of the tone in two equal semitones as opposed to a major and a minor semitone as taught during the medieval period.[58] Micheli manages to modulate twice via the circle of fifths with a trick of musical notation ('inganno dell'occhio', or 'deception of the eye'), by avoiding the use of double flats so that sound and notation do not coincide for part of the piece.[59] Micheli's compositional *tour de force* results in a complex piece, where, in Lowinsky's words, 'notes appear a whole tone higher than they sound; sharps are used where flattened notes are sung; then notes appear half a tone higher than sounded, and sharps are used where naturals are sung'.[60] In addition, Micheli also shows how his canon can be sung in 'riversi movimenti', whereby the piece is re-written in contrary motion retaining precise intervals, and 'contrarij movimenti', where major intervals become minor and minor intervals major, and half tones are changed into whole tones.[61] According to Lowinsky, the piece thus performed in inversion changes from major to minor mode, and the tonal structure of the piece is reversed (first moving sharpwards, back to natural, and then flatwards).[62]

In *Miscellanea musicale*, Berardi refers to *Willaert's Quid non ebrietas?* as well as Micheli's six-voices canonic madrigal immediately after his explanation of the effect and

[56] Edward E. Lowinsky, 'Echoes of Adrian Willaert's Chromatic "Duo" in Sixteenth- and Seventeenth-Century Compositions', in *Studies in Music History: Essays for Oliver Strunk*, ed. Harold Powers (Princeton, NJ: Princeton University Press, 1968), 185; 190; Katelijne Schiltz, *Music and Riddle Culture in the Renaissance* (Cambridge: Cambridge University Press, 2015), 183.
[57] '[…] per mezzo de gli accidenti l'armonia discende un' tuono e di poi ascende il tuono già disceso'. Lowinsky, 'Echoes of Adrian Willaert's Chromatic "duo"', 185.
[58] Ibid., 184.
[59] For a detailed explanation of Micheli's modulatory procedures and notational idiosyncrasies, see Ibid.,190-191.
[60] Ibid., 191.
[61] Ibid.
[62] Ibid.

function of accidental ♯, ♭ and ♮ discussed earlier in this chapter. He thus shows that modulation was another function of accidental signs (along with the *ficta* and transposition functions), permitting a composer to shift the level of scale transposition in the course of a piece.[63] Berardi captions the example as a 'melody which drops down a tone and returns to the determined tone' ('Cantilena, che cala un tuono, e poi ritorna al tuono determinato') (see Fig. 5.5). It shows a sketch-like reduction of the piece in a single melodic line in *cantus mollis* which gradually adds E♭, A♭, D♭, G♭, C♭, F♭ , at which point he specifies 'it [the melody] has already dropped a tone' ('già è calato un tuono'), and then reverts to the original tone via the addition of multiple ♮ signs till the end, where Berardi indicates that 'the tone has returned to its place' ('il tuono è ritornato al suo luogo').

Figure 5.5. Berardi's intervallic reduction of Romano Micheli's canonic madrigal. *Source*: Berardi, *Miscellanea musicale*, 61.




It appears that Micheli's canonic madrigal may have been motivated by a desire to illustrate the potential of alternative temperaments, as well as to show off his compositional skills in what Lowinsky has described as 'secret chromatic art'. Indeed, it is likely that preoccupations with questions of tuning and temperament may have played an important part in the development of the principle of modulation and eventually, the conception of the circle of fifths with all major and minor keys. For instance, when discussing his 'musicalischer Circul' reproduced in Chapter 1 (Fig. 1.15), Heinichen explained the circle was not his

[63] Berardi, *Miscellanea musicale*, 59-61.

invention, but that his teacher Johann Kuhnau had told him about Kircher's 'harmonic circle' found in *Musurgia*.[64] Heinichen added that Kircher's circle was unpractical as it only allowed movements through the circle of fifths via major keys.[65] Note that in *Musurgia*, Kircher's 'harmonic circle' is presented in the context of a discussion on methods of tuning keyboard instruments, suggesting the connection between tuning and temperament and ideas of modulation in Heinichen's mind. Lastly, it is most likely in that tradition of esoteric examples of modulation that we must place Giovanni Battista Vitali's famous violin passacaglia in his *Artifici musicali*, Op.13 (1689), where Vitali modulates from E♭ major to E major through the circle of fifths. These few examples, among others, attest to the ongoing seventeenth-century concern for musical enigmas, and shows how composers strove to apply in practical terms the principle of modulation through the entire circle of fifths, a very innovative concept at that time period.

In summary, as Chafe has already observed, the fact that Kircher's examples of *mutatio modi* always involve the addition of ♭ signs seems to confirm the primacy of flatward modulation in early seventeenth-century theoretical conceptions of modulation, as suggested above.[66] It is unfortunate that seventeenth-century treatises do not include more references to or descriptions of the principles of 'modulation', even though modulations as shift of 'mode' within a given scale or shift of the scale transposition level pervade the seventeenth-century repertoire. Moreover, the few theorists who do discuss various types of 'modulation' in the seventeenth century such as Kircher or Bernhard do not provide specific explanation regarding how *mutatio* should be achieved from a technical standpoint, and hexachordal terminology is excluded from these early discussions of 'modulation'. Nonetheless, the connection between basic seventeenth-century descriptions of scale transposition as previously described and later concepts of modulation becomes clear when examining certain eighteenth-century treatises.

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[64] Claudia Jensen, *Musical Cultures in Seventeenth-Century Russia* (Bloomington: Indiana University Press, 2009), 144. See Kircher, *Musurgia universalis*, I, 457; 462-463.
[65] Joel Lester, *Between Modes and Keys: German Theory, 1592-1802*, Harmonologia Series 3 (Stuyvesant: Pendragon Press, 1989), 109.
[66] Chafe, *Monteverdi's Tonal Language*, 386. Chafe mentions one exception: Kircher's examples of Doni's unusual 'transposing systems'.

### 3.4 A Glimpse into Eighteenth-Century Treatises.

It is sometimes by looking ahead in time that we understand better how a concept may have developed from one century to the next; interestingly, the procedure described in the seventeenth century by Cerone, Penna, Bononcini and Berardi to explain scale transposition to accommodate singers was used in the eighteenth century to conceptualize modulation. At least two eighteenth-century treatises may illustrate this point: Luigi Sabbatini's *Elementi teorici* (Bologna, 1789), and Francisco Solano's *Nova instrucção* (Lisbon, 1764). Even though these treatises date from the second half of the eighteenth century and are therefore chronologically distant from the seventeenth-century sources discussed above, they nonetheless unmistakably attest to the similarity of conception between linear modulation and scale transposition.[67]

In *Elementi teorici*, a solfeggio manual for beginner musicians, Sabbatini discusses how a 'key' (*tuono*) is defined by its fourth (*fa*) and seventh (*mi)* scales degrees. (In the late eighteenth century, the term 'tuono' was equivalent to the concept of key in common-practice tonality.) In eighteenth-century Italian theory, the major scale was conceived as the fixed model for all other keys as it is nowadays, so that the *fa* and the *mi* that define the *tuono* were always the fourth and seventh scale degrees. Note that on the contrary, there was no fixed scale yet in the seventeenth century, so that any *mi* or *fa* could be altered in descriptions of transpositions.[68] While Bononcini discussed the alteration of any *fa* to become *mi* and any *mi* to become *fa* in scale transposition, Sabbatini explains that the alteration of the fourth degree (*fa* becoming *mi* by adding a ♯), or the seventh degree (*mi* becoming *fa* with a ♭) results in a modulation of the scale in the course of a piece: [69]

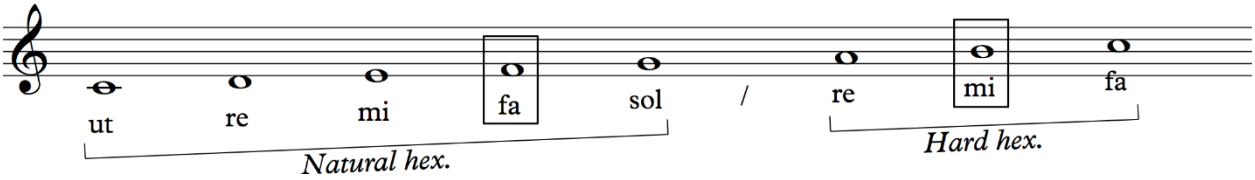
> If one places a ♯ on the fourth it becomes (or, if you prefer, is equivalent to) the seventh. In the fourth in the natural scale is *fa* and the seventh is *mi*; but when we add a ♯ to the fourth it becomes mi, i.e., the same as the seventh. For the same reason, when we add a ♭, to the seventh, it becomes a fourth – and why? Because in the natural scale the fourth is *fa* and the seventh is *mi*, but the seventh with a ♭ becomes *fa* and is thus equivalent to the fourth. This may seem scarcely worth knowing, until you perceive its almost constant usefulness. Raising the fourth with a ♯ or lowering the seventh with a ♭ instantly changes the key. The reason is clear, for the same definition of key given above. As soon as the order of the syllables in the

[67] I have not yet found early eighteenth-century Italian treatises showing this connection in conceptualization.
[68] It is difficult to determine exactly when the fixed major and minor scales appeared in the course of the seventeenth-century.
[69] Personal communication with Nicholas Baragwanath, November 2014.

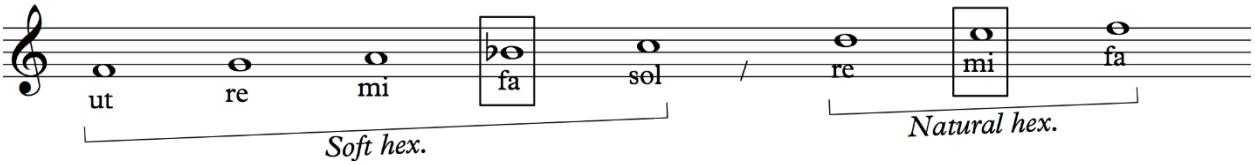
> natural scale is changed, i.e., in place of *fa* we say *mi* and in place of *mi* we say *fa*, then the ♯ and ♭ will produce their effect.[70]

The procedure is very familiar to all Western musicians trained in common-practice tonality as an elementary process pervading all tonal music. In the key of C major (or 'C solfaut' *tuono),* for instance, the fourth scale degree F is *fa* in the natural hexachord, and the seventh scale degree B is *mi* in the hard hexachord. The addition of a sharp to *fa* (fourth scale degree) transposes the scale up a fifth, and the addition of a flat to the *mi* (seventh scale degree) reverses the process and transposes it down a fifth (see Fig. 5.6).[71]

Figure 5.6. *Mi* becomes *fa* and *fa* becomes *mi*: example in C solfaut and its transpositions down and up a fifth.



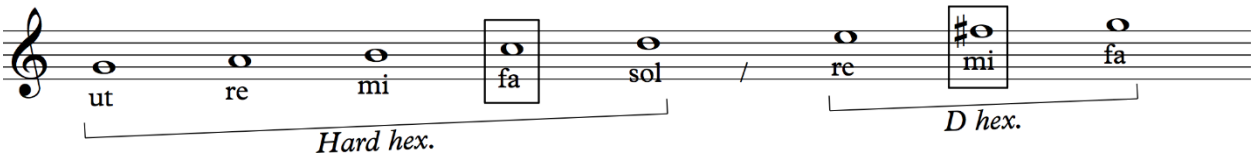

a) C solfaut (C major), fixed scale with the *mi* (seventh degree) and *fa* (fourth degree)




b) F faut (F major) – *mi* (seventh degree in C solfaut) becomes *fa* (fourth scale degree in F faut) with the addition of a ♭.

[70] '[…] se alla quarta si dà il ♯, essa diviene, o equivale, come vogliamo, alla settima: in fatti nella scala naturale la quarta è *fa*, la settima *mi*; diamo ora il ♯ alla quarta, essa diviene *mi*, cioè la stessa che la settima. Per la stessa ragione quando alla settima diamo il ♭.*molle*, essa diviene quarta, e perche? Perchè nella scala natural la quarta è *fa*, la settima è *mi*; ma la settima col ♭. molle diviene *fa*; dunque equivale alla quarta. Ciò sembra poco necessario a sapersi, ma orosa se ne vedrà il vantaggio. Se si accresce la quarta col ♯, o la settima col ♭. *molle*, subito si muta *tuono*, e la ragione è Chiara per la stessa difinizione del *tuono* mentre immediatamente si varia la gradazione delle voci, che si è data alla Scala naturale, cioè nel luogo del *fa* dovremo dir *mi*, e nel luogo del *mi* dovremo dir *fa*, acciò il ♯, e ♭. *molle* producano il loro effetto'. Luigi Sabbatini, *Elementi teorici della musica* (Rome, 1789), I: 26. Trans., Baragwanath.

[71] Interestingly, Baragwanath asserts that apprentices in Neapolitan conservatories learned about keys and modulation solely from singing solfeggio melodies, and did not study keyboard in the first stages of their curriculum. Personal communication with Nicholas Baragwanath, November 2014.




c) G solreut (G major) – *fa* (fourth degree in C solfaut) becomes *mi* (seventh degree in G solreut) with the addition of a ♯.

This simple principle is also described in the work of other eighteenth-century theorists such as Francisco Solano. Even though Solano was Portuguese, he studied music with Italian composer Giovanni Giorgi, and his treatise *Nova instrucção* (Lisbon, 1764) was highly praised by David Perez, the famous Neapolitan composer and pedagogue.[72] Solano's discourse further illustrates how the concepts of key and modulation would have been taught in the Neapolitan conservatories in the eighteenth century.[73] Solano underscores the pivotal roles of the *mi* and *fa* in modulation by using the label '*certo*' (*fà* certo, *mì* certo), which Baragwanath translates as 'fundamental'.[74] For Solano, the 'fundamental *fa*' on the fourth scale degree and 'fundamental *mi*' on the seventh scale degree represent the two key-defining notes that must be identified and altered to modulate to distant keys. Just like Sabbatini, Solano explains the mechanics of modulation with these two simple principles:

> The ♯ denotes an accidental *mi*, when it takes the fundamental place of *fa*. […] The ♭ denotes *fa*, when it takes the fundamental place of *mi*.[75]

Solano illustrates his point with the circle of fifths first going upwards, and then downwards, as follows:

> In a natural melody with a ♯ or a *fundamental mi* on F and a *fundamental fa* on C [G major], place the second ♯ [on C]. In a melody with two ♯♯ [D major], in which the last note C♯ is a *fundamental mi*, and the *fundamental fa* is on G, place the third ♯ [on G, etc.].
> […]

[72] *Oxford Music Online*, s.v. 'Solano, Francisco Ignacio,' www.oxfordmusiconline.com (accessed October 5, 2015); Personal communication with Nicholas Baragwanath, November 2014.
[73] Personal communication with Nicholas Baragwanath, November 2014.
[74] Ibid.
[75] '♯ denota mí accidental, quando se assina no lugar *certo* de fá. […] O ♭ denota fá, quando se assina no lugar certo de mí'. Francisco Solano, *Nova instrucção* (Lisbon, 1764), 59. Trans., Baragwanath.

> In a [*cantus mollis*] melody, the ♭ or *fundamental fa* is on B and the *fundamental mi* is on E [F major]. In a melody with two ♭♭ the *fundamental fa* is on E [♭] and the *fundamental mi* is on A. [etc.][76]

These two eighteenth-century examples illustrate how the mechanics of transposition, as described in seventeenth-century treatises such as Bononcini's, first laid out for purely practical reasons, were adopted by composers to become one of the most fundamental compositional techniques to build up tonal structure in a piece of music. The connection between scale transposition and principles of modulation, established here with a fairly large chronological gap between seventeenth-century treatises such as Bononcini's and solfeggio primers from the second half of the eighteenth century, merits further research, as similar findings in early eighteenth-century documents would further corroborate this observation. However, composers' understandings of these linear mechanics of modulation by changing *mi* to *fa* and *fa* to *mi* are clearly apparent in seventeenth-century music (even though these may have been conceptualized in a non-fixed scale), as will be shown below. Therefore, the linear principles of scale transposition described above should be considered in any study of seventeenth-century modulation.

## II. Analyzing Seventeenth-Century 'Modulation': ficta Accidentals or Scale Transposition?

In *Musico prattico* (1673), Bononcini best formulated the problem one faces when analyzing modulatory processes in seventeenth-century music:

> Each tone, or mode, is formed of five whole tones and two natural semitones, that is, of an octave, in which the ♭ and ♯ are not found, except sometimes by accident in the composition, and these do not cause the tone to change, because the regular cadences are done in the mode mentioned above in chapter sixteen. But if the said cadences are varied, or if you place one of these signs mentioned above at the beginning of the piece right next to the clef, as we have seen above, or throughout the composition in all its proper places (except sometimes by accident) namely, the ♭ *molle* on the note B, & the ♯ sharp on the notes F or C, the tone will be always outside its natural notes, far from the places where the [natural] semitone is.[77]

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[76] 'Na cantoria de ♮, e 3 he o *mí certo* em F., (pois he unico) e o *fá certo* em C., lugar do 2.º ♯. Na cantoria de dous ♯♯ o ultimo he o *mí certo*, que he C., e o *fá certo* em G., lugar do 3.º ♯. […] Na cantoria de Natura, e b *fá certo* em B., e *mí certo* em E. Na cantoria de dous ♭♭ *fá certo* em E, e *mí certo* em A'. Solano, *Nova instrucção*, 61; 63. Trans., Baragwanath.

[77] 'Ogni Tuono, ò Modo è format di cinque Tuoni di grado, e duoi semituoni naturali, cioè d'un'ottava, che trà di lei non si ritrova alcuno di questi segni ♭ ♯, se non alle volte per accidente trà la Composizione, e questo non fà,

Indeed, a fundamental issue with seventeenth-century modulation is precisely to assess if the accidentals used by a composer could reflect a scale transposition or only *ficta* inflections in a diatonic scale. As a proponent of Zarlino's twelve-mode theory, Bononcini reiterates the mode-defining function of cadences, which, according to him, best characterizes a mode. Nonetheless, it appears that, in early seventeenth-century musical practice, the choice of cadence degrees did not necessarily adhere to theoretical prescriptions, instead being controlled by the scalar system (as suggested in Chapter 2), so that Bononcini's remarks on cadences should be taken with caution. Bononcini explains that, beyond cadences, the consistent use of specific accidental signs, whether posted right next to the clef or written in throughout the composition, causes the tone to change, as it is 'outside its natural notes', and that the tone could also include additional *ficta* accidentals in such cases ('except sometimes by accident'). Even though Bononcini attempts to make the difference clear, it is difficult to determine if certain passages in seventeenth-century music feature extensive use of *ficta* accidentals or genuine scale transposition (modulation).

The next section explores the relevance of the harmonic-hexachordal methods of analysis developed by Dahlhaus and later expanded by Chafe for the study of modulation. Even though this method emphasizes harmonic analysis, it has the merit of taking into consideration certain uses of *ficta* accidentals; for instance, the raised thirds in the minor triads of diatonic scales may correspond to the mandatory raised thirds when the bass leaps up a fourth or drops down a fifth, as has already been discussed in Chapter 4 and will be further emphasized below. Nonetheless, using Chafe's model to analyze seventeenth-century modulation has its limitations, and, as we shall see, linear modulatory procedures as explained in the first part of the chapter must also be taken into account for a more nuanced analysis of modulation.

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che il Tuono sia variato, purche le cadenze regolari si faccino nel modo accennato di sopra nel Capitolo Decimosesto; mà se si variaranno le dette cadenze, ò se si collocarà uno de i sudetti segni nel principio della Cantilena subito dopo la chiave, come di sopra habbiamo veduto, overo trà la Composizione in tutti li suoi proprij luoghi (eccetuando qualche volta per accidente) cioè il ♭ molle nella corda B, & il ♯ Diesis nella corda F, ò C, il Tuono sarà sempre fuori delle sue corde naturali, lontano da loro, secondo i luoghi, che occuparà il semituono'. Bononcini, *Musico prattico*, 147.

## 1. Harmonic Approaches to Seventeenth-Century Modulation: Eric Chafe's Model of 'Harmonic' Hexachordal Analysis.

Dahlhaus's and Chafe's models of modal-hexachordal analysis have been introduced in Chapter 4 (see pp. 213-216). There, I argued that melodic motion in the bass-line may account for a composer's harmonic choices, in accordance with rules of continuo accompaniment. Most importantly, Chapter 4 emphasized the correspondence between these principles of continuo accompaniment, their harmonic implications, and Carl Dahlhaus's model of harmonic hexachordal analysis; just as continuo treatises discuss the use of six root position triads commonly used to harmonize a diatonic scale, Dahlhaus's model also involves six root-position triads that may be ordered stepwise so their roots form a hexachord. Dahlhaus's 'harmonic hexachord' corresponds to the triads used to harmonize a six-degree scale (*ut-re-mi-fa-sol-la*) since the seventh degree of that scale, which is diminished by nature in a diatonic scale, calls for a sixth chord. Therefore, in theory, any diatonic scale can only feature six root-position triads. To avoid confusion, 'harmonic hexachord' (my term) will from now on refer to the hexachord resulting from six root-position triads reordered stepwise according to Dahlhaus's and Chafe's models, as opposed to 'hexachord' which simply refers to melodic hexachords comprising a scale according to contemporaneous treatises, as defined in the Introduction (natural, soft or hard hexachords).

As mentioned in Chapter 4, Chafe later expanded Dahlhaus's model to reflect more accurately the wider harmonic range resulting from the possible transpositions of the harmonic hexachord within *cantus durus* or *cantus mollis* in Monteverdi's vocal music.[78] More specifically, Chafe's addition to Dahlhaus's model involves the inclusion of two adjacent harmonic hexachords on both sides of the main harmonic hexachord, thus extending the number of triads that can be found in a given 'system', a term that takes on a different meaning for Chafe. For Dahlhaus, the 'system' corresponds to the harmonic hexachord, which is determined by the cadence degrees and collection of triads found in a piece. By contrast, for Chafe, a system consists of not one harmonic hexachord, but three linked harmonic hexachords (with two additional harmonic hexachords each a fifth apart from the main one). The ♭ system is based on the triads built on the degrees of the soft harmonic hexachord

[78] Chafe, *Monteverdi's Tonal Language*, 26. Chafe's adjustment of Dahlhaus's model came partly as a result of his observations regarding the frequent presence of B♭ in pieces in cantus; Chafe emphasized the fact that in the seventeenth century, they key signature did not determine the range of available pitches in a piece.

(starting on F); the ♮ system is based on the triads built on the degrees of the natural harmonic hexachord (starting on C); the ♯ system is based on the triads build on the degrees of the hard harmonic hexachord (starting on G). For instance, a piece written in the ♮ system (with the natural harmonic hexachord as the main harmonic hexachord) will feature mostly triads from the ♮ harmonic hexachord, and may shift harmonic hexachord by borrowing triads from the neighboring soft and hard harmonic hexachords:

**Range of possible triads in the ♮ system (centered on the natural hexachord, with the triads reordered in fifths in each hexachord):**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ♭ harmonic hexachord | B♭ | F | C | g/G | d/D | a/A | | |
| ♮ harmonic hexachord | | F | C | G | d/D | a/A | e/E | |
| ♯ harmonic hexachord | | | C | G | D | a/A | e/E | b/B |

Chafe further elaborated on Dahlhaus's theory by making an important distinction between shift of harmonic hexachord and shift of system. For Dahlhaus, a shift of harmonic hexachord always results in a shift of system (or transposition level of that hexachord), since the two concepts are inextricably related. For Chafe, however, a system comprises not one but three connected harmonic hexachords. Thus, a musical phrase (based on a specific harmonic hexachord) that includes major or minor triads taken from the two adjacent harmonic hexachords indicates a shift of harmonic hexachord *within the same system*.[79] Nonetheless, a *cadence* on a major or minor triad outside those allowed in the central harmonic hexachord triggers a shift of system, or *signatio* (key signature). Thus, in a piece starting in the ♮ system, presented above, a simple chord progression including a B♭ chord may indicate a shift of harmonic hexachord while still remaining within the ♮ system (that is, still within *cantus durus*, as also suggested by Banchieri).[80] However, a cadence on B♭ (or g) results in a shift to the ♭ system (in *cantus mollis*), where the soft harmonic hexachord becomes the new central harmonic hexachord, since neither the B♭ triad nor the g triad is found as a cadence degree in the central harmonic hexachord. Likewise, a perfect cadence on b or B (the *mi* degree in the ♯

[79] Ibid., 26-27.
[80] See Fig. 4.2.

harmonic hexachord) creates a shift to the ♯ system, where the hard harmonic hexachord becomes the new central harmonic hexachord, since neither the b triad nor the B triad are found in the central harmonic hexachord in the ♮ system.

Chafe specifies that chromatic alterations of minor chords are commonplace in music of the early seventeenth century and do not affect the harmonic hexachord; indeed, as discussed in Chapter 4, the three sharp accidentals allowed in *cantus durus* in continuo treatises (F♯, G♯ and C♯) are the pitches used to alter the minor-third triads to major (d, e and a triads, corresponding to the *re*, *mi* and *la* degrees), and are commonly used when the bass leaps up a fourth or down a fifth. On the other hand, Chafe also notices that major chords (*ut*, *fa*, and *sol* degrees) altered to minor were much rarer and usually indicate either an incidental expressive colour or a shift of system in the flat direction.[81] Lastly, a non-Phrygian cadence (such as a 'dominant-tonic' type) on the *mi* degree of a harmonic hexachord signals a shift of harmonic hexachord in the sharp direction. If the non-Phrygian cadence is on the *mi* degree of the sharpest harmonic hexachord in the system, it signals a shift of system in the sharp direction.[82]

Chafe's model introduces another level of analysis of modulation that is harmonically oriented and based on his observations of the harmonic compass in Monteverdi's madrigals. By extension, Chafe's model of shifts of hexachords and shifts of system may apply to pieces that feature more extreme tonal movement further toward the flat or sharp side, or to pieces in the chromatic style.[83] A few essential observations must be made at this point. First, as noted above, Chapter 4 has shown that the collection of six triads forming a harmonic hexachord corresponds to the triads used to harmonize a diatonic scale in the seventeenth century, a connection that Chafe mentions only in passing in his discussion; aside from briefly mentioning that 'each hexachord comprises six triads, one on every degree of the scale', he adds that the transposition of a scale is, in his own words, 'equivalent to hexachordal shift and, later, modulation', implying a loose distinction between scale transposition, harmonic

[81] Chafe, *Monteverdi's Tonal Language*, 27.
[82] For instance, a 'dominant-tonic' type cadence on b/B in the ♮ system indicates a change of system in the ♯ direction, with the ♯ harmonic hexachord as the new central harmonic hexachord.
[83] Note that if, for Chafe, a shift of system theoretically triggers a shift of signature, his remarks are solely based on his observations in Monteverdi's madrigals; seventeenth-century Italian instrumental ensemble music, especially in the second half of the century, may feature more extreme tonal movement toward the ♭ or ♯ regions while still remaining with a *durus* or *mollis* signature.

hexachordal shift and modulation.[84] This lack of clarity in his explanation led other scholars such as Henry Burnett to oppose his ideas, as will be shown below. Second, in the course of his explanation, Chafe emphasizes the analogy between the three melodic hexachords used in solmization and the three harmonic hexachords found in his conception of a system, or *signatio*, suggesting a loose correlation between the two.[85] He writes, 'the relation of each system to its three hexachords provides thereby a kind of image in microcosm of the gamut with its three hexachords'.[86] Burnett, who later proposed, in his own words, a 'new theory of hexachord modulation', partly based on Chafe's ideas, even presented a figure illustrating the 'evolution of hexachord-system modulation' showing how melodic hexachords were gradually interpreted harmonically, leading to the harmonic hexachord described by Dahlhaus and Chafe.[87] Even though the analogy is tempting and can be used at various levels, it is problematic as the concept of mutation between melodic hexachords in solmization is fundamentally different from that of shifts of harmonic hexachords; the former is a mnemonic device to solmize a piece in a single scale, whereas the latter reflects a modulation (scale transposition) from one scale to another. The two types of 'hexachords' (harmonic and melodic) therefore represent two different musical realities which, arguably, should not be so easily assimilated. Lastly, Chafe admits the limitations of his model by acknowledging that 'it does not account for tonal centers and their shiftings'.[88]

Considering that Chafe's shifts of harmonic hexachords are exactly equivalent to shifts of scale transpositions clarifies seventeenth-century modulation, predicated on whether the root or the fifth of triads (since the triads' thirds may freely be altered) are part of the essential collection of pitches allowed in the diatonic scale at play. For instance, the occurrence of a b or B triad in the natural harmonic hexachord signals a shift of harmonic hexachord in the sharp direction as well as a modulation to the ♯ scale (hard and D hexachords), as it includes a F♯ in the position of a perfect fifth above B, which is not permitted in seventeenth-century theory in the harmonization of the natural scale (a sixth chord is required to avoid the diminished triad on B). Likewise, the occurrence of a B♭ triad may signal a shift of harmonic hexachord in the

[84] Ibid., 31.
[85] Ibid., 25-26; 29.
[86] Ibid., 29.
[87] Henry Burnett, 'A New Theory of Hexachord Modulation in the Late Sixteenth and Early Seventeenth Centuries', *International Journal of Musicology* 8 (1999): 123.
[88] Chafe, *Monteverdi's Tonal Language,* 30.

flat direction as well as a modulation to the ♭ scale (natural and soft hexachords), provided the B♭ in the bass does not have a *ficta* function as a *fa sopra la* or to avoid a tritone. In the example of the natural scale given above (natural and hard hexachords), this way of analyzing modulation identifies the F♯ in its position as a perfect fifth above B (in the case of a sharpward modulation) as a sure indicator of modulation since it would not be permitted in the *cantus durus* scale, as opposed to other F♯s that may only assume a *ficta* function in the texture. However, the melodic and harmonic context surrounding accidentals must be considered in each case. Note that the B♭ and F ♯ also correspond to the lowered *mi* degree in the hard hexachord, and the raised *fa* degree in the natural hexachord, respectively, which correspond to the two pitches that must be altered to modulate down or up a fifth in eighteenth-century treatises.

As mentioned earlier, Burnett proposed in response to Chafe a new 'theory of hexachord modulation' to analyze modulatory procedures in the late sixteenth and early seventeenth centuries.[89] Burnett observes that a 'system' according to Chafe is composed of twelve pitch classes (for instance, the pitch classes found in the ♮ system are C, C♯, D, D♯, E, F, F♯, G, G♯, A, B♭, and B, if one counts all the possible alterations of minor triads into major triads in the F, C and G harmonic hexachords). He then remarks that because this system contains all twelve notes of the chromatic scale, it could not be transposed, and adds that Chafe's inclusion of the B major triad 'within the untransposed gamut is theoretically impossible without transposing the whole gamut'.[90] Instead, he proposes a system of eleven pitch classes in an 'untransposed gamut' (his term), with all pitches excluding D♯, since according to him, the inclusion of D♯ would result in a transposition of the 'gamut' up a fifth.[91] Burnett's remarks seem to be partly based on his belief that a 'system' according to Chafe represents all possible pitch-classes within a single scale and one signature for that scale.[92] However, Chafe does not claim that a 'system' as he conceives it does not include transposition of hexachords (that is, transposition of scales) within the system; on the contrary, he asserts, for instance, that in the natural system (represented above), a non-Phrygian cadence

[89] Burnett, 'A New Theory of Modulation', 115-175.
[90] Ibid., 118.
[91] Ibid.
[92] Ibid., Burnett's analogy of the three basic melodic hexachords (natural, soft, hard) within a single diatonic scale (the B♭ being included as an allowed pitch to avoid tritones in *cantus durus*) becoming three harmonic hexachords may be at the origin of this assimilation.

on E indicates that the hexachord has shifted in the sharp direction, and that major triad turned to minor triads indicate either a shift in the flat direction, or a momentary expressive device.[93] Indeed, Chafe's system does not represent all possible pitch classes in the natural scale, or untransposed 'gamut', as Burnett believes, but simply the harmonic compass covered by Monteverdi's madrigals, which includes the most frequent areas of transposition of the hexachord within a signature with either nothing or one flat by the clef.

## 2. Linear Approaches to Seventeenth-Century Modulation.

Chafe's harmonic approach to modulation does not emphasize the importance of analyzing melodic accidentals in order to analyze seventeenth-century modulations. Nonetheless, an analysis solely based on harmonic hexachordal shifts may lead to ambiguity, since a system according to Chafe features common triads in all three harmonic hexachords. For instance, a minor triad supposedly altered to major in a given harmonic hexachord may not coincide with melodic motion down a fifth or up a fourth in the bass, which arguably could indicate that the triad is major in the diatonic scale, and not altered from a diatonically minor triad. In addition, the slower harmonic motion or reiteration of only a few triads in certain passages or sections of music may be complemented by richer melodic motion in upper voices, which may give further indication of the diatonic scale, and consequently, as I argue here, the harmonic hexachord on which the passage is based. On the one hand, the combination of diverse procedures in the music's pitch organization (with some linear and harmonic operations) causing listeners to react in various ways to seventeenth-century music may not be necessarily perceived as a problem. On the other hand, it is also crucial to examine modulation from a linear perspective. Indeed, these linear procedures seem to have been at the heart of early conceptions of modulation as has been shown above, and can resolve, in some instances, ambiguities that could result from an exclusively harmonic analysis.

The second approach to analyze modulation takes into consideration accidentals found in melodic lines (which may or may not pertain to the underlying harmony). This approach is connected to seventeenth-century discussions of scale transposition (changing *fa* to *mi* or *mi* to *fa*) which were incorporated in composition to modulate and to build tonal structure in a piece,

[93] Chafe, *Monteverdi's Tonal Language,* 27. Burnett himself quotes Chafe's words in his article (Burnett, 'A New Theory of Modulation', 117).

as discussed above. It tends to consider altered pitches as essential to the scale, much as western musicians trained in common-practice do nowadays when identifying a scale. Yet, it must be remembered that *musica ficta* was still in use and musical context must always be carefully considered. An analysis of modulation in the light of these linear procedures allows for a more specific interpretation of certain modulatory passages than does Chafe's method, as will be illustrated below.

In conclusion, both harmonic and linear approaches, along with an awareness of the continuing use of *musica ficta*, are necessary to reach a nuanced analysis of seventeenth-century modulation. In addition, one must keep in mind that several seventeenth-century theorists such as Bianciardi declared that a composer may after all use major or minor triads as he wishes or sees fit, hinting at a very flexible tonal language in the seventeenth century.[94] An analysis of seventeenth-century modulation must therefore also be aware of the very open quality of this musical language which by its very nature invites improvisation and exploration.

## III. Examples of Analyses.

The following two case studies aim to illustrate how an awareness of the issues discussed above may lead to a more sensible perception of seventeenth-century modulation. In each case, the effectiveness and relevance of the various analytical approaches is discussed.

### 1. Marco Uccellini's 'Sonata Sopra alla prosperina', Op. 4 (1645).

Marco Uccellini's Sonata 26, 'sopra alla Prosperina', from his *Sonate, correnti, et arie da farsi*, Op.4 (1645) illustrates how a passage that could be analyzed as a modulation may have been conceived without any transposition of the scale. The piece is in *cantus durus* with a final on d and is divided in four contrasting sections as follows (see Appendix F):

[94] Francesco Bianciardi, *Breve regola* (1607).

Table 5.1. Marco Uccellini's 'Sonata Sopra alla prosperina', Op. 4 (1645) – general structure.

| Bar numbers; time signatures | Beginning tonal focus; cadences | Ending tonal focus |
|---|---|---|
| 1-33; ∁ Grave | d; d, d, a | a |
| 33-55; ∁ Allegro | a; d, (a), d, (d), (d), d | d |
| 56-84; ∁ 3/1 Allegro | d; C, a, d, d | d |
| 84-104; ∁ | d; (F), a, (a), (d), (G), (a), d | d |

Uccellini's sonata 26 'sopra alla Prosperina' includes contrasting sections with varying time signatures (including one section in triple meter) as is typical for ensemble sonatas and canzonas of that time period. It opens with a slow Grave section, followed by three faster sections and features a mix of homophonic and more contrapuntal passages. Note the characteristic bass line (with an ascending fourth followed by two descending fourths) and second violin melodic line (stepwise descending line) in the first three bars, which seem to be characteristic of pieces bearing the name 'Prosperina' in their title (compare with the opening bass and violin melodic lines in Uccellini's sonata no.7, Op.4).[95] The openings of the third and fourth sections of the piece feature variations on that opening bass line based on the 'Prosperina' (see bb. 56-61 and 84-85). Cadence degrees correspond to the *do* and *re* degrees in the natural and hard hexachords (d, a, C, G, in relative order of frequency), as discussed in Chapter 2, with one exception (the cadence on F in b. 86, which most likely occurs in the soft hexachord, as manifest in the presence of B♭s in bb. 84-85).

If analyzed according to Chafe's model, the piece as a whole features chords from the ♭ and ♮ harmonic hexachords, thus featuring, arguably, the ♭ scale (comprising natural and soft hexachords) and the natural scale (comprising natural and hard hexachords) (see Appendix F). The opening section (bb. 1-32) is a long *Grave* with a tonal focus on d including the regular use of B♭, which signals the ♭ harmonic hexachord until the appearance an E triad (b. 32), marking a shift to the ♮ harmonic hexachord. A melodic analysis shows the recurrent presence of B♮ in the upper parts starting in b.23 (bb. 23-24; 28-30; 32), which further confirms the

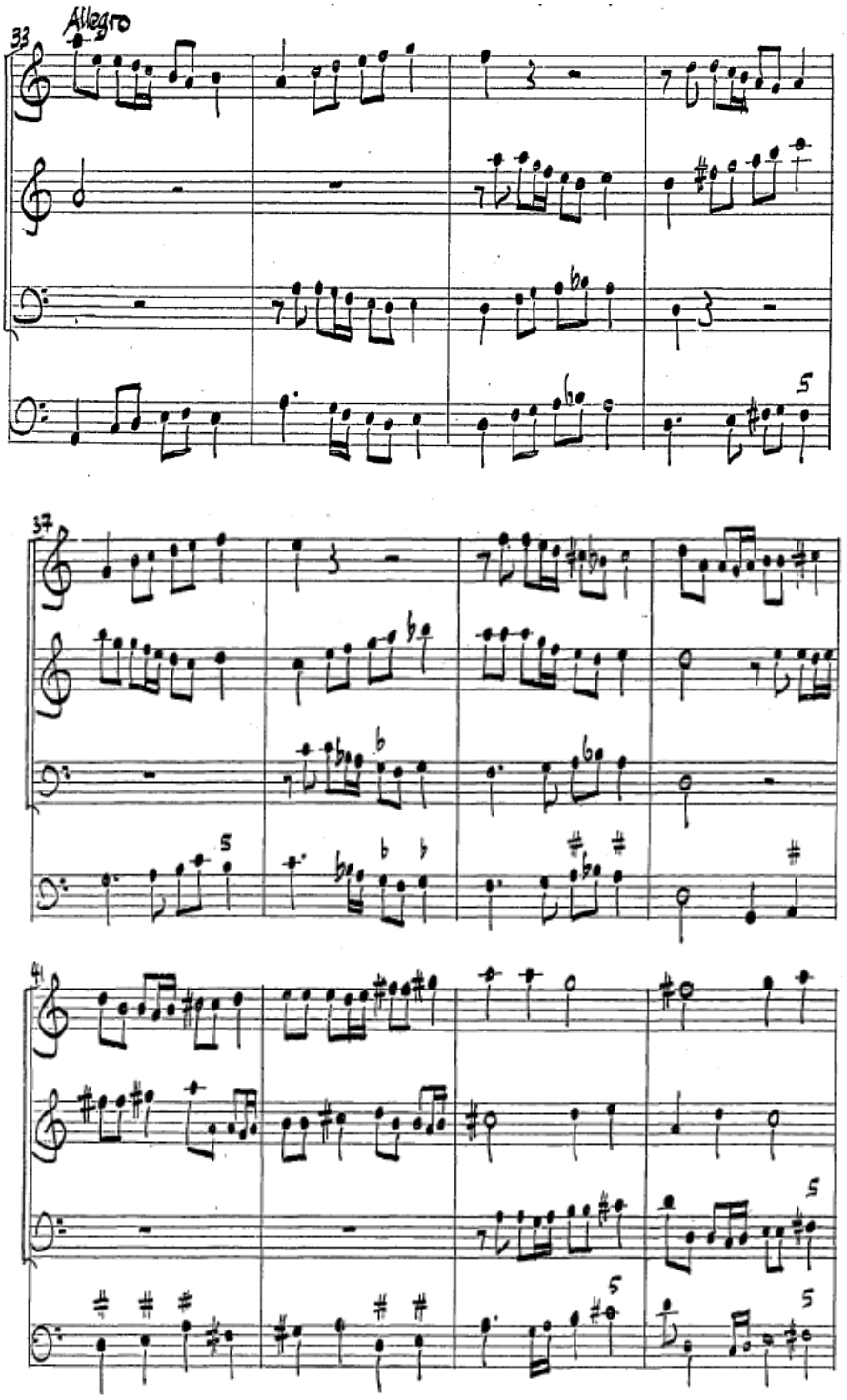
[95] Incidentally, Antonio Bertali's Sonata A.3: 2 Violino è Gamba in *Prothimia suavissima* also features that same opening bass-line. However, the piece is not connected to the name 'Prosperina'.

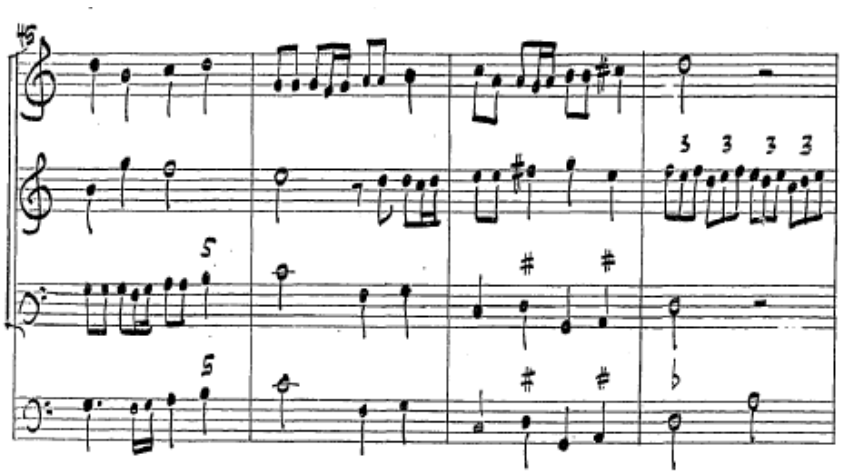
modulation from the ♭ to the ♮ scale. In this opening section of the piece, there is a minimum number of diatonically minor triads changed to major, except at cadential points.

The following Allegro section (bb. 33-55) opens with a theme that starts on the offbeat of b.33 based on the descending *diapente* (e''-a' in the first violin) treated in imitation in the upper voices and features the natural scale (See Fig. 5.7). The B♭ in the bass in b. 35 may be analyzed as a *fa sopra la* (above the natural hexachord), whereas the use of B♭ in b. 38 in a descending line in the bass may indicate a brief melodic modulation to the ♭ scale and harmonic hexachord with the presence of a g triad (even though this could simply be the harmonization of the *fa sopra la* in the second violin). The piece then returns to the ♮ scale and harmonic hexachord (e and E triads in bb. 40-41).

In bb. 40-47, Uccellini makes extensive use of major triads in contrast with the beginning of the piece which featured mostly minor triads. In this passage, bb. 40-43 could be perceived in two ways. From the standpoint of a linear hexachordal analysis, there would be an abrupt shift arguably from the ♭ scale (bb. 38-39) to the ♯♯♯ scale (A and E hexachords), without smooth alterations of *fa* degrees into *mi*. More convincingly, from the standpoint of harmonic analysis, as every sharp alteration is in line with allowed accidentals in *cantus durus* according to continuo treatises and this passage only includes triads allowed in Chafe's ♮ harmonic hexachord, there is technically no modulation, in spite of in the use of three ♯♯♯ and the cadence on A in b. 43. In bb. 40-47, the rising contrapuntal lines also contrast with the descending figure at the beginning of the section based on the same rhythmic motives (bb. 33-38). These rising contrapuntal lines enhance the effect of growing excitement already created by the use of major triads and especially ♯ accidental signs, which could denote harshness or crudeness in the seventeenth century, as will be discussed in Chapter 6.

Figure 5.7. Marco Uccellini, Sonata 26, ‘Sopra alla Prosperina’, Op. 4 (1645), bb.33-48. *Source*: Fred M. Pajerski, ‘Marco Uccellini (1610-1680) and His Music’ (PhD diss., New York University, 1979), vol. 2, 250-251.





Arguably, this passage in bb. 41-43 illustrates what Bononcini alluded to when he explained that sharp and flat signs do not affect a tone 'because the regular cadences are done in the mode', as opposed to having them at the signature, consistently throughout the piece, or if the cadences of the tone change.[96] As demonstrated in my analysis, the piece begins in the ♭ harmonic hexachord, moves to the ♮ harmonic hexachord around bb. 23-24, climaxes sharpwards with the exclusive use of major (often sharpened) triads in succession in bb. 40-47, and goes back in the flat direction in b. 53 (B♭ triad) in preparation for the following allegro section in the ♭ harmonic hexachord. Hence, the passage in bb. 40-47 represents a high point of tonal tension, encircled on both sides by calmer, flatter tonal areas. Incidentally, this passage is also the 'sharpest' passage in the whole piece (with regard to frequency of use of accidental sharps).

This excerpt taken from Uccellini's Sonata 26 'sopra alla Prosperina' has shown how a Chafe-style analysis of pitch organization, which takes in consideration the use of *ficta* accidentals in the flexibility of the triads' thirds in conformity with what is prescribed in continuo treatises, may illuminate pitch organization in ensemble music. In this case, it shows ebbs and flows of tensions and harmonic colours via the use of *ficta* accidentals. Performers and listeners should be sensitive to all these factors when interpreting and listening to seventeenth-century music, as will be further discussed in Chapter 6. By contrast, the next case-study, taken from a piece published only three years later, shows a different function of

[96] Bononcini, *Musico prattico*, 147.

the ♯ sign and illustrates how, this time, a melodic analysis sheds light on how the composer may have conceived modulation.

### 2. Maurizio Cazzati's 'La Calva', Op.8 (1648).

The opening section of Cazzati's 'La Calva', taken from *Il secondo libro delle sonate*, Op.8 (1648), shows a fairly uncommon example of sharp modulation for that time period in Italian ensemble music, as it clearly illustrates the mechanics of modulation via changing *mi* to *fa* and *fa* to *mi*, as discussed earlier. The piece as a whole is in *cantus durus* with a final on D (D and A hexachords) and comprises four sections as follows (see Appendix G):

Table 5.2. Cazzati's 'La Calva', Op.8 (1648) –general structure.

| Bar numbers; time signature | Beginning tonal Focus; cadences | Ending Tonal focus |
|---|---|---|
| 1-34; ○ | D; D, A, E, D | D |
| 35-75; ¾ Vivace | D; D, A, D | D |
| 76-88; ○ Grave and Allegro | ?; A, E, E, b, e, A, D | D |
| 89-108; Allegro, e presto | D; A, D | D |

The first section of 'La Calva' opens with a theme in duple meter featuring repeated-notes, presumably in a moderate tempo. The piece includes three other sections in contrasting tempi (one of which includes a very short Grave followed by an Allegro), with only one in triple meter (Vivace). The theme of the last section (Allegro e presto) is a variation on the opening theme with repeated notes of the first section, and even includes the same tonal levels of transposition at the outset (the theme is first stated on D and then transposed to A). Most sections include passages in imitation as well as passages in a more homophonic texture. Again, note that the cadence degrees tend to be on D, A, E and B, recalling the two *do* and *re* degrees in the D and A hexachords as discussed in Chapter 2.

The piece opens with a six-bar unit which is transposed twice toward the sharp side in the circle of fifths (in this case, there are two scale transpositions, or arguably, *mutatio modi*), thus introducing a very sharp area (charged with musical tension) at the outset. The first 23 bars which will be discussed here feature a six-bar unit with a tonal focus on D (bb. 1-6),

which is then transposed to A (bb. 7-12) and finally to E (bb. 13-18), followed by a modulation back to D (bb. 18-23) (see Fig. 5.8). If analyzed with Chafe's method, this opening section as a whole (bb. 1-24) features triads included in the ♯♯ harmonic hexachord:

♯♯ G D A e/E b/B f♯/F♯

The opening six bars includes implied triads on G, D, A and e, the first transposition (on A, bb. 7-12), triads on D, A, E and b/B, and the second transposition (on E, bb. 13-18), triads on A, E, b/B, and f♯/F♯. Each level of transposition adds one triad, but it is difficult to see tonal movement through the circle of fifths solely from this harmonic analysis (without melodic detail) as all the triads in all three levels of transposition are included in a single harmonic hexachord (the ♯♯ harmonic hexachord). The ensuing modulation back to D as a tonal focus features triads on G, D, A and e, again all contained in the ♯♯ harmonic hexachord. As just discussed, Chapter 4 has shown how Chafe's harmonic hexachord corresponds to the six triads to harmonize a diatonic scale as discussed by seventeenth-century theorists. It is therefore ironic that Chafe's model would cast the three levels of scale transposition of these 23 opening bars into the same diatonic scale, which points to a possible weakness in his method. Indeed, his method overlooks melodic pitch inflections and this may potentially yield inaccurate results in pieces with scale transpositions, or written in the chromatic style (as is the case here).

A melodic analysis focusing on solmization in the same 23 bars provides different results. The opening of the piece illustrates how Cazzati plays on the *mi-fa*/*fa-mi* alteration, thereby hinting that the procedure may have been commonplace for him, and arguably for other Italian composers of his generation. 'La Calva' is in *cantus durus* with a final on D in the ♯♯ scale (D and A hexachords). From a melodic standpoint, the opening theme is first presented in the ♯♯ scale, then transposed via modulations through the circle of 5ths to the ♯♯♯ scale (b. 7), and to the ♯♯♯♯ scale (b.13).[97] In this process, Cazzati first changes the *fa* in the D hexachord (G) to *mi* in the E hexachord (G♯) in b. 10 to modulate to the ♯♯♯ scale (A and E

[97] These are inexact transpositions when compared with the initial statement of the theme, as the bass line in the first bar is modified.

hexachords, see Fig. 5.8 and 5.9).[98] In the second transposition of the theme, the *fa* in the A hexachord (D) is in turn raised to become the *mi* in the B hexachord (D♯) in b. 16 to modulate to the ♯♯♯♯ scale (E and B hexachords).[99] In bar 18 Cazzati reverses the process to return to the home scale by changing the D♯ *mi* (B hexachord) to D♮ *fa* (A hexachord), and G♯ *mi* (E hexachord) to G♮ *fa* (D hexachord) (see b. 18). Cazzati then switches back and forth several times between G♯ and G♮ (bb. 19-22) before the home scale is finally re-asserted with a strong cadence and the return of the theme in the initial scale (tonal focus on D, b. 23).

This example taken from Cazzati's 'La Calva' exemplifies the contradiction that can result from a harmonic versus melodic analysis of a passage. Unlike in the Uccellini excerpt, in this case, a melodic analysis of the modulatory procedures shows a much more precise and convincing analysis than a harmonic-hexachordal analysis, demonstrating how both approaches need to be considered in analyzing seventeenth-century modulation. In addition, the excerpt from *La Calva* clearly illustrates the connection between seventeenth-century descriptions of scale transposition found in treatises for practical purposes (with *mi* degrees changed to *fa* degrees and vice versa), and their application in composition to build tonal structure. Indeed, this piece demonstrates both scale transposition, with the theme stated at three different tonal levels (bb. 1-18), and modulation within a single phrase (bb. 18-23), both done by altering *mi* and *fa* degrees.

[98] The G♯ in b. 8 and D♯ in b. 14 could be interpreted as ornamental *ficta* alterations, so that the G♯ in b. 10 and the D♯ in b. 16 are more secure indications of the level of transposition of the scales.

[99] Even though it clearly appears that Cazzati is moving through the circle of fifths, Figure 5.9 deliberately avoids showing the new tonal focus as the first note of each ascending sequence of notes, so as to avoid the assimilation of the concept of tonal focus with that of 'tonic,' which would be anachronistic.

Figure 5.8. Maurizio Cazzati, ‘La Calva’, Op. 8 (1648), bb. 1-23.

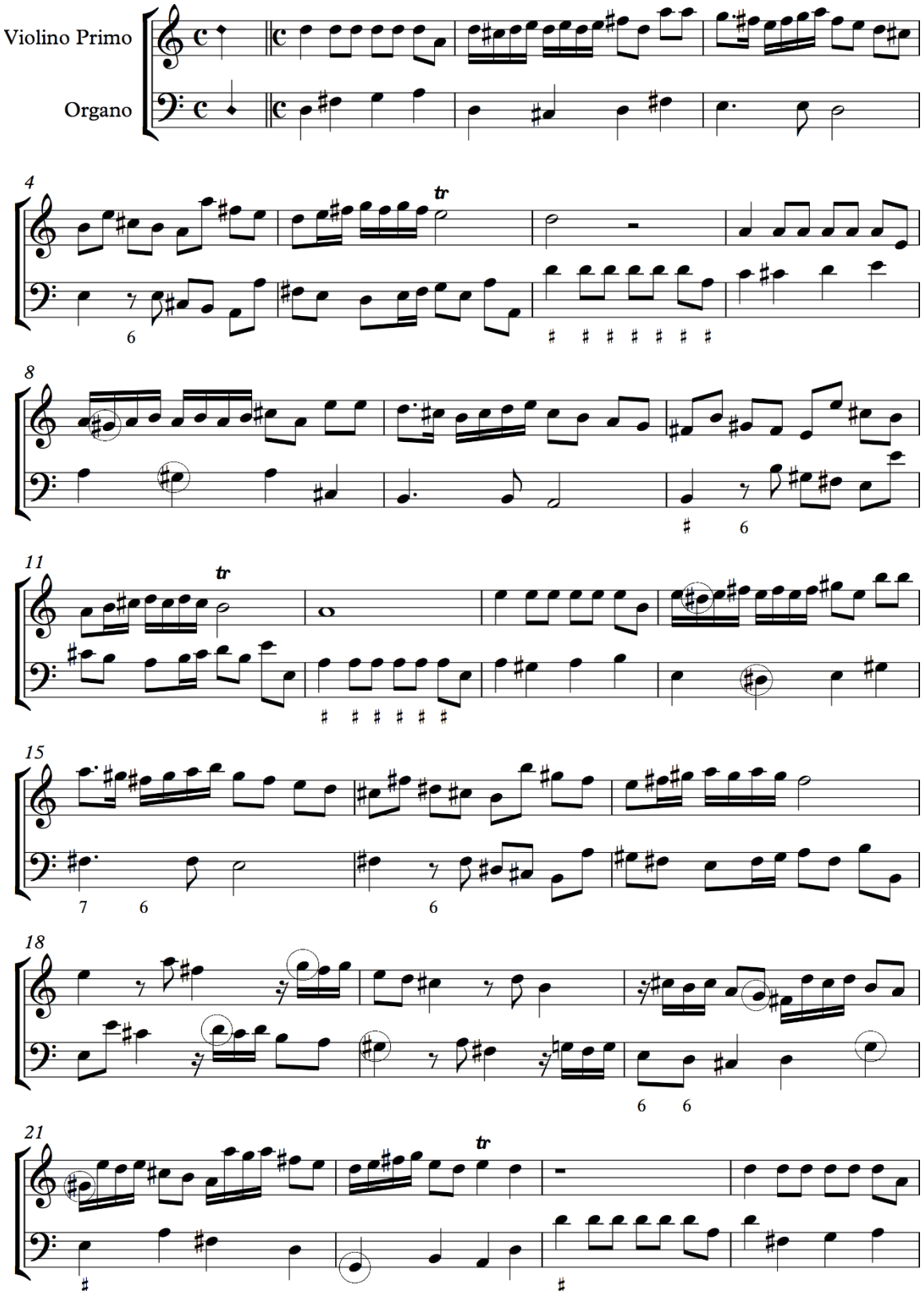
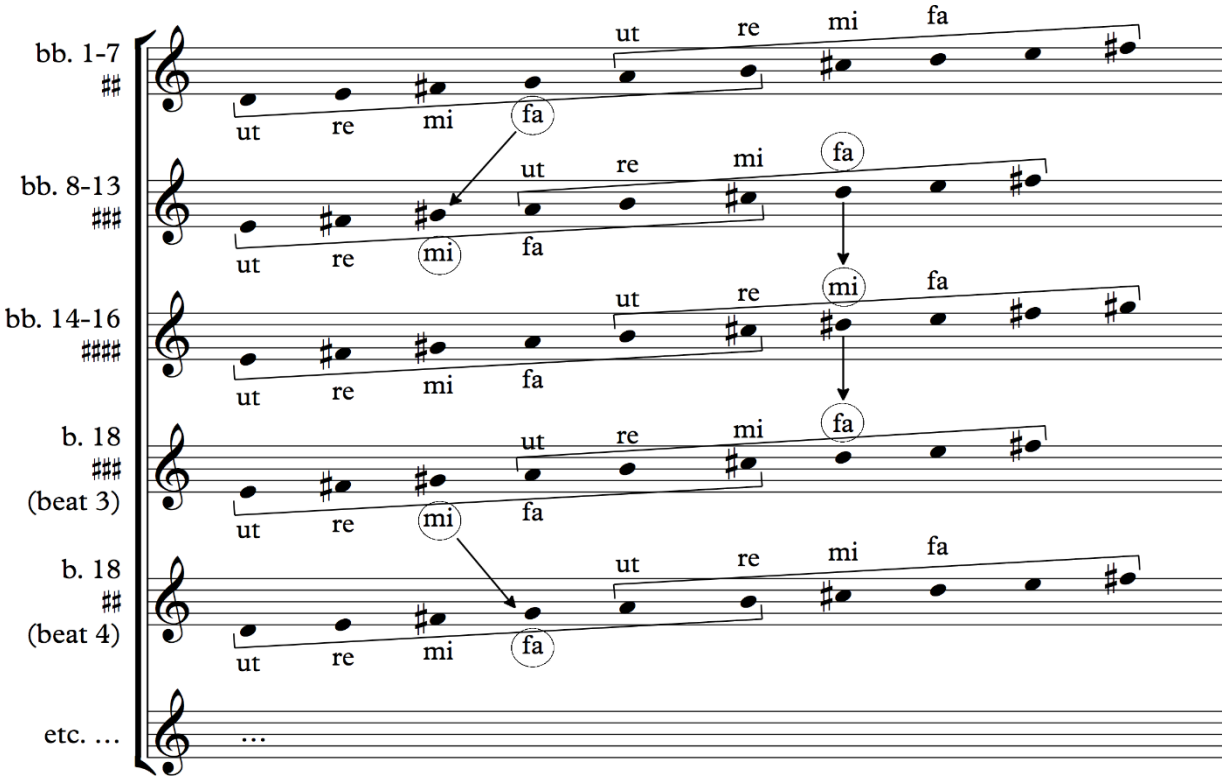


Figure 5.9. Scale transpositions via the alteration of *fa* and *mi* degrees in Cazzati's 'La Calva', Op. 8 (1648), bb. 1-18.




**Conclusion**

This chapter has argued that seventeenth-century descriptions of scale transposition, not previously scrutinized by scholars, shed light on modulatory processes in seventeenth-century music. It has also emphasized that seventeenth-century modulation must be approached from a variety of different angles, keeping in mind the multiple functions of accidental signs as described in seventeenth-century treatises (such as *ficta* alterations versus accidentals that are essential to the scale). Such an open and multi-faceted approach to analyze seventeenth-century modulation eventually leads to a greater understanding of how seventeenth-century composers may have conceived tonal movement, at a time of complex changes in the conceptualization of scales and key signatures. Developing a greater awareness of how accidentals may have taken on different functions according to their place in the musical texture also challenges the way other scholars have conceived and analyzed seventeenth-century 'modulation'. For instance, an understanding derived from continuo treatises that

accidental sharps were allowed on C, F and G in the bass with a 6 chord without compromising the integrity of the scale, could lead an analyst to interpret certain passages of music as simple alterations of a scale.

Further research could be done on references to scale transposition and modulation in seventeenth- and early eighteenth-century treatises, particularly to locate the earliest explanations of how to use scale transposition as modulation in the course of a piece, as subsequently outlined in Solano's and Sabbatini's treatises. Moreover, more research needs to be done on early explanations of modulation in relation to harmony, such as in Gasparini's *L'armonico pratico al cimbalo* (1708), where Gasparini's understanding of 'tuono' seems related to the common-practice understanding of 'key'.[100] At any rate, developing an awareness of how seventeenth-century composers and musicians may have conceived modulation is crucial to improving our understanding of the era's tonal organization.

[100] Francesco Gasparini, *The Practical Harmonist at the Harpsichord*, trans. Frank S. Stillings, ed. David L Burrows, Music Theory Translation Series (New York: Da Capo Press, 1980), 64-77.

## Chapter 6

## Pitch Organization, Rhetoric and Affect in Italian Ensemble Music.

The questions of 'authentic' performances and 'period' listening have been the object of much debate, as mentioned in the Introduction. Scholars generally agree that trying to perform and hear seventeenth-century music as early musicians would have is an unattainable and utopian goal. However, Margaret Bent has outlined the necessity for performers to become familiar with early music's 'grammar', and others such as Shai Burstyn have suggested ways to reconstitute what 'period hearing' *could have been*.[1] Previous chapters in this thesis have addressed aspects of that musical 'grammar' in the seventeenth century, with discussions of scalar and harmonic systems (Chapters 1, 2, and 4), harmonic schemata (Chapter 3) and conceptions of 'modulation' (Chapter 5). This chapter will explore the affective and rhetorical dimension of pitch organization, recognizing that intervals, consonances and dissonances, modes and keys or flat and sharp signs were often (though not always) linked to the expression of affect in contemporaneous theoretical sources.

Anne Smith has provided an account of the affective meaning of solmization syllables and accidental signs in sixteenth-century treatises, and has examined how an awareness of these connotations may help modern musicians hear and perform sixteenth-century vocal music with more historically informed ears.[2] The use of the affective significance of *durus* and *mollis* signatures and accidental signs to enhance the meaning of a text in Monteverdi's vocal music has been addressed by Eric Chafe.[3] Massimo Ossi has conducted similar studies, still in the vocal music of Monteverdi, and others such as Gregory J. Decker have examined the expressive use of pitch organisation in relation to a text in the *seconda prattica*.[4] However, these scholars have mostly focused on vocal music, and the affective implications of pitch organization in seventeenth-century instrumental

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[1] Margaret Bent, 'Impossible Authenticities', *Il saggiatore musicale* 8, no.1, *La Storia della musica: Prospettive del secolo XXI Convegno Internazionale di studi, Bologna, 17-18 novembre 2000* (Bologna: Leo S. Olschki, 2001), 46; 48; Shai Burstyn, 'In Quest of the Period Ear', *Early Music* 25, no. 4 (Nov. 1997): 692-697; 699-701.

[2] Anne Smith, *The Performance of Sixteenth-century Music: Learning from the Theorists* (Oxford: Oxford University Press, 2011), 24-54.

[3] Eric Chafe, 'Aspects of durus/mollis Shift and the Two-system Framework of Monteverdi's Music', in *Schütz-Jahrbuch* 12 (1990), 171-206.

[4] Massimo Ossi, *Divining the Oracle: Monteverdi's seconda prattica* (Chicago: University of Chicago Press, 2003); Gregory J. Decker, 'Strategies for Opposition, Ambiguity, and 'Amarilli' in the *Seconda prattica* Italian Madrigal', *Intégral: The Journal of Applied Musical Thought* 28-29 (2014-2015) (Rochester, NY: Eastman School of Music, 2015), 2-29; 181-219.

ensemble music has been overlooked. Likewise, the application of rhetorical principles to seventeenth-century music has also drawn the attention of many scholars. After the pioneering work of Arnold Schering in the early twentieth century, German musicologists in the 1950s such as Hans Heinrich Eggebrecht often explored rhetorical figures as a way to understand the powerful text-setting of German composers such as Heinrich Schütz; the motivations for such analyses have recently been deconstructed by Bettina Varwig.[5] Lena Jacobson has analysed highly sectional pieces such as Buxtehude's organ preludes as the parts of an oration, bringing to light their 'disposition' (a term denoting structural design in classical rhetoric) via an analysis of motivic content and textures in each prelude.[6] On the other hand, some scholars such as Brian Vickers have warned against the danger of pushing analogies between rhetoric and music too far, pointing out that unlike a text, music does not carry any semantic meaning, so that it seems artificial to look for rhetorical analogies for specific details in music.[7] Likewise, it appears that no-one has specifically addressed how pitch organization enhances the rhetorical dimension of seventeenth-century ensemble instrumental pieces.

This chapter argues that aspects of pitch organization such as the use of accidental signs, modulation, consonances and dissonances all contributed to the rhetorical expression of affect in seventeenth-century instrumental ensemble music. The chapter draws on sixteenth- and seventeenth-century sources to re-educate our aural expectations, and suggests how seventeenth-century musicians and audiences *may have* perceived the pieces discussed in the chapter, similarly to what Shai Burstyn has described as an 'exercise in musical-historical imagination'.[8] Following Vickers's admonition, the analyses presented in this chapter do not aim to always strictly assign specific meanings to rhetorical terms or figures as they appeared in seventeenth-century treatises; the chapter instead addresses the 'rhetoric' of music in a larger sense, as the art of arousing emotions through refined tonal structures and the expression of affect via pitch organization and other musical means.

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[5] See Arnold Schering, 'Die Lehre von den musikalischen Figuren im 17. und 18. Jahrhundert' *Kirchenmusikalisches Jahrbuch* 21 (1908): 106-144; Hans-Heinrich Unger, *Die Beziehungen zwischen Musik und Rhetorik im 16.-18. Jahrhundert* (Hildesheim: Olms, 1941); Hans Heinrich, Eggebrecht, *Heinrich Schütz:* Musicus Poeticus (Göttingen: Vandenhoeck & Ruprecht, 1959); Bettina Varwig, *Histories of Heinrich Schütz* (Cambridge: Cambridge University Press, 2011): 194-212.

[6] Lena Jacobson, 'Musical Rhetoric in Buxtehude's Free Organ Works', *The Organ Yearbook: A Journal for the Players and Historians of Keyboard Instruments* 13, 1982: 60-79.

[7] Brian Vickers, 'Figures of Rhetoric/Figures of Music?', *A Journal of the History of Rhetoric* 2, no. 1 (Spring 1984): 17-19.

[8] Shai Burstyn, 'In Quest of the Period Ear', *Early Music* 25, no.4 (November 1997): 695.

The chapter first introduces the seventeenth-century concepts of musical rhetoric, *stylus phantasticus* and *varietas*, emphasizing pitch organization as an essential component of these concepts. It then shows that pitch organization could serve the expression of affect in music, as evidenced in treatises such as Gioseffo Zarlino's *Le istitutioni harmoniche* (1558), Silverio Picerli's *Specchio Secondo* (1631), and Athanasius Kircher's *Musurgia universalis* (1650). The second part of this chapter presents analyses of Marco Uccellini's 'Sonata decima ottava a doi violini', from his Op. 4 (1645), and Maurizio Cazzati's 'Capriccio detto il Gozadini', from his Op.50 (1669). Cazzati's piece is not representative of the repertoire; it belongs to an experimental strand pushing the boundaries of temperament and tuning, but raises interesting questions about how a seventeenth-century listener might have perceived such extremes in pitch organization. In the light of what we learn from early treatises, the analyses on this chapter focus on how pitch organization enhances the expression of affect and contributes to the rhetorical dimension of each piece within the seventeenth-century aesthetic of *varietas*, suggesting how contemporaneous composers, performers and audiences may have heard these pieces in terms of pitch organization and affective content.

## I. Pitch Organization and the Expression of Rhetoric and Affect in Ensemble Instrumental Music.

### 1. Rhetoric, *Stylus phantasticus* and *Varietas*.

The affective impact of pitch organization is best understood in connection with certain aspects of seventeenth-century aesthetics. In the visual arts as in music and literature, the seventeenth century prized persuasive projection of emotion, dramatic contrast and the expression of variety (*varietas*); in music, these features were manifested in styles and genres rich in contrast, such as the *stylus phantasticus* and the capriccio, and aspects of the art of varying and embellishing musical material.

In the seventeenth century, all educated males were familiar with the principles of rhetoric from their schooling, which taught them the necessary skills to become convincing orators in delivering speeches and sermons. Principles of rhetoric strongly influenced the way educated people apprehended all forms of art, including music.[9] Theoretical discourses on the parallel between music and the principles of rhetoric, first advanced by

[9] See Gerard Le Coat, *The Rhetoric of the Arts, 1550-1650*, European University Papers Series 18, Comparative Literature, vol. 3 (Bern: Herbert Lang, 1975).

Quintilian, pervaded the seventeenth century, particularly in works by German-born authors such as Joachim Burmeister in *Musica poetica* (Rostock, 1606), Johannes Nucius in *Musices practicae* (Neisse, 1613), Johannes Andreas Herbst in *Musica poetica* (Nuremberg, 1643), and Athanasius Kircher in *Musurgia universalis* (Rome, 1650), among others.[10] Just as an orator or writer had to develop the art of speaking or writing persuasively, a piece of music had to be convincing as a coherent whole and effectively appeal to the listener's emotions. Indeed, the principles of rhetoric as applied to music were closely connected to the expression of affects, at a time when human passions triggered great interest in all fields of research and were studied in unprecedented detail.

Writers on musical rhetoric address the five elements that constituted good musical oration (1. Invention, 2. Disposition, 3. Elocution, 4. Memory and 5. Delivery), and listed as part of the musical style ('elocution') a considerable number of musical figures analogous to figures of speech in classical rhetoric to convey ideas and carry the argument convincingly, and most importantly, to move the affections.[11] Many such musical-rhetorical figures were devices involving pitch organization; for instance, figures of consonance and dissonance such as the *pathopoeia* (for Burmeister, the use of stepwise semitones outside the mode to express sorrow or sadness) or the *prolongatio* (for Bernhard, a suspension or dissonance that lasts longer than its preceding consonance).[12] Other figures involved chromaticism, such as the *passus duriusculus* (according to Bernhard, a voice rising or falling by a minor semitone), or modal properties, such as the *hyperbole* (for Burmeister, a melodic line that goes beyond the range of the mode).[13] Just as rhetorical figures helped the orator or writer convey the argument in a verbal discourse, these musical figures were meant to enhance the meaning and affect of a text set to music. Unlike later

[10] See Dietrich Bartel, Musica poetica: *Musical-Rhetorical Figures in German Baroque Music* (Lincoln, NE: University of Nebraska Press, 1997).

[11] John Walter Hill, *Baroque Music: Music in Western Europe*, 1580-1750 (New York: W.W. Norton & Company, 2005), 16. The first idea for the oration or written discourse, including its topic, content and arguments constituted the 'invention', which for a composer corresponded to the initial thematic idea for a composition. The 'disposition' was the organization of ideas in a convincing whole. The 'elocution' denoted the style. Lastly, the 'memory' and 'delivery' were connected to performance, or how to use voice inflections, accents etc. to convey a message effectively. Ibid.,16-19. The 'disposition' usually followed one of several known pre-established plans. For instance, one common structural design included 1) the 'Exordium' (equivalent to calling for the attention of the audience to prepare people to listen); 2) the 'Narratio' (present the facts); 3) the 'Explicatio' (present and define the terms used in the oration and introduce the issues at stake); 4) the 'Partitio' (explain what is to be proved); 5) the 'Amplificatio' (states the arguments of both sides – for and against, and bring proof); 6) the 'Refutatio' (refute the counter-arguments), and 7) the 'Peroratio'(Summary and conclusion). Ibid.

[12] Joachim Burmeister, *Musica poetica* (Rostock, 1606), 61; Christoph Bernhard, *Tractatus compositionis augmentatus* (c. 1657), 76. Some theorists even invented musical figures using terms not found in classical rhetoric.

[13] Bernhard, *Tractatus*, 77; Burmeister, *Musica poetica*, 64.

commentators, theorists from the first half of the seventeenth-century did not attach a strict hermeneutic dimension to these figures, which for them mostly represented techniques for varying, amplifying, truncating or linking musical ideas.[14] If this obsession with classifying and labelling musical rhetorical figures was mostly a German phenomenon, the spirit of musical rhetoric and the importance of moving the affections pervaded music all over Europe**.**

Seventeenth-century theorists primarily associated vocal music with the use of rhetorical figures and the expression of affect. In *Cartella musicale* (1614), Adriano Banchieri claimed:

> Thus it is required of a modern composer of music in the setting of a madrigal, motet, or any other words, that he must attempt to imitate with the harmony the affects of the text […] Deny it who will, music (with respect to the harmony) should be subject to the text, for it is the words which express the meaning. Therefore, if the words express (as we have said) grief, passion, sighs, questioning, error, or some similar happening, these words should be clothed with equivalent harmony.[15]

Nonetheless, if vocal music naturally lent itself to analogies between rhetoric and music, the importance of rhetoric and the expression of affections also dominated instrumental music, which gained prominence during the course of the seventeenth century. The stylistic crossovers between vocal and instrumental music were hinted upon by contemporaneous musicians such as Girolamo Frescobaldi, who in the preface of his first book of keyboard toccatas specified that these pieces should be played with a free approach to tempo, as in Italian madrigals:

> First, I say that this manner of playing must not be subjected to the beat as we do in modern madrigals which performance, even though difficult, is facilitated by the beating of the beat, either slow, or fast, and that may be sustained according to the manners of expressions, and the meaning of the words.[16]

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[14] Varwig, *Histories of Heinrich Schütz*, 207.

[15] 'Cosi ricercasi al moderno compositore di Musiche nell'esprimere un Madrigale Moteto ò quali sieno altre parole, deve operare imitando con l'armonia gi'afetti dell'Oratione […] Tacia pur chi vuole, che la Musica (quanto all'armonia) deve essere sogieta all'Oratione, attteso che le parole sono esse ch'esprimono il concetto, la onde se la parola ricercar (come detto habiamo) dolore, passione, sospiri interogativo? errore ò tali simili accidentali, tali parole debbono vestirsi con equivalente armonia'. Adriano Banchieri, *Cartella musicale* (Venice, 1614), 166. Translated in Clifford Alan Jr. Cranna, 'Adriano Banchieri's "Cartella musicale" (1614): Translation and Commentary' (PhD Diss., Stanford University, 1981), 349.

[16] 'Primieramente; che non de questo modo di sonare stare soggetto a battuta, come ueggiamo usarsi ne i Madrigali moderni, I quali quantunque difficili si ageuolano per mezzo della battuta, portandola hor languida, hor veloce, e sostenendola etiandio in aria secondo i loro affetti, o senso delle parole'. Girolamo Frescobaldi, *Toccate d'intavolatura di cimbalo et organo…Libro primo* (Rome, 1637), Archivum musicum, collana di testi rari 3 (Firenze: Studio per edizioni scelte, 1978), preface.

Several modern scholars have emphasized the intersection between vocal and instrumental expression in the seventeenth century. Andrew Dell'Antonio has argued that contemporaneous texts suggest that the concept of *seconda prattica* extended to instrumental music.[17] Rebecca Cypess has pointed out similarities between the *stile moderno* as seen in instrumental music and the vocal *stile rappresentativo*, such as the use of metrical flexibility to bring out the various *affetti* or the theatrical dimension of the music, since instrumental music sometimes included instructions for staging or communication with an audience.[18] Drawing on writings of the early seventeenth century, Cypess also showed the changing status of musical instruments, which were sometimes considered as powerful devices to express the *affetti*, a revolutionary idea at that time.[19] She cites Vincenzo Galilei's son, Galileo, as he briefly referred to music in a letter to Lodovico Cardi da Cigoli where he advocates the superiority of painting over sculpture:

> Would we not admire a musician, who, through singing, represents the feelings and passions of a lover, and moves us to have compassion for him much more than if he were to do so through weeping? […] And would we not admire [the musician] much more if he did so without voice, with the instrument alone, with musical dissonances and pathos-filled sounds, since the inanimate strings are less able to awaken the secret affetti of our soul, than the voice is in telling of them?[20]

The theatrical dimension of ensemble instrumental music and its power to convey affect will be illustrated in the analyses below.

The emphasis on expression, contrast and theatricality in seventeenth-century instrumental music is particularly apparent in the *stylus phantasticus*. Athanasius Kircher was one of the first to use this term in his categorization of seventeenth-century musical styles in *Musurgia Universalis* (1650). He characterized the fantastic style as follows:

> The fantastic style is suitable for instruments. It is the most free and unrestrained method of composing; it is bound to nothing, neither to words nor to a melodic subject; it was instituted to display genius and to teach the hidden design of harmony and the ingenious

[17] Andrew Dell'Antonio, 'Syntax, Form, and Genre in Sonatas and Canzonas, 1621-1635' (PhD diss., University of California, Berkeley, 1991), 349-376.
[18] Rebecca Cypess, '"Esprimere la voce humana": Connections between Vocal and Instrumental Music by Italian Composers of the Early Seventeenth Century', *The Journal of Musicology* 27, no. 2 (Spring 2010): 181-223.
[19] Rebecca Cypess, *Curious and Modern Inventions: Instrumental Music as Discovery in Galileo's Italy* (Chicago: University of Chicago Press, 2016), 17-18.
[20] Galileo Galilei to Lodovico Cigoli, dated June 26, 1612. Transcribed in Galileo Galilei, *Opere di Galileo Galilei*, ed. Antonio Favaro (Florence: Barbèra, 1901): 11: 341-42. See Cypess, *Curious and Modern Inventions*, 18.

> composition of harmonic phrases and fugues; it is divided into those [pieces] that are commonly called fantasias, ricercatas, toccatas, sonatas.[21]

Even though modern scholars have usually associated the *stylus phantasticus* with the north German organ music, an association already begun in the eighteenth-century by Johann Mattheson and his followers, Kircher's definition indicates that the term could denote compositions for any instruments written in a free style.[22] However, Kircher included a polyphonic vocal piece of his own composition among the musical works that, according to him, exemplify the *stylus phantasticus*, thus somewhat undermining his own definition of the style as pertaining to instrumental music. (Kircher's other examples of the *stylus phantasticus*, all spread throughout book five and six of *Musurgia*, are another three-part composition by Kircher, a keyboard fantasia by Froberger, a symphonia for four lutes by Colista, and a symphonia for two violins and two violas by Allegri).[23] For Kircher, the free and unrestrained nature of the *stylus phantasticus* lay in the fact that these pieces contained counterpoint without reference to a text. Later writers, such as Mattheson, associated the *stylus phantasticus* with the improvisatory nature, rhythmic freedom and sudden contrast found in free instrumental works such as toccatas, fantasias and capriccios. Some characteristics of the *stylus phantasticus* as defined by early eighteenth-century writers, such as abrupt harmonic twists or sudden changes of tempo are found in freer forms of ensemble instrumental music such as capriccios and fantasias, as will be discussed below.

Lastly, the seventeenth century saw the continuing development of the concept of *varietas,* whereby the quality of a composition was judged upon the composer's ability to create variety and contrast in the music. Cypess has shown the importance of *varietas* to early seventeenth-century Italian musicians seeking to arouse wonder and astonishment (*meraviglia*) in their audiences.[24] Several contemporaneous texts not explored by recent scholarship also reveal this aesthetic preference. German music theorist and composer Wolfgang Caspar Printz, who travelled extensively to various cities Italy in the 1660s and

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[21] 'Phantasticus stylus aptus instrumentis, est liberrima, & solutissima componendi methodus, nullis, nec verbis, nec subiecto harmonico adstrictus ad ostentandum ingenium, & abditam harmoniae rationem, ingeniosumque harmonicarum clausularum, fugerumque contextum docendum institus, dividiturque in eas, quas Phantasias, Ricercatas, Toccatas, Sonatas vulgò vocant'. Kircher, *Musurgia Universalis*, I, 585. Translated in Paul Collins, *The* Stylus phantasticus *and Free Keyboard Music of the North German Baroque* (Farnham: Ashgate, 2005), 29.
[22] Collins, *The* Stylus phantasticus, 30.
[23] Ibid., 29-30.
[24] Cypess, *Curious and Modern Inventions*, 31-34.

whose sojourn in the peninsula greatly influenced his later writings, claimed the following in his extensive *Phrynis oder Satyrischer Componist* (1676-77):

> 1. There is nothing more pleasing and entertaining to the senses of humans than a pleasing variety and alternation. Even the most pleasing things themselves can cause disgust or annoyance if they are received without changes and alterations. And this is so true there is no man in the whole world who would deny it.
>
> 2. Thus all those who want to please the senses should concern themselves with nothing more than a pleasing variety and alternation. The cook prepares all kinds of meals; the wine steward draws various drinks to please the taste and avoid the disgust that arises from over-use of a single thing. The painter uses many colours and numerous lines artfully meeting each other, in order to delight the eyes. The same is also done by those who want to give pleasure through the scent and the feeling; which, because it is known to everyone, is completely unnecessary to prove.
>
> 3. Why should not also the musician, who is concerned with pleasing the ear, apply the same diligence to discovering all and every variety and alternation as exists within his occupation; because music itself consists of variety in sounds, and all that is often repeated by musicians can cause the ear more disgust than pleasure.[25]

Georg Muffat (who had studied in Rome in the 1680s) likewise prized *varietas* in composition: in 1701, he commented on Corelli's uses of contrast in his concerti grossi with a comparison to the *chiaroscuro* (play of light and shade) in painting:

> […] For by exactly observing this opposition or rivalry between the slow and fast, the loud and soft, the fullness of the choir and the delicacy of the little trio, the ear is ravished by a singular astonishment, as is the eye by the opposition of light and shade.[26]

[25] '1. Es ist nichts / dass die Sinnen des Menschen mehr ergötzet und belustiget / als eine annehmliche Varietät und Abwechselung / so gar dass auch die allerannehmlichsten Dinge / denenselben zum Eckel und Verdruss / ja zur Qual werden / so sie dieselben ohne Abwechselung stets empfinden müssen. Und dieses ist so wahr / dass es auch kein Mensch in der gantzen Welt leugnen wird. 2. Dannenhero befleissigen sich alle die jenigen / so die Sinnen belustigen wollen / auf nichts mehr / als auf eine annehmliche Varietät und Abwechselung: Der Koch bereitet allerley Speisen / und der Kellermeister zapffet unterschiedliche Getränckе den Geschmack zu erfreuen / und den Eckel /so aus steter Niessung eines eintzigen Dinges entstehet / abzuwenden: Der Mahler gebrauchet mancherley Farben / und viellerley artig durch einander gezogene Linien das Auge zu ergötzen. Dergleichen thum auch die jenigen / so dem Geruch und dem Gefühle einen Gefallen erweisen wollen; Welches / weil es Jedermann bekant / zu beweisen gantz unnöthig ist. 3. Warum solte den nun nicht auch der Musicant / der das Gehor zu vergnügen beschäfftiget ist / gleichen Fleiss anwenden / alle und jede Varietät und Abwechselung zu erfinden / um seinem Ambte rechschaffen vorzustehen; zumal weil dies Music an sich selbst in mera varietata Sonorum bestehet / und alles / was oft in Musicis wiederholet wird / dem Gehor mehr Verdruss / als Annehmlichkeit verursachet'. Wolfgang Caspar Printz, *Phrynis oder Satyrischer Componist* (Dresden, 1676-77), vol. 2, sig.G1r.

[26] Georg Muffat, *Auserlesene Instrumental-Music* (Passau, 1701), foreword, par.8. Translated in Oliver Strunk, *Source Readings in Music History* (New York: W.W. Norton & Company, 1950), 91.

The second part of this chapter will use notions of *varietas*, in particular inspired by Printz's gastronomic analogy and Muffat's analogy of chiaroscuro, to analyse pieces by Uccelini and Cazzati.

The affective dimension of pitch organization is showcased in musical-rhetorical figures, as well as through the *stylus phantasticus* and the aesthetic principle of *varietas*, all apparent in Italian ensemble music. Most importantly, contemporaneous sources tell of the inherent affective qualities of intervals, consonances and dissonances, sharp and flat signs, and modes and keys, adding even deeper affective 'meaning' to certain passages of music.

## 2. Expression of Affect via Pitch Organization.

### 2.1 Intervals, Consonances and Dissonances.

Even though the concepts of consonance and dissonance evolved in Western music history, they always carried important implications in terms of affective meaning. Several sixteenth- and seventeenth-century theorists discussed the emotional effect of melodic and harmonic intervals, albeit with varying degrees of detail. In the sixteenth century, Zarlino noted the following regarding imperfect consonances (thirds and sixths):

> The property, or nature of imperfect consonances is such that some of them are lively and cheerful, accompanied by great sonority; and others, although sweet and smooth, become somewhat sad and languid. The former are the major thirds and sixths, with their compounds; the latter are the minor forms. All these have the capacity to alter every composition and to make it sad or cheerful, according to their respective natures. This may be seen from the fact that certain compositions are lively and full of cheer, whereas others on the contrary are somewhat sad and languid. In the first named the major imperfect consonances are often heard on the finals or mediants of certain modes or tones, namely the fifth, sixth, seventh, eighth, eleventh, and twelfth, as we shall see. These modes are very gay and lively, because in them the consonances are frequently arranged according to the nature of the sonorous number, that is, the fifth is harmonically divided into a major and minor third, which is very pleasant to the ear. […] In the other modes, then, which are the first, second, third, fourth, ninth, and tenth, the fifth is divided otherwise. It is arithmetically divided by a middle note, in such a way that often one hears the consonances arranged contrary to the nature of the sonorous number. Whereas in the first group the major third is often placed beneath the minor, in the second group the opposite is true, with a result I can only describe as sad or languid, and which renders the entire composition soft.[27]

In short, using Glarean's twelve-mode system, Zarlino explained that pieces in the fifth and sixth modes (with finals on F), the seventh and eighth modes (with finals on G) and the

[27] Gioseffo Zarlino, *The Art of Counterpoint: Part Three of* Le Istitutioni harmoniche, *1558*, trans. Guy A. Marco and Claude V. Palisca (New York: W.W. Norton & Company, 1976), 21-22.

eleventh and twelth modes (with finals on C) sound 'alive and cheerful' because the harmonic division of the triads built on their finals (F major, G major or C major) is often heard. On the contrary, pieces in the first and second modes (with final on D), third and fourth modes (with finals on E) and ninth and tenth modes (with finals on a) tend to sound sad because of the arithmetical division of the minor triad built on their respective finals (d minor, e minor, a minor). Note that in his discussion, Zarlino addressed harmonic imperfect consonances. This was one of the first times a theorist referred to the major third and minor third as respectively joyful and sad, an association that would be found again later in the seventeenth century, particularly in German theory.[28]

Some seventeenth-century Italian theorists attributed affective qualities to intervals, sometimes not specifying whether their discussion addressed melodic or harmonic intervals. In his *Specchio secondo* (1631), Silverio Picerli explained in great details that various intervals take on different affects, depending on their melodic direction or on how they resolve in counterpoint (see Table 6.1).[29] Picerli's meticulous specifications attest to the seventeenth-century melodic sensibility and show how counterpoint as well as simple melodic lines could be the carrier of affective meaning.

[28] See Joel Lester, 'Major-minor Concepts and Modal Theory in Germany, 1592-1680', *Journal of the American Musicological Society* 30, no. 2 (Summer 1977).
[29] Silverio Picerli, *Specchio secondo* (Naples, 1631), 2-8.

Table 6.1. Picerli's description of the affective connotation of intervals.

| Intervals* | Ascending by leap or by step | Descending by leap or by step | Comments on the harmonic interval |
|---|---|---|---|
| major 3 | happy | sad | When resolving to a 5th, it is very lively, wandering, sweet and happy |
| minor 3 | sad | happy | When resolving to a unisson, it lacks the fullness, sweetness and wandering quality of the major 3 |
| perfect 4 | happy | sad | |
| aug. 4 | lively, happy, but hard | sad | Extremely harsh and bitter |
| perfect 5 | very happy | very sad | |
| dim. 5 | both happy and sad | | |
| aug. 5 | happy | sad | |
| major 6 | harsh and hard | | Lively and happy when resolving to an 8ve. |
| minor 6 | hard | | When resolving to the 5th, it lacks the liveliness and cheerfulness of the major 6. |
| major 7 | Extremely bitter | | |
| minor 7 | Very bitter, but less so than the major7 | | |

*Source*: Silverio Picerli, *Specchio secondo* (Naples, 1631), 2-8.

*Because Picerli includes four different intervals for major and minor seconds with complex distinctions with the use of commas, I have decided not to include these intervals.

Other seventeenth-century Italian theorists were not nearly as detailed as Picerli with regard to the affective power of intervals. For instance, Bononcini attributed affective qualities only to thirds and sixths, thus echoing Zarlino's prescriptions. He explained the following regarding major and minor thirds, without specifying the melodic direction of the intervals:

> There are two types of thirds, major and minor: the major [third] called ditone is composed of two tones […]. This [type of third] is cheerful by nature, unlike the minor [third], which, because it has the semitone, is sadder, and more wandering than the major [third], although it [the major third] sounds more full to the ear than the minor [third].[30]

Bononcini added the following regarding major and minor sixths:

> There are two types of sixths, major and minor: the major [sixth] called major hexachord is composed of four tones and one semitone […]. That [sixth] is cheerful by nature, even though somewhat harsh. […]. The minor sixth called minor hexachord is composed of three tones and two semitones […]. That [sixth], because it contains two semitones, is sadder than the one already mentioned above, and even softer.[31]

In *Li primi albori musicali* (1679), Lorenzo Penna did not emphasize the affective nature of intervals or consonances and dissonances, but he stressed for beginning students practising solmization in ascending and descending scale the importance of singing *mi-fa* and *fa-mi* softly, so as to bring out the semitone:

> When you sing the notes of the prescribed scales, go up by step with a cheerful and spiritual voice in the ascent, and do likewise in the descent by step, because from one note to the next there is the distance of a whole tone, except between the *mi* and the *fa* in the ascent, and between the *fa* and the *mi* in the descent, which go up or down with a sad and languid voice, singing with suavity, and softness, rising mezza voce to the fa when going from the *mi* to the *fa*, and likewise when going from the *fa* to the *mi*, one must sing softly, and with suavity, falling only mezza voce, because between them […], there is the distance of half a tone, called semitone.[32]

In the light of Picerli's discussion, these guidelines may reflect, again, an inherent seventeenth-century sensibility of the affective quality of intervals, more than a mere pedagogical device to help students focus on the location of the semitone and work on its intonation.

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[30] 'La Terza è di due sorti, maggiore, e minore: la maggiore chiamata *Ditono* è composta di due tuoni […]. Questa è di natura allegra à differenza della minore, che per havere il semituono resta più mesta, e vaga della maggiore, sebene questa è più piena ali'Udito della minore'. Giovanni Maria Bononcini, *Musico prattico* (Bologna, 1673), 49.

[31] 'La Sesta è di due sorti, maggiore, e minore: la maggiore chiamata *Essacordo maggiore* è composta di quarto tuoni, & un semituono […]. Questa è di natura allegra, se bene alquanto aspra. […] La Sesta minore chiamata *Essacordo minore* è composta di trè tuoni, e due semituoni […]. Questa per contenere due semituoni è più mesta della già detta, & ancora più dolce'. Ibid., 51-52.

[32] 'le Note delle prescritte Scale, mentre si cantano, nell'ascendere vanno alzate per grado à poco, à poco con voce allegra, e spiritosa, e così abbassare per grado nel discendere, perche da una Nota all'altra vi è la distanza di un Tono intiero, eccetto dal Mi al Fa nell'ascendere, e dal Fa al Mi nel discendere, che và alzato, ò abbasato con voce mesta, a languente, cantando con soavità, e dolcezza, alzando meza voce il Fa, mentre si và dal Mi al Fa, si come nel discendere dal Fa al Mi, và cantando dolce, e soave, calando solo meza voce, perche fra loro […], vi è la distanza di mez Tono, chiamato Semitono'. Lorenzo Penna, *Li primi albori musicali* (Bologna, 1679), 17.

The artful writing of melodies and counterpoint consisted in knowing when and how to use consonances and dissonances to achieve the best effect. Several theorists regarded the proper handling of consonances and dissonances as a source of the *varietas* that was so prized in the period, as shown by the quotations from Printz and Muffat above. In *Le Istitutioni harmonische* (1558), Zarlino likened the skilful use of a mix of consonances and dissonances to the pleasure one feels in experiencing similar contrasts with other senses such as the sight (light and darkness) or taste (sweet and bitter):

> As I have said, every composition, counterpoint, or harmony is composed principally of consonances. Nevertheless, for greater beauty and charm dissonances are used, incidentally and secondarily. […] They are of double utility to the musician […]. The first has been mentioned: with their aid we may pass from one consonance to another. The second is that a dissonance causes the consonance that follows it to sound more agreeable. The ear then grasps and appreciates the consonance with greater pleasure, just as light is more delightful to the sight after darkness, and the taste of sweets more delicious after something bitter. We daily have the experience that after the ear is offended by a dissonance for a short time, the consonance following it becomes all the more sweet and pleasant'.[33]

In *Quanta certezza* (1695), Agostino Steffani, an Italian native of Castelfranco who was active in Northern Germany for most of his life, explains that if dissonances are not pleasing in and of themselves, a skillfull composer knows how to use them in a pleasant way to move the affections:

> The consonance is a distance between two tones, one low and one high, that strikes the ear as sweet and uniform. The dissonance is also a distance between two tones, but it strongly offends the ear which receives it without any pleasure, to speak in simple terms, I say to speak in simple terms because, not being less necessary than consonances to the moving of the affections, the scientific manipulation of the intervals renders them [dissonances] pleasing to the ear, even though they are not [pleasing] by nature.[34]

The analogy of consonance and dissonance and various senses and other comparisons continued throughout the late seventeenth and early eighteenth centuries in the work of German authors, such as Walther in his *Praecepta* (1708). Walther described the effect of consonances and dissonances as follows:

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[33] Zarlino, *The Art of Counterpoint*, trans. Guy A. Marco and Claude V. Palisca, 53-54.

[34] 'La Consonanza è una distanza di due suoni, grave e acuto, che soavamente e uniformemente pervenie all'udito. La dissonanza è distanza parimenti di due suoni, ma che ferisce duramente l'udito che la riceve senza alcun piacere, semplicemente parlando, doci semplicemente parlando perché, non essendo le dissonanze meno necessarie che le consonanze alla commozione delle passioni, viene la scientifica distribuzione degl'intervalli a renderle grate all'udito, ancorché di lor natura non lo siano'. Agostino Steffani, *Quanta certezza* (Amsterdam, 1695), 16-17.

> The dissonances are the night, the consonances, the day; the light would never be as pleasing if it were always the day, and never the night. The dissonances are the Winter, the consonances, the summer. The former are bitter, the latter are sweet. Those [are] black, these [are] white.[35]

Seventeenth- and eighteenth-century authors thus provide us with an array of affects and imagery connected to the use of intervals, consonances and dissonances that must all be taken into account if we are to re-educate our ear within the seventeenth-century melodic and harmonic sensibility.

### 2.2 Accidental Signs.

The inherent affective quality of accidental signs was not new to the seventeenth century. In the sixteenth century, both solmization syllables and accidental sharp, flat and *quadro* signs had affective connotations (the following paragraph borrows from Anne Smith's discussion of solmization and accidental signs in sixteenth-century sources).[36] According to Martin Agricola in the 1530s, for instance, *ut* and *fa* were conceived as gentle, soft syllables to be sung 'extremely mildly', *re* and *sol* were 'middle or natural voices' because their sound was 'not too mild, not too clear' [*nicht zu gar linde odder zu scharff*], and *mi* and *la* were hard syllables 'for they should and must be sung in a more manly and stronger [*dapfferer*] way'.[37] Interestingly, Heinrich Glarean claimed that no theorist emphasizes that *ut fa* are soft, *re sol* natural and *mi la* are hard tones, but that these ideas are only found in musical practice, at least by the time he wrote *Dodecachordon* (1547).[38] That this qualitative conceptualization of solmization syllables was indeed a convention in musical practice and influenced the way musicians performed and perceived music is further suggested by Hermann Finck, a German theorist, organist and teacher active near Wittenberg. In *Pratica Musica* (1556), Finck complained that some singers, trying too hard to make the *fa* sound soft, sing *fae* or *fai* instead of *fa*, and that, likewise, they sing *mihi* instead of *mi* to make the *mi* particularly hard, when the soft and hard qualities of the

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[35] 'Die Dissonantien seyn die Nacht, die Consonantien der Tag; das licht würde uns nimmermehr so angenehm seyn, wenn es immer Tag und niemahls Nacht wäre. Die Dissonantien seyn der Winter, di Consonantien der Sommer. Jene sind das bittere, diese das süße. Jene das Schwartze, diese das Weiße'. Johann Gottfried Walther, *Praecepta der musicalischen Compositio*n (1708), ed. Peter Benary, Jener Beiträge zur Musikforschung 2 (Leipzig: Breitkopf & Härtel, 1955), 140.

[36] See Smith, *The Performance of Sixteenth-century Music*, 24-28.

[37] Martin Agricola, *Musica Choralis Deudsch* (Wittenberg, 1533), sig. [Aviv.]. See Smith, *The Performance of Sixteenth-century Music*, 26.

[38] Henricus Loritus Glarenanus, *Dodekachordon* (Basel, 1547; facsimile, Hildesheim: Georg Olms Verlag, 1969), I, 2. Translated in Clement A. Miller, trans., *Heinrich Glarean Dodecachordon: Translation, Transcription and Commentary 1*, Musicological Studies & Documents 6 (n.p.: American Institute of Musicology, 1965), 42**.** See Smith, *The Performance of Sixteenth-century Music*, 27.

syllables are inherent to them and may be heard even when performed on an organ.[39] Nonetheless, these concepts were also present in countries further south. For instance, Tomás de Sancta Maria, a Spanish Dominican friar who was also a music theorist, organist and composer, commented on the fundamental difference between *mi* and *fa* as follows:

> The reason why *fa* can never be converted into *mi* nor *mi* into *fa* is that *fa* is a soft tone, sounded without force by the voice, while on the contrary *mi* is a hard and vigorous tone which the voice sounds forcefully.[40]

It seems probable that the accidental signs that could trigger a change of syllable (♭ to change *mi* to *fa* and ♮ to change *fa* to *mi*) carried the same inherent affective connotations. Tomás de Sancta Maria distinguished between the affective aspects of the ♭ and ♯ signs:

> One must understand here that [the term] flat signifies a tone that is soft, sweet, and smooth, sounded by the voice without force, and chiefly when the melody descends. The term sharp, on the contrary, signifies a tone that is strong and hard, sounded by the voice with force, and chiefly when the melody ascends.[41]

Such direct references to the affective quality of various solmization syllables are scarcer in seventeenth-century sources, arguably indicating that these qualities were so widely understood that writers did not bother to mention them. However, seventeenth-century Italian treatises include several references to the inherent affective qualities of the flat and *quadro* or sharp signs, showing the ongoing influence of older concepts.[42] Giovanni Maria Bononcini specified the attributes of the ♭ and ♮ signs:

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[39] Hermann Finck, *Pratica musica* (Wittenberg, 1556), sig. Bv.-Biiv. See Smith, *The Performance of Sixteenth-century Music*, 28.

[40] 'La razon porque el fa. no se puede convertir en mi. ni el mi. en fa. es porque el fa. es boz blanda, herida con la boz sun fuerça, y por el contrario, el mi. es boz dura y rezia, herida con la boz con fuerça'. Fray Thomas de Sancta Maria, *Libro Llamado El Arte de Tañer Fantasia* (Valladolid, 1565), bk 1, fol. 14r. Translated in Almonte C. Howell and Warren E. Hultberg, trans., *The Art of Playing the Fantasia* (Pittsburg: Latin American Literary Review Press, 1991), 41.

[41] '[…] para lo qual es de saber, que Bemol quiere dezir boz blanda, dulce, y suave, herida con la boz sin fuerça, mayormente al subir [*sic*] del canto. Por el contrario, Sostenido quiere dezir boz rezia, y dura, herida con la boz con fuerça, mayormente al subir del canto'. Sancta Maria, *Libro Llamado El Arte de Tañer Fantasia*, bk 1, fol.14v. Translated in Howell and Hultberg. trans., *The Art of Playing the Fantasia*, 42.

[42] On the qualities and gender implications of accidental signs, see Bonnie Blackburn, 'The Lascivious Career of B-Flat', in *Eroticism in Early Modern Music*, eds. Bonnie Blackburn and Laura Stras (Farnham: Ashgate, 2015), 32-42.

> [The B quadro] is also called hard B, because it makes the composition hard and harsh to the ear, unlike the B molle, which is called round B, because it has a round shape, and soft, because it makes the melody soft, sad, and languid.[43]

Likewise, Lorenzo Penna also addressed the affective quality of the ♭ and ♮ signs in *Li primi albori musicali* (1696) as follows:

> It is called ♭ molle because it makes the composition soft, sad and languorous, and it is round, and that is why it is called round ♭ […] It is called ♮ quadro because it has a square shape. And they call it hard because it makes the melody hard and harsh.[44]

Thus, Bononcini and Penna suggested that the presence of accidental signs could affect the whole composition by making it either soft or hard. Indeed, signatures also conveyed connotations of soft and hard 'keys', with B♭ or B♮ at the clef, respectively. These soft and hard qualities associated with the B♭ or B♮ influenced the way sixteenth- and seventeenth-century composers set texts. Arguably, it also infuenced how performers would shape the affective content of their performances, as well as how listeners perceived a piece. Some scholars such as Eric Chafe have discussed how composers used *quadro* (or sharps) and flats signs for specific expressive purposes in connection to a text.[45] For instance, Chafe commented on the *durus*/*mollis* association in Marco da Gagliano's madrigal *Care mi lagrime* (book three, 1605), where the composer shifts to *cantus mollis* in connection with the word 'molle' in the text.[46] Likewise, the *quadro* sign (also indicating in Chafe's view a shift of hexachord towards the sharp side) is found on the words 'mie pene', expressing *durus* qualities.[47] Chafe noted that the meaning of the words 'hard' and 'soft' could be musically transmitted via change of key signature (shift from *cantus durus* to *cantus mollis* or vice versa), but also through changes of modes (with the same signature or two different signatures).[48] Chafe further observed that in Monteverdi's madrigals, modes were connected to *durus* and *mollis* affects in relation to their relative

[43] '[…] viene ancora chiamato B duro, perche rende la Composizione dura, & aspra all'Udoti, à differenza del B molle, il quale vien detto B tondo, perche è di forma tonda, e molle, perche rende la Cantilena molle, mesta, e languida'. Bononcini, *Musico prattico*, 30.
[44] 'E chiamato ♭ molle, perche rende molle, mesta, e languida la Composizione, è di forma tonda, e perciò è anche ♭ tondo […] Si chiama ♮ quadro, perche è di forma quadra. E anche detto ♮ duro, perche aspra, e dura rende la Cantilena'. Penna, *Li primi albori musicali* (1696), 34-35.
[45] Eric Chafe, 'Aspects of durus/mollis Shifts and the Two-System framework of Monteverdi's Music', *Schütz-Jahrbuch* 12 (1990), 171-206.
[46] Chafe, 'Aspects of durus/mollis Shift', 180.
[47] Ibid.
[48] Ibid., 177. Chafe uses the term 'system' to denote the range of possible triads and cadence degrees within a single signature. Chafe's model is discussed in detail in pp. 252-257.

position on the circle of fifths within the same signature.[49] Modes with e or a as a final ('Phrygian', 'Hypophrygian') were connected to text expressing *durus* qualities, and Chafe specified that harshness is almost always expressed in text settings in 'a minor' (his terminology) in Monteverdi's Fourth book of madrigals, such as in 'Voi pur da me partite, anima dura'.[50] On the contrary, pieces with finals on F and g are connected to *mollis* qualities, and Chafe noted that Monteverdi often sets in 'g minor' (again, Chafe's terminology) texts that express the affect of 'pietà'.[51]

Arguably, by extension, pieces written later in the seventeenth century in the chromatic style with more than one flat or sharp at the key signature also carried associations of softness or harshness, respectively. This is confirmed by the fact that an association of softness and hardness with the flat and sharp keys persisted even until the nineteenth century, as manifest in key characterizations found in the eighteenth and nineteenth centuries.[52] An awareness of these connotations, in conjunction with other aspects of pitch organization, should change our understanding, perception of, and emotional response to seventeenth-century music.

### 2.3 Modes and 'Keys'.

The affective meanings (or ethos) of modes are well-known and were widely discussed by both German and Italian theorists in the sixteenth and early seventeenth centuries. The various categorizations of modes resulted in a variety of different opinions regarding the affective quality of each mode. Some theorists addressing the affect of modes such as Zarlino invoked the location of the tones and semitones in the *diapente* and *diatessaron* of each mode as the principal element influencing the listener's emotional response to modes, thus attributing an inherent emotional power to each mode. In his *Trattato della Musica Scenica* (1624), Giovanni Battista Doni asserted that in order to arouse the passions, music had to use the classical modes, since modes allowed composers 'to make their audience cry, or to arouse madness, or other similar affects'.[53] In the mid-seventeenth-century, extant sources suggest that Italian theorists were less interested in the affective qualities of the modes, in contrast to the ongoing preoccupation with this topic among theorists of

[49] Ibid.
[50] Ibid.
[51] Ibid.
[52] Rita Steblin, *A History of Key Characteristics in the Eighteenth and Early Nineteenth Centuries*, Studies in Musicology 67 (Ann Arbor: UMI Research Press, 1981), 50.
[53] Brian Vickers, 'Figures of Rhetoric/Figures of Music?', *A Journal of the History of Rhetoric* 2, no. 1 (Spring 1984): 13-14.

German origin such as Johann Andreas Herbst, Christoph Bernhard and Athanasius Kircher. Even the very conservative Giovanni Maria Bononcini did not make any mention of the affect of modes, though he repeatedly invoked Zarlino's authority throughout his *Musico prattico*. The fact that extant late seventeenth-century Italian sources do not generally address the affective quality of modes suggests that their alleged affective character declined with the increasing prominence in musical practice of only two or four 'modes' based on the quality of the third above the final. At any rate, seventeenth-century discussions of modes reflected a desire to legitimize a theoretical discourse via the invocation of authoritative figures such as Zarlino, more than they reflected musical practice, as discussed in Chapter 1. However, a composer's choice of a certain configuration of pitches was most likely done with its affective implications in mind.[54]

As with modes, the early eighteenth-century concept of 'key' (Fr. *ton*, Germ. *Tonart*, It. *tuono*) was also charged with affective meaning, and it appears that the affective connotations of accidental signs became an essential element in judging the emotional quality of a 'key'. The inclination to attribute emotional characteristic to keys occurred alongside the increasing use of 'transposed' keys, that is, keys featuring sharps or more than one flat in their signature. The development of transposing instruments and of the 'chromatic style' in the seventeenth century led to an unprecedented wave of experimentation with tuning systems and temperaments. Thus, according to the temperament in use, each 'key' was perceived as a unique octave species with a distinctive set of tones and semitones that gave it an individualized emotional character.

The earliest extant description of the affective characteristics imparted by each 'key' was given in *Règles de composition* (ca. 1692) by Marc-Antoine Charpentier, who studied in Italy as a young composer and continued to draw on many aspects of the Italian style in his subsequent career, followed by other similar listings in French and German sources around 1700.[55] The great variety in key characterisations given by the different theorists suggests that these were largely a matter of personal sensibility rather than a

[54] For a brief discussion of the fluid affective quality of the modes and their use in relation to text in sixteenth-century vocal music, see See Bernhard Meier, 'Rhetorical Aspects of Renaissance Modes', *Journal of the Royal Musical Association* 115, no. 2 (1990): 182-190.

[55] According to a contemporaneous source, Charpentier may have studied with Carissimi, but this has not been proven. The exact dates of Charpentier's sojourn in Italy are not known. *Oxford Music Online*, s.v. 'Charpentier, Marc-Antoine', www.oxfordmusiconline.com (accessed october15, 2016);
For other French and German listings of key characteristics, see Jean Rousseau, *Méthode claire, certaine et facile pour apprendre à chanter la musique*, 4th ed. (Paris, 1691); Charles Masson, *Nouveau Traité des règles de la composition de la musique* (Paris, 1697); Johann Mattheson, *Das neu-eröffnete Orchestre* (Hamburg, 1713).

universal recognition of the essential attributes of each 'key'.[56] The fact that the major and minor 'modes' and key characteristics were not specifically addressed in Italian treatises of that time does not mean that Italian musicians were unaware of the affective dimension of major and minor keys and their transpositions. Italian theorists and musicians were heavily indebted to Zarlino, who himself strongly emphasized the affective quality of modes, and discussions of keys characteristics were the natural continuation of that tradition. Moreover, Zarlino noted the affective impact of major thirds and major sixths ('lively and cheerful'), versus minor thirds and minor sixths ('sweet and smooth, somewhat sad and languid'), thus already implicitly (even though indirectly) commenting on the affective impact of minor-third and major-third 'modes'.[57] Just as Monteverdi played with the *mollis/durus* contrast in his vocal music, Italian musicians and composers later in the seventeenth century were undoubtedly mindful of the effect that resulted from using one key over another, particularly with regard to the number of sharps or flats involved.

Regarding common beliefs about key characteristics in the early eighteenth century, Johann Mattheson remarked:

> The people who believe that the whole secret is to be found in the minor or major third, and who maintain that as a rule all minor keys are inevitably sad and that all major keys are usually joyful, are not entirely wrong […] Much less correct are those people who believe that a piece of music in flats absolutely must sound soft and tender, while a piece in sharps must be hard, lively and joyful.[58]

Mattheson's declaration on major- and minor-third keys suggests the influence of Zarlino's ideas, and his comment on the misguided people who think of sharps and flats as 'hard and happy', versus 'soft and tender' most likely indicates the continuation of a belief already held in earlier periods, as suggested above. Indeed, Rita Steblin noted that the connection of *quadro* and sharp signs to harshness and flat signs to softness inherited from medieval and sixteenth-century theorists persisted all the way to the nineteenth century.[59] The challenge for modern-day performers and listeners is to recapture the affective connotations of accidental signs and major- and minor-third sounding 'modes', to hear the colours and tensions in seventeenth-century music as may have been perceived by early musicians.

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[56] Steblin, *A History of Key Characteristics*, 43.
[57] Zarlino, *The Art of Counterpoint*, trans. Guy A. Marco and Claude V. Palisca, 21-22.
[58] Mattheson, *Das neu-eröffnete Orchestre*, 232-233. Translated in Steblin, *A History of Key Characteristics*, 50.
[59] Steblin, *A History of Key Characteristics*, 50.

With all this in mind, how then should we analyse and listen to seventeenth-century ensemble instrumental music? The 'modes', 'keys', accidentals (flat, *quadro* and sharp signs), intervals and notions of consonance and dissonance all strongly contributed to the expression of affect in composition. Thus, the number of accidentals in a key signature or in the course of a piece could arguably suggest ideas of harshness and softness, or tension and release; melodic intervals could evoke, according to Picerli, certain feelings depending on their size and direction, dissonances should be 'tasted' like a gourmet dish, or 'visualized' as one sees light and darkness. In addition, one could focus on *varietas* as achieved via other musical elements such as time signatures, tempi, and textures. In that way, performing or listening to seventeenth-century music with period ears is an experience that engages all senses and calls for attention to subtleties.

The expression of emotion in music, although often mentioned in contemporaneous treatises in connection to the affect expressed by a text, was just as relevant to music without words. Indeed, beyond the 'mode' or 'key' used, the chromatic style (especially with the addition of a great number of sharps or flats), expressive intervals and striking dissonances are often present in instrumental ensemble pieces and influenced the way seventeenth-century composers, performers and listeners responded emotionally to that music. In the light of all that has been said in the first part of this chapter, the following analyses aim to bring out the rhetorical and affective power of pitch organization in instrumental ensemble music. The pieces analysed have been chosen for their strong rhetorical character, with numerous contrasts as pieces exemplifying the expression of affect via pitch organization. In essence, these analyses are partly exercises in 'historical-musical imagination' as described by Shai Burstyn, so as to imagine what it *could have been* like to play and hear these pieces as a seventeenth-century musician.[60]

## II. Analyses.

### 1. Wondrous *Varietas*: Marco Uccellini's 'Sonata decima ottava a doi violini' Op.4 (1645).

Marco Uccellini's 'Sonata decima ottava a doi violini' illustrates how the principle of *varietas* could be used specifically in relation to pitch organization, as well as tempi and texture in ensemble instrumental music (see score in Appendix H). A general presentation of the tonal structure of the piece will be given here by way of introduction. The piece can

[60] Burstyn, 'In Quest of the Period Ear', 695.

be divided in four parts, each showcasing variations of the opening material. The first part (bb. 1-32) introduces the thematic material, featuring scalar ambiguity and the well-known romanesca formula. The piece starts and ends in *cantus durus* with a focus on a, a tone or 'key' that Marc-Antoine Charpentier would characterise as 'tender and plaintive' at the end of the century. Each statement of the thematic bass-line features cadences on a (bb. 8,16, 32) and C (bb. 4,12, 27), and the section also includes cadences through the circle of fifths on G, D, a, and e (bb. 21-25) in a sequential imitative passage between the two violins. The second part of the piece (bb. 32-102) features an extraordinary demonstration of *varietas* in pitch organization based on the opening material, via scalar ambiguity and 'delightful' dissonances arising from false relations between parts. The section consists of an alternation of short sections (six sections in 3/2 and five sections in common time labelled Adagio).[61] Table 6.2 gives a general idea of the tonal framework of these sections via the final cadence degree of each 3/2 and Adagio section, thus outlining the descending fifths relationship that links some of these sections (see a, d, G, C in bb. 57-78 and e, a, d, G in bb. 78-99). The internal structure of these sections will be discussed in more detail below, along with their rhetorical and affective impact on the piece.

[61] The original print indicates 3/1, as opposed to 3/2 in the transcription I am using for this analysis.

Table 6.2. Marco Uccellini, ‘Sonata decima ottava a doi violini’, Op. 4 (1645) – Final cadences of each 3/2 and Adagio section (bb. 32-102).

| Bar numbers (Time signature) | Section’s final cadence |
|---|---|
| 32-52 (3/2) | C* |
| 52-57 (𝄴 Adagio) | F |
| 57-62 (3/2) | a |
| 62-67 (𝄴 Adagio) | d |
| 67-73 (3/2) | G |
| 73-78 (𝄴 Adagio) | C |
| 78-84 (3/2) | e |
| 84-89 (𝄴 Adagio) | a |
| 89-94 (3/2) | d |
| 94-99 (𝄴 Adagio) | G |
| 99-102 (3/2) | a |

*The lower and upper case letters in the tables refer to the quality of the third in the linear descent leading to the cadence, regardless of the major or minor quality of the chord at the cadence. The attribution of lower or upper case letters in the table is provisional, since this passage features scalar ambiguity, further blurred by the extensive use of Picardy thirds and other *ficta* inflections.

The third part of the piece exhibits a particularly strong pathos via the technique of bowed vibrato, notated as *tremolo* in the score (bb. 102-117). This intensively affective section features a single musical phrase which begins and closes with a tonal focus on a (cadence in b. 117), and is characterised by a homophonic texture with groups of four repeated notes in the violin parts and the use of strong dissonances. Finally, the piece closes with an Allegro (bb. 117-142), a time-word that is indicative of a different affect in contrast with the previous sections of the piece. This last section begins and ends with a tonal focus on a, and cadences on various notes, often through downward motion around the circle of fifths (see Table 6.3).

Table 6.3. Marco Uccellini, 'Sonata decima ottava a doi violini', Op. 4 (1645) – Cadence degrees (bb. 117-142).

| Bar numbers | Cadences |
|---|---|
| 118-121 | d (?), G, C, F |
| 122-124 | d, G, C |
| 125-128 | a, d, G, C |
| 129-132 | a, d, G, C |
| 133-136 | a, d, G, C |

In the following, each section is examined in more detail, emphasizing how pitch organization, along with contrasts of meter and texture, shape the rhetorical and emotional character of the piece.

The first section of the piece (bb.1-32) catches the attention of listeners with a canzona-like theme against a bass-line that combines local tonal ambiguity with echoes of bass formulae. It introduces the motivic material (in the upper voices) upon which a large part of the piece is based. The bass-line may be divided in three parts. The first part (b. 1), whose linear contour suggests a closing rather than an opening gesture (a-c♯-d-A), introduces a C♯ with an implied first-inversion chord in accordance with the sharp alterations allowed in the bass in *cantus durus* as discussed in Chapter 4. This C♯ results in a stress on d making it uncertain whether a or d is the tonal focus at the outset of the piece. The rhetorical effect could be analogous to what the late eighteenth-century theorist Johann Nikolaus Forkel called *dubitatio*, which denotes indecisiveness or hesitation in the music.[62] The second part (bb. 2-4), features a linear contour in the bass that is – though on a local level- reminiscent of the passamezzo antico (b.2, a-g♯-a-e), before Uccellini moves towards a cadence on C (bb. 3-4). Finally, the third part of this bass-line features a romanesca (c'-g-a-e), with the typical romanesca melody in descending steps in the first violin (e''-d''-c''-b'), until it closes with a cadence on A (b.8). Note the false relation in b. 7 (C♮/C♯), an expressive device that Uccellini will use extensively later in the piece, as well as the addition of a C♯ in the first violin (b. 8), which spices up the cadence with scalar ambiguity.[63] This bass-line is reiterated twice in the section, first with the opening line now

[62] Johann Nikolaus Forkel, *Allegemeine Geschichte der Musik* (Leipzig, 1788), 58.
[63] The C♯ in the bass against the C in first violin are clearly notated in the original print.

given to the second violin (bb. 8-16), and second with both instruments joining together (bb. 25-32 – the first bar is omitted in this last statement). On the one hand, just as in an *exordium* in classical rhetoric, bb.1-8 clearly present the 'topic' at hand with the first statement of the bass-line which inspires chord successions in many passages in the rest of the piece, as will be shown below. On the other hand, the false relations and tonal instability at the outset are elements of ambiguity that do not suit the spirit of a musical *exordium*, which calls for clear projection of the mode. However, it is partly through this tonal instability that Uccellini catches the attention of his audience, just like an orator would begin his speech with intriguingly mysterious or ambiguous statements, analogous to the rhetorical figure named 'amphibologia'.[64]

The second part of the piece is a remarkable illustration of *varietas* applied to pitch organization, in a musical 'synonymia', that is, the repetition of a musical idea in an altered or modified form.[65] As a chef can season a single dish in numerous different ways with similar ingredients, to use Printz's imagery, in this section, the listener can 'taste' a musical idea at various pitch levels with subtle variations in each repetition. With an economy of 'ingredients' mostly derived from the first section of the sonata, Uccellini captures the attention of his audience by calling for his listeners' most refined sense of tonal variation.

Two distinct musical 'dishes', yet similar in affect, are presented to the listener in alternation: short sections in 3/2 and short Adagio sections in common time.[66] The first subsection in 3/2 (bb. 32-52) is a variation (mostly rhythmic) of bb. 1- 16, with the theme stated in the first violin (bb. 32-40, with the canzona-style rhythm arranged in triple time), followed by the second violin joining in (starting in b. 40), repeating exactly what the first violin has just played (the bass-line is thus stated twice in bb. 32-48). The careful tasting of these contrasting musical ingredients begins in the following alternation of shorter 3/2 and common time Adagio subsections (bb. 52-102). Each Adagio section presents the same melodic material and general harmonic organization (chord successions) albeit at different transposition levels with a few variants in octave placement in the bass. Likewise, each 3/2

[64] Richard A. Lanham, *A Handlist of Rhetorical Terms*, 2nd ed. (Berkeley: University of California Press, 1991), 195.
[65] Johann Georg Ahle and Johann Mattheson, among others, have applied this term to music. Bartel, *Musica poetica*, 443; 456.
[66] 3/1, which features in the original print instead of 3/2 in this transcription, is a tripla proportion that implies a faster tempo than common time. See George Houle, 'Meter and Tempo', in *A Performer's Guide to Seventeenth-century Music*, ed. Steward Carter and Jeffery Kite-Powell (Bloomington: Indiana University Press, 2012), 351; 356-357.

section presents the same melodic and harmonic material (distinct from the Adagio), but Uccellini introduces subtle variations in voicing and rhythm in each 3/2 section, which sometime results in varying dissonances. Table 6.2 above presented a general tonal plan of this second part. Only a few of these subsections will be analysed in more detail here (bb. 52-84), as they are representative of Uccellini's procedure up to b. 102.

The initial Adagio section (bb. 52-57) strikes the listener with its sudden change of tempo and time signature to common time, its scalar ambiguity, and the first occurrence of accidental flats in the piece, arguably bearing intense emotional meaning. Indeed, this passage could arguably imply movement toward the flat region, emotionally associated with softness or sweetness for a seventeenth-century connoisseur. This Adagio introduces the material that will be varied in each subsequent Adagio section in the piece. Uccellini begins with a tonal focus on C (the first chord of the section), then moves to cadences on F (b. 54), on d (b. 55) and back to F (b. 57). Scalar 'amphibologia' is again present here, as the melodic material leading to the cadences on F in the violin parts includes pitch inflections recalling minor-third tones (D♭, B♭ and A♭ in b. 53, and D♭ in b. 56), so that it is unclear whether the 'mode' or 'tone' is based on a minor-third or major-third above the tonal focus F. (Alternatively, some of these flat accidentals could be explained with *ficta*: the B♭ and D♭ as lowered upper neighbours to A and C, respectively, and the A♭ as a lowered tone in the stepwise descent (b. 53).) Moreover, the 4-3 dissonance commonly used at cadences in the seventeenth-century is here unusually approached through the descending leap of a minor sixth in the first violin (bb. 53 and 56), which Picerli and Bononcini described as a harsh and sad interval, respectively; it would be later described as a *saltus duriusculus* (hard leap) by Bernhard.[67] These descending leaps of a minor sixth used in connection with the pitch inflections discussed above (d♭''-f' in bb. 53 and 56) enhance the affective intensity and expressivity of the passage. Uccellini returns repeatedly to this Adagio until b. 102, just as an orator who would always come back to the same phrase or question (a rhetorical figure called 'epimone').[68] In the subsequent Adagio sections, Uccellini 'delights' his audience by repeating the same material transposed almost exactly (with some slight differences in octave placements), emphasizing tonal foci on d (bb. 62-67), C (bb. 73-78), a (bb. 84-89) and G (bb. 94-99); every transposition of this

[67] See Walter Hilse, 'The Treatises of Christoph Bernhard', in *The Music Forum*, vol.3, ed. William J. Mitchell and Felix Salzer (New York: Columbia University Press, 1973), 105.
[68] Lanham, *A Handlist of Rhetorical Terms*, 190.

carefully composed Adagio section, with the new colours it brings in the chosen temperament, is to be 'savoured' with new ears.

To achieve further *varietas*, between each Adagio section the composer inserts short sections in 3/2 with contrasting melodic material based on the opening bars of the piece. The 3/2 section in bb. 57-62 features in the bass a cadential formula (bb. 57-58) reminiscent of that in bb. 7-8. After the first chord of the section on F (b. 57), this cadential formula is repeated throughout the section with cadences on F (bb. 58, and 59) and on A (bb. 60, 61 and 62). Likewise, the melodic material in the violin parts is derived from the melodic material found at the beginning of the piece (compare the stepwise ascending quavers and leap downward in the first violin in bb. 3-4 and the first and second violins in bb. 57-58). This 3/2 passage also exhibits scalar ambiguity via false relations in b. 57 (with the B♮ in the first violin against the B♭ in the bass), in b. 59 (the C♮ in the second violin against the C♯ in the bass), or in b. 60 (the C♯ against the C♮ in the second and first violin, respectively), for instance. In addition, Uccellini accentuates the dissonances at cadential points via a downward leap of a fifth in the second violin (perfect fifth in b. 58, and diminished fifth in b. 61). These false relations and dissonances contrast with surrounding consonances in what Zarlino, quoted above, would have likened to opposition between light and darkness, or sweetness and bitterness.

The following two 3/2 sections use the same melodic and similar harmonic material. In bb. 67-73, Uccellini begins with a focus on d and cadences twice on d (or D?) (bb. 68, 69 and 70) and on G (bb. 71, 72 and 73). Note that the previous 3/2 section emphasized F and A, as opposed to d and G in bb. 67-73, so that this latter section is not a transposition of the former, and the syncopated rhythm present in the second bar of the previous 3/2 section (bb. 58-61) is introduced here at the beginning and maintained throughout the section. The remaining 3/2 sections vary the same material in a similar way (see bb. 67-73; 78-84; 89-94; 99-102).[69] Just like in the Adagio sections, Uccellini displays his skills as a composer with refined variations of colour and rhythms in these 3/2 sections, adding a different flavour to taste in contrast with each Adagio section.

The ravishing *varietas* of the second section is then replaced by a lugubrious lamenting affect in bb. 102-117, indicated *tremolo*. The groups of four repeated notes suggest the technique of bowed vibrato. Carlo Farina, an Italian native of Mantua

[69] Note that the tonal structure of the 3/2 sections tend to vary more as compared to that the Adagio sections, which remain almost exact transpositions of previous Adagio sections.

employed at the court of Johann Georg I in Dresden, described this technique, found in his *Capriccio stravagante* (1627), as follows: 'the *tremolo* is done with a pulsating of the hand which has the bow, imitating the manner of the organ tremulant'.[70] This suggests that this technique was close to modern-day *portato*.[71] This is confirmed by another source from the late seventeenth century, as Roger North received the following advice from his brother on viola da gamba technique:

> It was but this: play crotchets, which everyone can do, in even time by an even pass of the hand…then play [them] with the same bow, but distinguishing the notes, as in an Italian tremolo...lastly play without such tremulous distinction, but make the distinction in the mind'.[72]

Sixteenth and seventeenth-century discussions of this tremolo technique suggest that it had a strong affective connotation. For instance, in *Regola rubertina* (1542-43), a treatise providing instructions for basic viol playing, Sylvestro di Ganassi explains the following:

> For melancholy words and music, move the bow gracefully, and at times shake the bow arm and the finger of the hand on the neck [of the instrument], in order to make the effect conform to melancholy and tormented music.[73]

The affective connotation of bowed vibrato is further clarified by Farina's comparison to the organ tremolo: Diruta indicates that the tremulant at the organ was used to render the harmony 'mournful', 'sad' and 'dolourous'.[74] Here the affect of sadness and torment are reinforced by the plangent sound of the 9-8, 7-6 and 4-3 suspensions in bb. 103, 105-106, 109-110, or 114-116, which also drive the harmony forward in this highly expressive passage.

This passage of bowed vibrato strongly contrasts with the following section in both texture and character, in what could be likened to a musical 'antithesis', a figure of speech denoting opposition in classical rhetoric.[75] The last section of the piece is an Allegro that

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[70] Carlo Farina, *Ander Theil nawer* [sic] *Paduanen, Gagliarden, Courante, frantzosichen Arien* (Dresden, 1627), preface to canto book. See Stewart Carter, 'The String Tremolo in the 17th Century', *Early Music* 19, no. 1 (February 1991): 56.
[71] Carter, 'The String Tremolo', 4.
[72] Roger North, *Roger North on Music*, ed. John Wilson (London: Novello, 1959), 22-23. See Carter,'The String Tremolo', 53.
[73] 'Alle parole, a musica mesta operare l'archetto con leggiadro modo, & alle fiate l'effetto conforme alla musica mesta & afflitta'. Sylvestro di Ganassi, *Regola rubertina* (Venice: 1542-43), vi. See Carter,'The String Tremolo', 44.
[74] Carter, 'The String Tremolo', 47.
[75] The term 'antithesis' also known as 'antitheton' or 'contrapositum' has been applied to music by Kircher, among others. See Kircher, *Musurgia universalis*, II, 145.

features imitation (bb. 117-133) and dialogue (bb. 133-137) between the two violins. This section features *varietas* in the bass-line with a cadential formula derived from the initial bass-line, as in the 3/2 sections discussed above (compare c♯-d-e-a in bb. 7-8 with f♯-g-a-d in bb. 117-118). This cadential formula in the bass is repeated throughout this last section until b. 133, often emphasizing the circle of fifths, as discussed earlier. The figuration in the violin parts feature quavers and semiquavers, recalling the rhythmic motifs of the first part of the piece. Note that the last two fragments of circle-of-fifths progressions (bb. 129-132 and 133-136) coincide with motivic and textural changes in the violin parts. The musical antithesis between this and the previous section helps ensure closure.

In Uccellini's sonata, the principle of *varieta*s is manifest by means of transposition, scalar ambiguity (with ebbs and flows of tensions and releases resulting from false relations and other dissonances), and variation on the initial bass-line, showing how a whole composition may be built with an economy of material and still delight the senses like a wondrously seasoned and varied meal. Uccellini's use of contrasting textures, meters and tempi also contributes to this aesthetic of *varietas* and enhances subtle nuances of affects. Moreover, this piece exemplifies the flexibility of the seventeenth-century tonal system, and how composers could use major or minor triads as they saw fit to convey the intended affect. Uccellini's attention to detail, particularly in the alternation of 3/2 and Adagio passages, attests to the seventeenth-century refinement in the art of displaying subtle differences in the repetition of the same musical material.

## 2. The Capricious Drama of Pitch Organization: Maurizio Cazzati's 'Capriccio detto il Gozadini A tre. De Diversi Tempi, e Toni' Op.50 (1669).

Cazzati's 'Capriccio detto il Gozadini A tre, de Diversi Tempi, e Toni' is probably one of the longest pieces of ensemble instrumental music published in the seventeenth century (410 bars long in the modern edition, see Appendix I). Its title *capriccio* indicates a work of marked variety, in which the aesthetical principle of *varietas* is showcased through the use of different *tempi* and *toni* (a term that could denote either modes or church tones, used interchangeably with the term 'modi', as discussed in the Introduction), like a painter uses nuances of colours and plays with shades of light and darkness. Because Cazzati uses the term 'toni' in the title of the capriccio, the following discussion will describe the various tonal centres in this piece as 'tones', even though these may not have been conceived as transpositions of the church tones.

The very nature of the seventeenth-century *Capriccio* (Italian for 'whim' or 'fancy') lends itself to exploration and experimentation, since the term was applied to compositions in free style, where the composer or performer could introduce a range of emotional states without restraint. In 1618, Michael Praetorius (1571-1621) characterized a capriccio as a piece where 'one may make as many or as few digressions, additions, abridgments, twists, and turns as one wishes'.[76] He further added: 'Such fantasies and capriccios are especially suited for demonstrating one's' skills and artistry; one may employ without further hesitation anything that is permissible in music, such as suspensions, proportions, etc., as long as the mode and melody are observed and remain within their bounds'.[77] Later theorists further emphasized the unrestrained nature of the capriccio, such as Rousseau who in 1768 defined a capriccio as 'a kind of free music, in which the composer, without subjecting himself to any theme, gives loose reign to his genius, and submits himself to the fire of composition'.[78] Johann Mattheson specified the contrasts in tonal organization possible within a capriccio in his discussion of the *Stylus Phantasticus* in Part 1, Chapter 10 of *Der vollkommene Capellmeister* (1739), where he made the following observation about tonal organization in pieces in free style: '[…] And why should a Toccata, boutade or caprice choose a certain key in which it must [also] close? May it not stop in whatever key it wishes? Indeed, must it not often be led from one key into another completely contrary and distant one when a regular song follows it?'[79] In the light of these definitions, one can assume that the 'Capriccio detto il Gozadini' may exemplify a tonal structure that reflects the composer's intention to surprise or to give free expression to his compositional whim.

In addition to the variety in tones, which will be discussed in detail below, the piece features diverse tempi and musical styles. If the seventeenth century witnessed a complex development with regard to conceptions of modes and scales, it also saw a gradual change in the conception of time signatures and tempi. In the sixteenth-century system of mensural

[76] 'Man mache viel oder wenig / man *digredire, addire, detrahire*, kehre vnnd wende es wie man wolle'. Michael Praetorius, *Syntagma Musicum III* (Wolfenbüttel, 1619), 21.
[77] 'Vnd kan einer in solchen *Fantasien* vnd *Cappricien* seine Kunst vnd *artificium* eben so wol sehen lassen: Sintemahl er sich alles dessen / was in der *Music tollerabile* ist / mit bindungen der Discordanten, proportionibus, & c. ohn einigs bedencken gebrauchen darff; Doch dass er den *Modum* vnd die *Ariam*, nicht gar zu sehr vberschreite / sondern in *terminis* bleibe'. Ibid.
[78] *Oxford Music Online*, s.v. 'capriccio', www.oxfordmusiconline.com (accessed September 16, 2014).
[79] '[…] Und warum sollte sich denn eine Toccata, Boutade oder Caprice gewisse Ton-Arten erwehlen, worin sie schliessen müste? darff sie nicht aufhören, in welchem Ton sie will; ja muß sie nicht offt, aus einem Ton in den andern gantz entgegen stehenden und fremden geführet werden,wenn ein Regelmäßiger Gesang darauf folgen soll?' Johann Mattheson, *Der vollkommene Capellmeister* (Hamburg, 1739; facsimile, Documenta musicologica 5, Kassel: Bärenreiter Verlag, 1954), I, 88.

notation, relative tempi were indicated by time signatures and their proportional relationships. All proportional tempi were measured in relation to the *tactus* (the movement of the hand going down and back up), usually referenced as the speed of the human heart at rest. This proportional system of mensural notation lingered through the next century, and words expressing tempo indication such as Adagio, Allegro or Vivace (arguably denoting moods suggesting tempi, rather than tempi *per se*) also started to appear in the seventeenth century, arguably indicating a gradual decline in the tempo implications of time signatures. Almost all the sections of this capriccio have words indicating tempo, ranging from Presto or Vivace to Adagio, Largo or Grave. These terms often suggest sudden alternation of tempo, giving a musical *chiaroscuro* similar to the effect that would later be perceived by Muffat in Corelli's concerti grossi (quoted above). In addition to the tempo words, the contrasting affect of each section is suggested by the choice of time signature and notation, varying from standard cut time (¢) with a predominance of minims at the opening of the piece, through a range of types of triple meters (3/8, ¾, 3/1, 9/8 etc.) to extremely unusual time signatures for the period (e.g. 3/16 in bb.365-386). Furthermore, the capriccio also features a number of contrasting styles, ranging from sections reminiscent of the old *stile antico* to others written in the modern style, and others recalling styles derived from dance music. For instance, the piece features a Presto in 9/3 recalling a gigue (bb. 232-249), followed by a short Grave in common time (bb. 250-253) and an Adagio in 3/2 featuring variations on a ground bass (bb. 254-278); towards the end of the piece, a Largo in common time featuring bowed vibrato (labelled tremolo, bb. 356-364) is immediately followed by another Presto with a 3/16 gigue (bb. 365- 386). This showcase of tempi, time signatures, tones and musical styles whereby the listener can never anticipate what will come next, enables Cazzati to retain his audience's full attention for the duration of the whole piece.

The tonal framework of this capriccio, featuring extreme movement toward the flat and sharp sides (even though only two signatures are found in the piece – *cantus durus* and *cantus mollis*), conveyed strong affective connotations covering a wide range of emotions for seventeenth-century performers and listeners. This extreme use of accidentals is very unusual in Italian ensemble music of that period and attests to the experimental character of the piece (perhaps invoking the experiments held in Rome with chromatic and enharmonic genres, as begun by theorists such as Nicola Vicentino and continued by figures such as Romano Micheli as mentioned in Chapter 5 pp. 247-248). Indeed, if a keyboard continuo was used, it would probably require split keys to accommodate such

unusual pitches as A♭, D♯ and A♯. It is also possible that only individual sections (or groups of sections) of the piece were performed (as suggested by Frescobaldi in the preface to his *Fiori musicali*), in which case fixed-pitch instruments (if used) could be tuned to accommodate specific passages.

The capriccio begins strongly in D *durus* in the ♯♯ scale (D and A hexachords), a 'key' that Charpentier described as 'joyful and militant', followed by other sections in the *cantus durus* (bb. 1-138). Towards one third of the piece (b. 139), Cazzati releases tonal tension by shifting signature to *cantus mollis* starting with a Presto in 6/4 followed by three additional sections in the flat side (including three in a slow tempo), implying connotations of softness and gentleness (bb. 139-227- Cazzati does not go beyond the ♭♭♭ scale). Note that this release of tension toward the middle of a piece is, according to Charles Rosen, typical of early- to mid-eighteenth-century sectional works.[80] Cazzati then returns to the *cantus durus* for an additional twelve sections, gradually increasing tonal tension up to a climax in the extreme sharp side in a gigue-like section labelled Presto and a Largo (bb. 326-355, including passages in the ♯♯♯♯ and ♯♯♯♯♯ scales). The capriccio finally ends in D *durus* in the ♯♯ scale for eventual closure in the piece's opening scale. Like *chiaroscuro* contrast in early seventeenth-century paintings, the large tonal brushstrokes of Cazzati's capriccio bring together striking extremes, which is unusual for Italian ensemble instrumental music of that period. Within this overall framework, Cazzati works out small-scale tonal movement within certain sections, thus creating shades of contrasts and colours at the local level within the larger sharp or flat regions, as will be discussed below. With such a wide range of tones, tempi and musical styles, this *capriccio* showcases stark contrasts and the expression of extreme emotions prized in seventeenth-century aesthetic.

Certain sections (occasionally two or three sections grouped together) are enclosed with repeat signs, suggesting either that the performers must literally repeat the section(s), or showing another notational function, such as marking the start and end of certain sections in the piece (see Table 6.4). Arguably, the fact that a few sections enclosed with repeat signs have a different tonal focus at the beginning and at the end suggests the latter, rather than the former interpretation. This is particularly true of the transition from *cantus durus* to *cantus mollis* in bb. 130-139, which, if the repeat was performed, would result in a very unwelcomed sudden change even by seventeenth-century standards, as it features the

[80] Charles Rosen, *The Classical Style: Haydn, Mozart, Beethoven* (New York: W.W. Norton & Company, 1997), 75.

E and F triads at the beginning and end of the section, respectively, which correspond to the *mi* and *fa* degrees in the ♮ harmonic hexachord in Chafe's model (even though Cazzati moves to *cantus mollis* at the last F triad in b. 139). Table 6.4 shows that, although the tonal foci in the first few sections of the piece are connected by fifths (D-A-D-G-C), tonal foci marking the end of sections enclosed by repeat signs are not related via any consistent intervallic patterns.

Table 6.4. Sections enclosed with repeat signs in Cazzati's 'Cappricio detto il Gozadini', Op.50 (1669).

| Bar numbers | Beginning tonal focus/key signature | Ending tonal focus/key signature |
|---|---|---|
| 1-61 | D — | A — |
| 62-70 | D — | D — |
| 71-79 | G — | G — |
| 79-102 | G — | C — |
| 103-112 | ? — (a or e) | ? — (a or e) |
| 113-129 | a — | a — |
| 130-139 | a — | F♭ |
| 140-154 | F♭ | F♭ |
| 155-167 | g♭ | g♭ |
| 168-186 | g♭ (?) | B♭ (?) |
| 187-227 | c♭ | c♭ |
| 228-249 | C — | C — |
| 250-253 | ? — (e, a, or b) | ? — (e, a or b) |
| 254-278 | e — | e — |
| 279-318 | d — | d — |
| 319-340 | b — | E — (?) |
| 341-355 | E — | E — |
| 356-410 No repeats until the end | E — | D — |

On a localized level, certain sections are tonally connected to others; this is particularly true of short sections with slow tempo indications (there are a few exceptions), which often seem to function as tonal preludes to the faster section that follows, both sharing the same tonal focus (see Table 6.5). In each case, the two sections form a tonally-closed pair with the same tonal foci, with contrasting tonal foci in the sections that precede and follow them. Furthermore, short *adagio* sections were commonly used by seventeenth-century composers in sectional pieces to ensure smooth transitions or contrast between sections, recalling elements of the *stylus phantasticus* found in keyboard music. This

juxtaposition of tonally-paired sections may indicate how a mid-seventeenth-century composer could conceive large-scale structure in instrumental pieces.

Table 6.5. Tonally-paired sections in Cazzati's 'Capriccio detto il Gozadini', Op.50 (1669).

| Bar numbers | First section<br>Tonal focus, key signature and tempo | Second section<br>Tonal focus, key signature and tempo |
|---|---|---|
| 103-129 | a — Vivace<br>(When analyzed in the light of the following section, the a can be interpreted as the tonal focus here) | a — Presto<br>(Both sections have fast tempo indications in that case.) |
| 155-167 | g♭ Adagio | g♭ Presto |
| 187-227 | c♭ Adagio | c♭ Presto |
| 228-249 | C — Largo | C — Presto |
| 250-278 | e (?) — Grave<br>(Even though this section is tonally indeterminate, the possible tonal focuses-e, a or b- all relate somehow to that of the following section. The close affinity between the Phrygian and Aeolian modes may explain this ambiguity.) | e — Adagio (Passacaglia)<br>(Both sections have slow tempo indications here.) |
| 279-318 | d — Adagio | d — Presto |

Table 6.4 shows that the capriccio contains a roughly equal number of major-third and minor-third tones, with about eight sections enclosed with repeat signs in major-third tones, against seven in minor-third tones, with three sections that begin with a tonal focus implying a minor-third tone and end with one implying a major-third tone. In the light of Zarlino's ideas on the harmonic and arithmetic division of the fifth above the 'final' in a triad as triggering consonances that are 'lively and cheerful' and 'somewhat sad and languid', respectively, this balance between tones with predominantly 'cheerful' or 'sad and languid' sounding triads complements the *varietas* in scale transpositions with

movement toward the sharp and flat sides discussed above, so that this capriccio comprises a full array of affects expressed by tonal means.

Such a highly sectional piece raises the question of how Cazzati gave coherence to the capriccio. As we shall see, a rhetorical reading of the piece focused on the affective impact of each section helps clarify this question. For the purpose of this analysis, only two excerpts from the Cazzati's capriccio will be examined in detail here: the first three sections enclosed with repeat signs (bb. 1-79), and the last three sections enclosed with double bars (bb. 319-410- the very last large section does not include a repeat sign).

### 2.1 An Intricate Opening (bb.1-79).

Cazzati sets to the tone of the capriccio in the opening sections by designing a free, yet elaborated structure based on contrasting styles and refined tonal organization. In the first three sections enclosed with repeat signs ((bb. 1-61, 62-70 and 71-79), Cazzati embarks his listeners on a journey throughout this highly unusual piece in a convincing demonstration of the emotional power of pitch organization.

The first of these sections is itself divided into three subsections (bb.1-20, 21-55 and 55-61). In the first subsection (bb. 1-20), Cazzati, like an orator, catches his audience's attention in an opening *exordium* (exhortation) that clearly exposes the principal *corde* of the opening tone at the outset. Cazzati begins in cut time with note-values predominantly of minims, arguably suggesting a moderate tempo. He introduces the piece's opening tone in a musical phrase arguably based on the ♯♯ scale (D and A hexachords, if the C♯ is considered a diatonic tone and not a *ficta* alteration[81]) with a tonal focus on D, thus creating an element of boldness at the outset in a sharp tonal region, which could be reinforced by forthright bowing and clear articulation. After a fermata, Cazzati repeats the opening phrase up a fifth in an exact transposition, arguably in the ♯♯♯ scale (A and E hexachords, if the G♯ is considered as a diatonic tone). Cazzati then releases the tonal tension with a circle of fifth sequence downward (bb. 11-14), where the composer shifts back to the ♯♯ (*mi* become *fa* with the G♮ in b. 13) and to the ♯ scale (*mi* becomes *fa* with the C♮ in b. 14), and later cadences on D to close the section (b. 20).

The spirit of the *exordium* is maintained throughout the second subsection, labelled Allegro (bb. 21-55) in a style reminiscent of the *stile antico* vocal counterpoint, with two

[81] Alternatively, one could argue that the c♯'' in the upper part in b. 4 is a *ficta* alteration at the contrapuntal cadence.

points of imitation, a predominance of stepwise motion in the melodic movement, occasional melodic suspensions and white-note notation.[82] As in *stile antico* counterpoint, the tonal structure of this subsection is clearly delineated, with levels of imitation underscoring A, D and E, thus creating tonal *varietas* at the outset of the piece. This subsection remains in the sharp region and first emphasizes A and D with imitative entries starting on a', d' and a (bb. 21, 22 and 26), and a cadence on A (b. 33), and E and A in a second point of imitation in b. 33 with imitative entries on e'', a' and e (bb. 33, 34 and 39).[83] Nonetheless, the section also includes features that are characteristic of more modern styles, such as the rising sequence with a 5—6 linear intervallic pattern in bb. 43-46.

In stark contrast with the first two subsections stands the character and musical style of the third subsection (bb. 55-61), a lively and modulatory Vivace, in what can be likened to an *antithesis* (see Fig. 6.1). Cazzati chose to write this Vivace in an idiomatic seventeenth-century instrumental style, with quaver and semiquaver note-values (implying vigorous articulation), imitative triadic motion, and a circle-of-fifths sequence going down very rapidly, thus further increasing the sense of instability and intensity (bb. 57-58). Even though this section is in common time (suggesting, according to the system of proportional mensural notation, a slower tempo than that of the previous two sections), it is labelled as Vivace, a faster tempo than that of the previous Allegro section (in cut time), again attesting to the unstable nature of the system of rhythmic notation in the seventeenth century.[84]

From the standpoint of a melodic hexachordal analysis as discussed in Chapter 5, this Vivace begins in the ### scale (A and E hexachords), modulates four times and ends where it began in the ### scale with a tonal focus on A at the final cadence (b. 61, see Fig. 6.1). In the third bar of the section, Cazzati moves rapidly down through the circle of fifths with chords on E, A, D, G (bb. 57-58), towards a cadence on e at the close of the phrase (b. 60). The passage features four modulations (analysed here in linear, melodic terms) in the space of four bars (58-61). Cazzati first modulates via the circle of fifths downward via E-A-D-G (bb. 57-58), by maintaining a perfect fifth between the D and G chords (b. 58), which in the ### scale should have been raised to G♯. Thus, G♯, the *mi* degree in the E hexachord, becomes G♮, the *fa* degree in the D hexachord in the ## scale (D and A

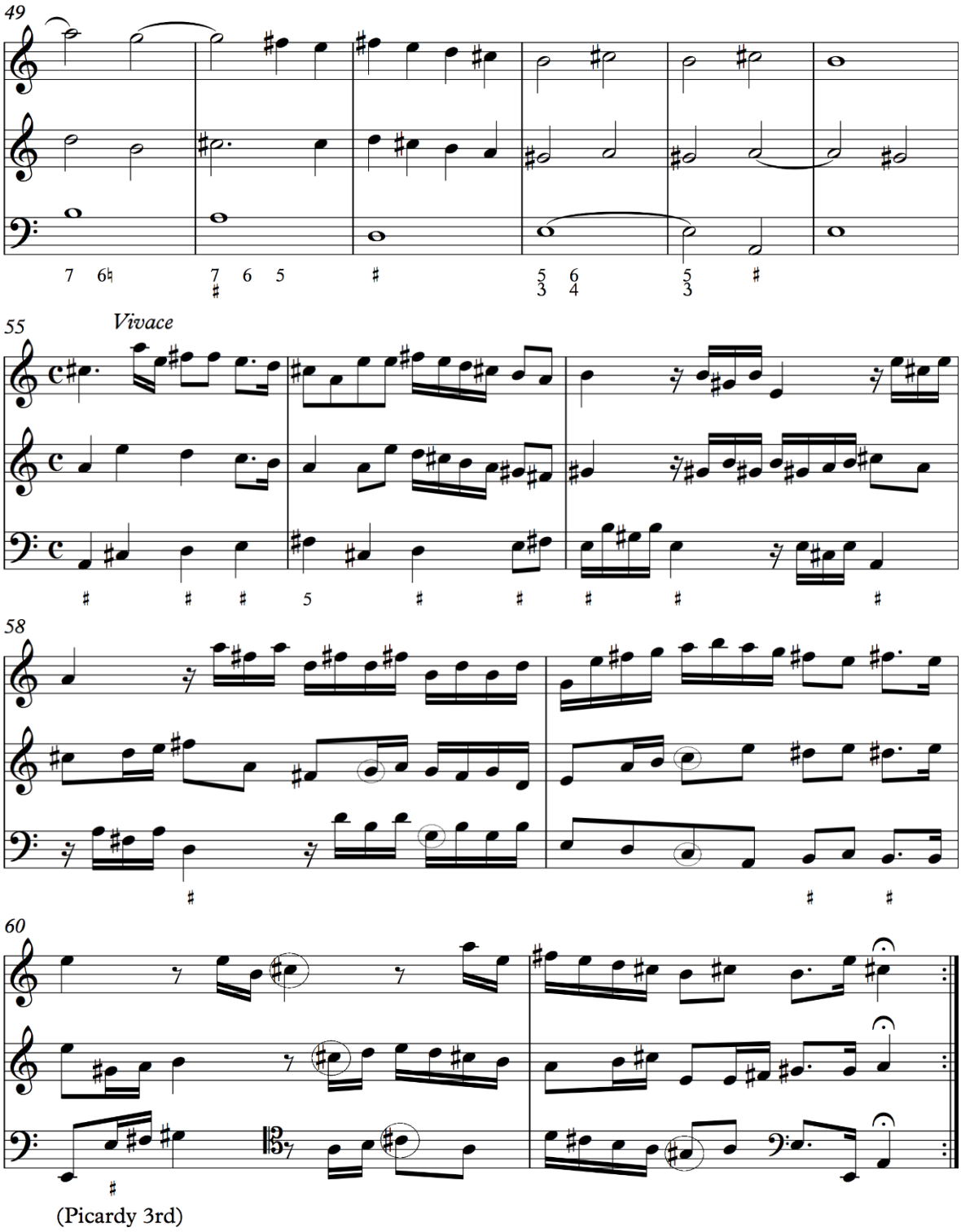
[82] Note that the section is labelled Allegro even though the time signature remains the same, further hinting that time-words signalled a mood suggestive of a tempo, rather than a tempo in and of itself.
[83] The bass in b. 21 functions as a *basso seguente*, merely doubling the upper treble part.
[84] See Houle, 'Meter and Tempo', in *A Performer's Guide to Seventeenth-century Music*, 347-367.

hexachords). Note that this first flatward modulation is accompanied by a triadic motive in falling thirds (b. 58). The second modulation occurs with the C natural in b. 59 (second beat), the lowered *mi* degree in the A hexachord in the ♯♯ scale which becomes *fa* in the hard hexachord in the ♯ scale (G and D hexachords). The concluding cadence on e in b. 60 can be thus interpreted as a cadence on the *re* degree in the D hexachord. Cazzati then reverses this process by returning to the ♯♯ scale with the C♯ (b.60), and to the ♯♯♯ scale with the G♯ (b. 61), and finally closes the section with a final cadence on A. [85]

The stylistic *antithesis* between the first two subsections and the third subsection mentioned above is mirrored by an *antithesis* in tonal organization. Indeed, the two previous sections of the piece (bb. 1-20 and 21-55) clearly signposted their tonal structure via modulation connected with exact transposition (bb. 1-10) or levels of imitative entries (bb. 21-45). On the contrary, in bb. 55-61, the first modulation starting with the G chord in b. 58 is not signposted by a cadence, but is immediately followed by the second modulation with the C in b. 59 before the cadence on e, showing how the *mi-fa/fa-mi* alteration allowed for shifts of scalar systems that were not necessarily accompanied by harmonic or melodic transposition. Note that the cadence on e in b. 60 is the first cadence on a tonal focus on a *re* degree (implying a minor-third 'mode'), and also coincides with the lowest note of the piece so far (E in the bass). This minor colour, complemented by the more concealed modulations and the faster pace of this third subsection add refined nuances of affect, details of contour, colour and shades of light in the brushstrokes of the larger tonal framework described above. Finally, the analysis of modulations in this passage brings to light the tonal 'chiasmus' that underlies its structure (♯♯♯ - ♯♯ - ♯ - ♯♯ - ♯♯♯), which is paralleled by a similar structure in the third section enclosed with repeat signs (bb. 71-79), as will be discussed below.

[85] Note that from the standpoint of the model developed by Eric Chafe, this *Vivace* is in the ♯♯ system, with the ♯♯ hexachord as central hexachord (see Appendix J). The bars immediately preceding the passage are set in the ♯♯♯ harmonic hexachord, and this passage remains in the ♯♯♯ harmonic hexachord until the G♮ triad (b. 58), which signals a shift to the ♯♯ hexachord. The following bar features an a triad (b. 59), which marks another shift to the ♯ hexachord, right before the cadence on e (b. 60). According to Chafe's model, the passage remains in the ♯ hexachord until the cadence on A (b. 61) since the triads found between the e cadence and the final A cadence (D, A and E) are found in that hexachord. As in *La Calva* analysed in Chapter 5, a melodic hexachordal analysis of modulation in bb. 55-61 provides more specific results than a Chafe-style analysis, since it brings to light the return to the ♯♯ and ♯♯♯ scales before the final cadence, whereas a harmonic hexachordal analysis does not technically show a return to the original hexachord.

Figure 6.1. Cazzati, Vivace from the ‘Capriccio detto il Gozadini’, bb. 55-61.



The second section enclosed with repeat signs is much shorter (bb. 62-70) and may be compared to an *admonitio* in classical rhetoric, a figure that denotes the act of recalling to mind an idea stated previously.[86] The main function of this Allegro in 3/1, which returns to white-note notation, is to re-establishes the tonal focus on D: it begins on D, then the bass moves towards A (bb.65-67), and finally returns to D for the final cadence (b. 70), recalling the emphasis on D, A and final return to D in the very first section of the piece (bb. 1-20). On a large-scale level, the composer moves from D (the final of the piece, bb. 1-20), to A (fifth degree above the final, bb. 21-61) and back to the final D (bb. 62-70), in what could be seen as a large-scale *exordium* (echoing the small-scale *exordium* emphasizing D and A at the opening of the piece).

Finally, as a painter organises contrasts and colours on a canvas, Cazzati demonstrates his ability to create intricate tonal relationships and parallels between sections in the third section enclosed with repeat signs (bb. 71-79, see Fig. 6.2). The tonal structure of this Grave section is particularly interesting in relation to the Vivace analysed above (bb. 55-61); although the two sections feature opposite tempi indications (Vivace versus Grave, albeit with the same common time signature), they present noteworthy similarities.

A melodic hexachordal analysis shows that the *Grave* begins and ends in G *durus* in the ♯ scale (G and D hexachords) and modulates four times. The first modulation occurs in b. 73 (first beat) when the C natural in the upper voice (*fa* degree in the G hexachord), becomes C♯ (*mi* degree in the A hexachord in the ♯♯ scale - D and A hexachords). The second modulation takes place in b. 73 (third beat) in the middle part when the G natural (*fa* degree in the D hexachord), becomes G♯ (*mi* degree in the E hexachord in the ♯♯♯ scale - A and E hexachords). Cazzati subsequently cadences on f♯ (b.75), the *re* degree in the E hexachord in the ♯♯♯ scale.[87] Cazzati then reverses the modulatory process by returning to the ♯♯ scale with the G natural in the bass in b. 76 (the *fa* in the D hexachord), followed by a cadence on b (*re* degree in the A hexachord, still in the ♯♯ scale). Finally, the fourth and last modulation takes place with the C natural in the bass in b. 78 (*fa* degree in the G hexachord in the ♯ scale), followed by the final cadence of the section on G.[88] Note that this

[86] Lanham, *A Handlist of Rhetorical Terms,* 2.

[87] I am grateful to Peter van Tour for pointing out that in the eighteenth-century solfeggio tradition, this cadence on f♯ would have been considered a *La* cadence in A lamire (the Italian *tuono* equivalent to our modern A major), which illuminated my understanding of seventeenth-century conceptualization of pitch organization.

[88] Again, according to Chafe, the section features three harmonic hexachords, as it includes triads on C, G, D, A($7^{th}$), E, b, f♯/F♯, C♯, and shifts harmonic hexachords four times. The section begins in the ♯ harmonic

Grave section moves quickly from the relative neutrality of a G major chord to a *re* cadence on f♯ (in b. 75, with Picardy third) that would sound harsh in the tuning system of the day (particularly the E♯ in b. 74).

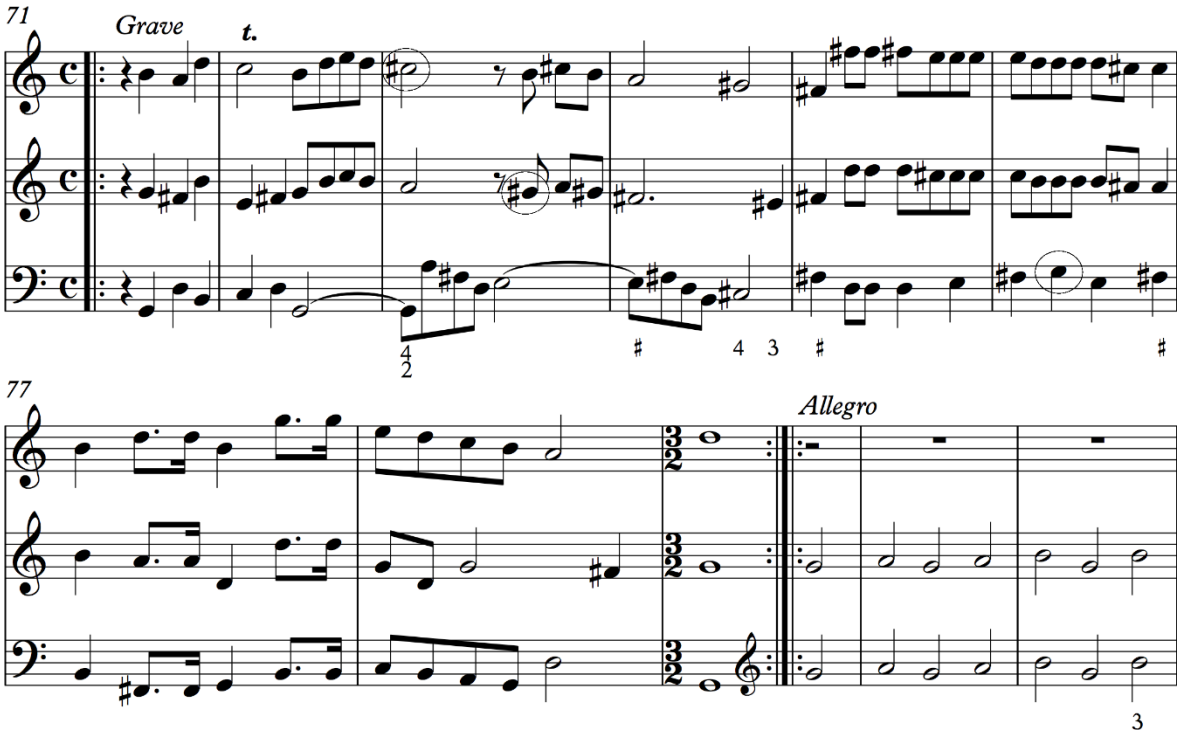
The difference in style and tonal behaviour between the Allegro in bb. 21-55 and the Vivace immediately following it in bb. 55-61 has been discussed above. Likewise, there are similar musical *antitheses* between the Allegro in bb. 62-70 and the following Grave in bb. 71-79. First, just as the style of the Vivace contrasted with the Allegro that preceded it (bb.21-61), the modern instrumental style of this Grave section differs from the white-note writing of the preceding Allegro section (see bb. 62-79). Second, like the Vivace, the Grave displays concealed modulations which are not immediately signalled by a cadence, such as the modulation from the ♯ scale to the ♯♯ scale (b. 73), immediately followed by a modulation to the ♯♯♯ scale, which is further blurred by a cadence on f♯ (b. 75). On the contrary, the Allegro immediately preceding the Grave is tonally very stable with a straightforward structure outlining D, A and back to D (discussed above). Third, the two *re* cadences in this Grave section (on f♯ in b. 75 – made F♯ major only via the tierce picarde – and b in b. 77) echo the *re* cadence on b in the Vivace (b. 60). Last but not least, the tonal chiasmus towards the flat side in the Vivace (♯♯♯-♯♯-♯-♯♯-♯♯♯) is mirrored in the Grave with a tonal chiasmus in the opposite direction, towards the sharp side (♯ - ♯♯ - ♯♯♯ - ♯♯ - ♯). Incidentally, the *re* cadence in the Vivace occurs at the flattest point in the section, and the first *re* cadence in the Grave occurs at the sharpest point in the section, further enhancing the parallel between the two.

The Vivace and the Grave are therefore opposite in their character and tempo indication, but similar in their style, tonal behaviour (albeit with modulations in opposite directions), length, and in their relationship with the section that precedes them. The Grave brings another range of colours and tonal tension (in the sharp direction), with new shades of light and dark (via minor cadences on other notes), to the very large canvas of the capriccio. As a visual artist demonstrates the extent of his or her skills in the detail of a painting or sculpture, Cazzati shows in this Grave section his virtuosity in manipulating the

hexachord and modulates to the ♯♯ harmonic hexachord arguably on the second beat of b.73 (f♯ triad) and immediately to the ♯♯♯ harmonic hexachord with the C♯ chord at the cadence on f♯ (bb. 74-75). Cazzati then returns to the ♯♯ harmonic hexachord in the following bar with the G triad (b. 76), and finally back to the ♯ harmonic hexachord with the C triad (b.78) before the closing cadence on G. Therefore, in this Grave section, both harmonic and melodic hexachordal analyses coincide. However, a melodic understanding of modulation sheds light on cadential degrees, which always correspond to the *do* or *re* degrees of the hexachords, hinting at the use of *do* and *re* 'modes', as discussed in Chapter 1.

seventeenth-century tonal style with modulations that would seem incongruous if analysed from the standpoint of modern functional harmony.[89]

Figure 6.2. Cazzati, Grave from the 'Capriccio detto il Gozadini', bb. 71-79.




Overall, the opening sections of the capriccio establish the character with elaborate connections between sections underpinning contrasts and similarities in styles and tonal structures. Cazzati demonstrates the expressive potential of modulation with ebbs and flows of movement toward the flat and sharp, 'softer' or 'harsher' sides, juxtaposed with tonally stable sections.

[89] On a side note, the harmony Cazzati choses for the first two modulations calls the attention; if analyzed contrapuntally, Cazzati begins with a G chord (b. 72), followed by a suspension of G in the bass resolving to f♯, and an E chord (b. 73 beat 3), followed by a suspension of E in the bass (b. 74) which resolve to D, thus implying a succession of consecutive fifths with perfect triads on G, f♯, E, D, C♯ leading to the cadence on f♯. The remaining bass notes are decoration of this contrapuntal motion. If analyzed harmonically, it seems as if the fifth-related A7 and D7 chords in b. 73 are sounded simultaneously with their notes of resolution (with G resolving to f♯ and the C♯ in the upper voice resolving to D in the bass), and strong dissonances between G and A, as well as D and C♯. Cazzati then repeats the same gesture in b. 74, with the E chord (b. 73) followed by B7 and C♯ (b. 74).

### 2.2 A Flamboyant Ending (bb. 319-410).

'Antithese and bomphiologia' – two rhetorical terms that may have come to the mind of an educated seventeenth-century listener or performer upon hearing or playing the last few sections of Cazzati's capriccio.[90] These terms capture how the composer juxtaposes highly opposed musical styles (*antitheses*), brings the piece to a climax, and revels in bombastic musical expression (*bomphiologia*). In the last three sections of the piece enclosed with double bars (starting with a Grave section in b.319), we see how Cazzati brings this extraordinary piece to a close in the true spirit of a capriccio.

The theatrical juxtaposition of antithetical moods in the last sections of the piece creates the effect of an interaction between antagonist characters in the capriccio's final scene. The Grave section in bb. 319-325 functions as a short transition between the previous section and the following Presto (bb. 326-340). It remains in the ♯♯ scale throughout (D and A hexachords), with a tonal focus on b at first (opening b chord and cadence on b in b. 321) before moving toward a tonal focus on D (cadence on D in b. 325) in preparation for the next section. After several sections with tonal foci underscoring minor-third tones (e in the Grave, bb. 150-253; e in the Adagio, bb. 254-278; d in the Adagio, bb. 279-283; d in the Presto bb. 284-318), the shift to the major-third tone with D as a tonal focus (which Charpentier described as joyful and militant) strikes a noticeable change of character. Most importantly, the cadence on D in b. 325 marks the first return of the original tonal focus (D) since its original establishment as the main tonal focus at the very beginning of the piece.

Arguably, a listener could expect the following Presto section (bb. 326-340) to feature a stable, final return to the initial tonal focus to close the piece. On the contrary, this section not only builds up tonal tension towards the sharp side, but is also one of the most tonally disorienting in the whole piece (see Fig. 6.3). From the standpoint of a melodic hexachordal analysis, the beginning of the section modulates no less than five times in the space of six bars. Arguably, the section begins on D in the ♯♯ scale (D and A hexachords) and ascends stepwise in the bass up to b. 328, where Cazzati modulates to the ♯♯♯ scale (E and A hexachords) with G♯ (*mi* in the E hexachord). Two beats later (b. 329), Cazzati moves to the ♯♯♯♯ scale (E and B hexachords) with the D♯ (*mi* in the B hexachord), and immediately keeps going up sharpwards with the ♯♯♯♯♯ scale (F♯ and B hexachords) with the A♯ (*mi* in the F♯ hexachord, b. 329), thus reaching the sharpest area in the whole

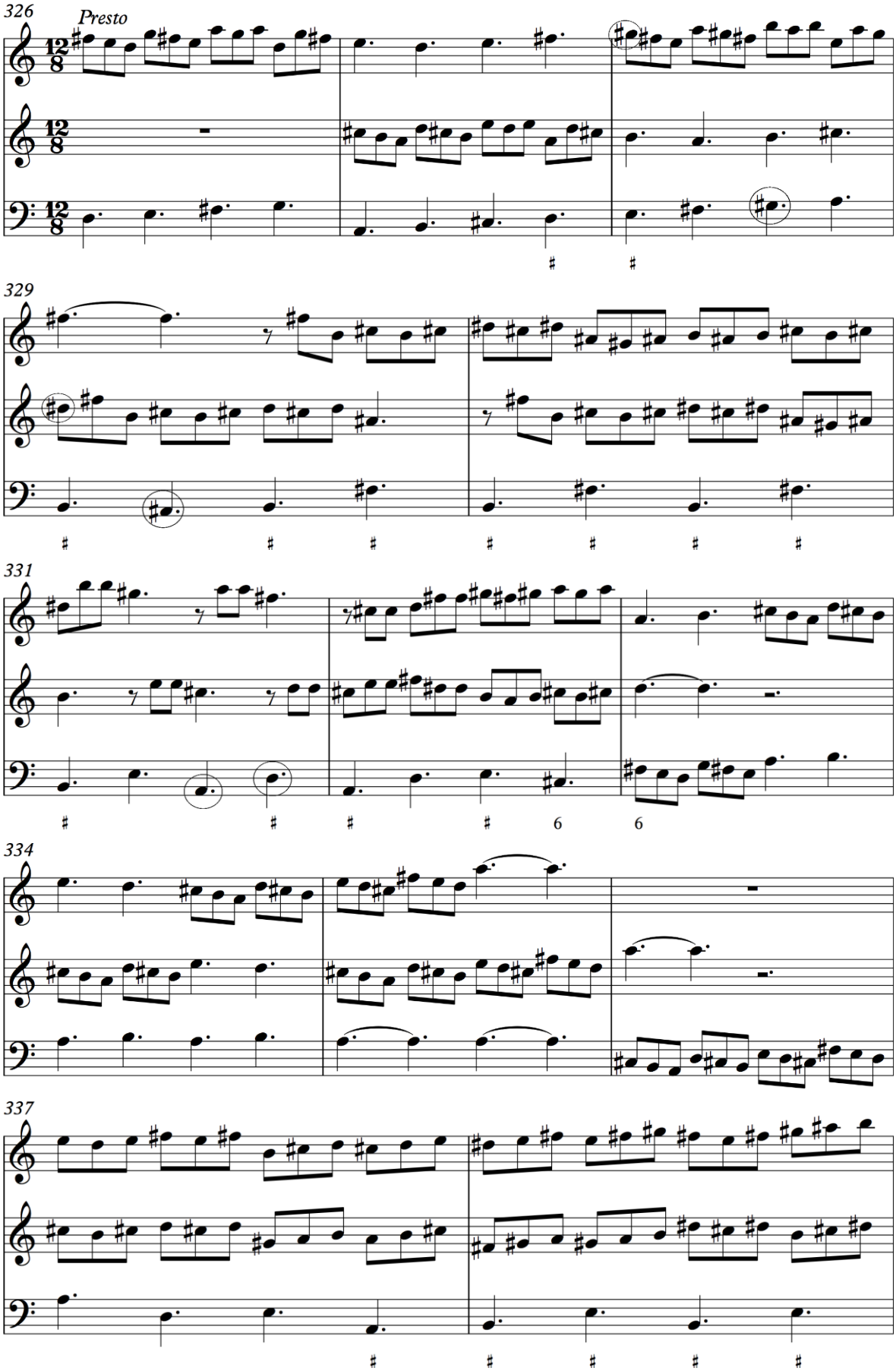
[90] See Kircher, *Musurgia universalis*, II, 145; Lanham, *A Handlist of Rhetorical Terms*, 29.

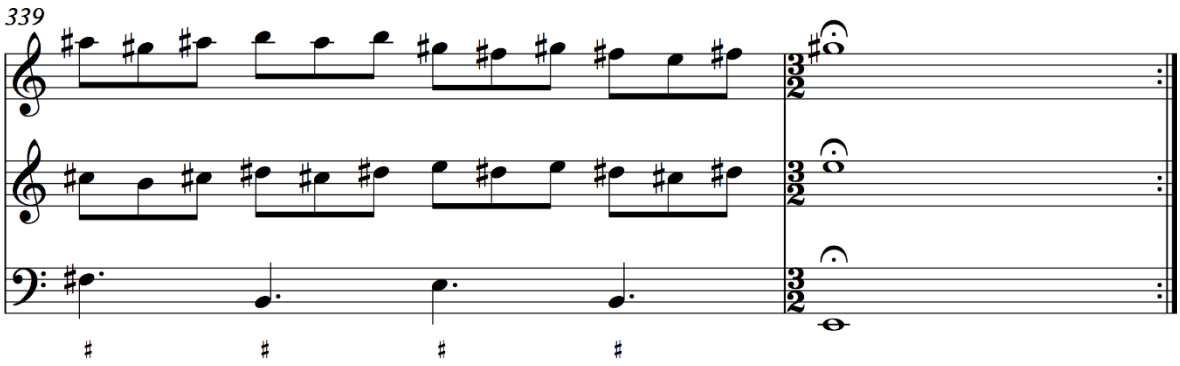
section, and in the piece so far.[91] While none of these previous modulations was made clear by cadential motion, Cazzati finally stabilizes this last scale transposition by hammering the F♯ major and B major chords in root positions in the bass in what could be likened to a musical *iteratio*, a term denoting forceful repetition (bb. 329-331).[92] Cazzati then returns flatwards via motion through the circle of fifths (F♯, B, E, A, D, bb. 330-331) with chords on A (return to the ♯♯♯♯ scale) and D (return to the ♯♯♯ scale). Cazzati continues on and finally ends the section in the ♯♯♯♯ scale (E and B hexachords) with a cadence on E.[93]

The impassioned character of the Presto section, which with its 12/8 time signature and constant semiquaver motive resembles a burlesque gigue, is a perfect example of what an educated seventeenth-century listener may have likened to *bomphiologia* (bombastic speech). The beginning in the initial tonal focus (albeit brief), the *Presto* tempo indication, the quick reach to a tonal climax (the ♯♯♯♯♯ scale, a very harsh tone in the extreme *durus* region) via a bold ascending scale, the tonal instability, and the frantic gigue-like rhythm all contribute to increase the tonal and emotional vehemence in the music, arguably making this Presto section the climax of the piece.

[91] Arguably, the A♯ in the bass in b. 329 could also be solmized as a raised leading tone.
[92] Hill, *Baroque Music*, 497.
[93] In Chafe's method of analysis, this whole *presto* section is in the ♯♯ hexachord, with triads on G, D, A, (e?)/E, (b?)/B, F♯; in this case, a melodic hexachordal analysis seems more appropriate. Note that this Presto section shows modulations that are conceived as linear procedures, when modulations are brought about simply through the addition of altered notes in stepwise motion independently from harmonic considerations (as in bb. 326-329), as well as modulations relying on harmonic motion, when modulation occurs via motion upward in fourths or downwards in fifths through the circle of fifths in the bass (bb. 330-331).

Figure 6.3. Cazzati, Presto from the ‘Capriccio detto il Gozadini’, bb. 326-340.






This festive gigue-like section is interrupted by the solemn appearance of a new, majestic character (Largo bb. 341-355) which strongly contrasts with the previous Presto in tempo, style and tonal behaviour. Indeed, this Largo in 3/2 is very tonally stable with a tonal focus on E in the ♯♯♯♯ scale, with a brief modulation to the ♯♯♯♯♯ and a cadence on B (bb.350-352); it then returns to the ♯♯♯♯ scale and ends with a cadence on E. The section is also very homophonic, with chordal writing throughout, thus standing out against the more imitative gigue that precedes it. The contrast in tempo and character between these two sections shows how the extreme sharp region (connected to harshness, crudeness, discomfort, tension etc.) could showcase different, almost opposed emotional states (chaotic versus organized, burlesque versus solemn) when associated with other musical parameters such as tempo or texture.

The final section enclosed with double bars (bb. 356-410) sets forth *varietas* to its highest degree, as Cazzati closes the piece with the starkest stylistic *antitheses* in the whole piece. The 3/2 Largo gives way to another Largo featuring a bowed vibrato labelled *tremolo* in all three parts (bb. 356-364), as if to evoke a servant's humble and submissive attitude after the majestic entry of his master (bb. 341-355). This Largo also ends with a focus on E (b. 364). This new character is soon cut off by the return of the festive whirlwind with a vehement Presto in 3/16 (a very unusual time signature for the seventeenth century), featuring a quick ascending semiquaver motive entering in imitation in each part (bb. 365-370), which echoes the 12/8 gigue heard a few bars before (bb. 326-340). This Presto moves towards a tonal focus on A (b. 386), the fifth above D, in preparation for the final return to the initial tonal focus of the piece on D in the next and final subsection. The *tremolo* motive with repeated notes then reappears (bb. 387-394), implying a return to a calmer tempo, and stressing tonal foci on A (cadence on A b. 389), on D (cadence on D b. 391) and on A (bb. 394-395). This second *tremolo* passage then elides with Cazzati's final gesture, featuring a long pedal on A with figuration in the upper

parts that could be likened to a *supplementum* or *manubrium* in classical rhetoric, before the final cadence of the piece on D (bb. 396-410).[94]

Like actors playing characters of opposite personalities, this alternation of antithetical, sometimes conflicting affects stimulates the imagination of the performer and listeners. From the standpoint of tonal structure, these final sections contain the tonal high point with the sharpest area in the whole, followed by a return to the 'final' via the circle of fifths (E, A, D). Cazzati thus dramatizes the return of the initial tonal focus of the piece (D) via the use of highly contrasting musical styles and characters in sections that emphasize various tonal foci via the circle fifths; the Grave (bb. 319-325) initiates the return to D, but this return to D is immediately thrown off by the unstable 12/8 Presto which ends with a tonal focus on E (an unexpected ending); The Largo (bb. 341-355) lingers on this E, as well as the following tremolo section (bb. 356-364), as if to keep the listener in suspense; the Presto finally returns to A, followed by the return of the tremolo and the pedal on A before the final cadence on D.

Cazzati's capriccio exemplifies *varietas* via the use of contrasting tones and modulation, various tempi, and contrasting musical styles and textures. This piece projects a full array of unusual 'tones', from the flat to the extreme sharp side, and therefore would have constituted an unusual auditory experience for a seventeenth-century listener, who could relish the drama of the juxtaposition of opposed musical characters. This piece stands out in the Italian ensemble music repertoire of the mid-seventeenth century as a perfect illustration of the capriccio's free style in instrumental music.

**Conclusion**

In the light of contemporaneous sources, this chapter has brought to light the rhetorical and affective dimensions of consonances and dissonances, intervals and accidental signs, which all convey contrasting or subtly different affects and bring variety in instrumental ensemble music. It has also illustrated how rhetorical figures could be applied to that music, enhancing elements of contrast, ambiguity, surprise, as well as climaxes and exaggerations. As already mentioned, the Cazzati capriccio is an experimental piece unrepresentative of the Italian ensemble repertoire as a whole. Many other ensemble pieces could be analysed in the light of the affective and rhetorical impact of pitch organization, and future research could focus on a more mainstream repertory.

[94] Burmeister, *Musica poetica*, 53.

It is always a challenge for modern-day performers and listeners to hear the full colours of seventeenth-century music, as we inevitably listen to music of the past from the vantage point of present-day aesthetic experience. A re-education of the modern ear in order to hear this repertory as early musicians may have heard it must therefore involve a form of dialogue between historic and present-day perceptions of music, by combining 'our historical knowledge and musical sensitivity to construct a hypothetical musical-mental model of listeners in a given place and time', as explained by Shai Burstyn.[95] By drawing on seventeenth-century historical sources, this chapter has explored how early musicians may have heard the ensemble music of their time, and has sought to re-educate modern ears by offering 'historically informed' analyses. Nonetheless, as Burstyn points out, many other aspects of the environment of seventeenth-century musicians should be studied, such as their 'social culture, dominant belief, and thought systems' as well as their perception of space and time, in order to complete the hypothetical construction of the 'period ear'.[96]

[95] Burstyn, 'In Quest of the Period Ear', 695.
[96] Ibid., 695-696.

# Conclusion

This thesis has illuminated aspects of the interface between seventeenth-century musical theory and practice with case studies taken from the repertoire of seventeenth-century Italian ensemble instrumental music, and has engaged in a dialogue between contemporaneous theory and modern models of analysis so as to shed light on aspects of pitch organization in this repertoire. Chapter 1 has provided insights regarding how seventeenth-century musicians may have conceptualized scales and has scrutinized the relationship between church tones and *do* and *re* tonal foci within each hexachord. The chapter has shown how contemporaneous theorists sometimes used different terminology to described similar developments. Cadence degrees in Italian instrumental ensemble music of the first quarter of the seventeenth century were generally indicative of scalar system rather than 'modes' or 'tones' *per se*, and Chapter 2 has argued that *cantus mollis* tones were not necessarily conceived as transpositions of *cantus durus* tones. The same chapter has shown that fugal openings in this repertoire were strongly influenced by Zarlinian theory, whereas tonal answers as advocated by some seventeenth-century theorists are scarce. The thesis has also presented one of the first discussions of the use of harmonic schemata in ensemble instrumental music in Chapter 3. This chapter has shown how harmonic schemata, essential as building blocks in the improvisatory solo instrumental repertoire, were also used in the more contrapuntal context of ensemble music, hence providing a logic for certain successions of chords.

Chapter 4 has uncovered the connection between principles of continuo accompaniment and Dahlhaus's and Chafe's modal-hexachordal model of analysis, thereby providing a stronger historical foundation for their ideas. The following chapter has discussed sources that have never been examined by previous scholars in relation to seventeenth-century modulation, namely, treatises describing scale transposition with hexachordal terminology. It has also raised an awareness of the multi-levelled aspect of seventeenth-century modulation, involving both linear and vertical processes. Finally, Chapter 6 supplements the analytical approaches of the previous chapters by taking a more speculative approach to the likely response of seventeenth-century listeners. It has suggested new ways of listening to Italian ensemble instrumental music through a rhetorical understanding of the affective connotation of various components of pitch

organization; it argues that musicians aimed at *varietas*, a quality also prized in cuisine, oratory and the visual arts.

The approach I have adopted in this thesis has its limitations. First, as stated in the Introduction, only the second chapter covers a large sample repertory within a clearly defined chronological range, so as to observe general tendencies in cadence degrees and fugal openings. Future research could expand this study with a larger sample, including collections by Castello and Gabrieli, for instance, to verify if the tendencies observed in Chapter 2 hold true. Such a study could also focus on a single genre, such as the ensemble sonata or canzona. The remaining chapters do not seek to explore a historically representative sample of music, but rather pieces that show interesting aspects of the connections between theory and practice. Future studies of harmonic schemata and modulation could include the examination of a large sample of pieces within a given timespan to examine the most common schemata and modulatory procedures.

Second, this study has encompassed a large number of theorists from Italy and other geographical areas where Italian musicians were prominent, or where Italian theoretical thought seems to have had a significant influence. I have included some foreign treatises partly because these works often articulate ideas that complement Italian sources and thus may lead to a greater perspective on Italian theoretical concepts of that period. Additional research could be pursued on manuscript evidence of Italian compositional pedagogy, including keyboard manuscripts or musicians' notebooks which might document how musicians were taught concepts of scales, church tones, transpositions and modulation, and could apply more directly to the Italian ensemble music repertoire.

Much remains to be examined regarding pitch organization in general, and in the Italian instrumental ensemble repertoire in particular. For instance, this thesis has not explored the relationship between key signature and pitch content in mid-to-late seventeenth century ensemble music, which could inform conceptions of scale systems and would be particularly interesting in relation to Eric Chafe's remarks. This could also relate to Gregory Barnett's work on late seventeenth-century ensemble sonatas. Moreover, this thesis has not examined systematically the use of contrapuntal formulae that sometimes arose from the teaching of *obblighi* (contrapuntal obligations that the compositional student had to follow, as described by Angelo Berardi in his *Documenti armonici* (Bologna, 1687). If archival material permitted, more could be done on how teaching methods for counterpoint related to surviving compositions, as in studies of partimenti. Another area that remains to be explored is pitch organisation used in ensemble instrument

writing within vocal concertos (for instance, sinfonias at the start of vocal concertos), where the presence of a text is likely to influence pitch organization.

Finally, in the light of the observations made in this thesis, how can we listen to seventeenth-century Italian ensemble music with new, more historically informed ears? An understanding of likely cadence degrees and imitations points helps us know what is conventional as opposed to exceptional (and therefore likely to be expressive) in the musical language of the period. Becoming familiar with seventeenth-century harmonic schemata helps listeners and performers spot these schemata, giving a greater sense of commonplace progressions, and how composers manipulated or played with the listeners' expectations. The examination of the basic collections of triads used in the seventeenth century helps performers and listeners perceive harmonic extremes that might be used for expressive reasons; an understanding of the various functions of accidentals may help us become more aware of linear versus vertical procedures, which can shape what performers choose to project in performance. Finally, an awareness of the affective dimension of sharps and flats, intervals, consonances and dissonances and 'modes' and 'keys' should help us play and listen to the Italian instrumental ensemble repertoire with a greater sensitivity and emotional involvement. Therefore, the dialogue between theory and practice explored in this thesis helps us re-tune our modern-day ears to the riches of historic pitch organization.

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# Between Theory and Practice: Aspects of Pitch Organization in North Italian Ensemble Instrumental Music, ca. 1610-1670.

Volume 2 (Appendices)

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Royal Holloway, University of London
Submitted for the Degree of Doctor of Philosophy
December 2016

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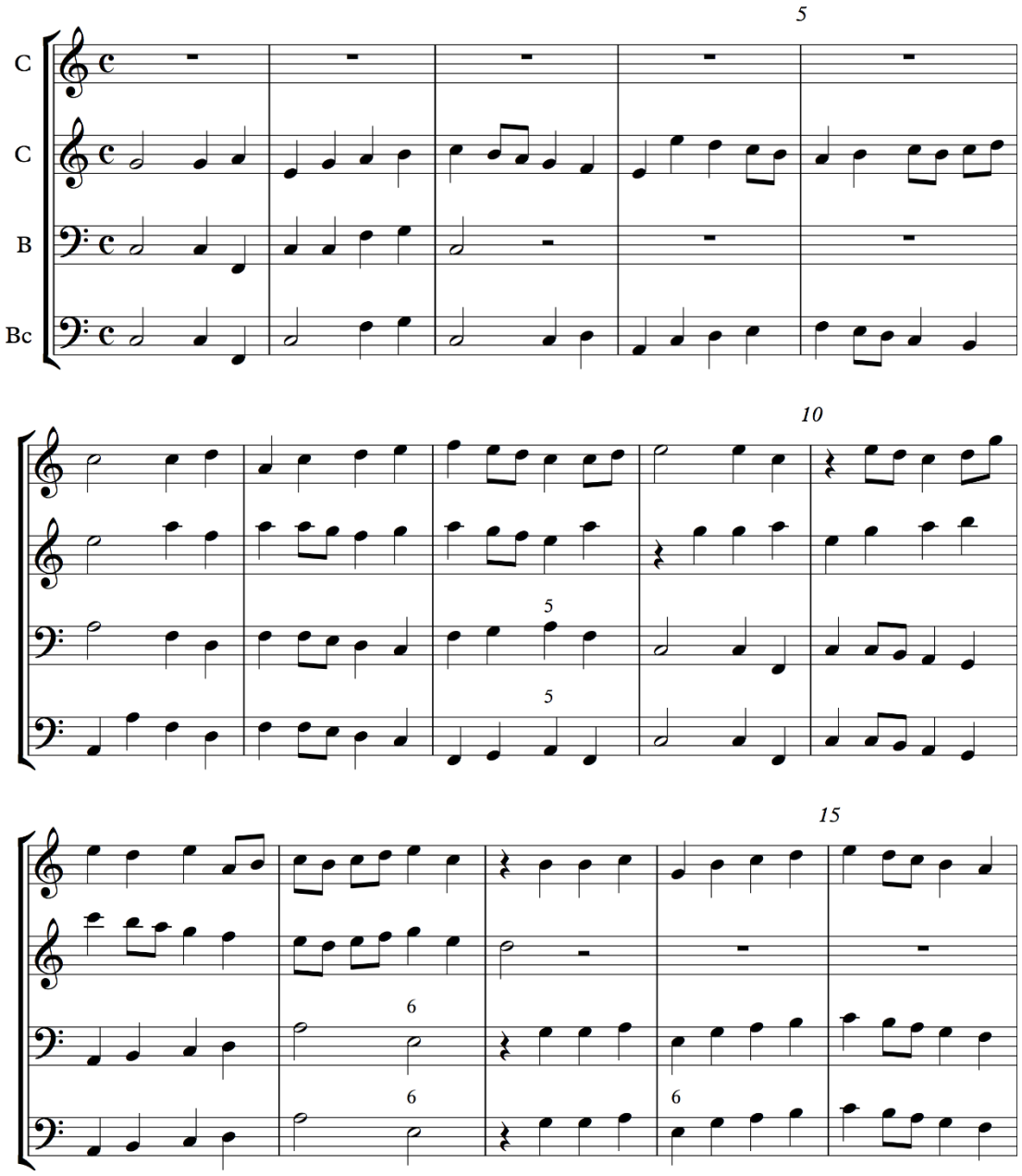
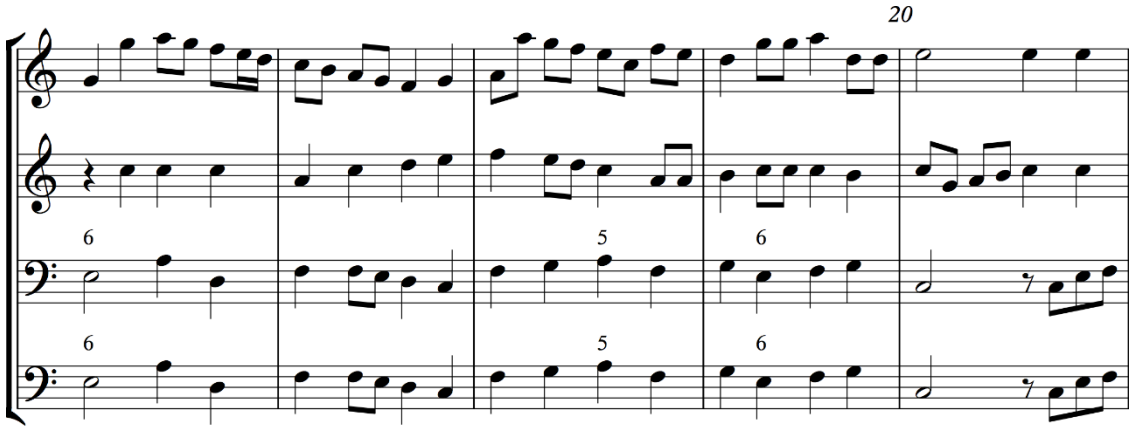
Appendix A. Andrea Falconieri, ‘Canzona a 3, La Mirandola’, from *Il primo libro di canzone* (Naples, 1650).

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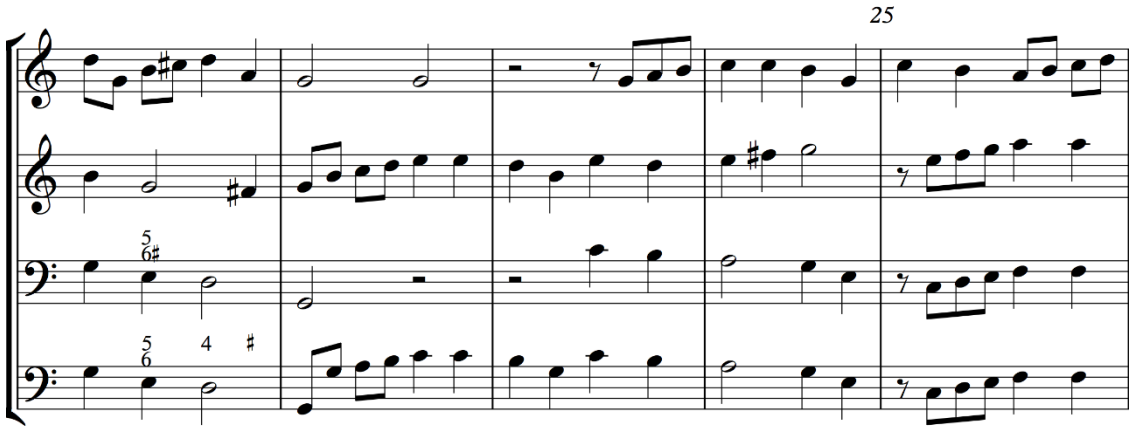
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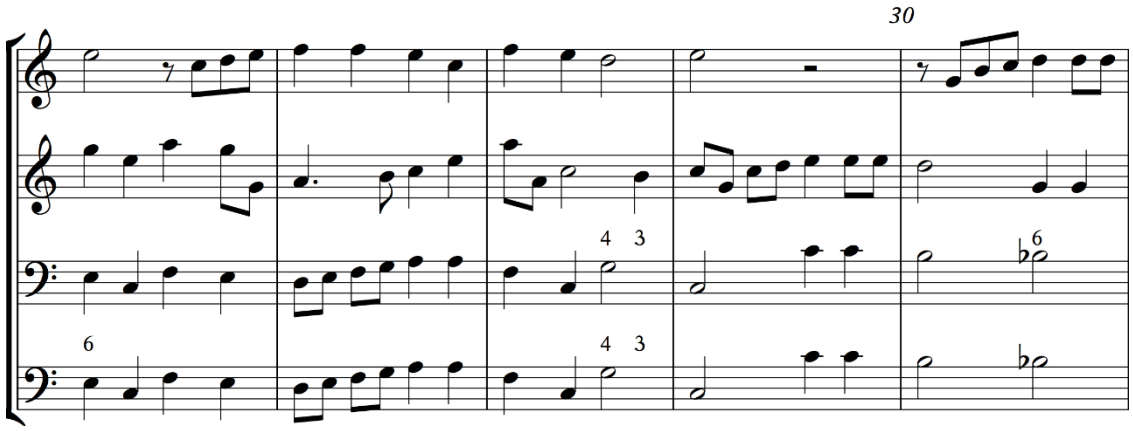
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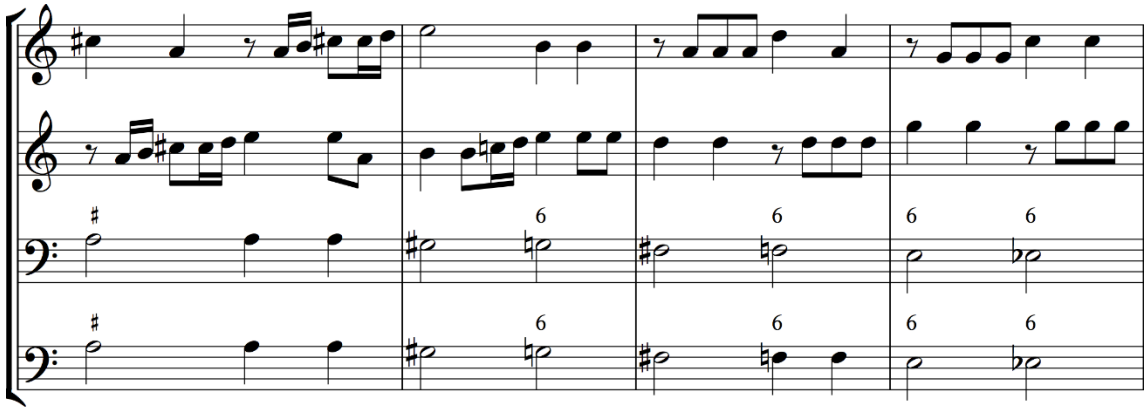

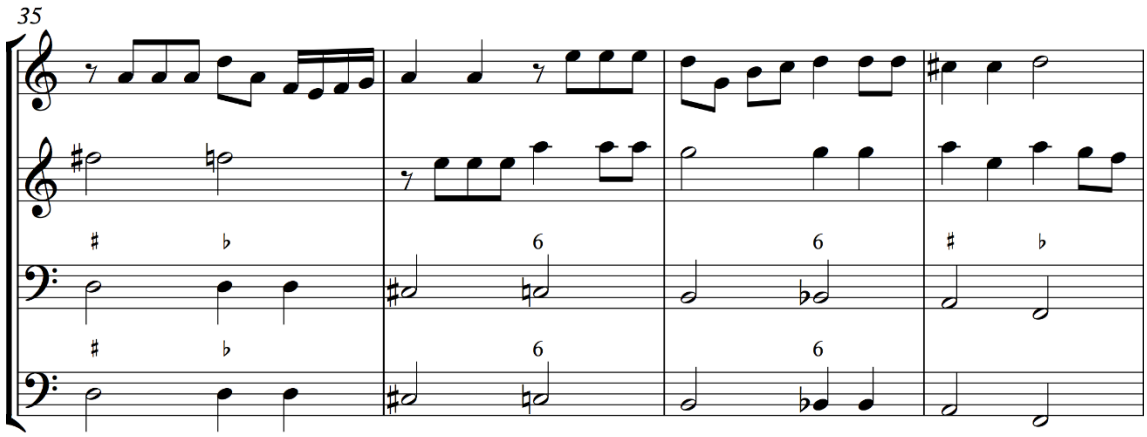
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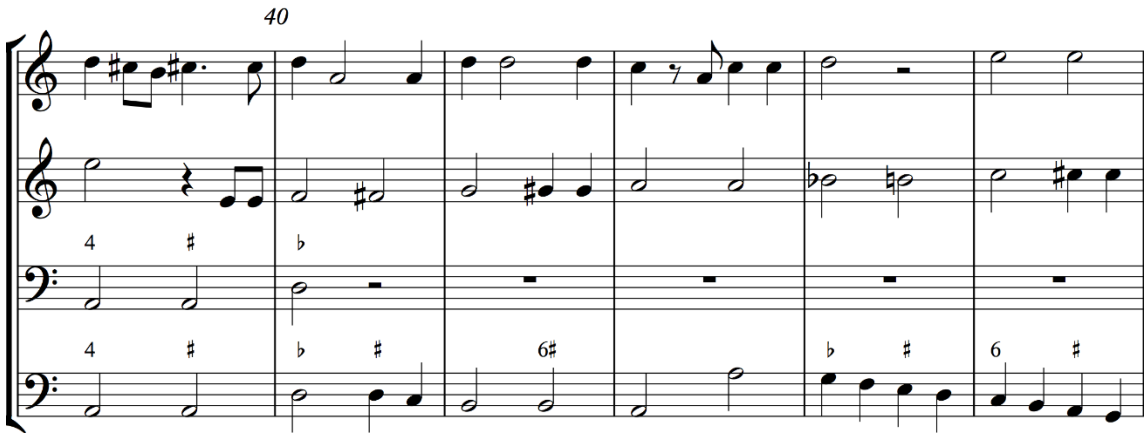
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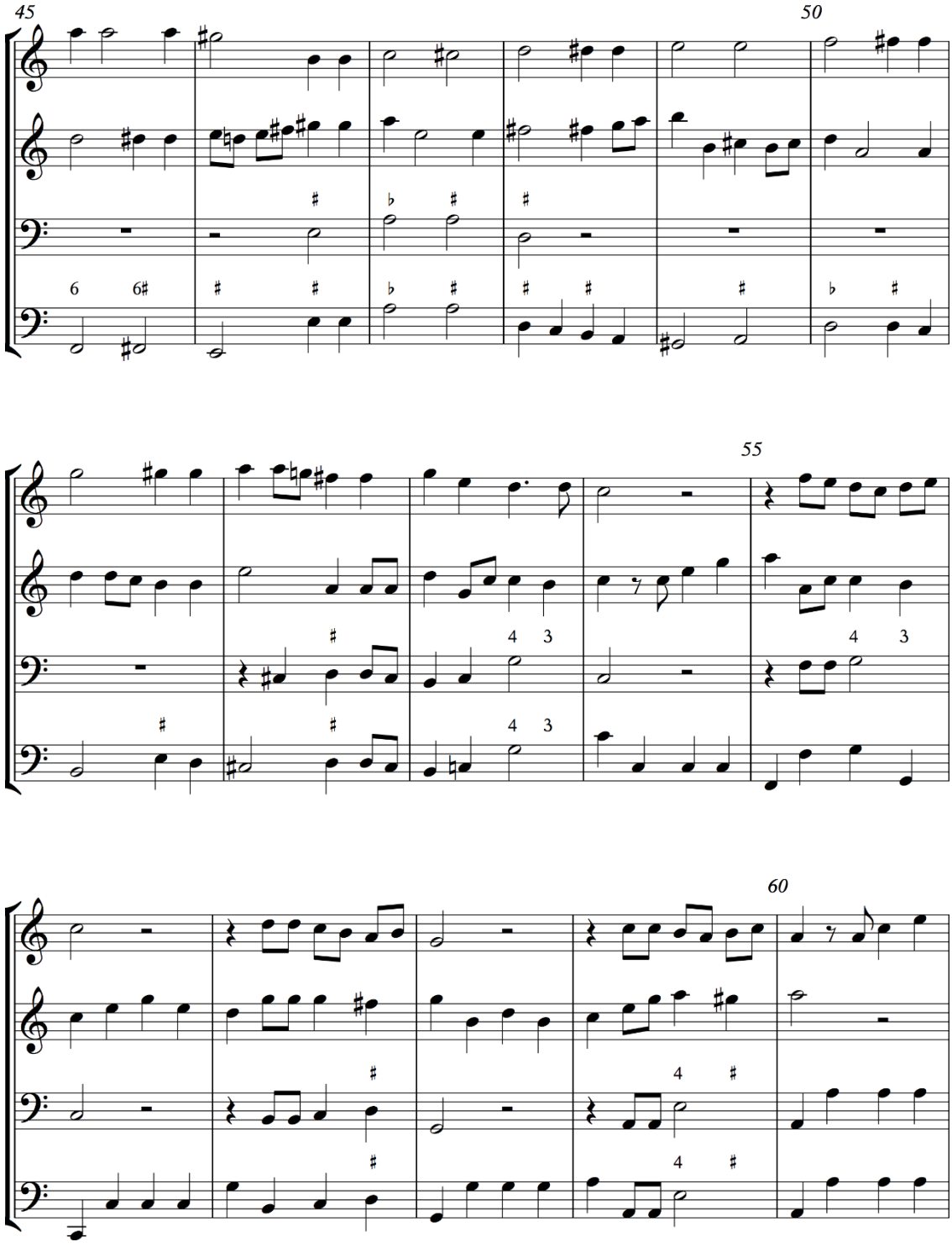
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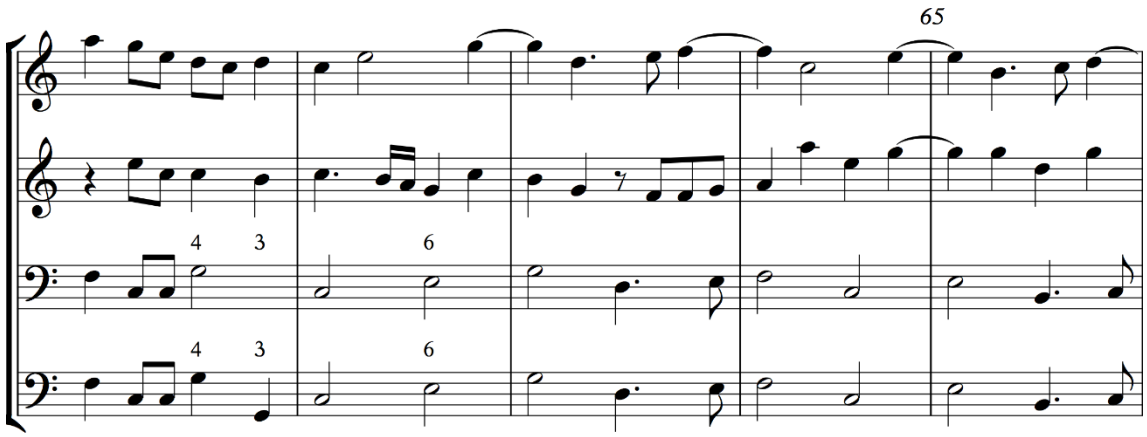
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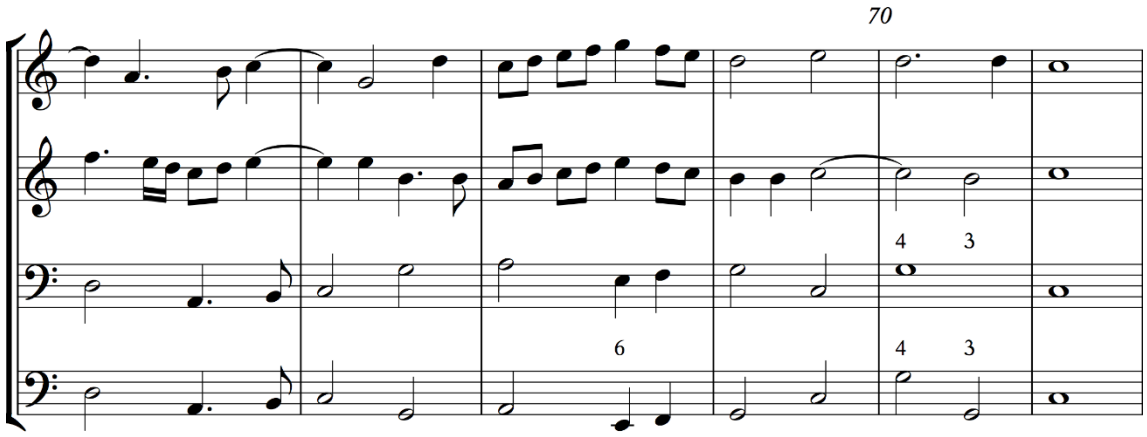
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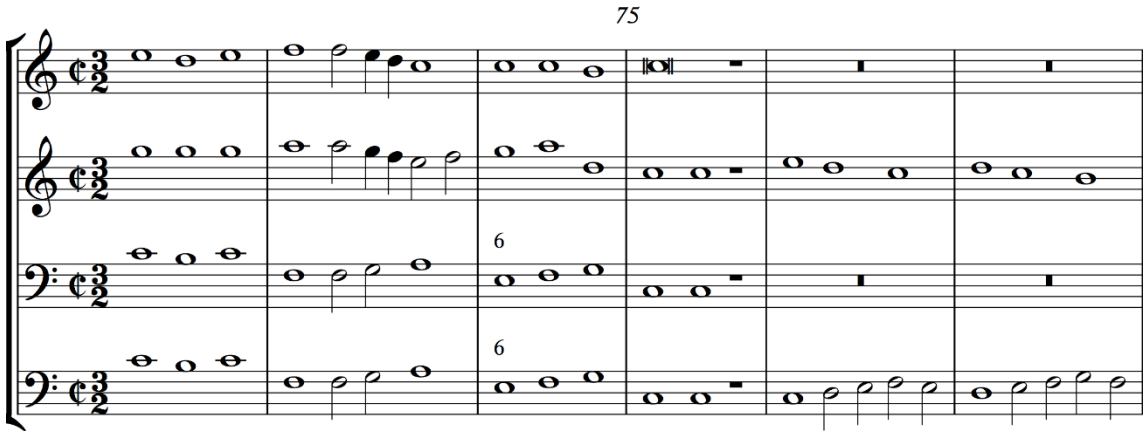
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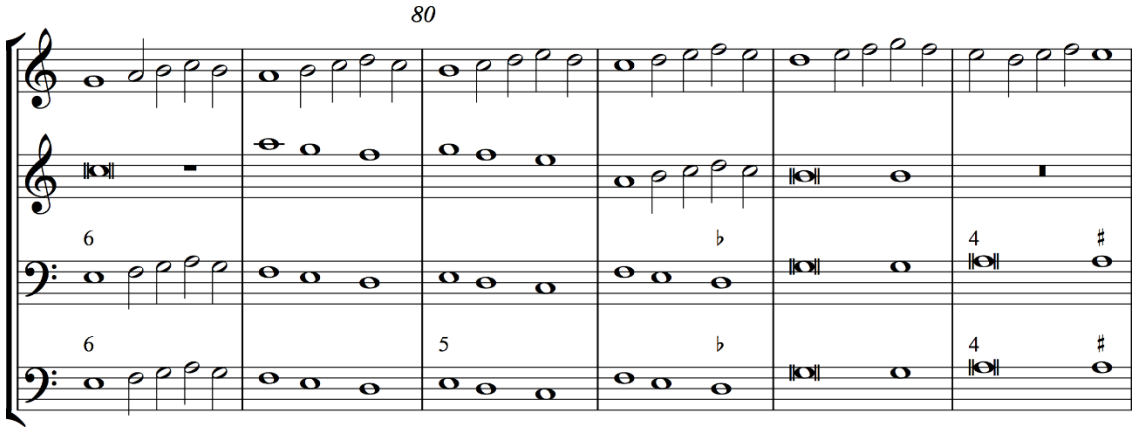
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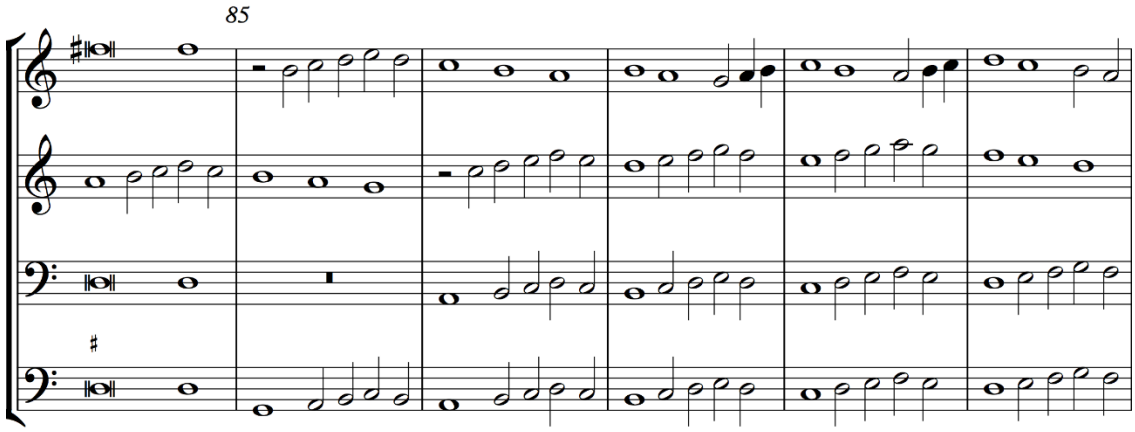
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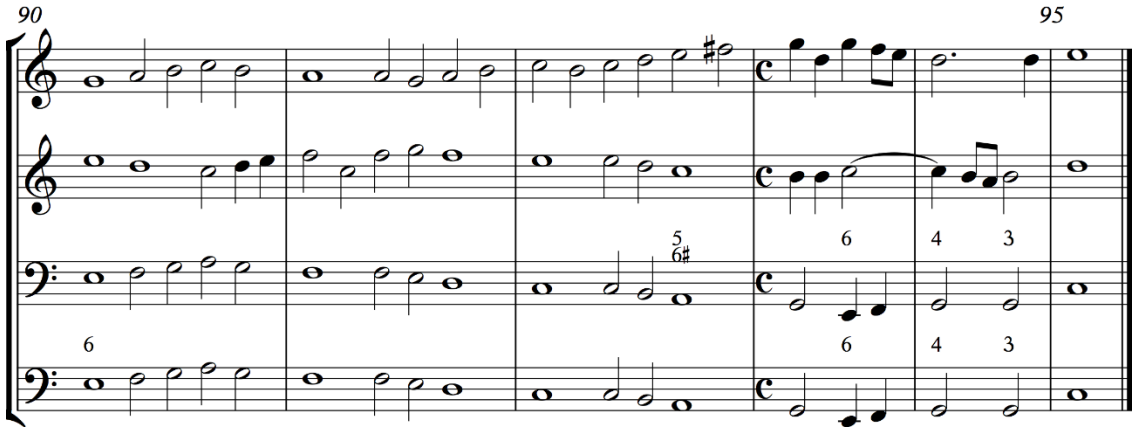
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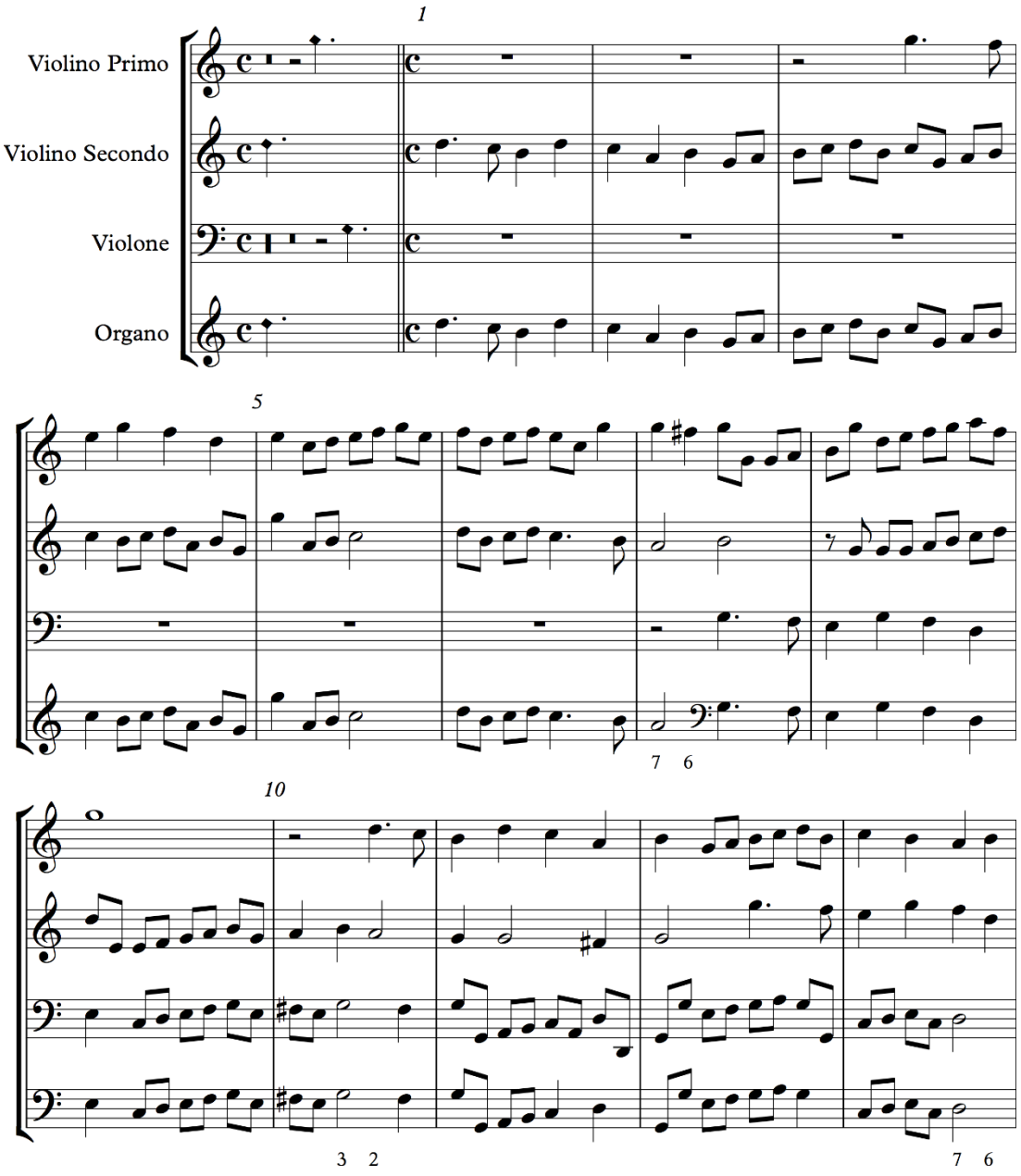
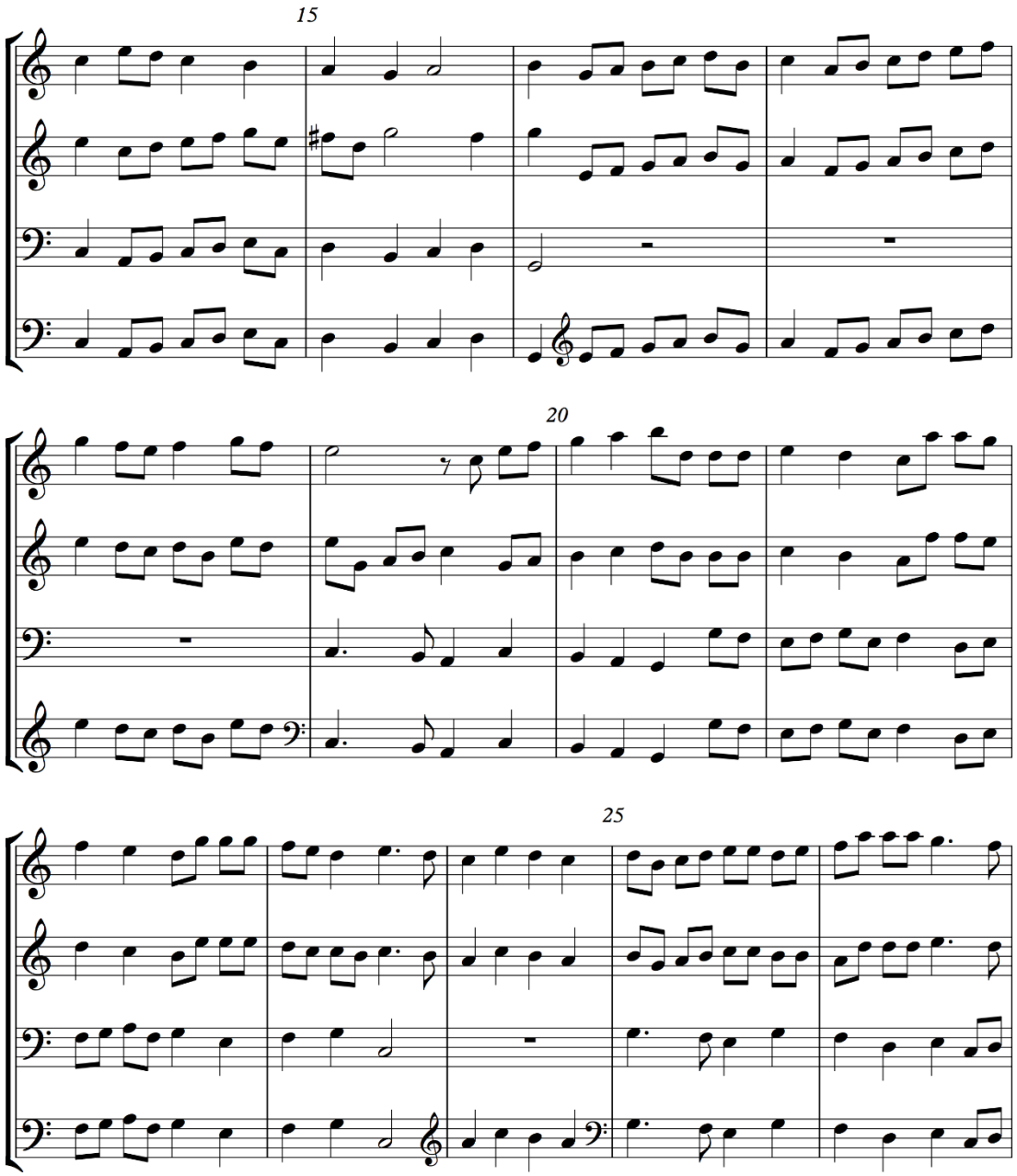
Appendix B. Maurizio Cazzati, ‘La Pepola’, from *Il secondo libro delle sonate*, Op.8 (Venice, 1648).

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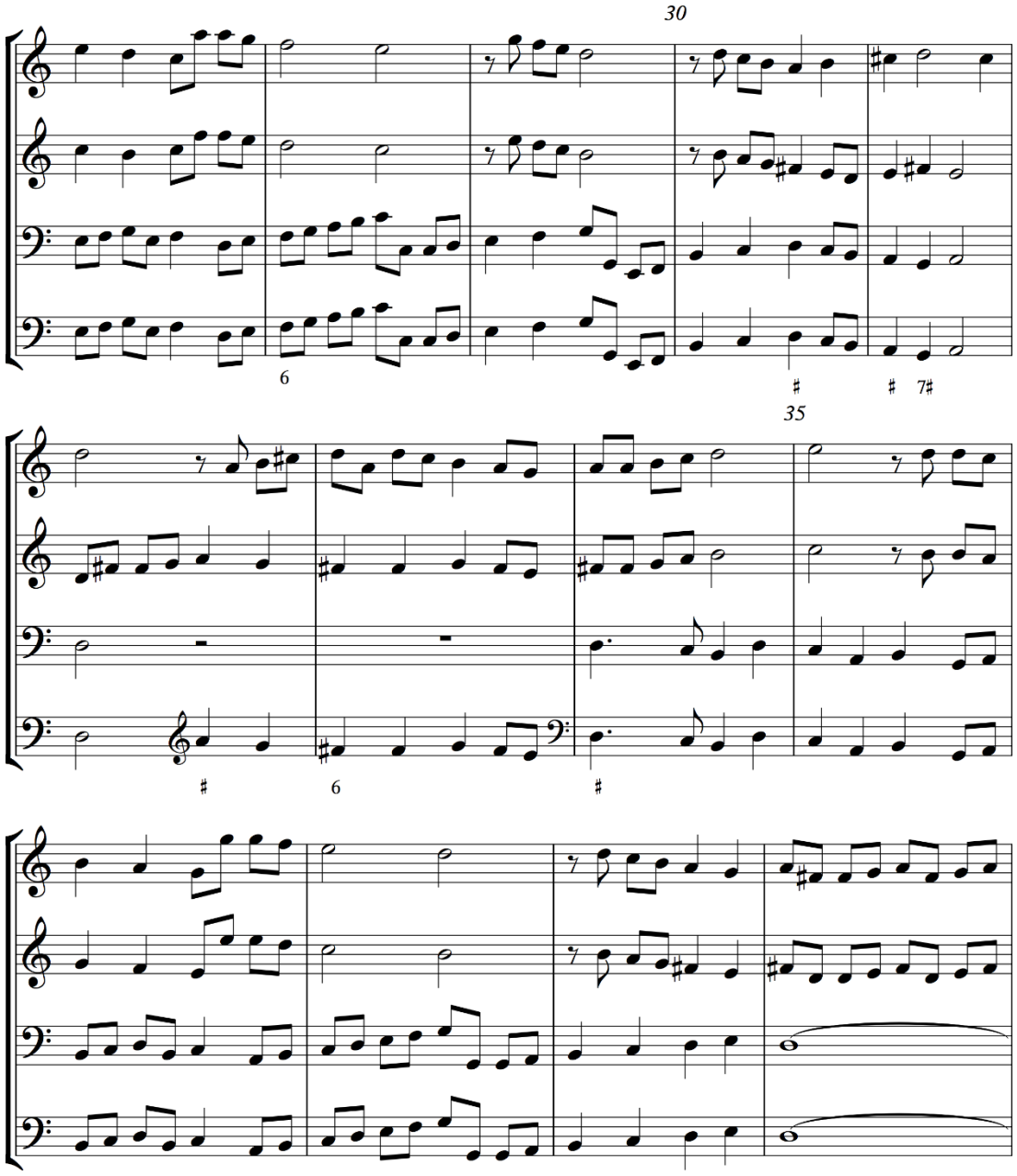
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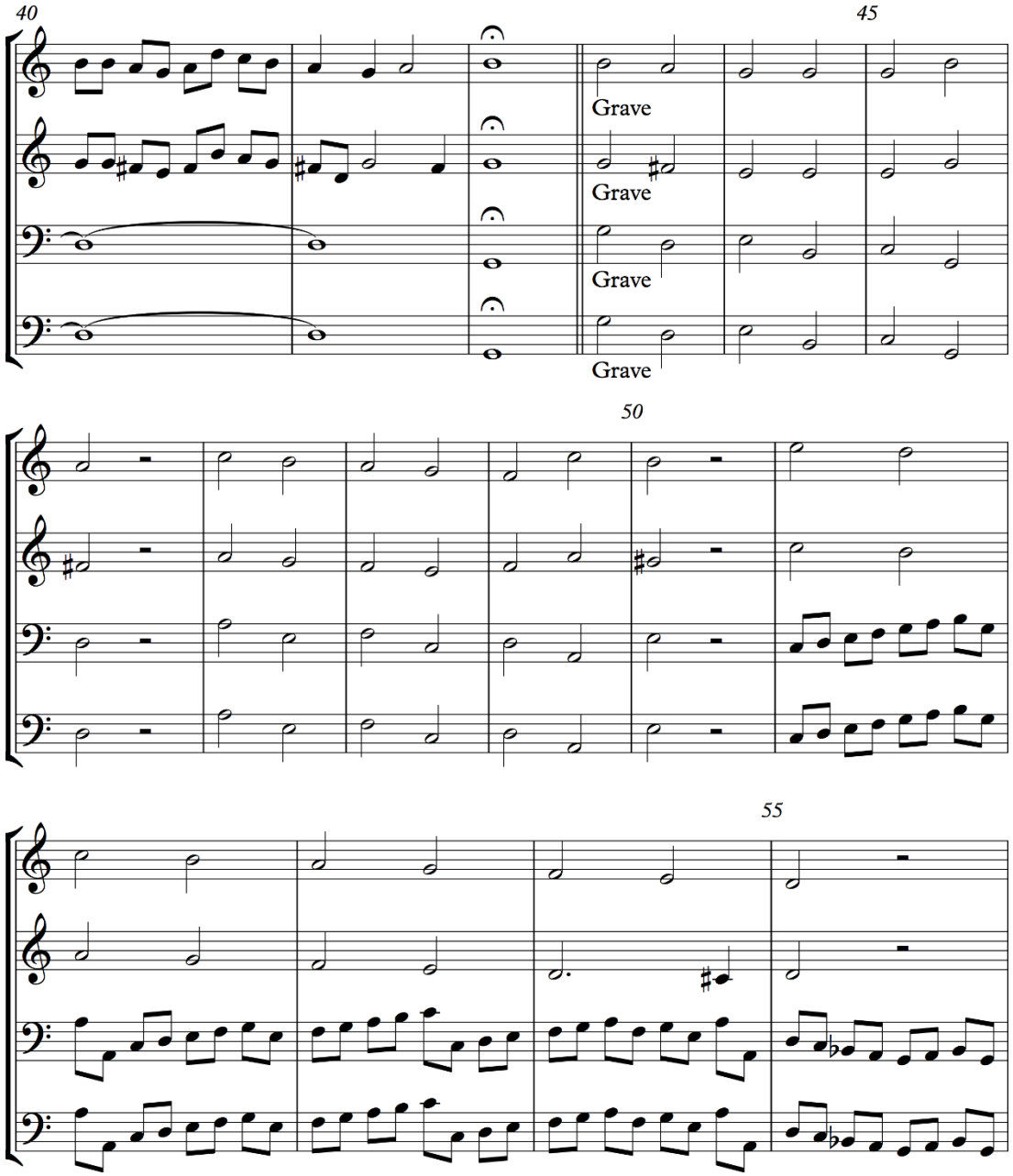
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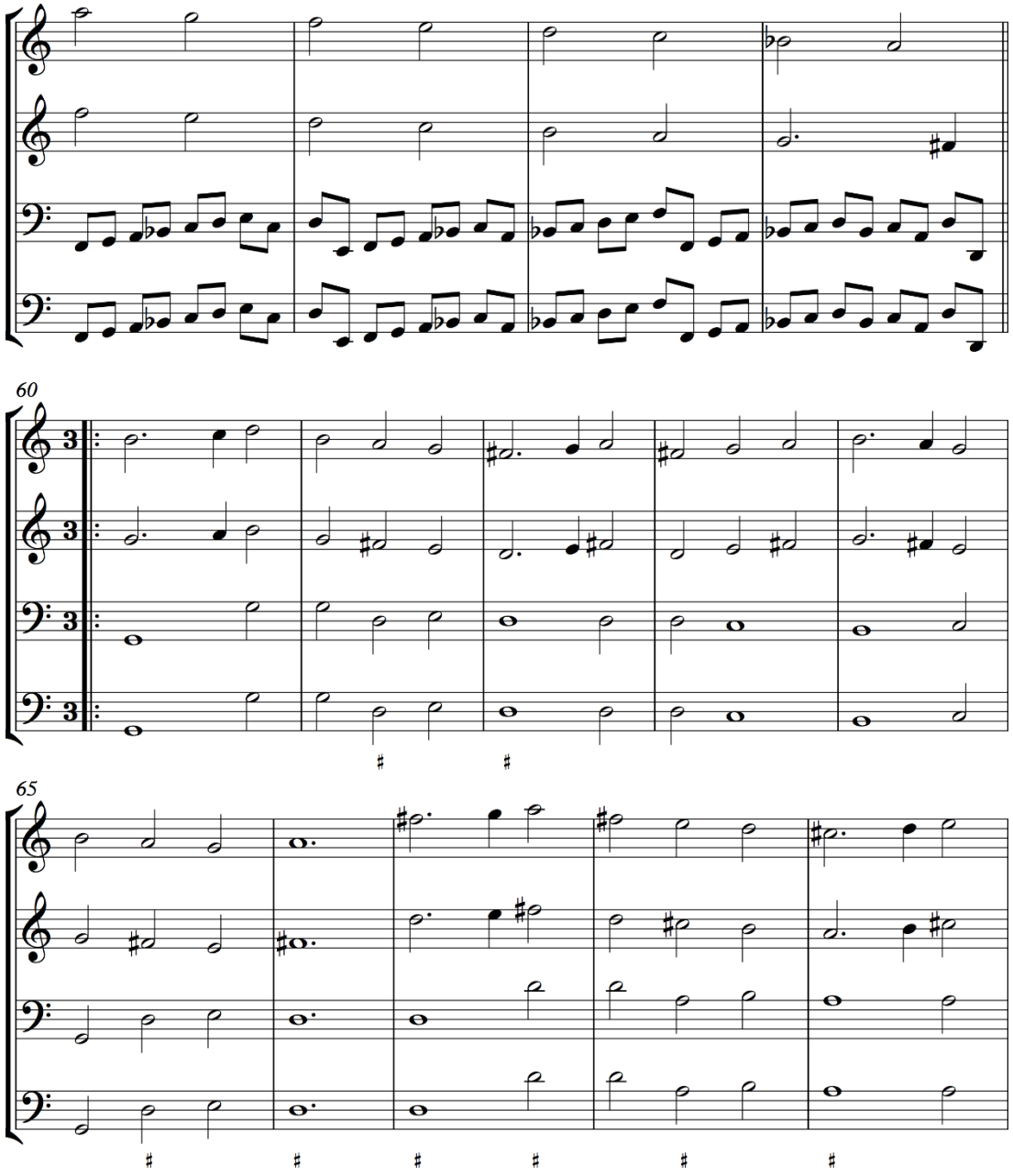
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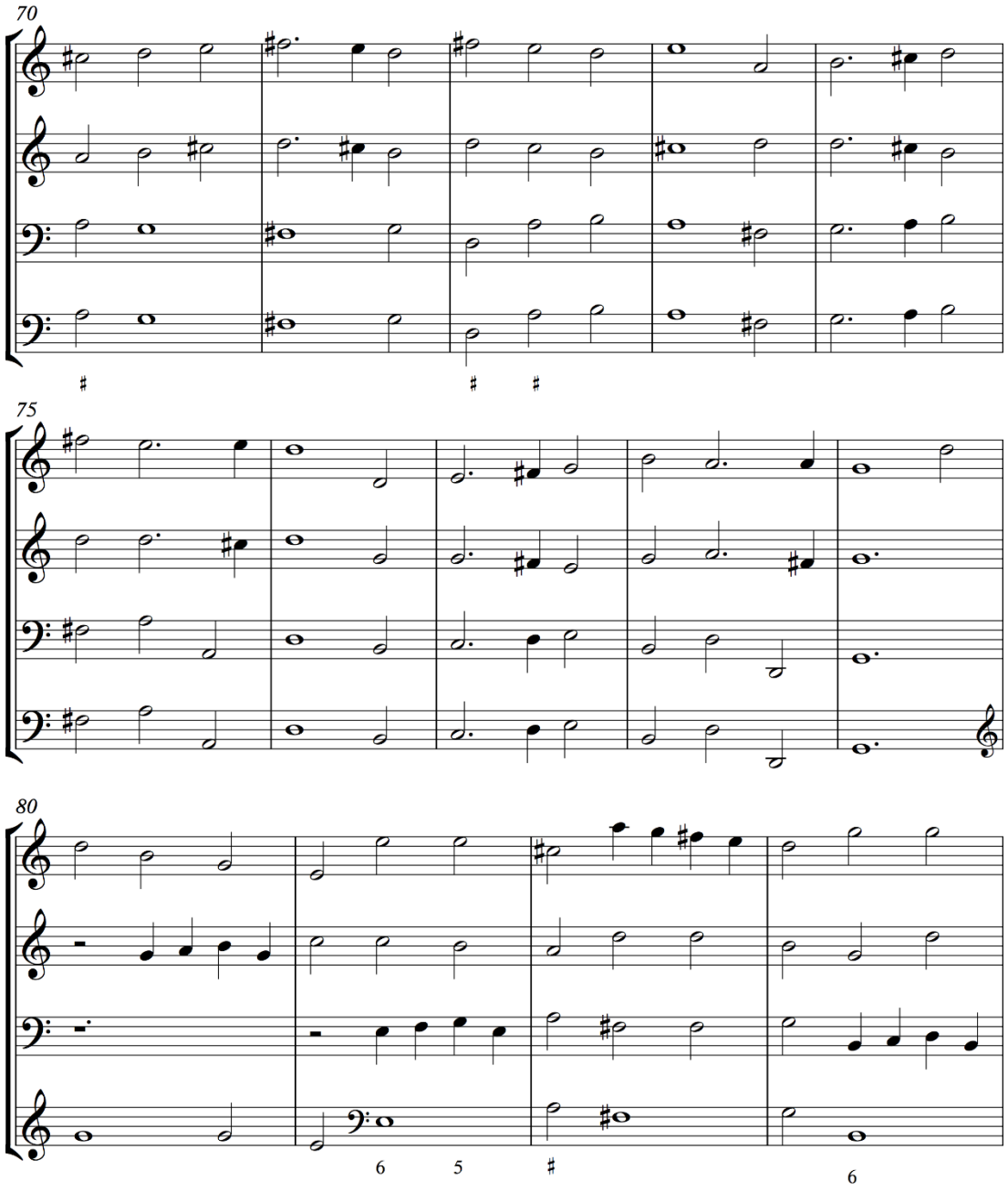
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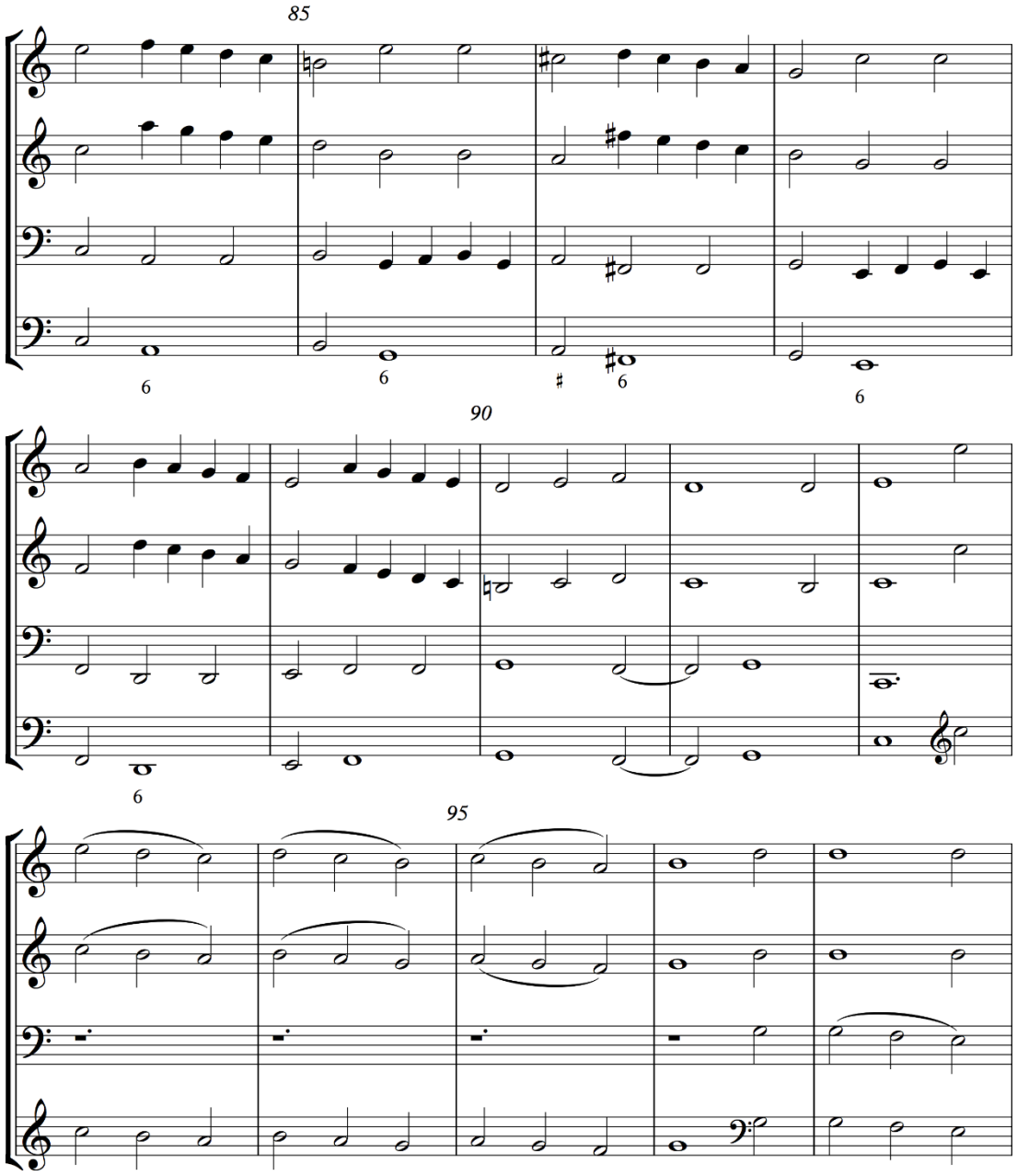
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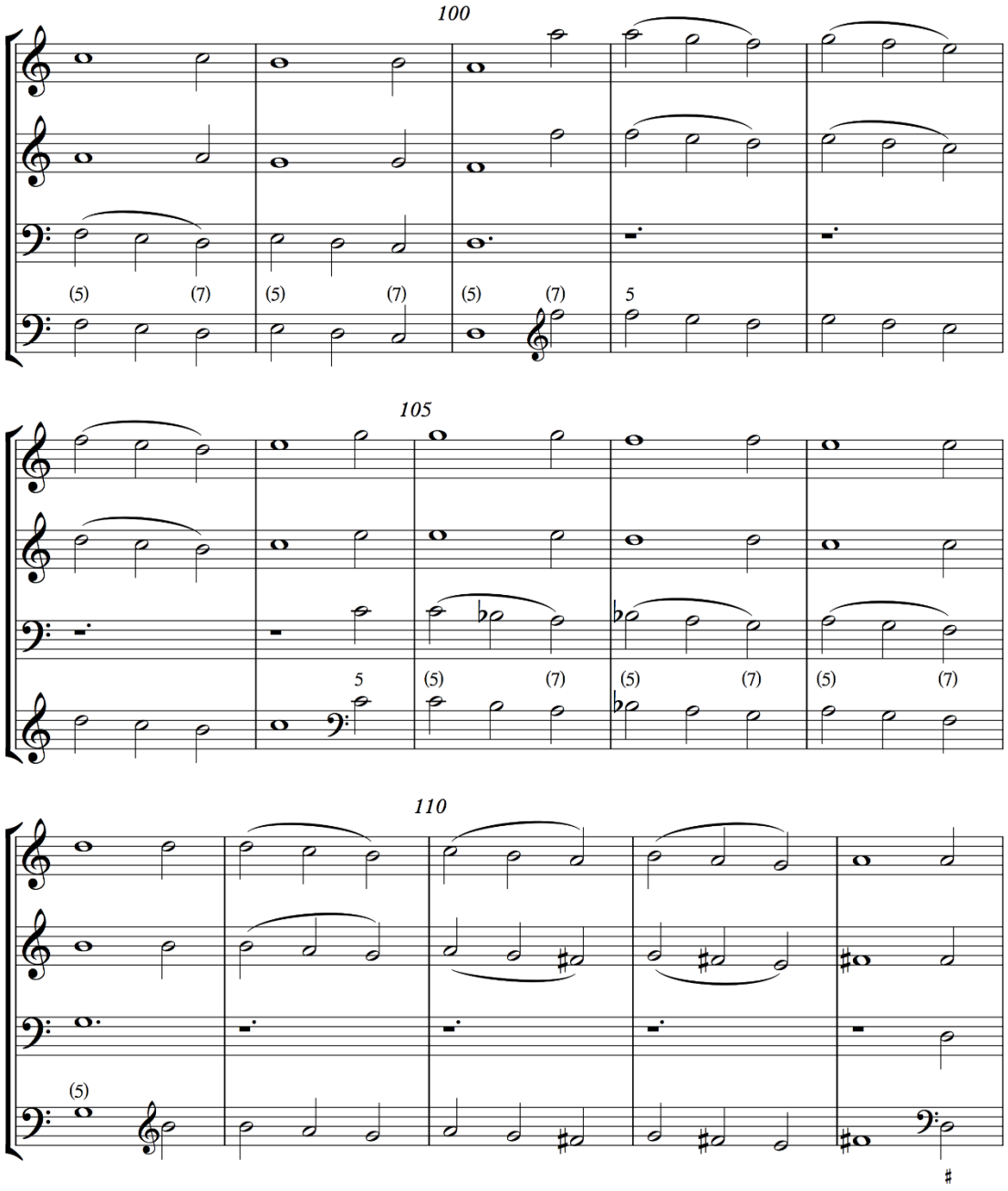
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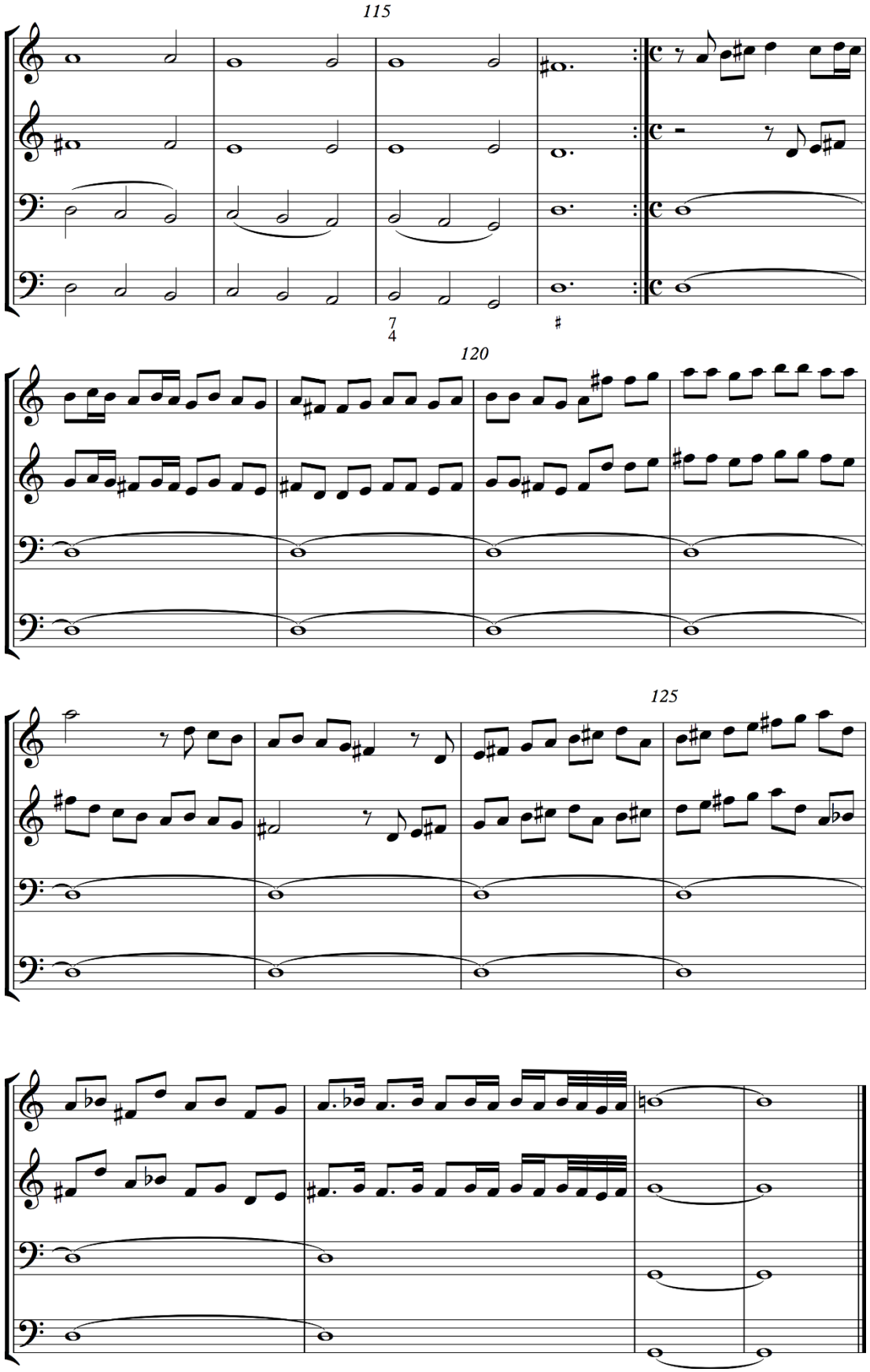
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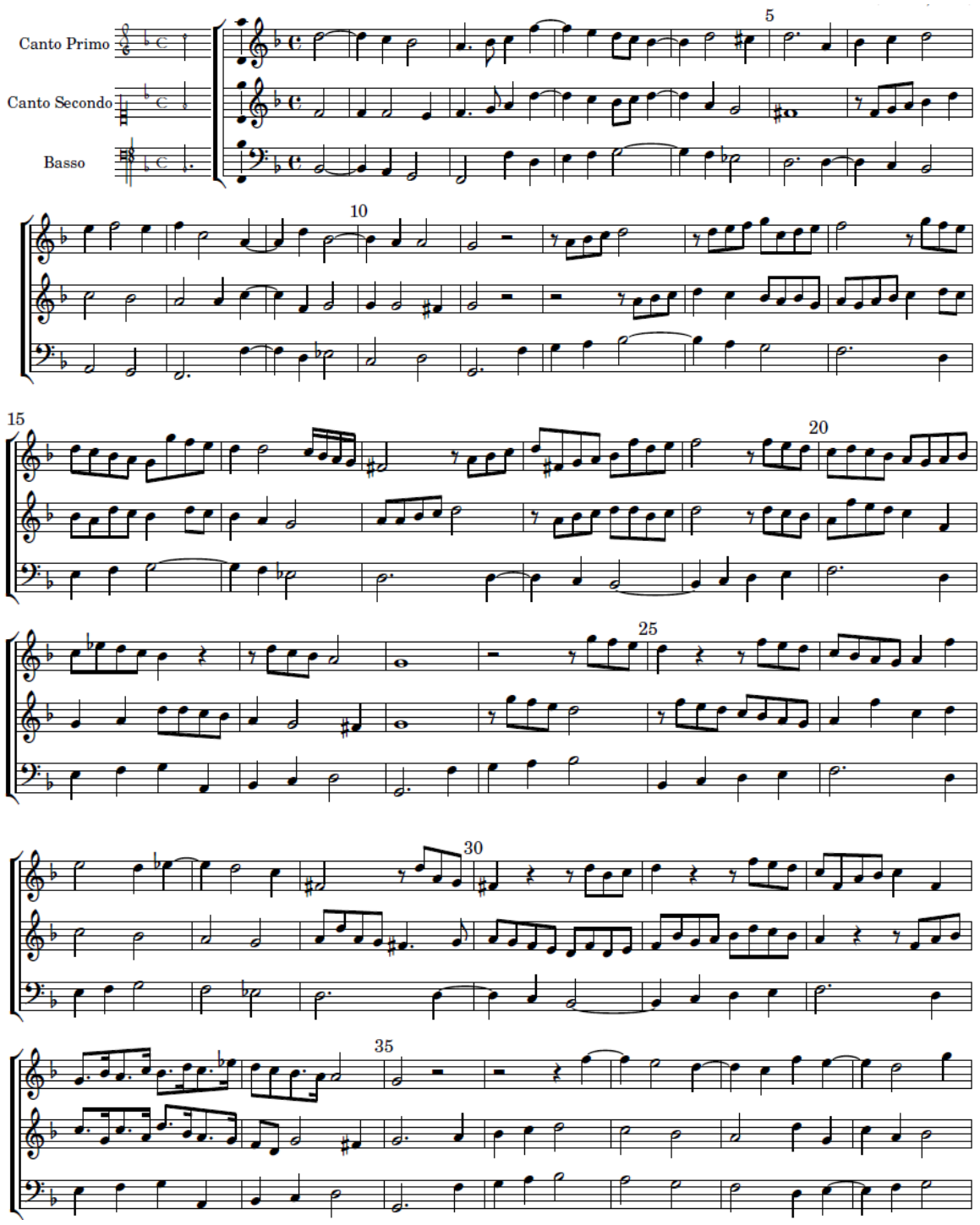
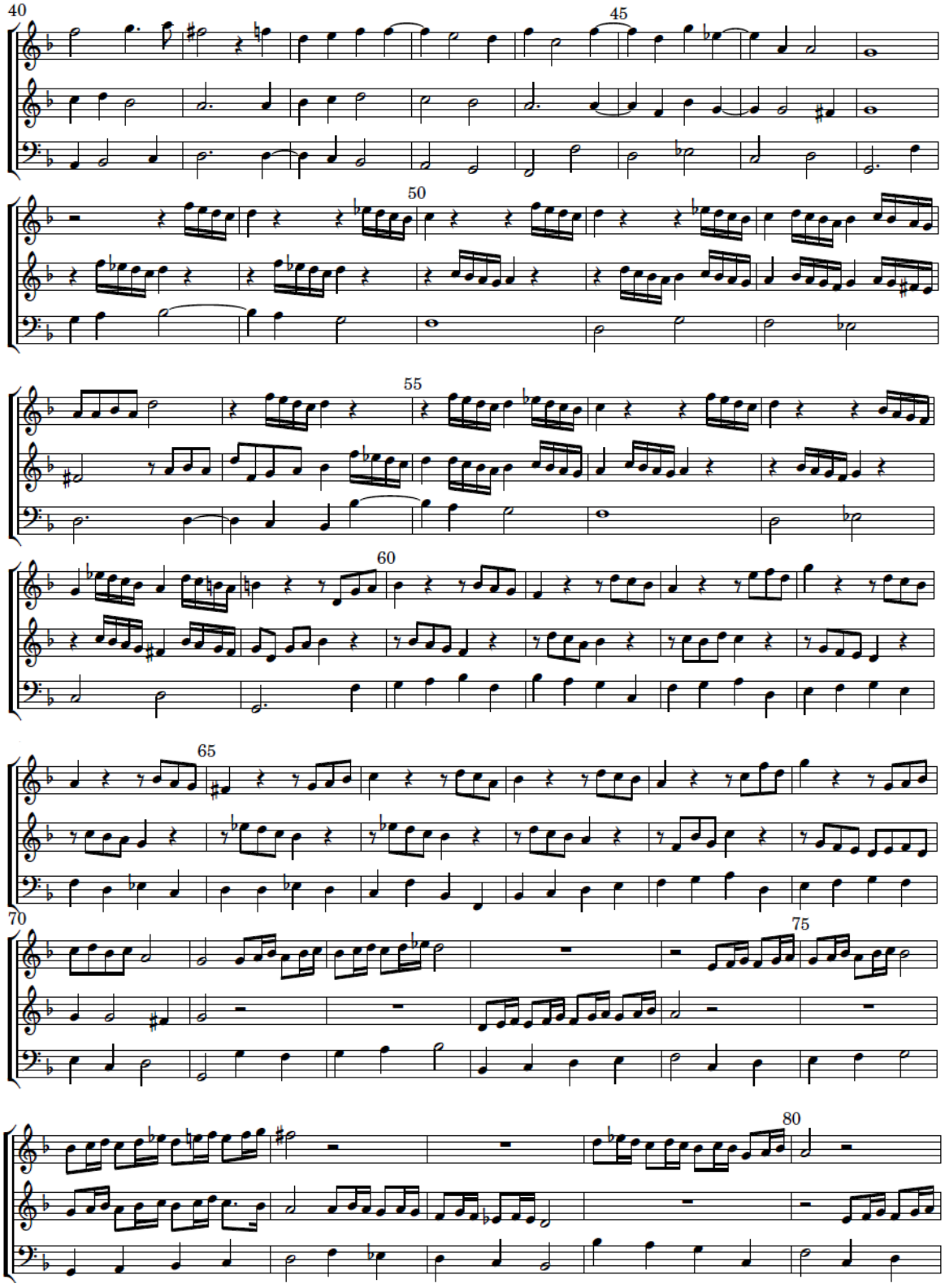
Appendix C. Salamone Rossi, ‘Sonata terza sopra l’Arie della Romanesca’, from *Il terzo libro de varie sonate*, Op. 12 (Venice, 1623).

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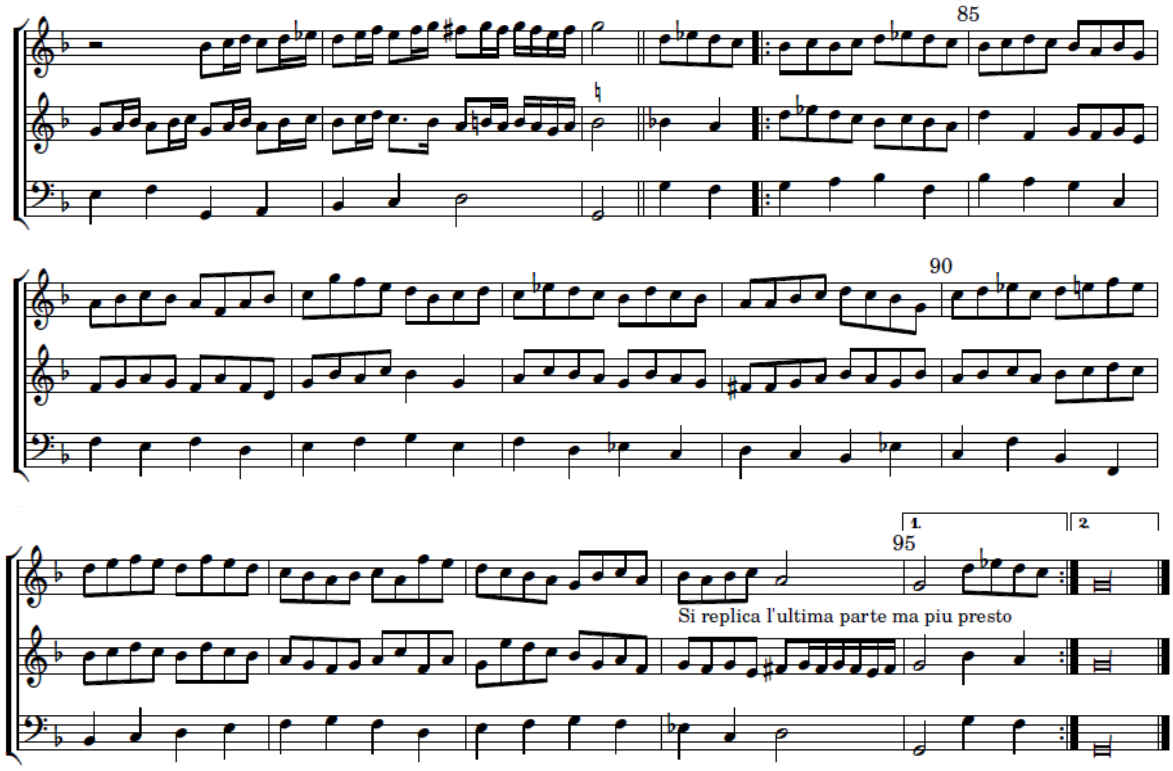
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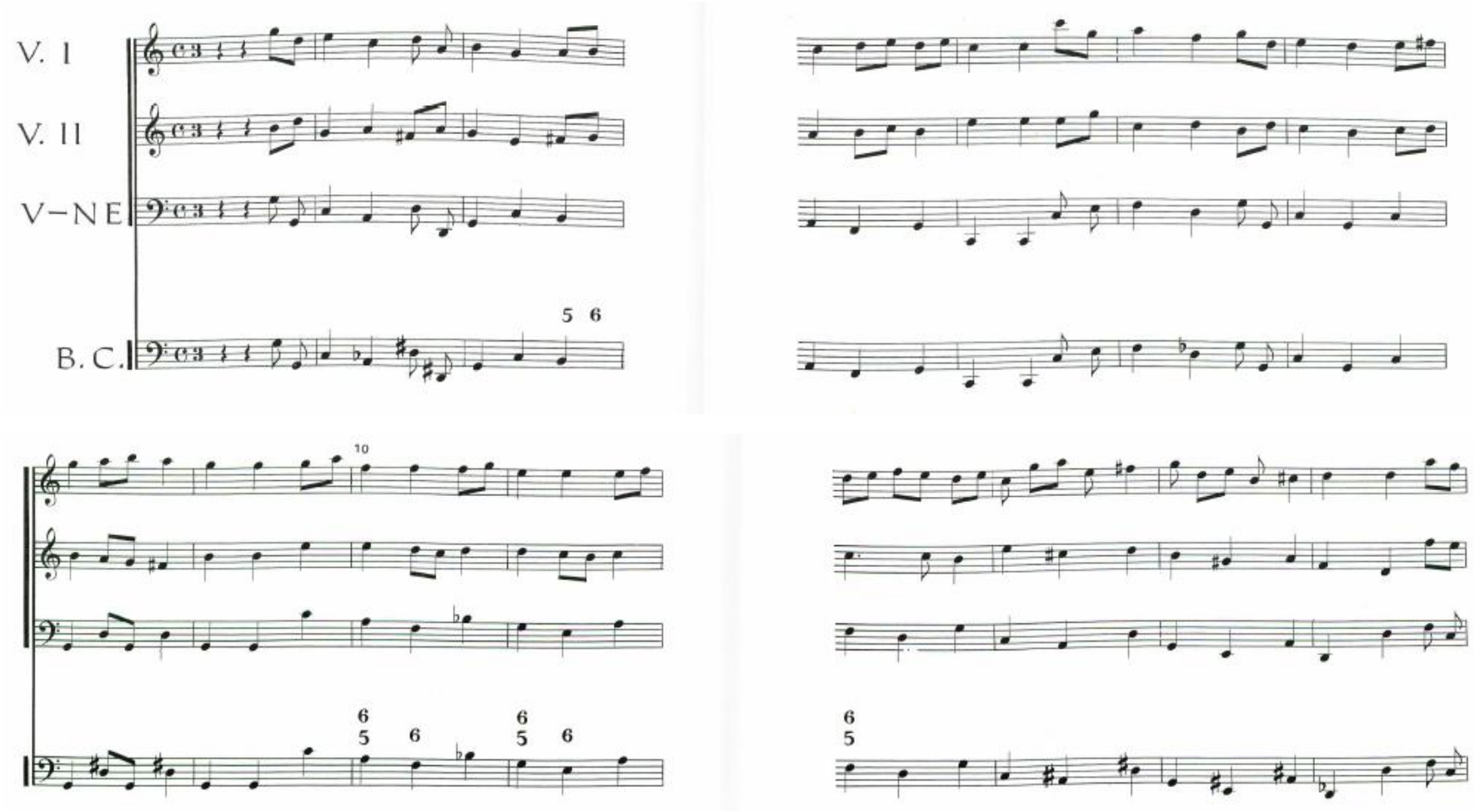
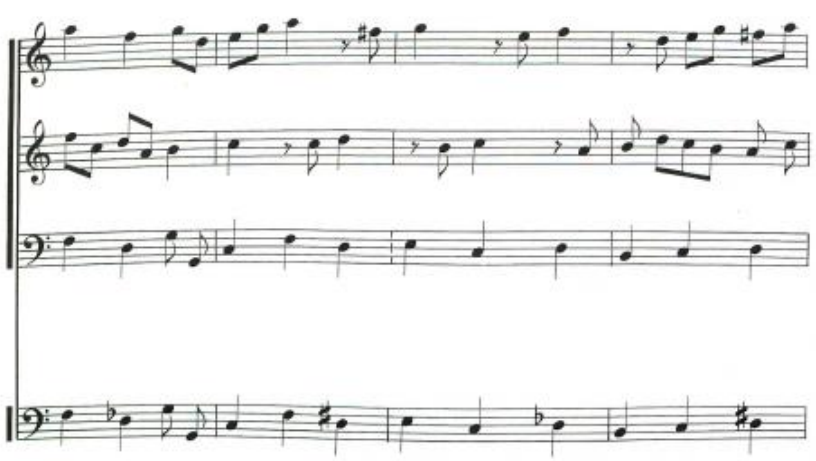
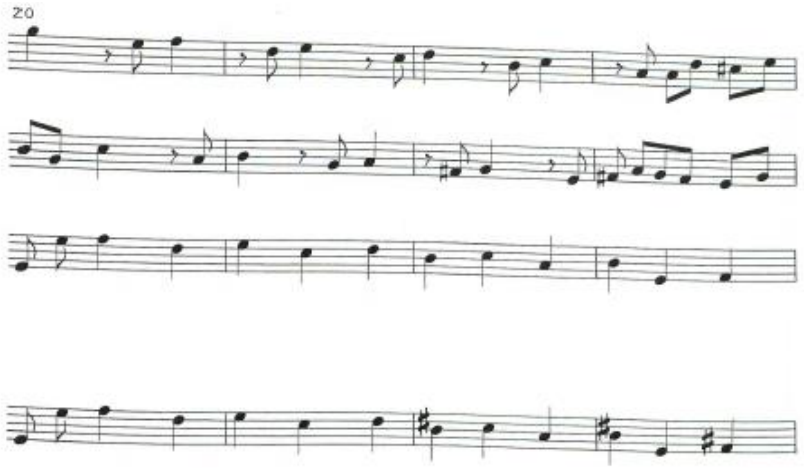
Appendix D. Tarquinio Merula, ‘Sonata seconda per camera’, from *Il quarto libro delle canzoni da suonare*, Op. 17 (Venice, 1651).



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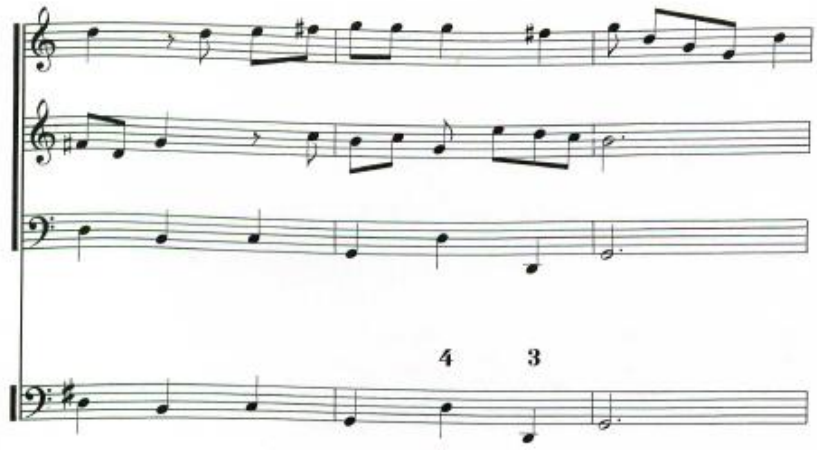
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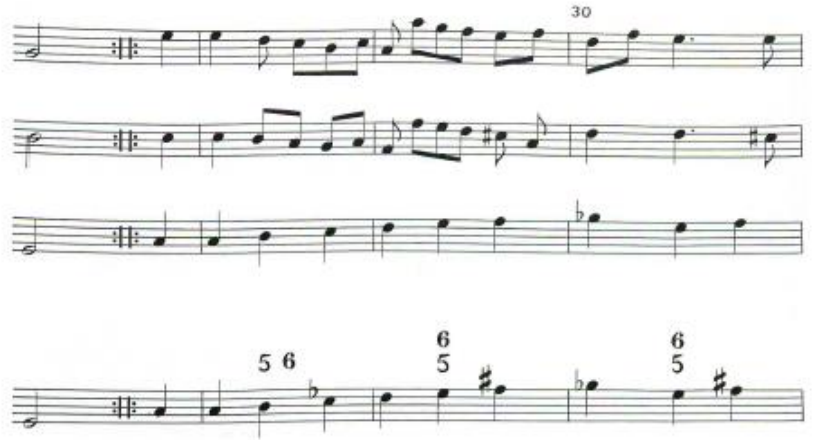
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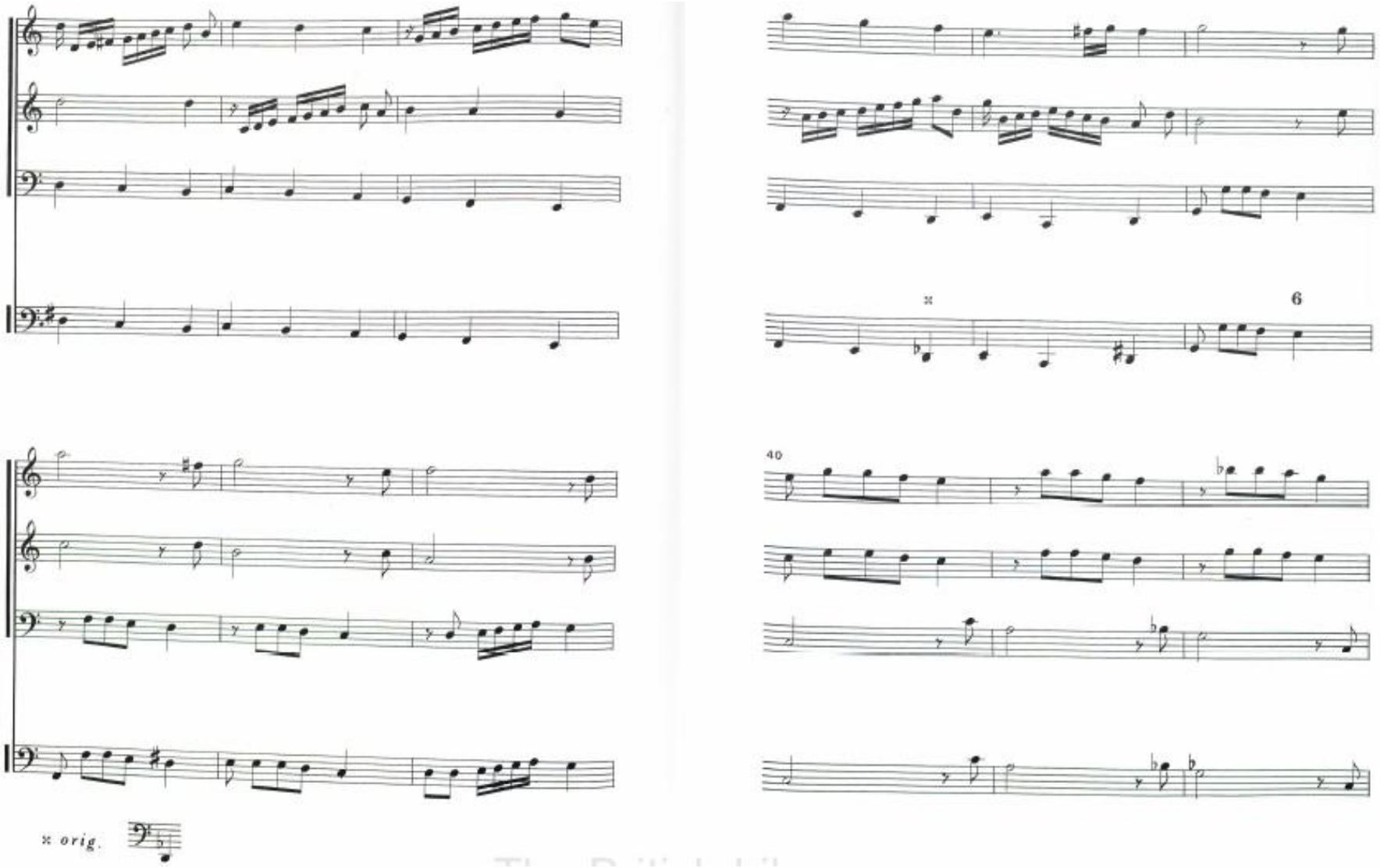
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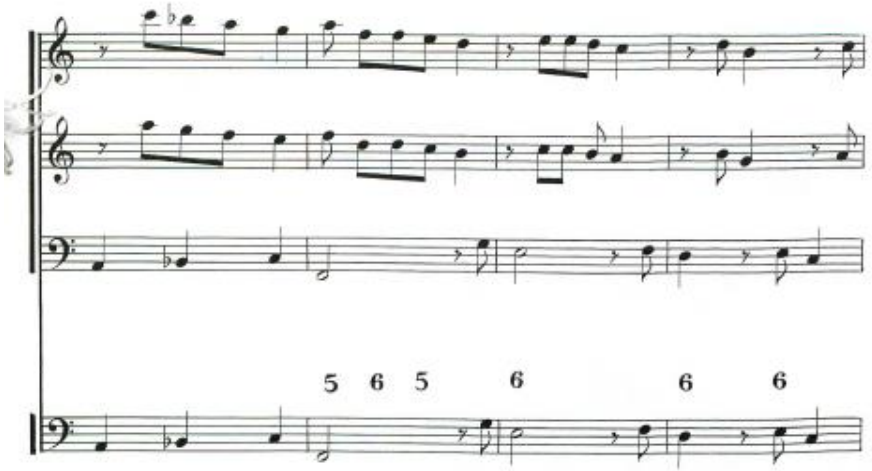
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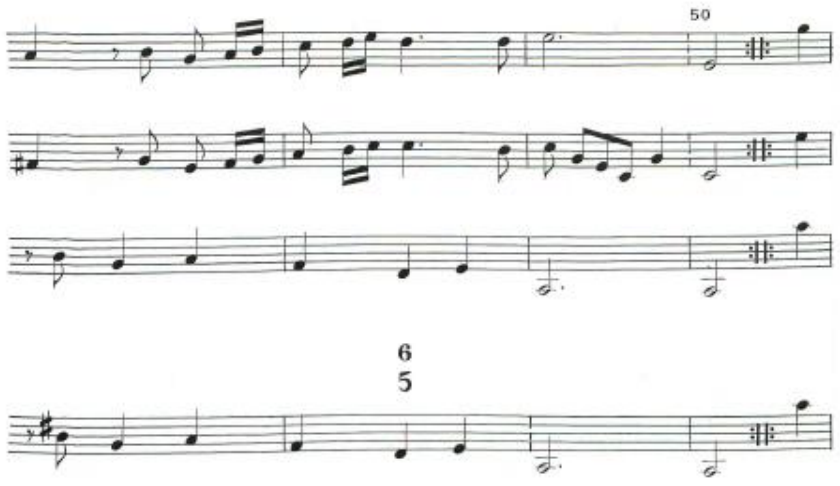
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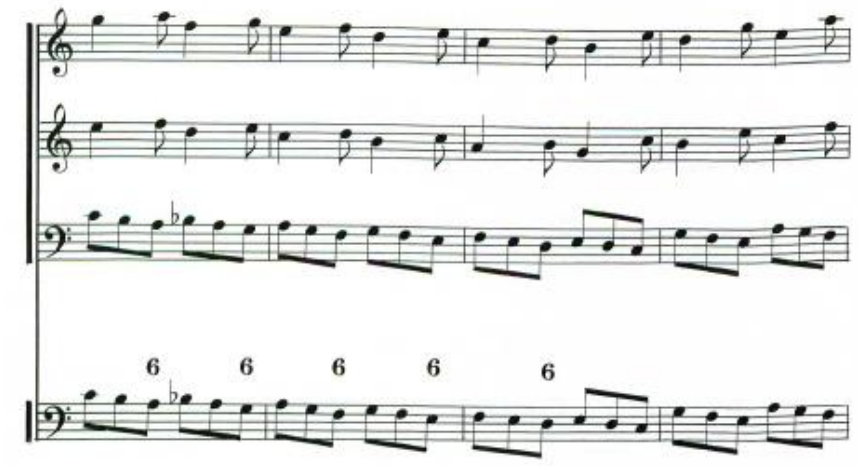
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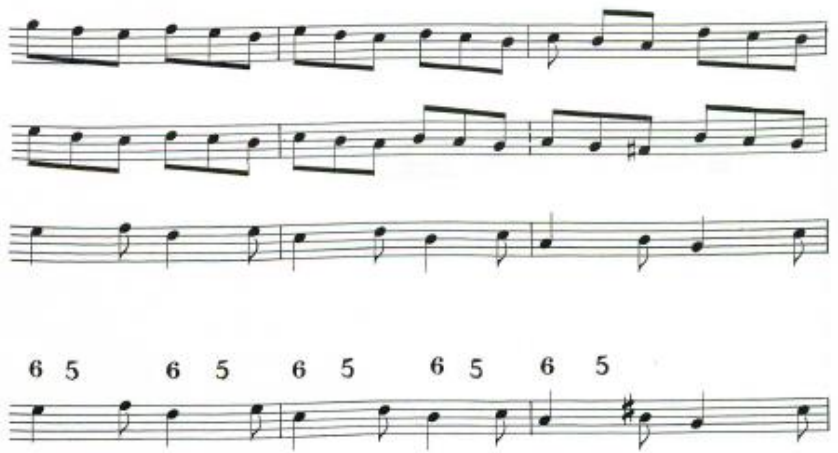
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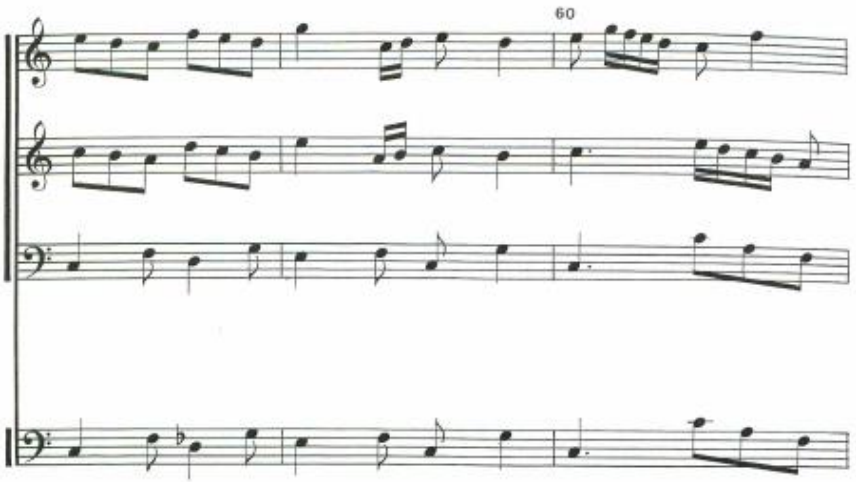
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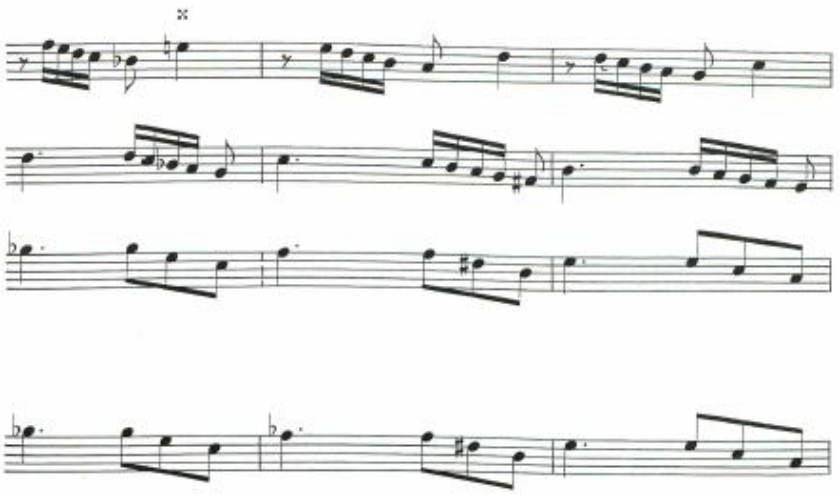

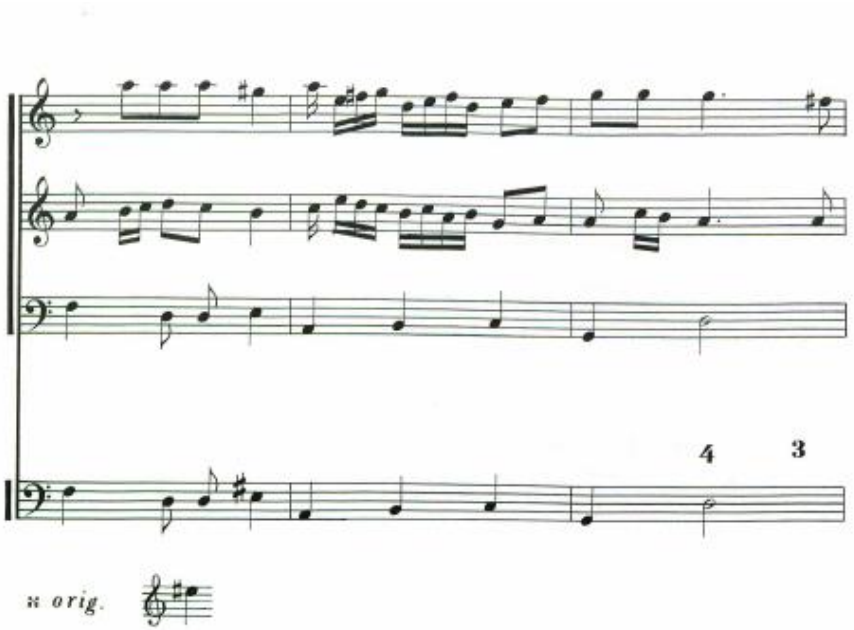
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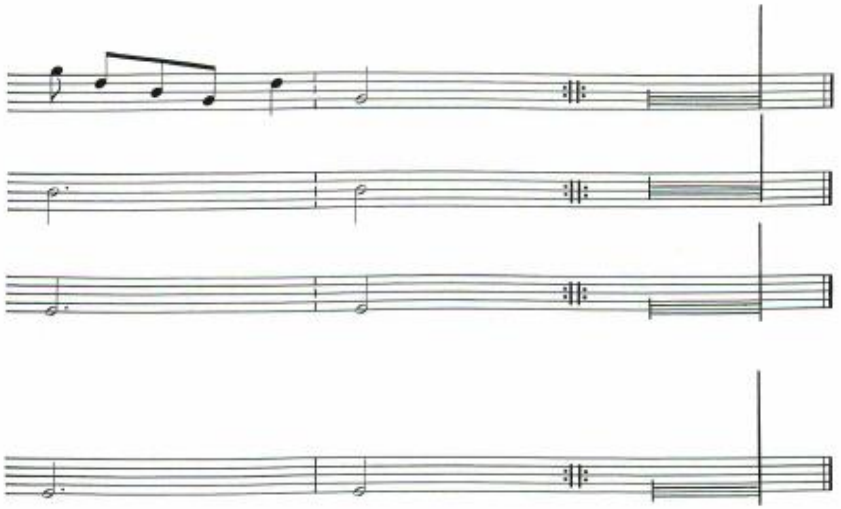
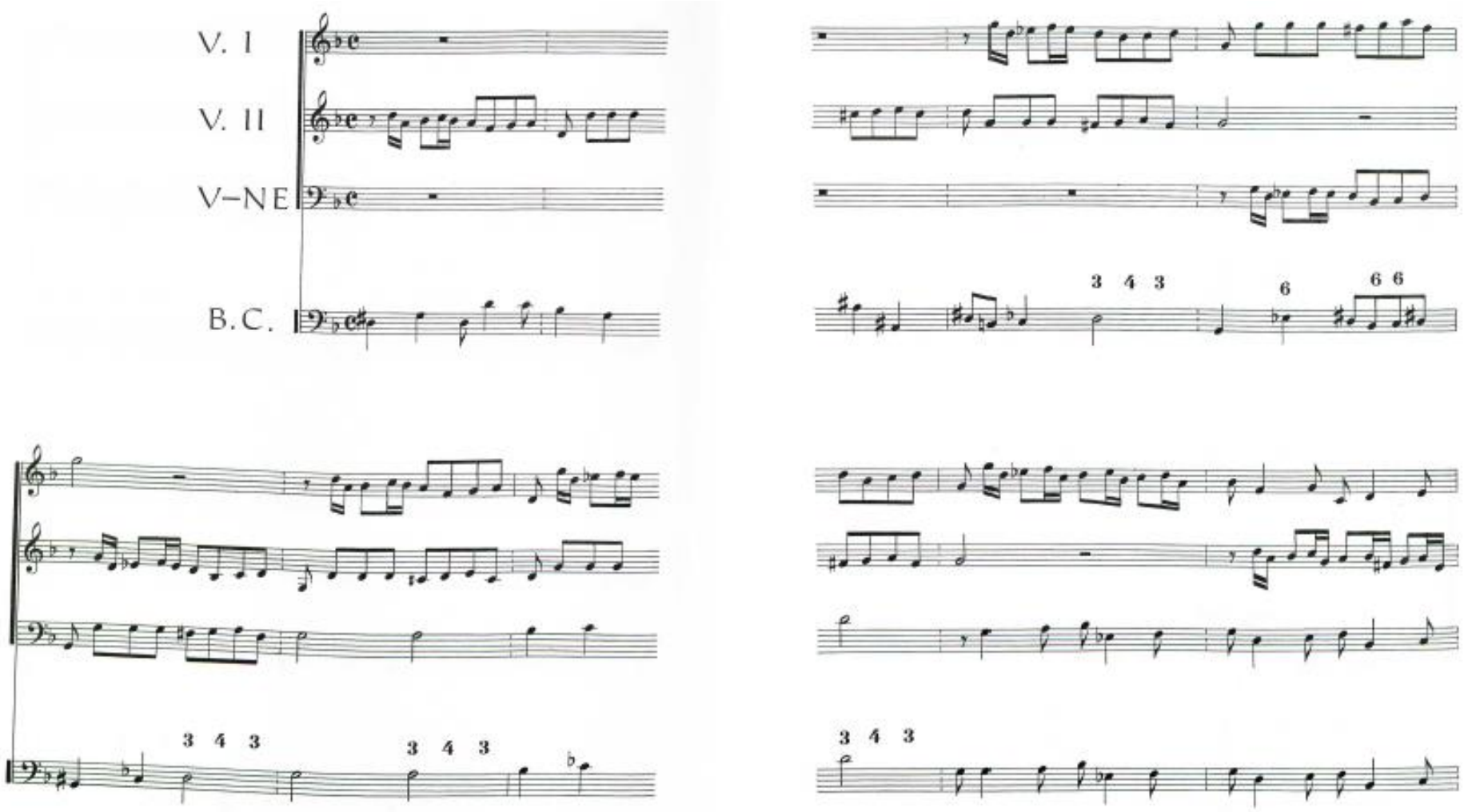
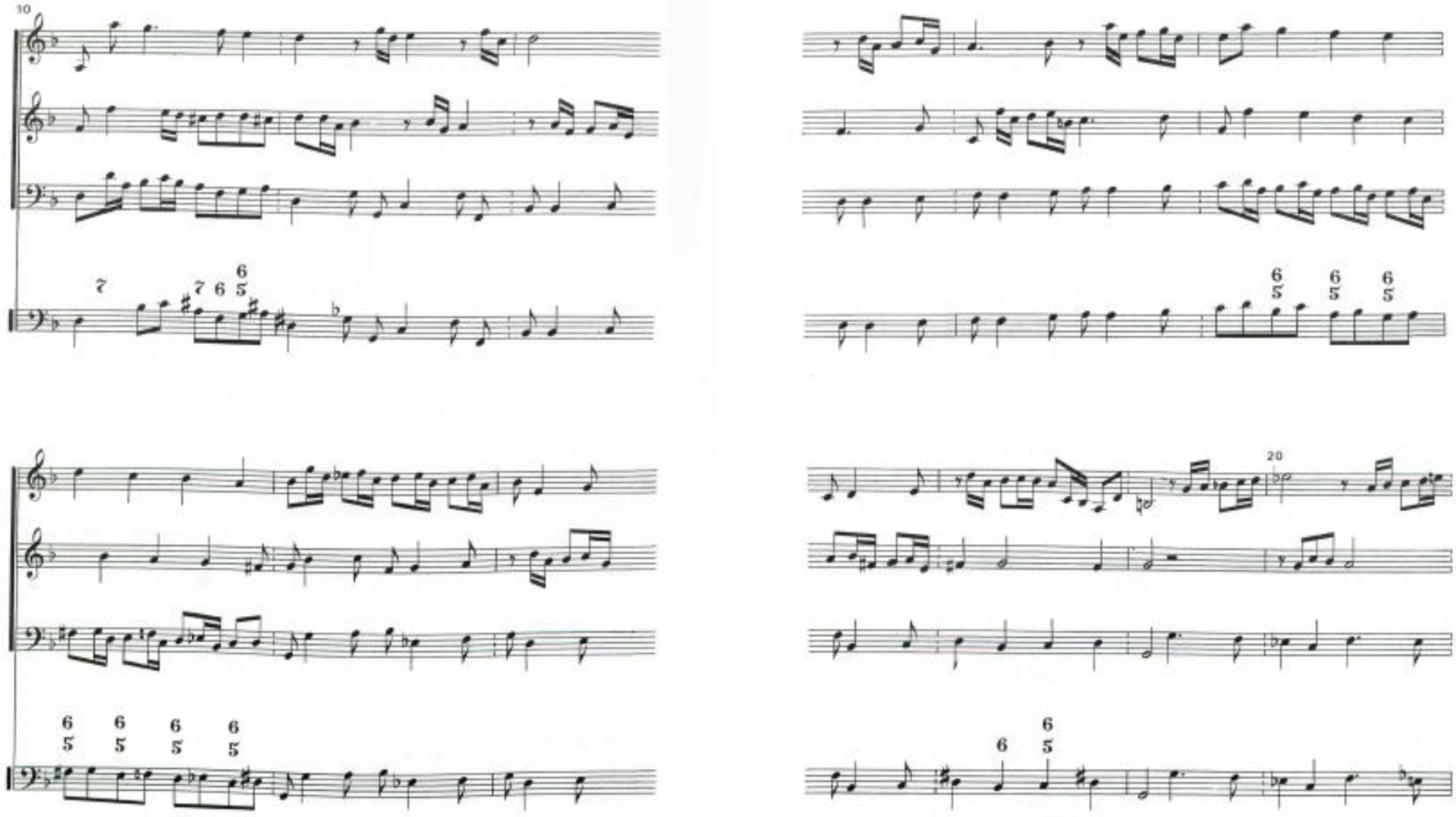


Appendix E. Tarquinio Merula, ‘La Loda’, from *Il quarto libro delle canzoni da suonare,* Op.17 (Venice, 1651).

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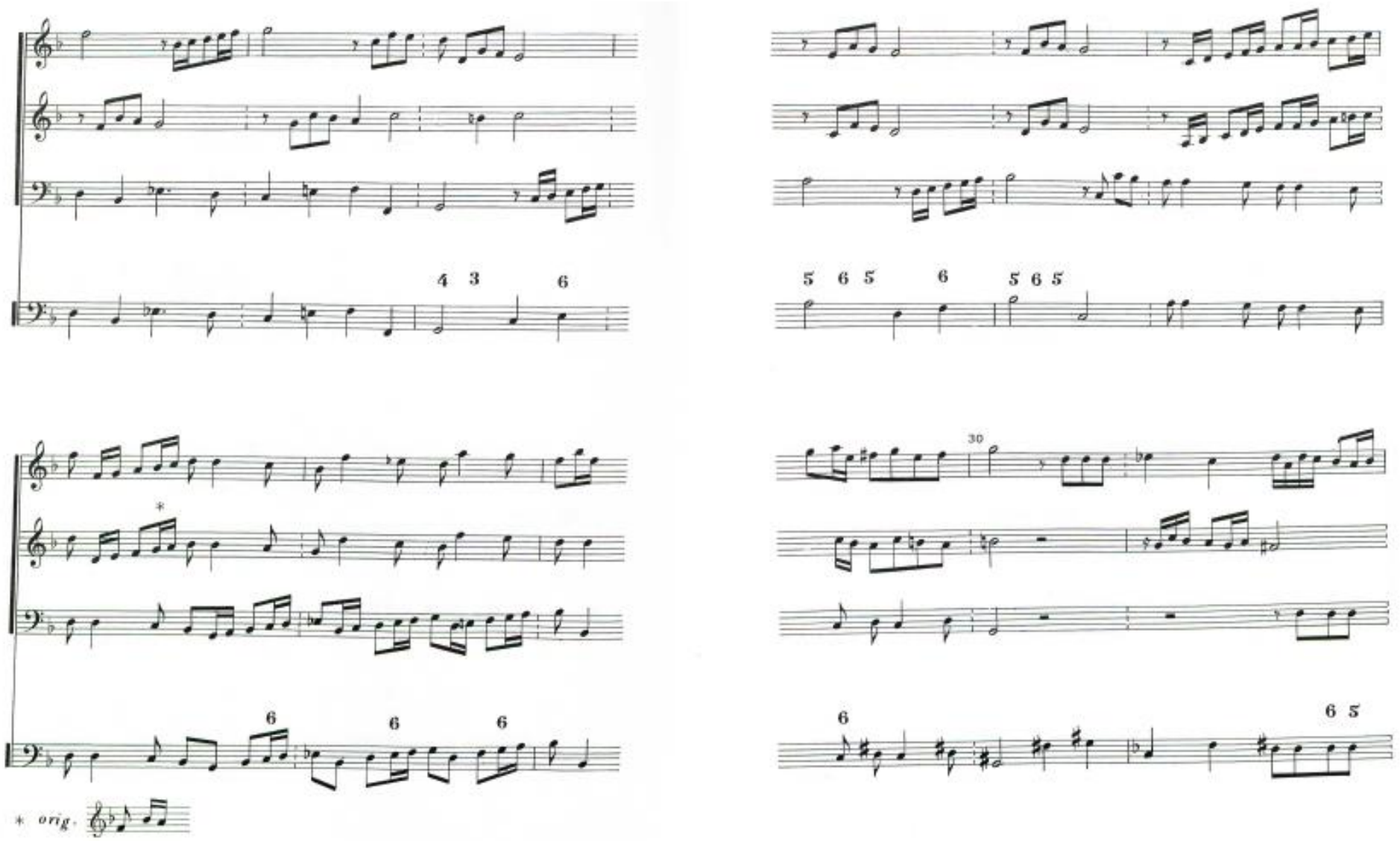
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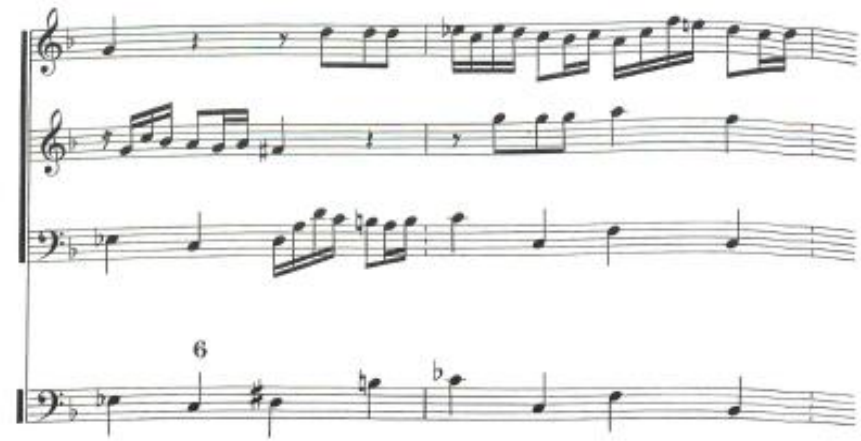
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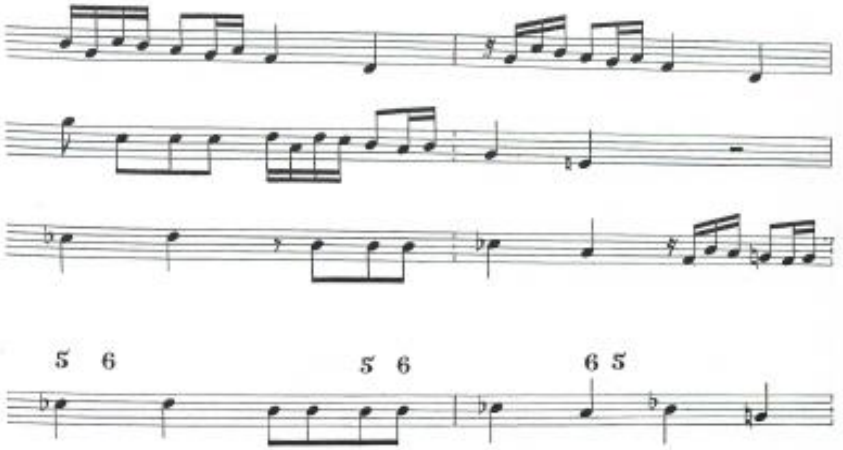
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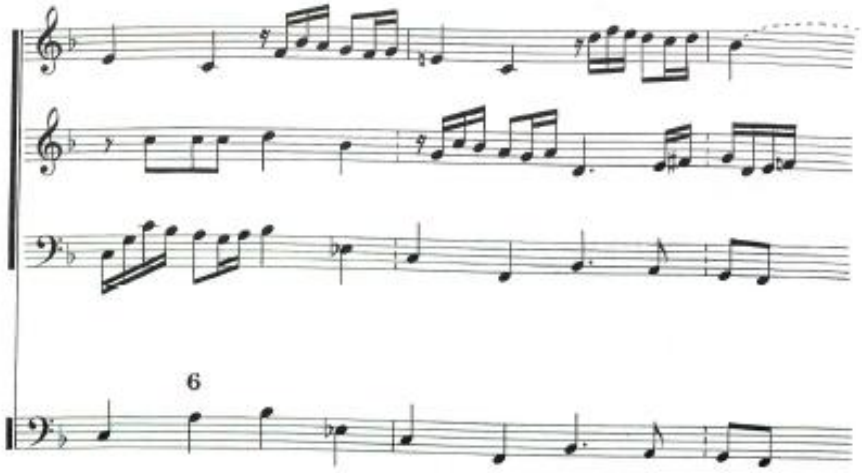
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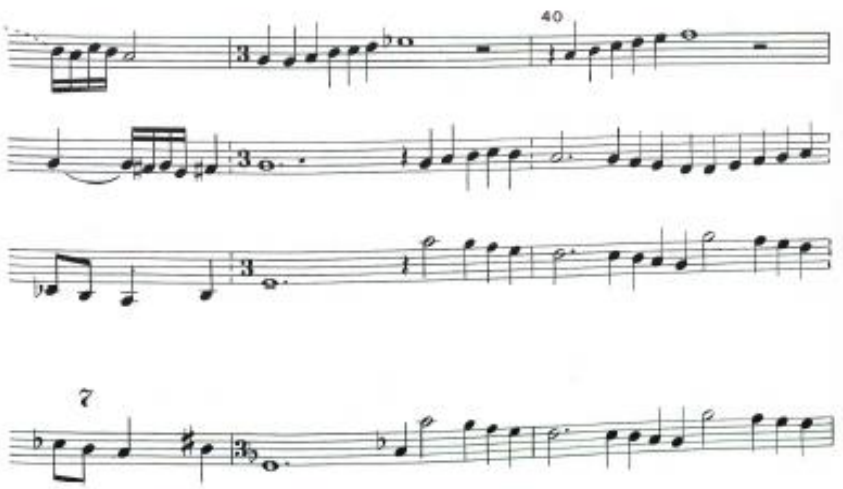
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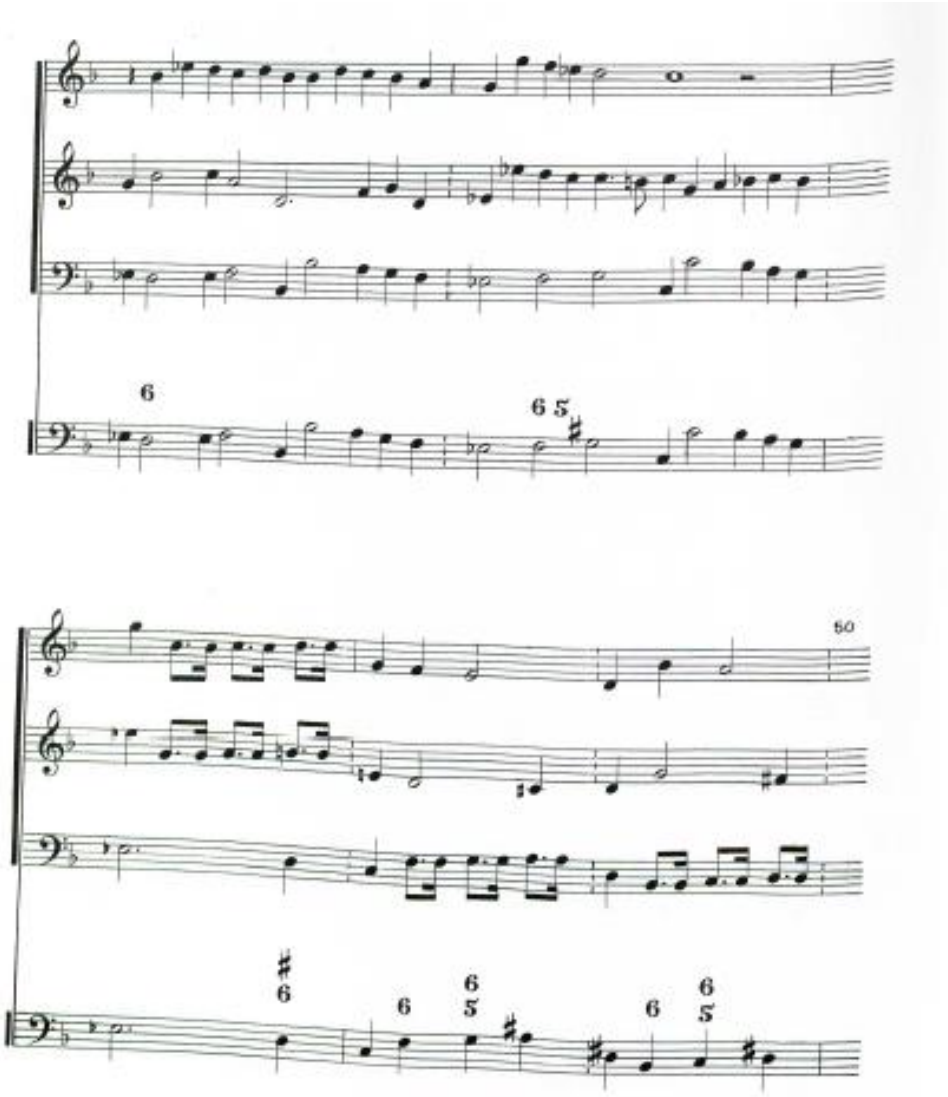
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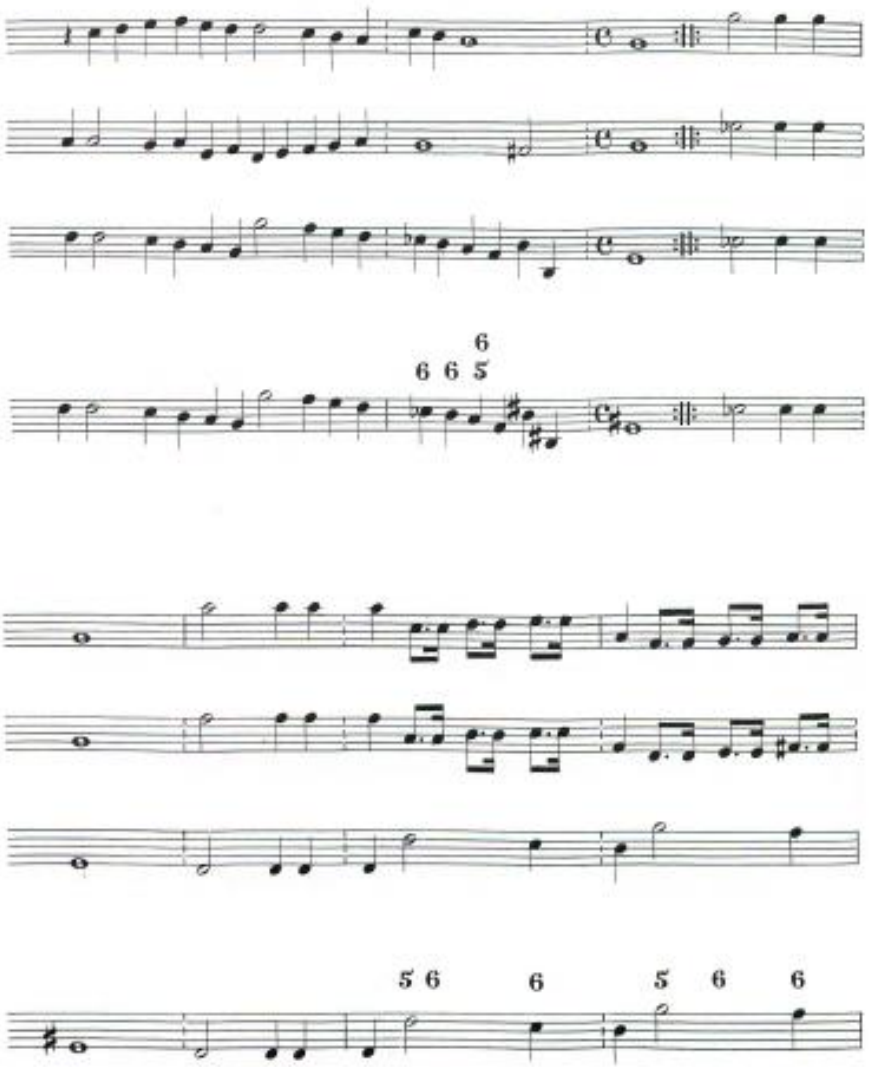
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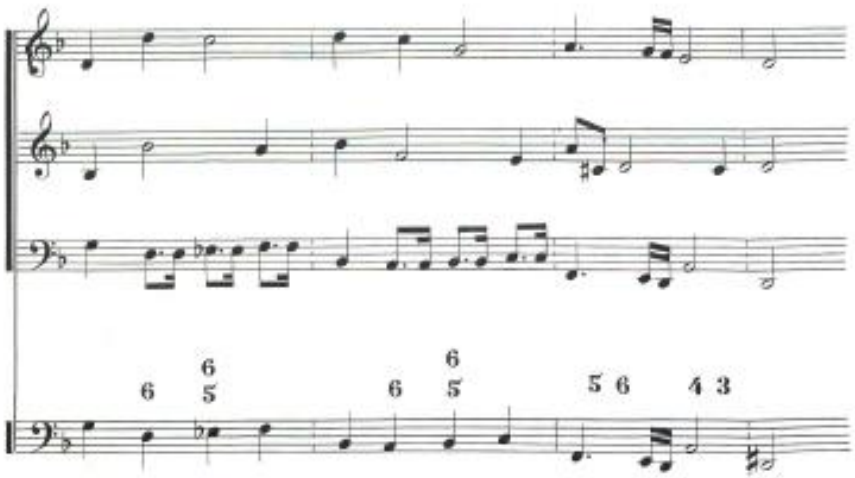
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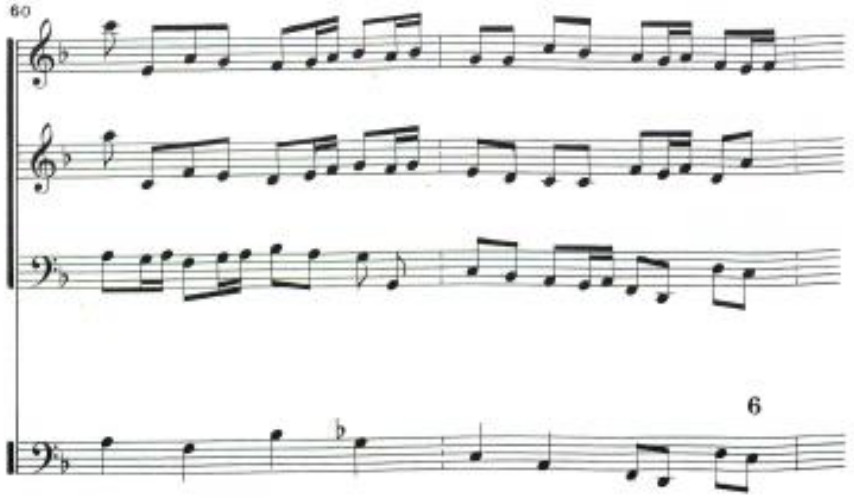
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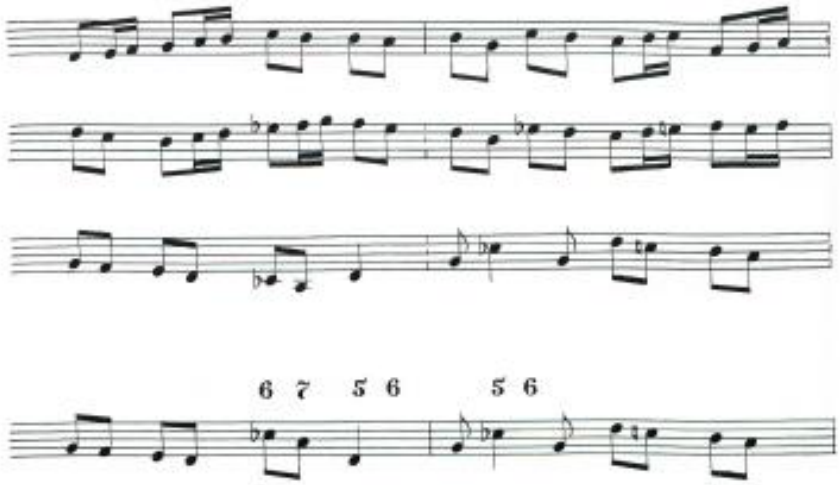
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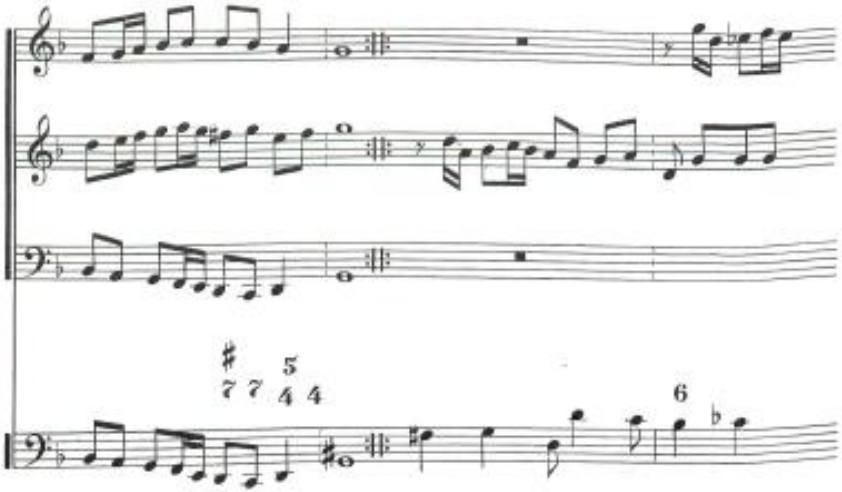
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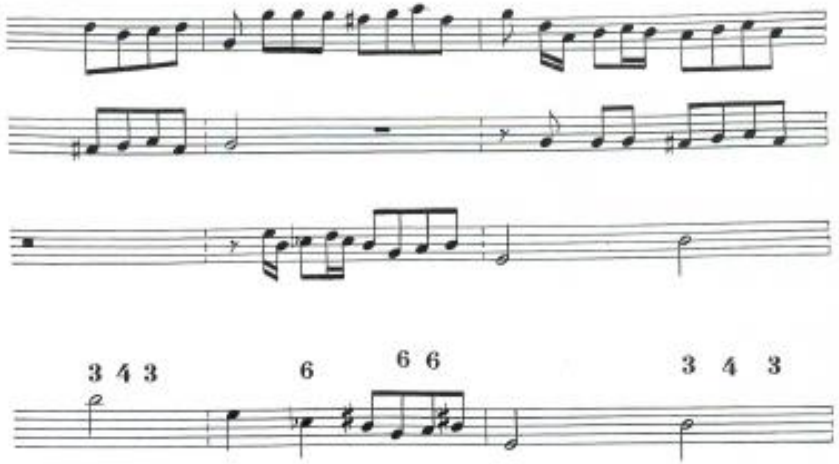
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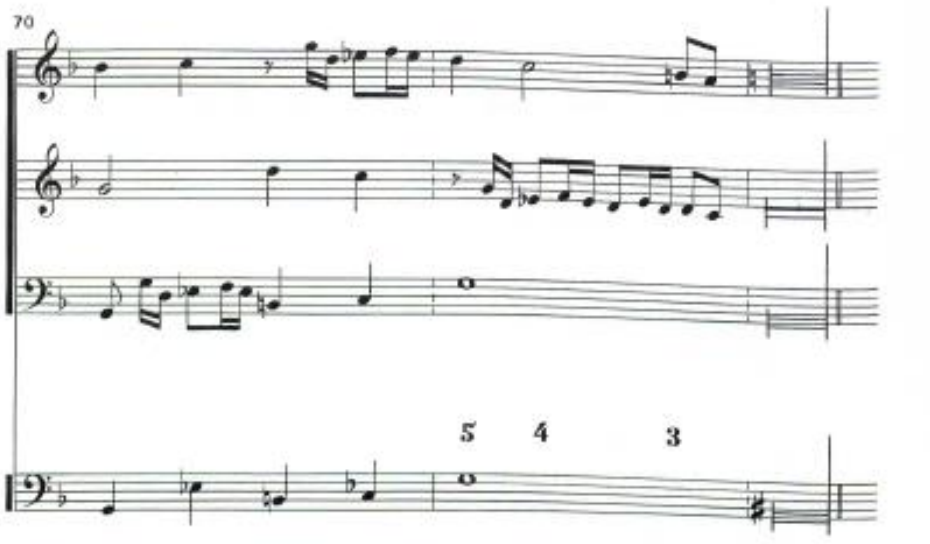
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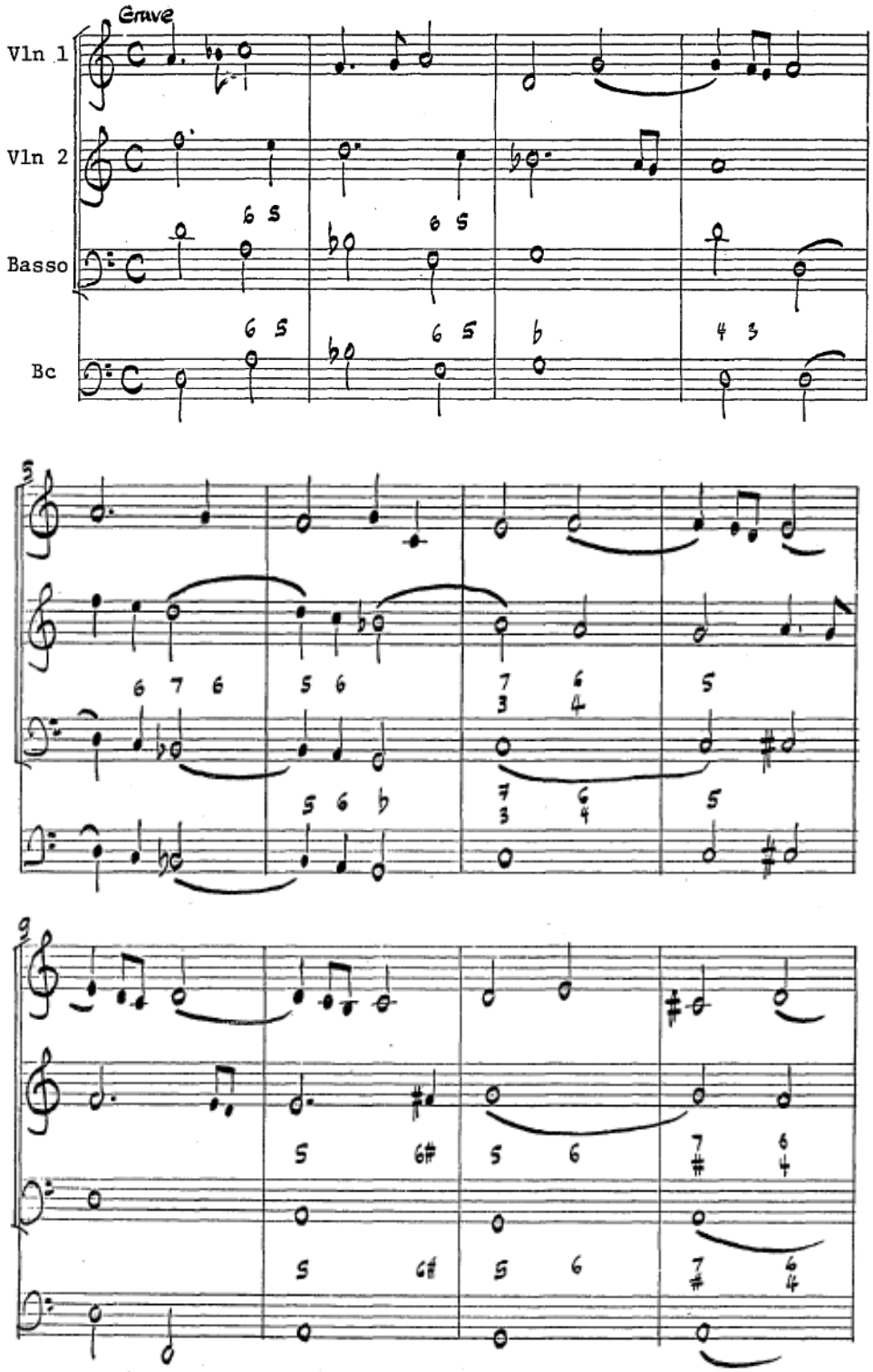
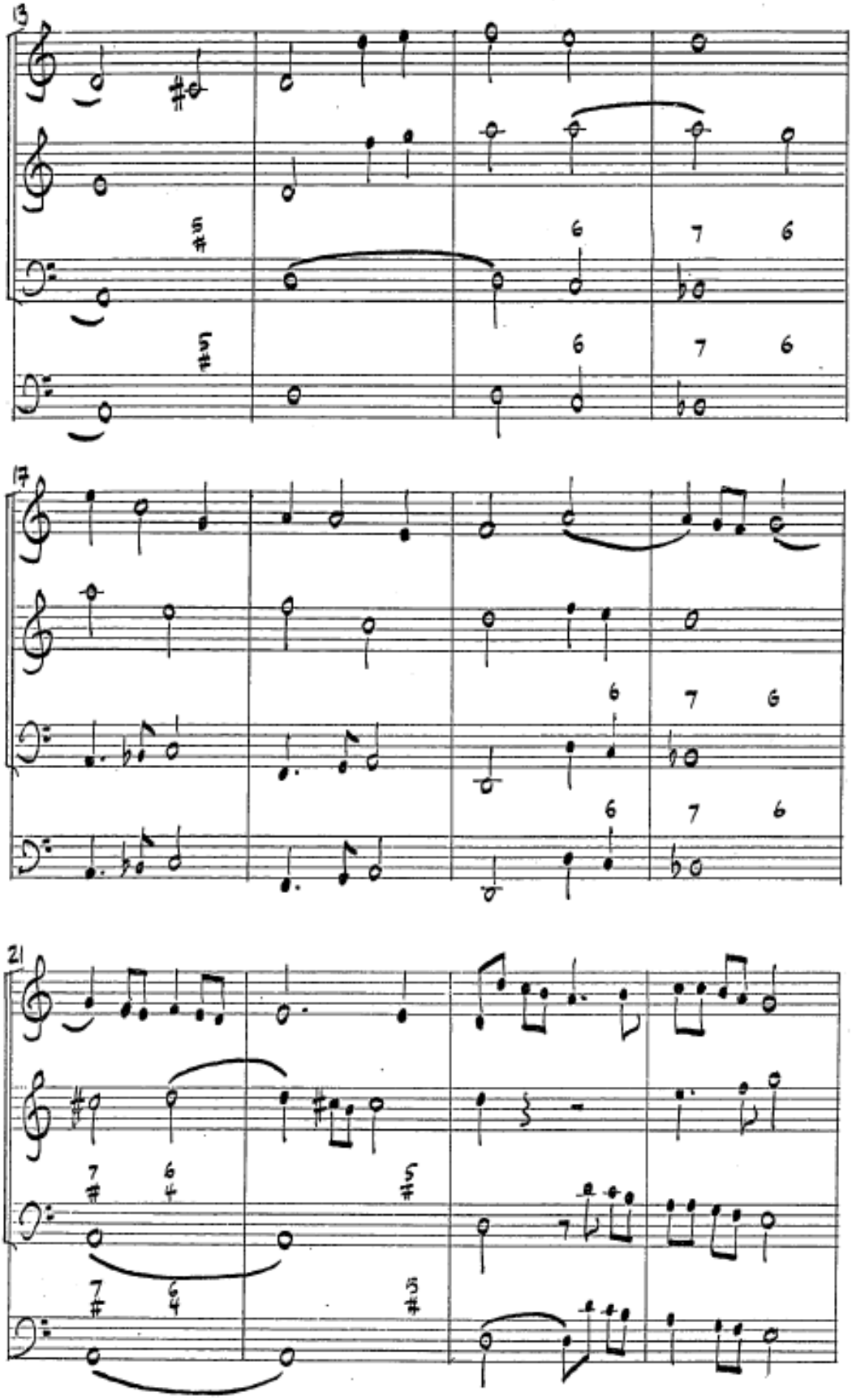
Appendix F. Marco Uccellini, Sonata 26 ‘Sopra la Prosperina’, from *Sonate, correnti e arie,* Op.4 (1645).

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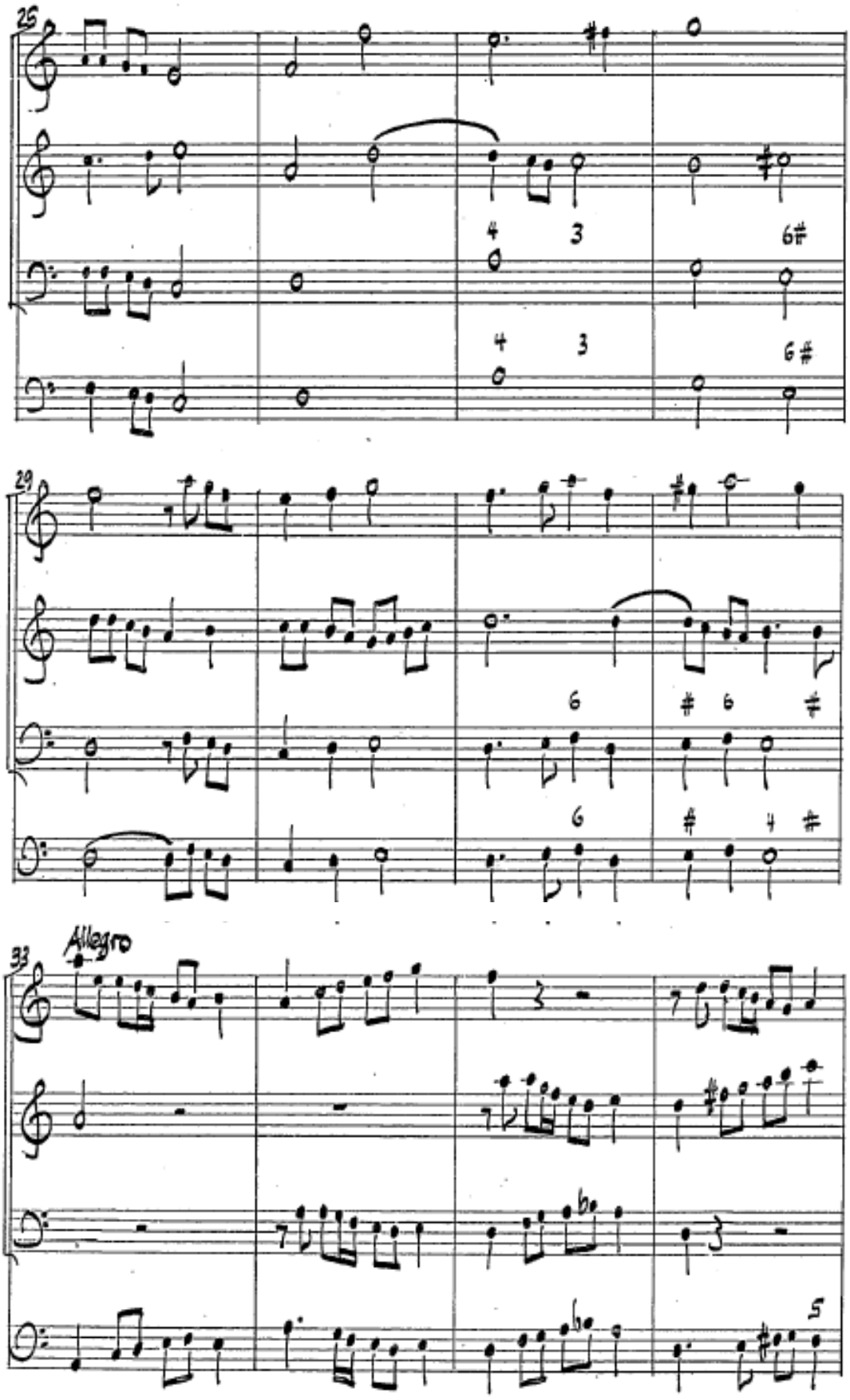
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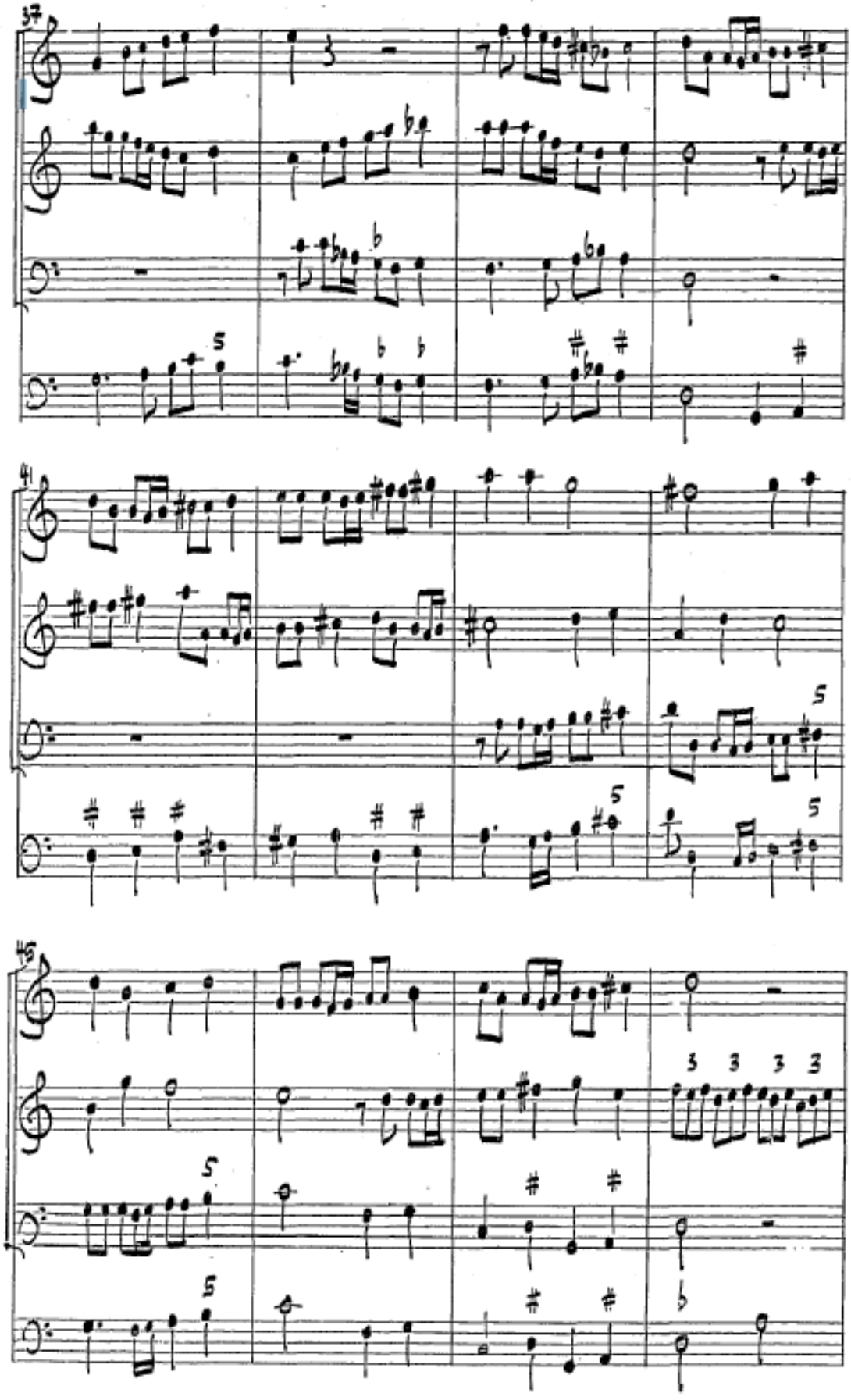

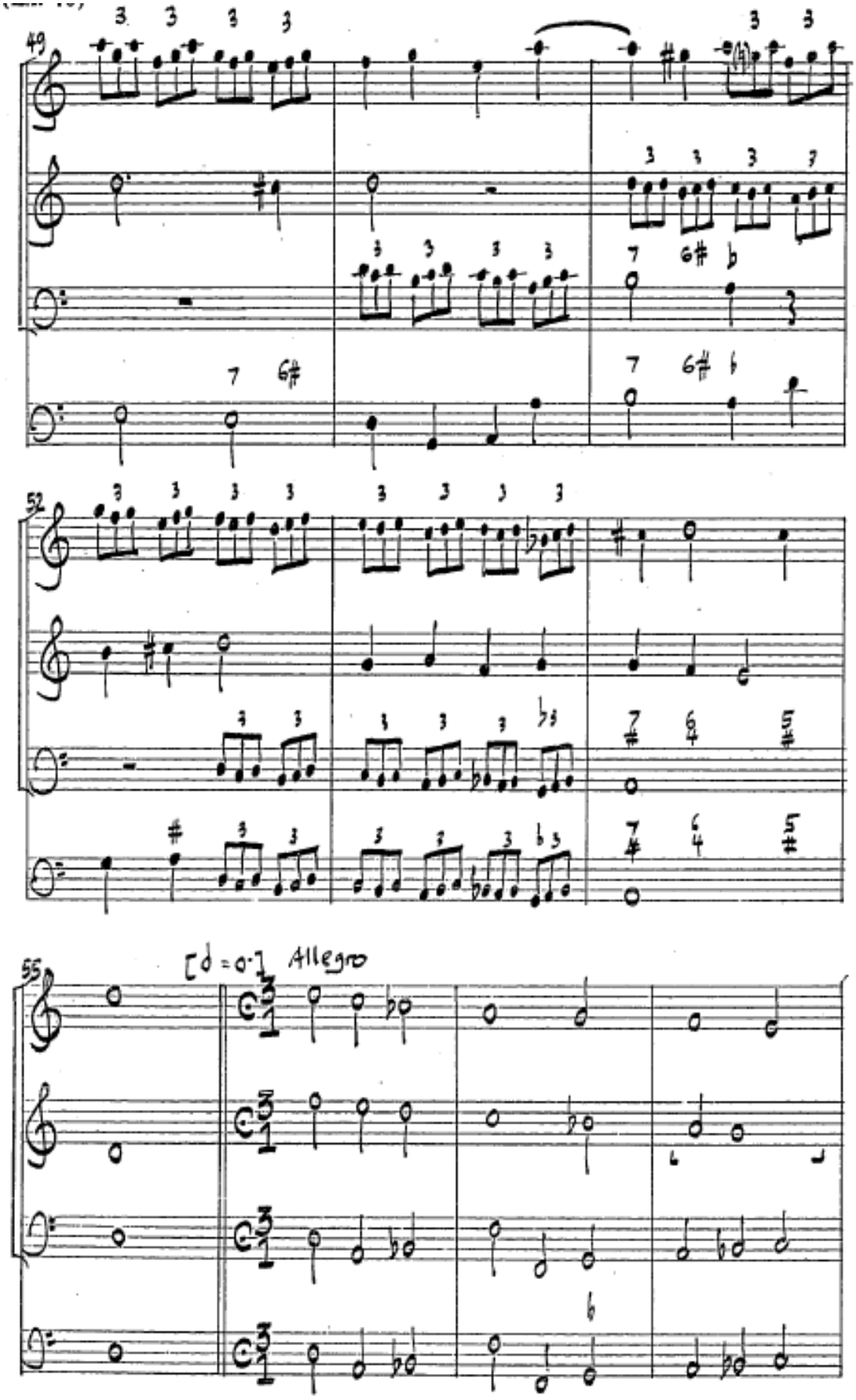
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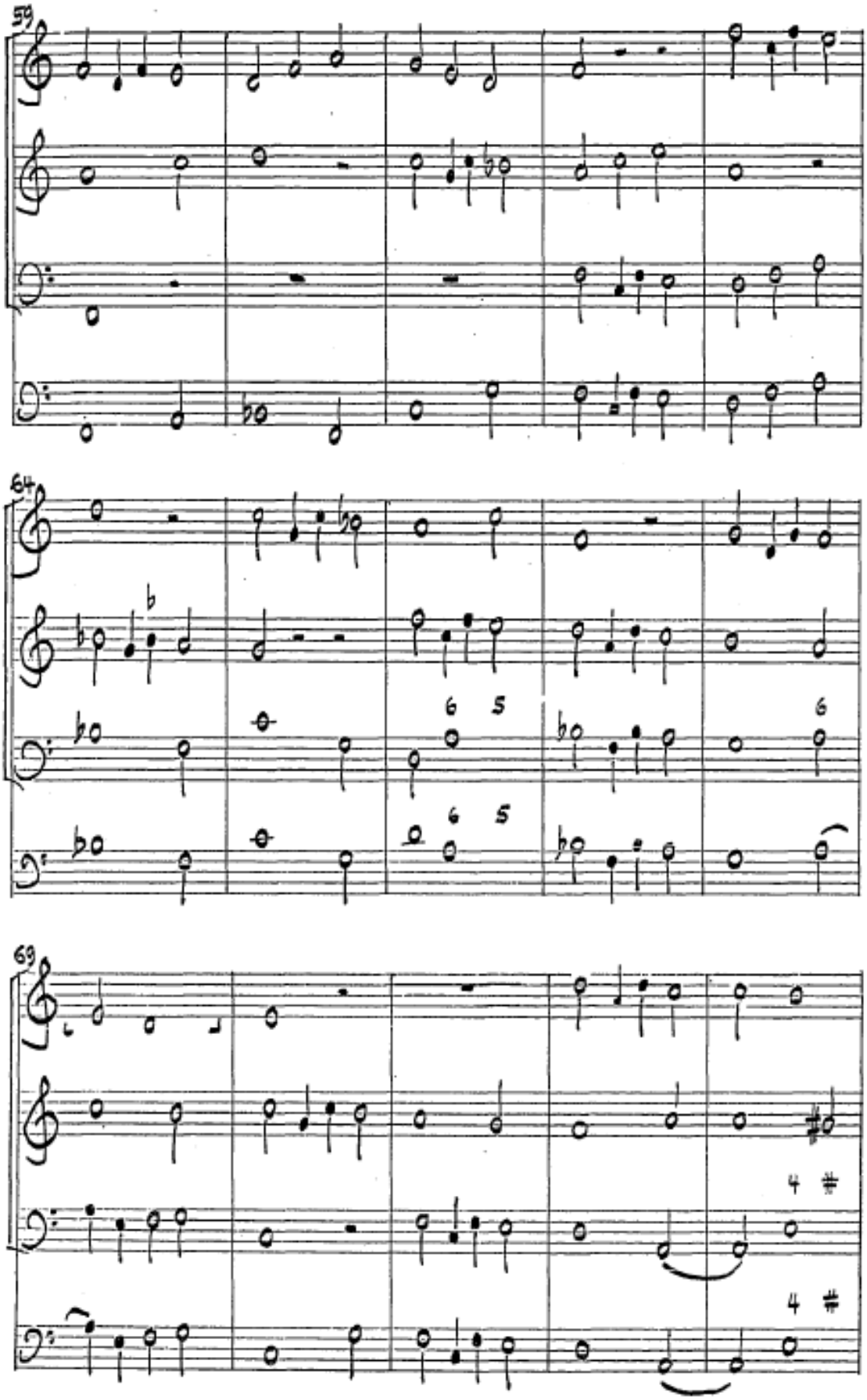
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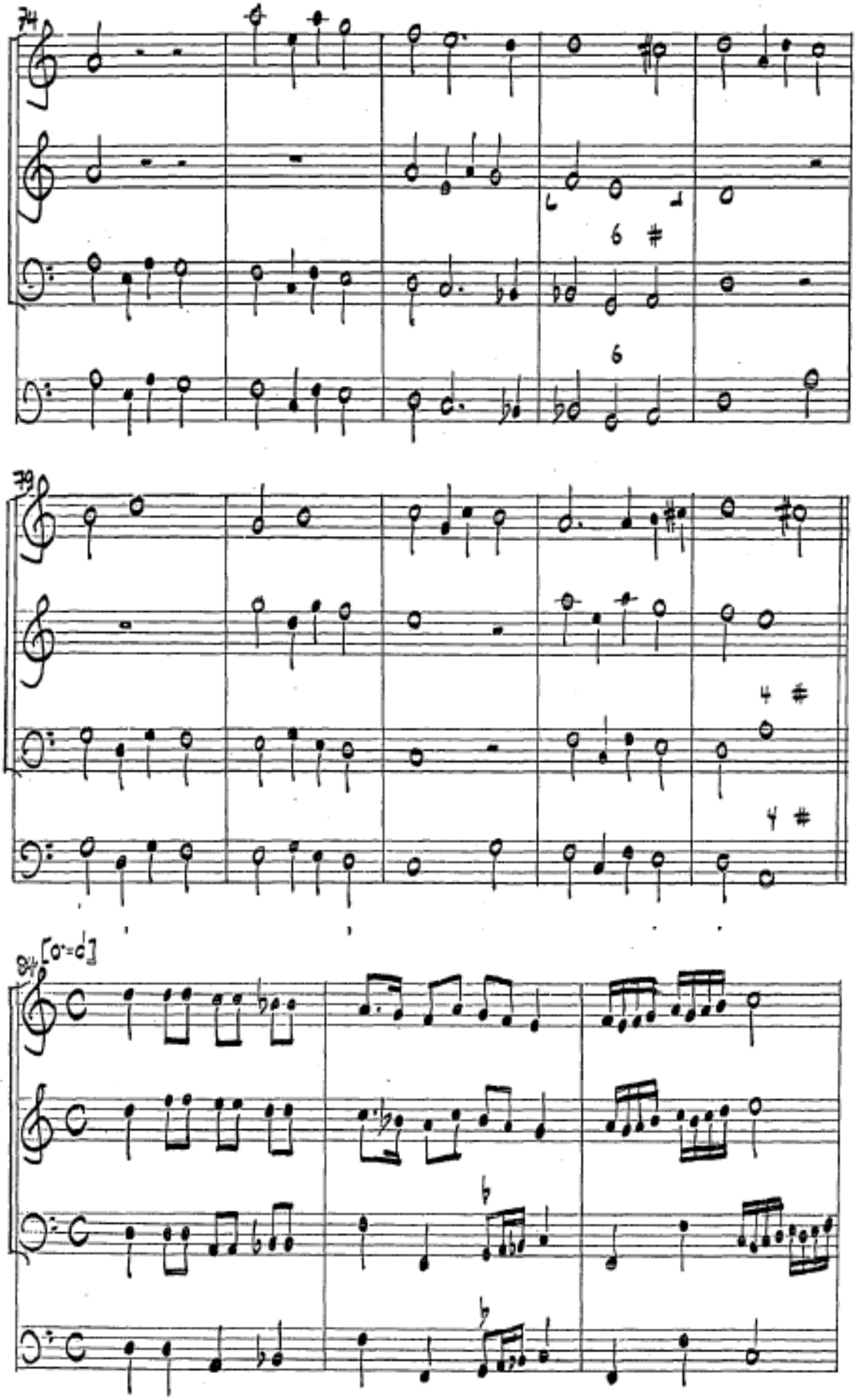
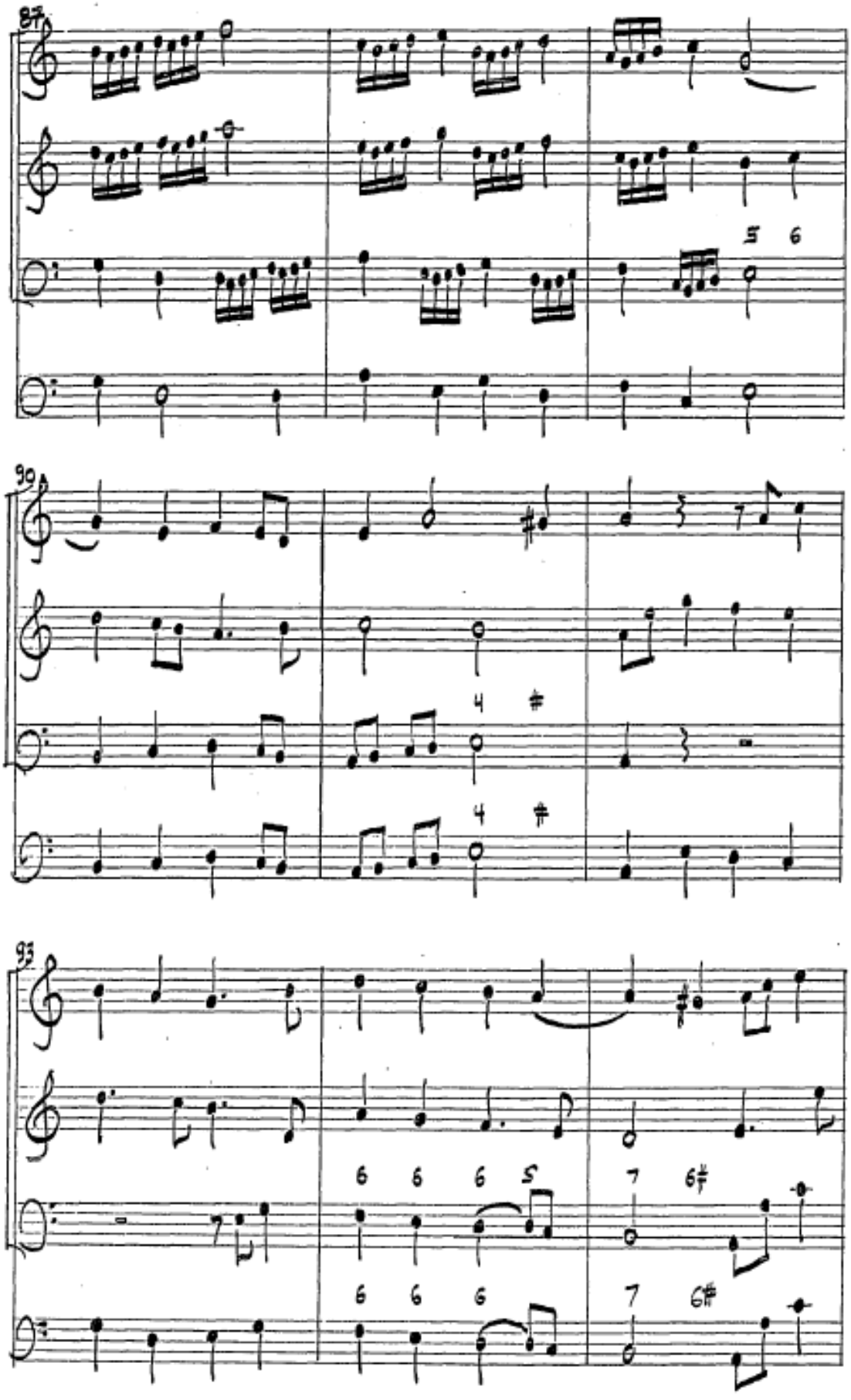
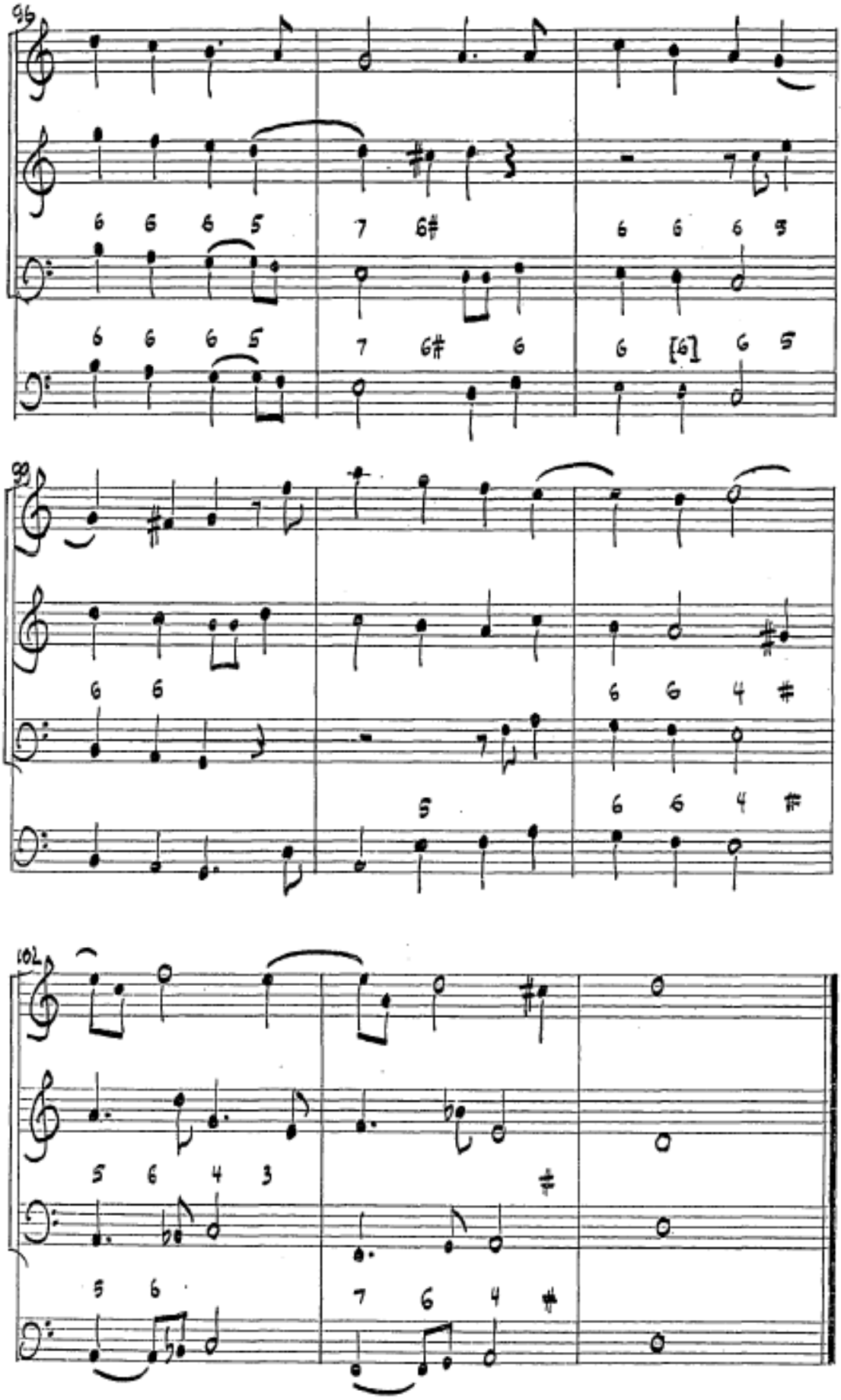
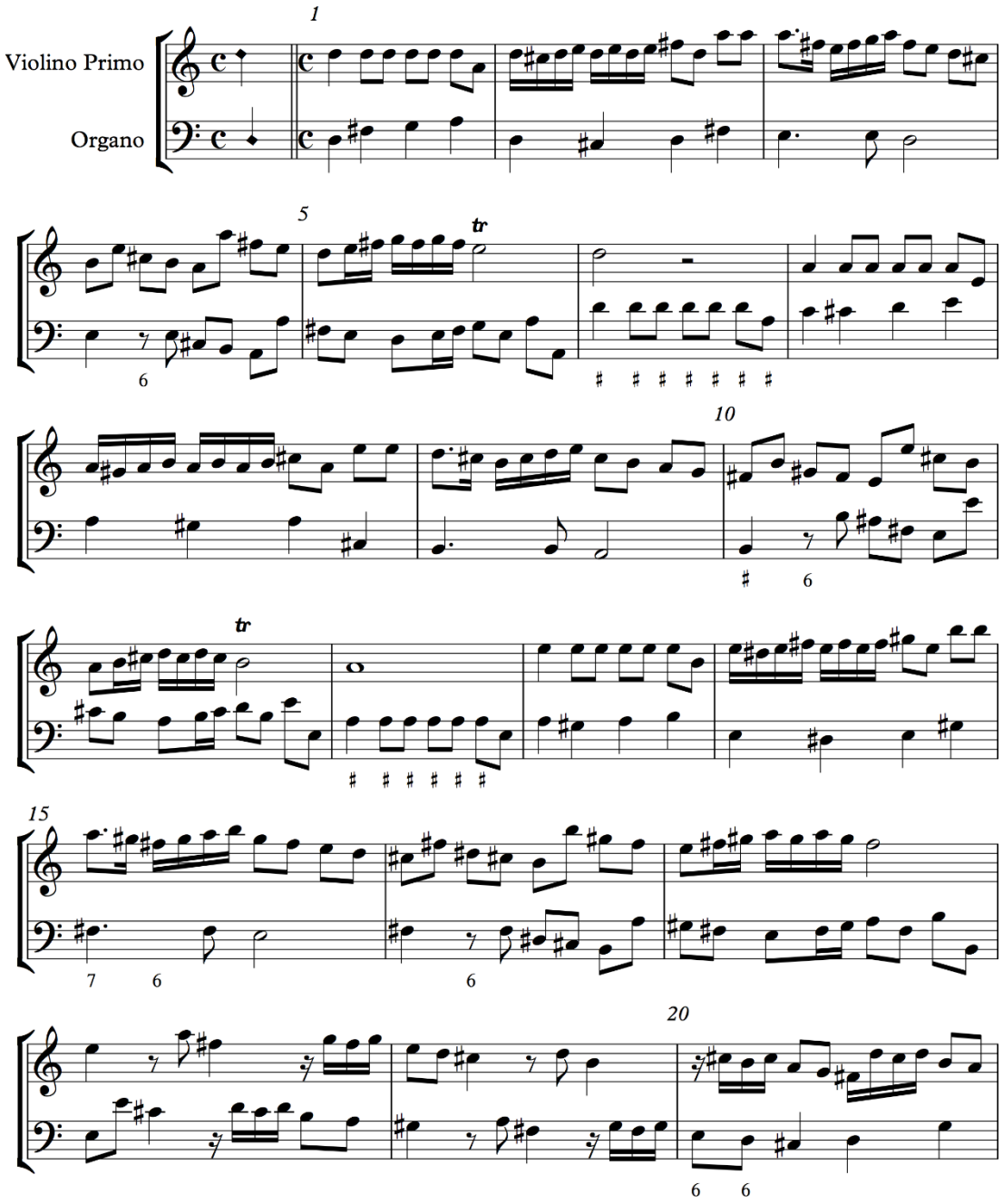
69

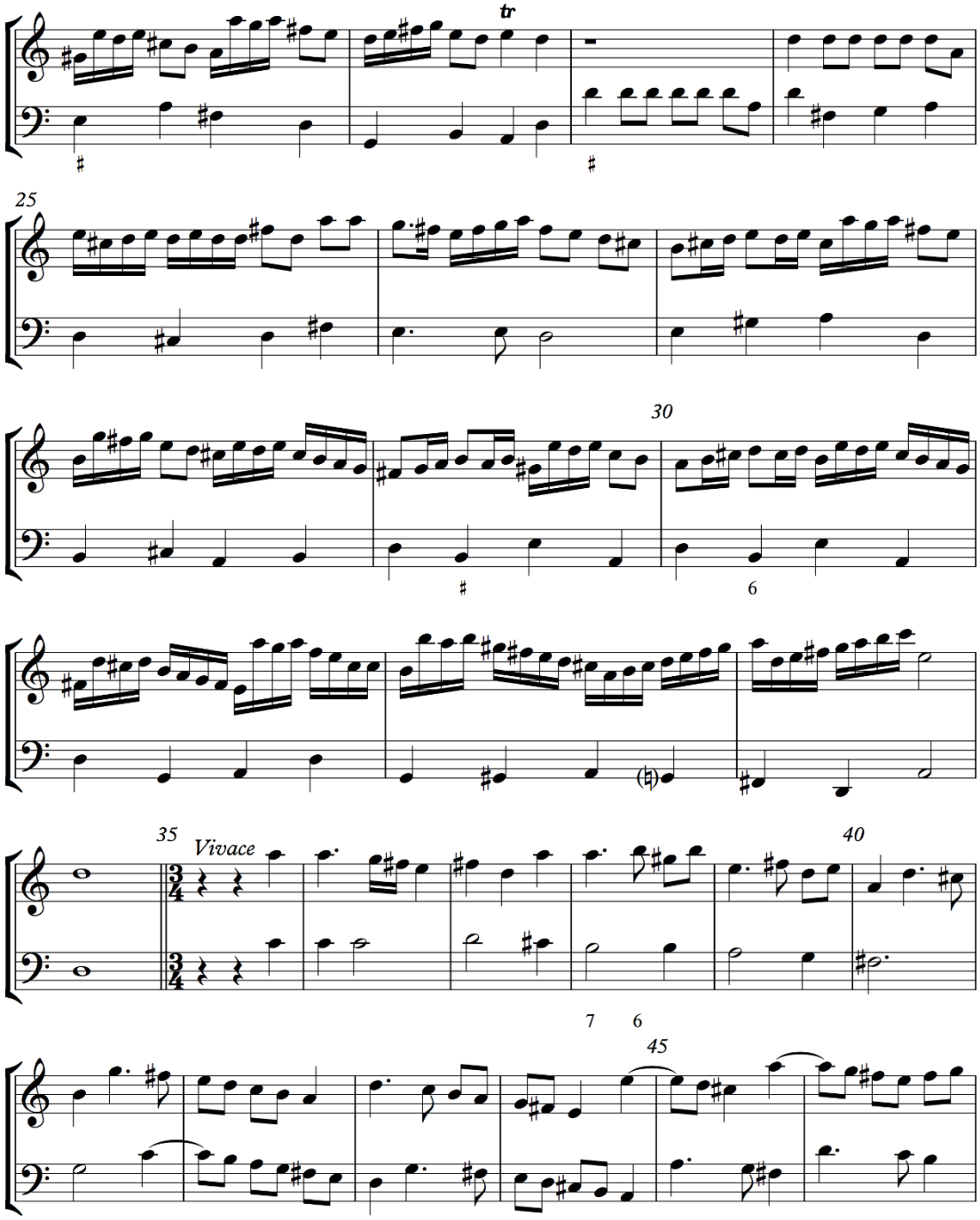


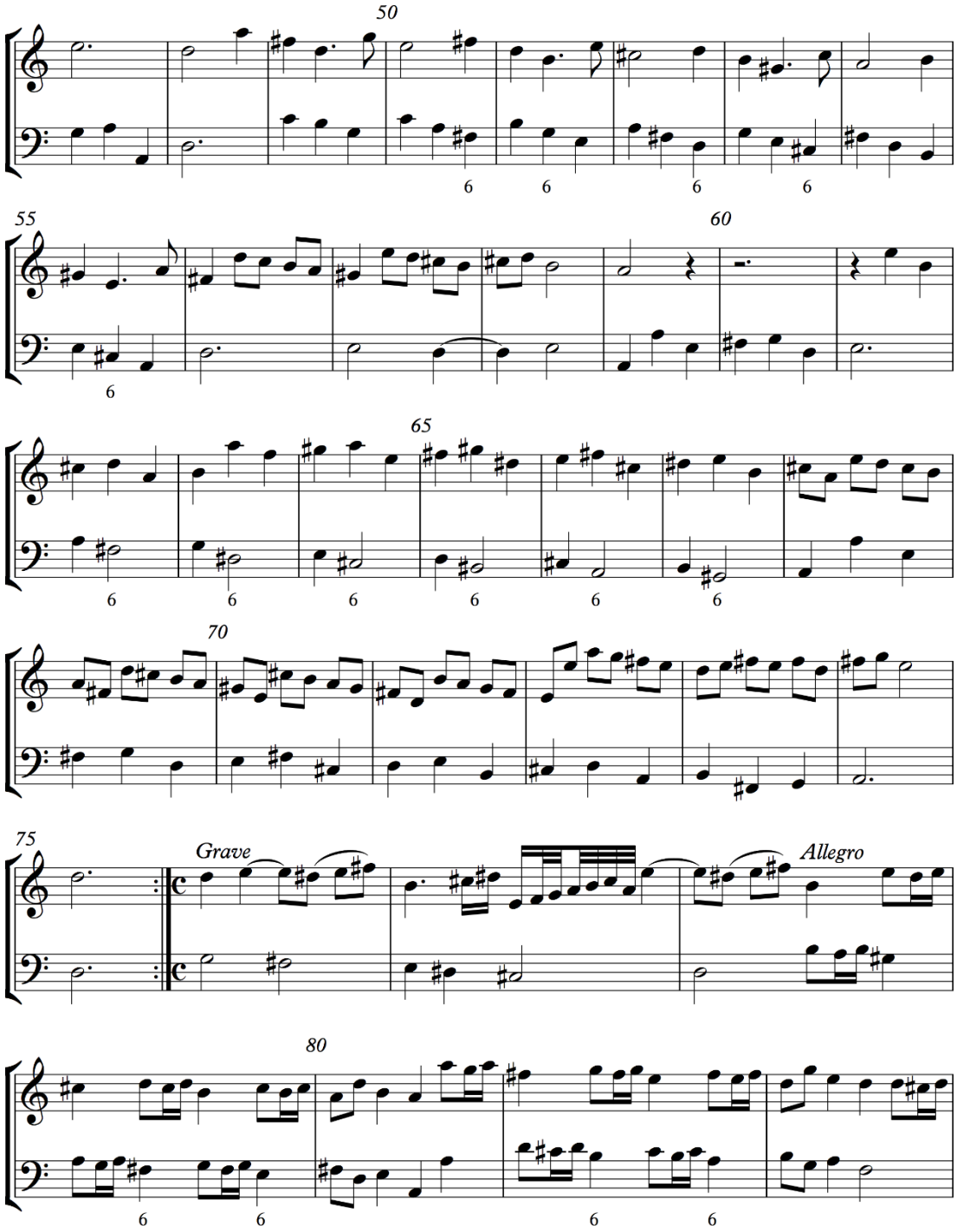

87
5 6
90
4 #
4 #
93
6 6 6 5
7 6♯
6 6 6
7 6♯

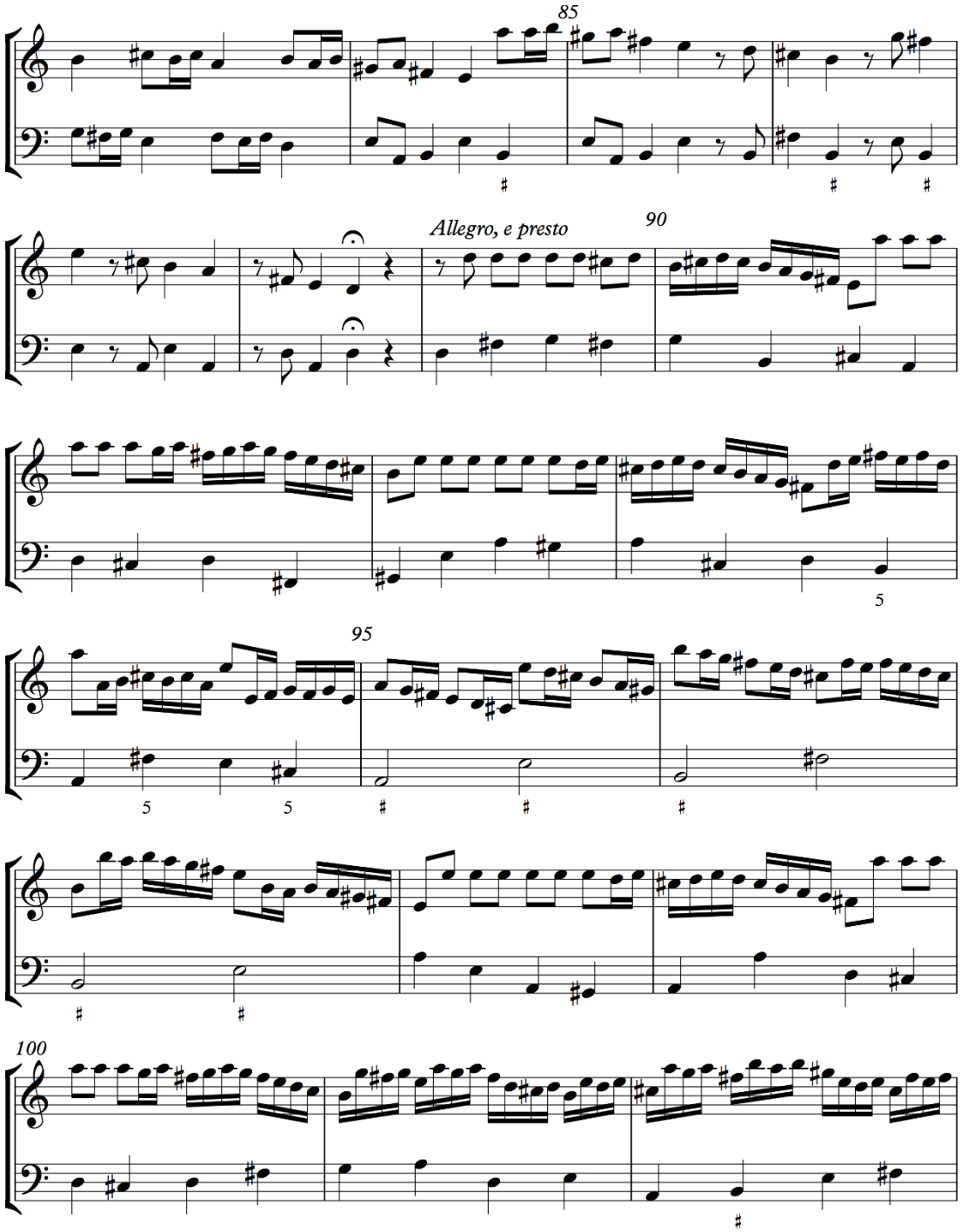

96
6 6 6 5
7 6♯
6 6 6 5
6 6 6 5
7 6♯ 6
6 [6] 6 5
99
6 6
6 6 4 ♯
5
6 6 4 ♯
102
5 6 4 3
5 6
7 6 4 ♯

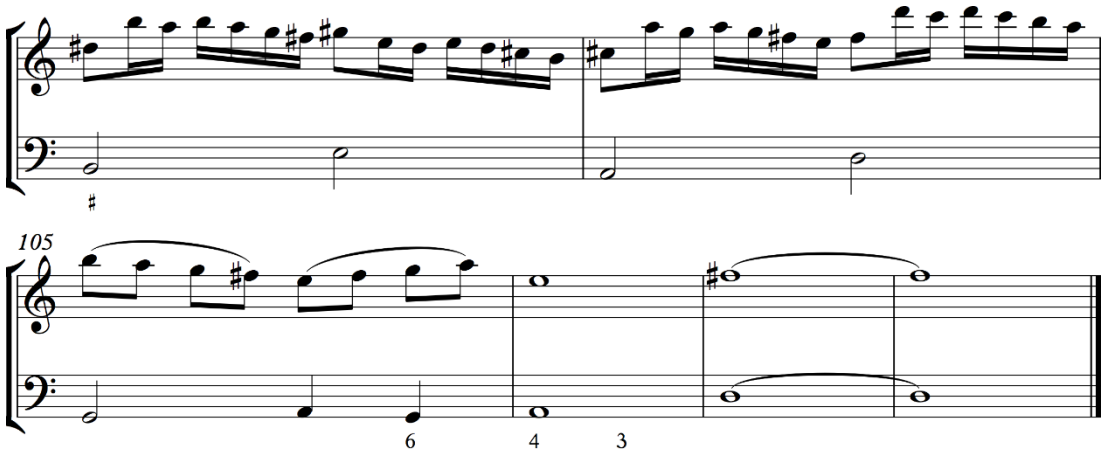
Appendix G. Maurizio Cazzati, ‘La Calva’, from *Il secondo libro delle sonate*, Op.8 (Venice, 1648).



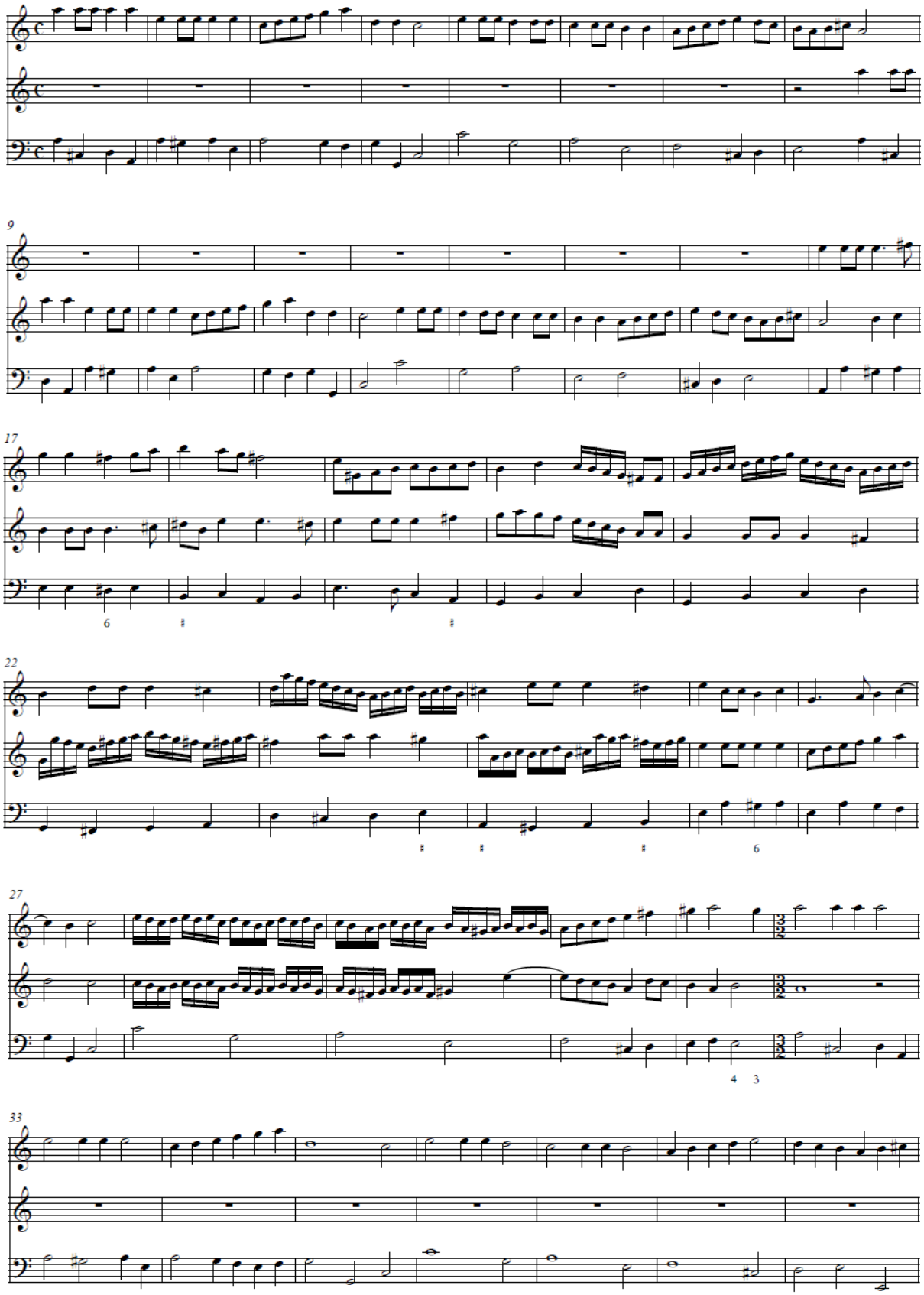

tr
25
30
6
35
Vivace
40
7
6
45

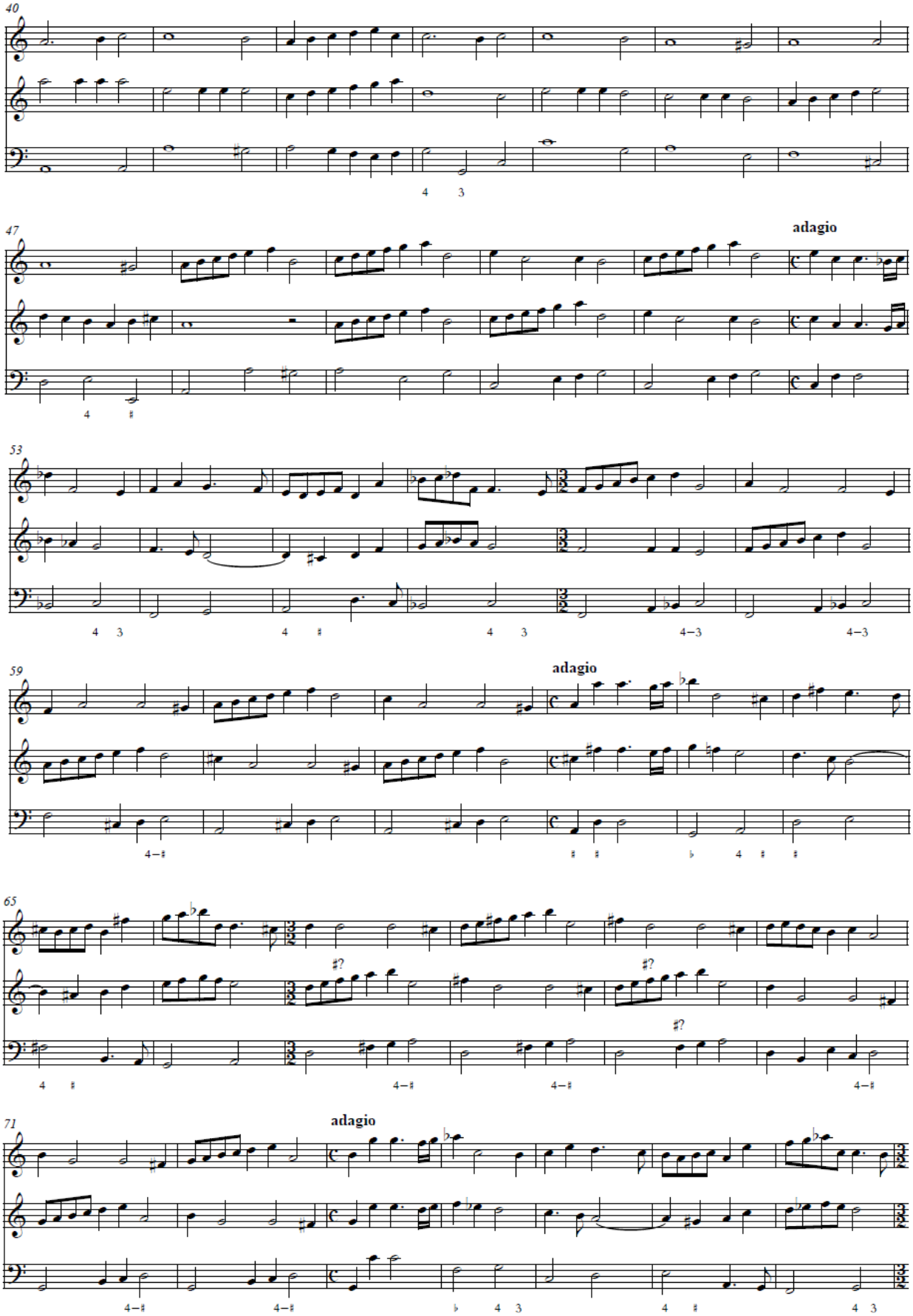

50
55
60
65
70
75
Grave
Allegro
80

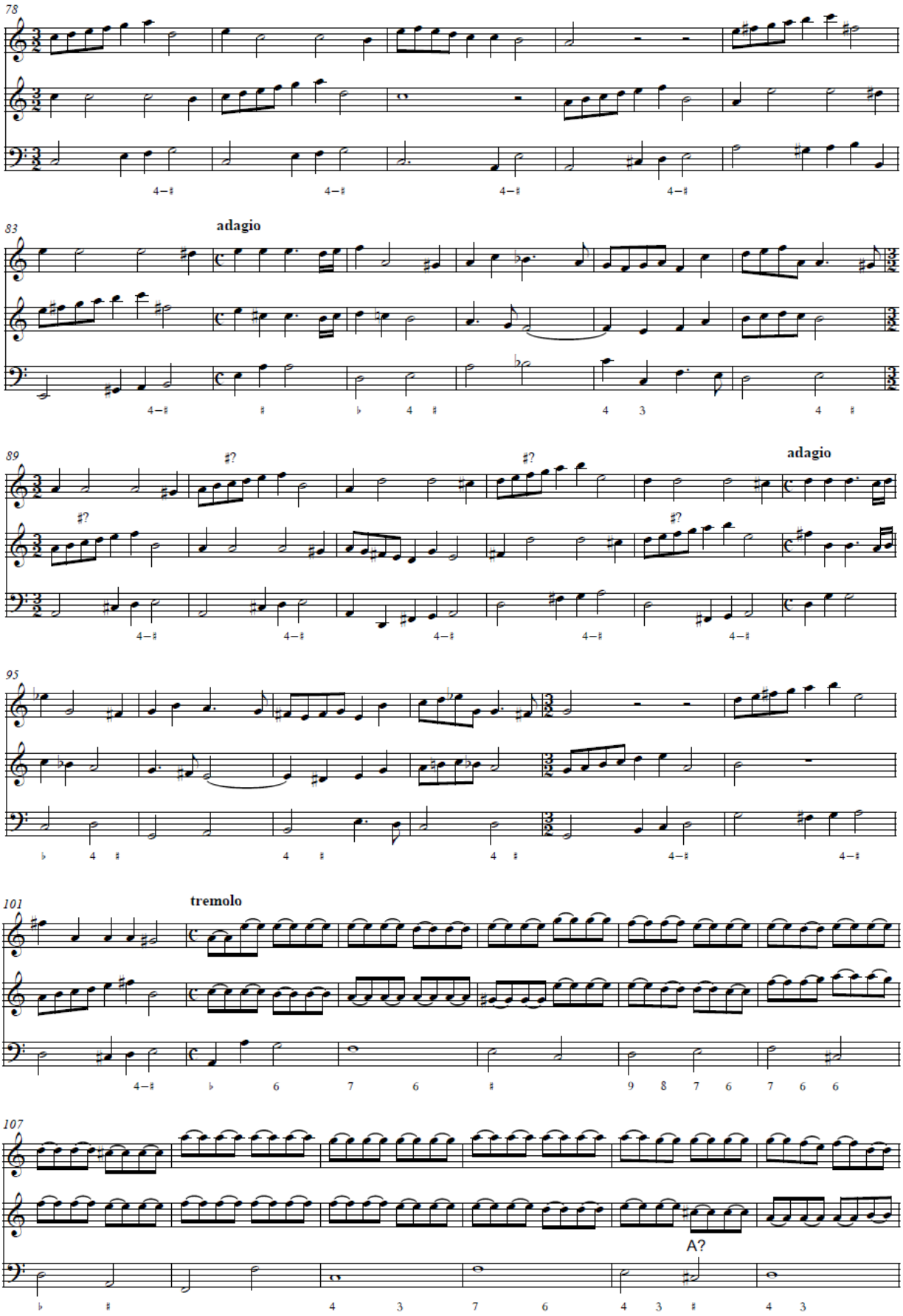

85
Allegro, e presto
90
95
100

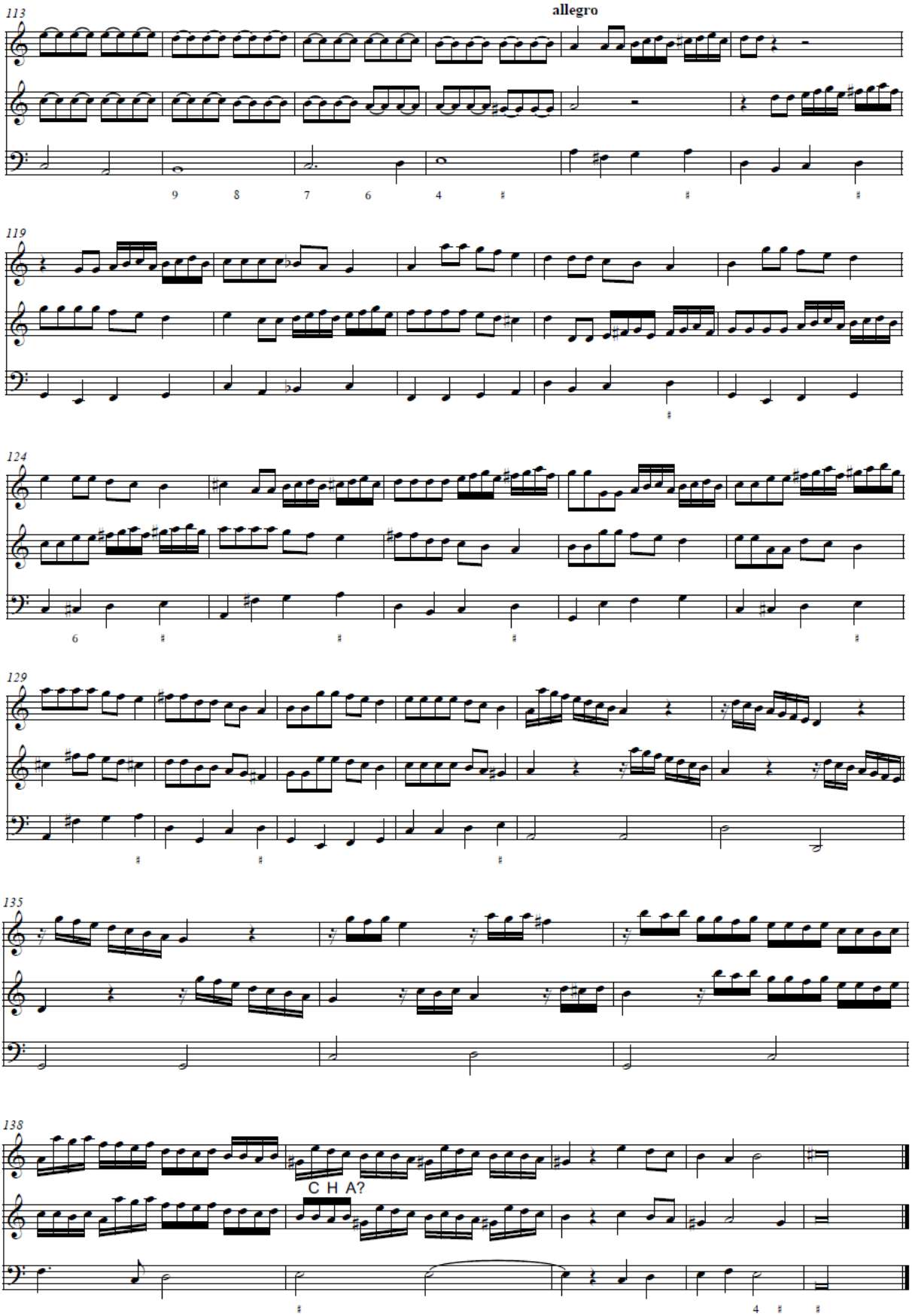

105
6
4
3

Appendix H. Marco Uccellini, ‘Sonata decima ottava a doi violini’, from *Sonate, correnti e arie*, Op. 4 (1645).

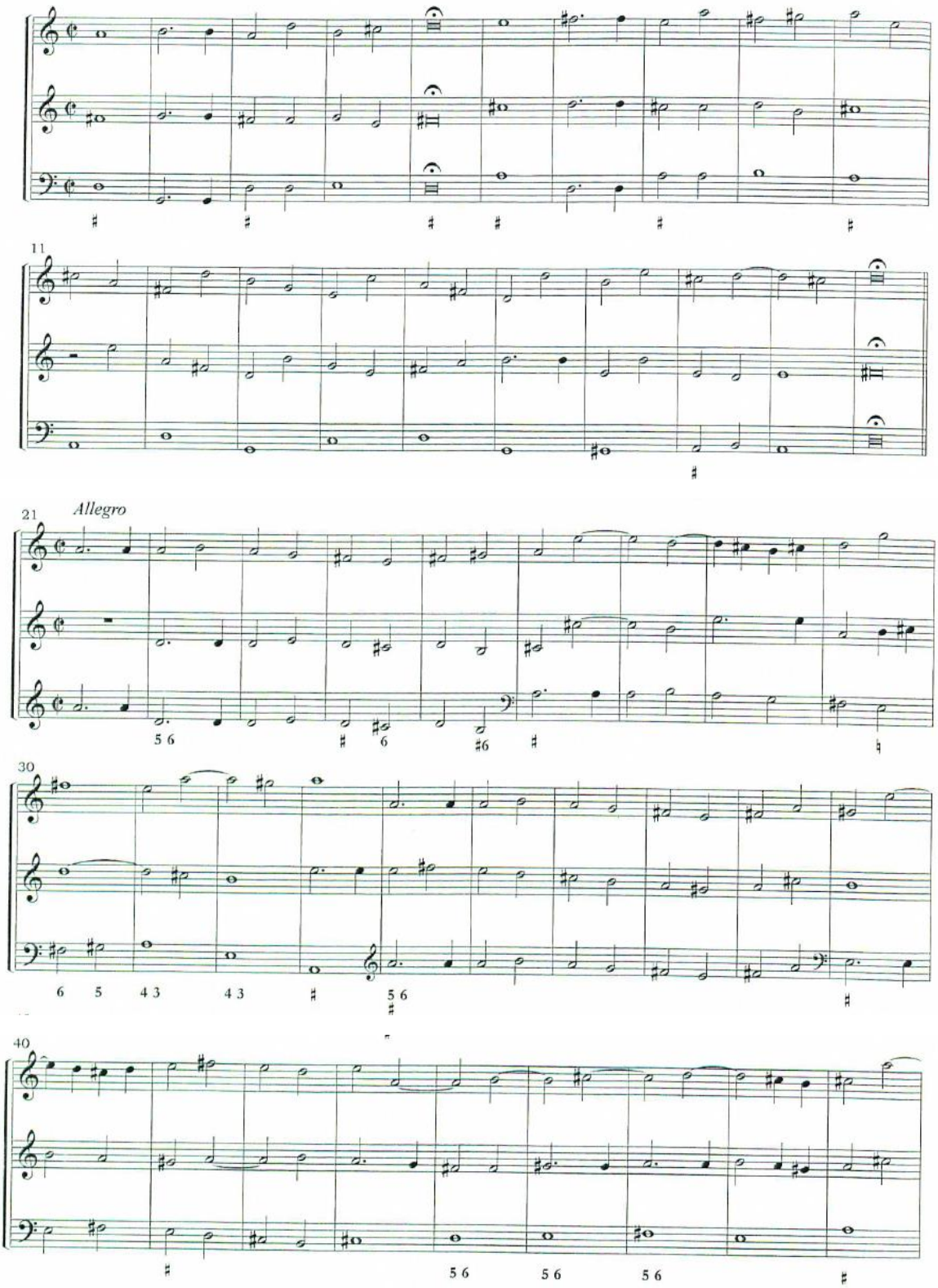


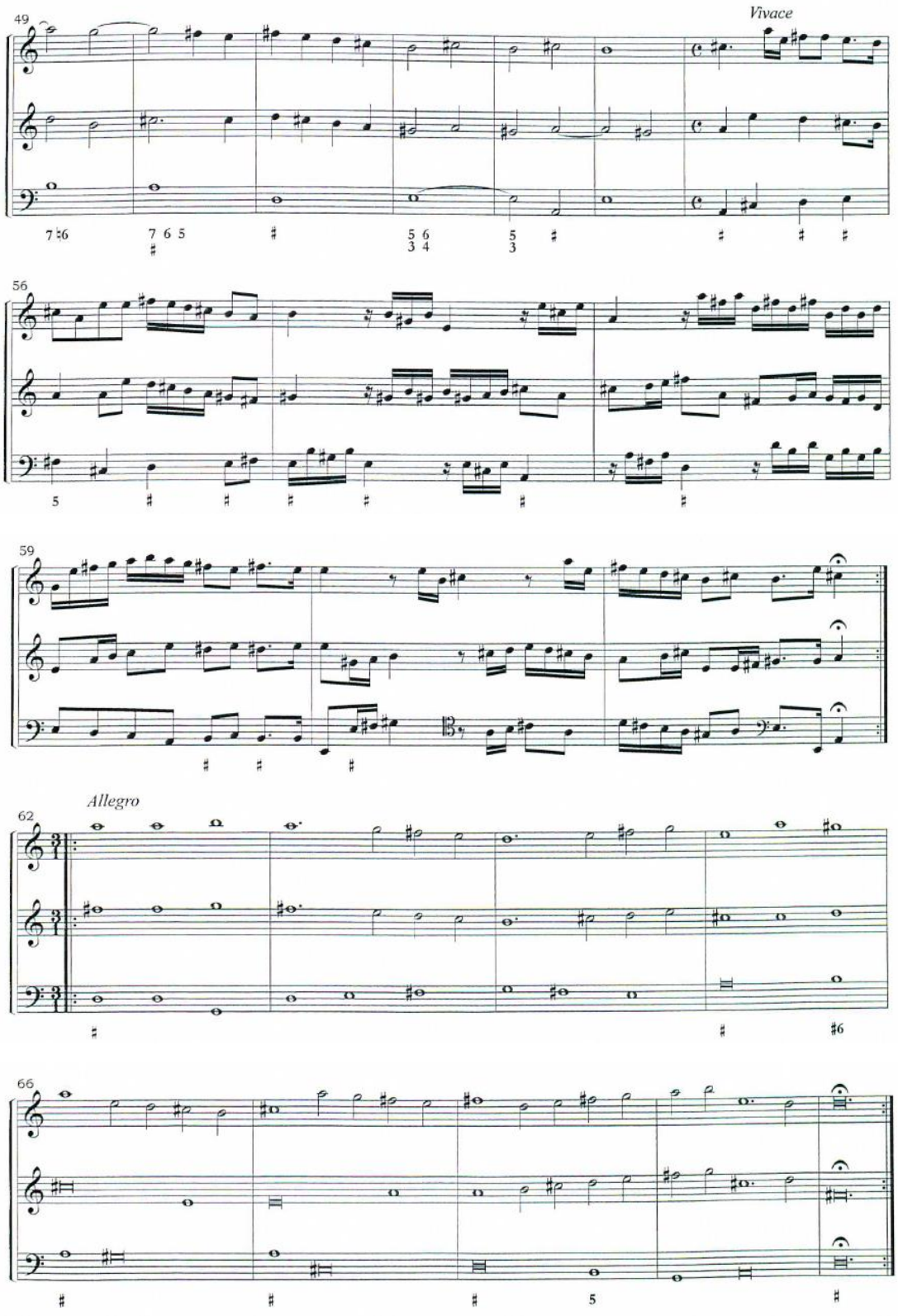

40
47
adagio
53
59
adagio
65
71
adagio

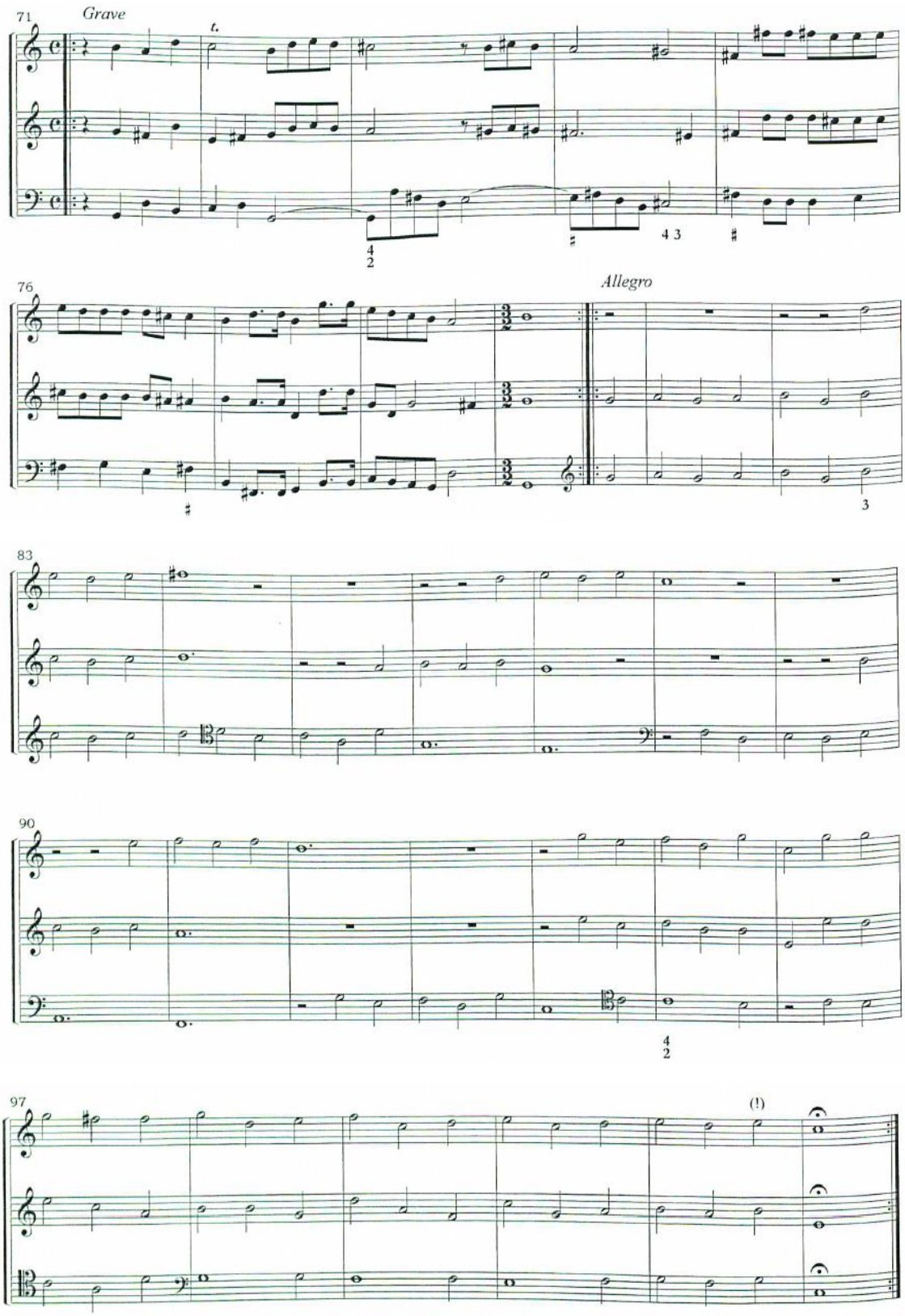

78
83
adagio
89
adagio
95
101
tremolo
107
A?

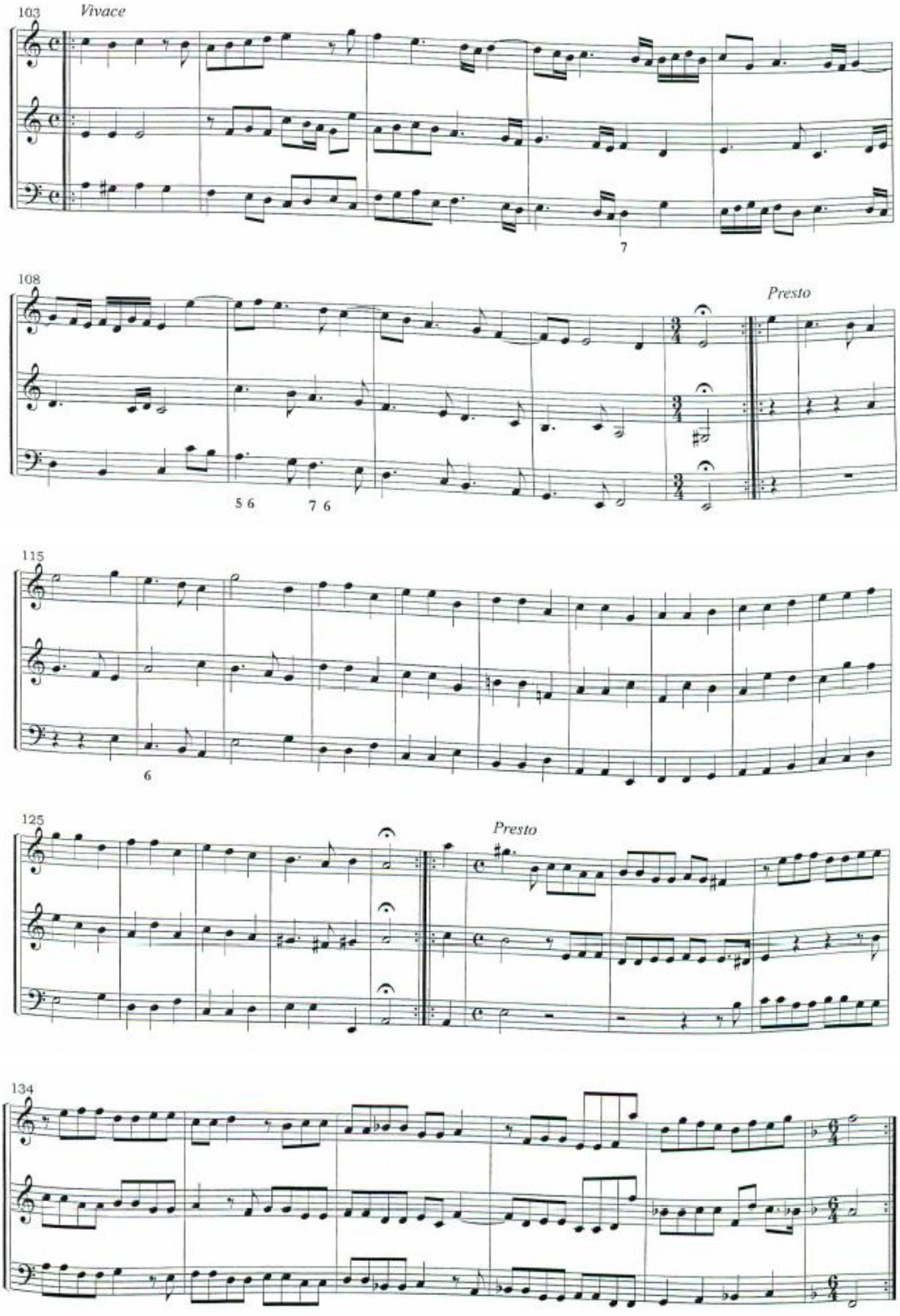

allegro
113
119
124
129
135
138
C H A?

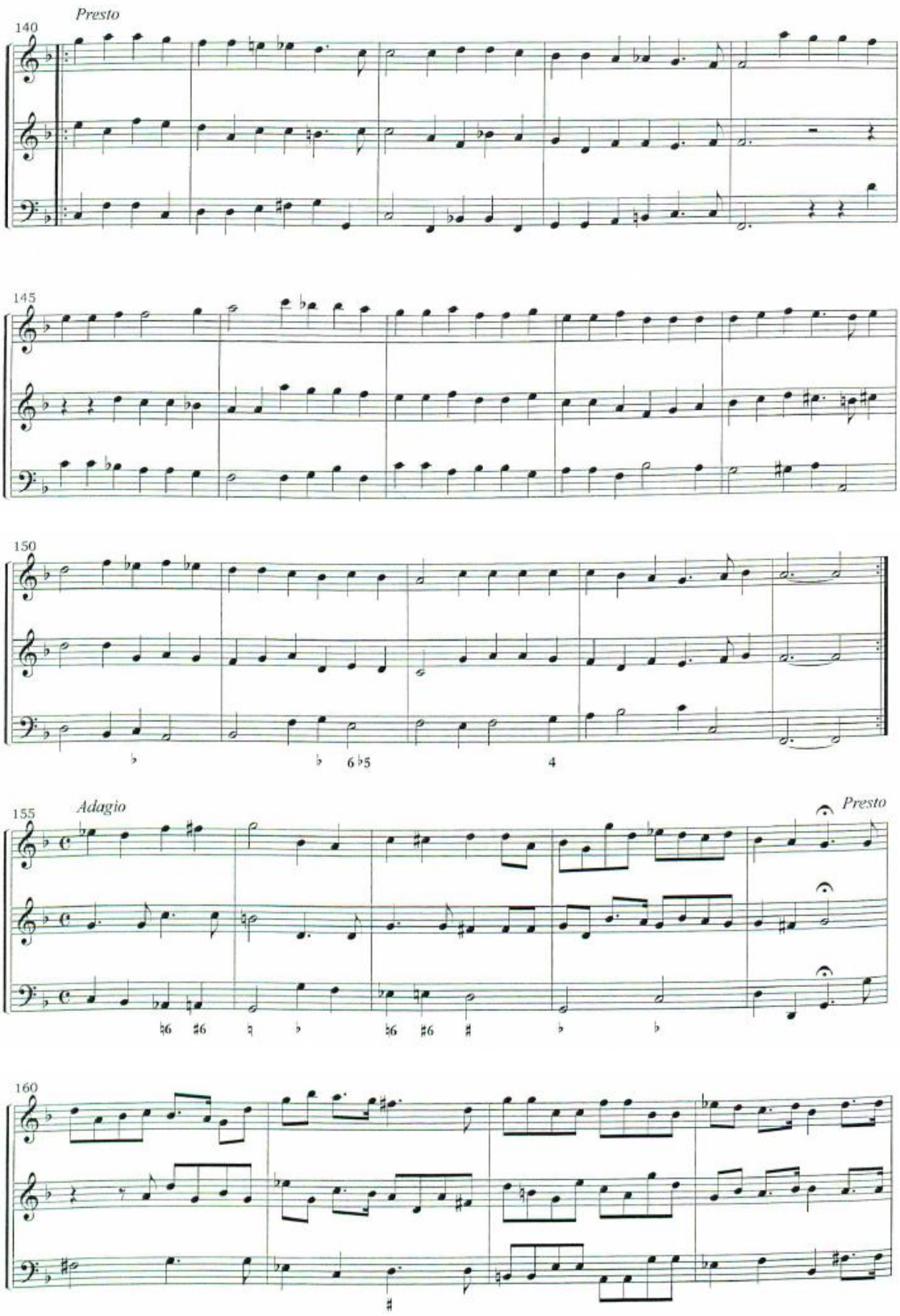
Appendix I. Maurizio Cazzati, ‘Capriccio detto il Gozadini’, from *Varii, e diversi capricci per camera, e per Chiesa*, Op. 50 (Bologna, 1669).

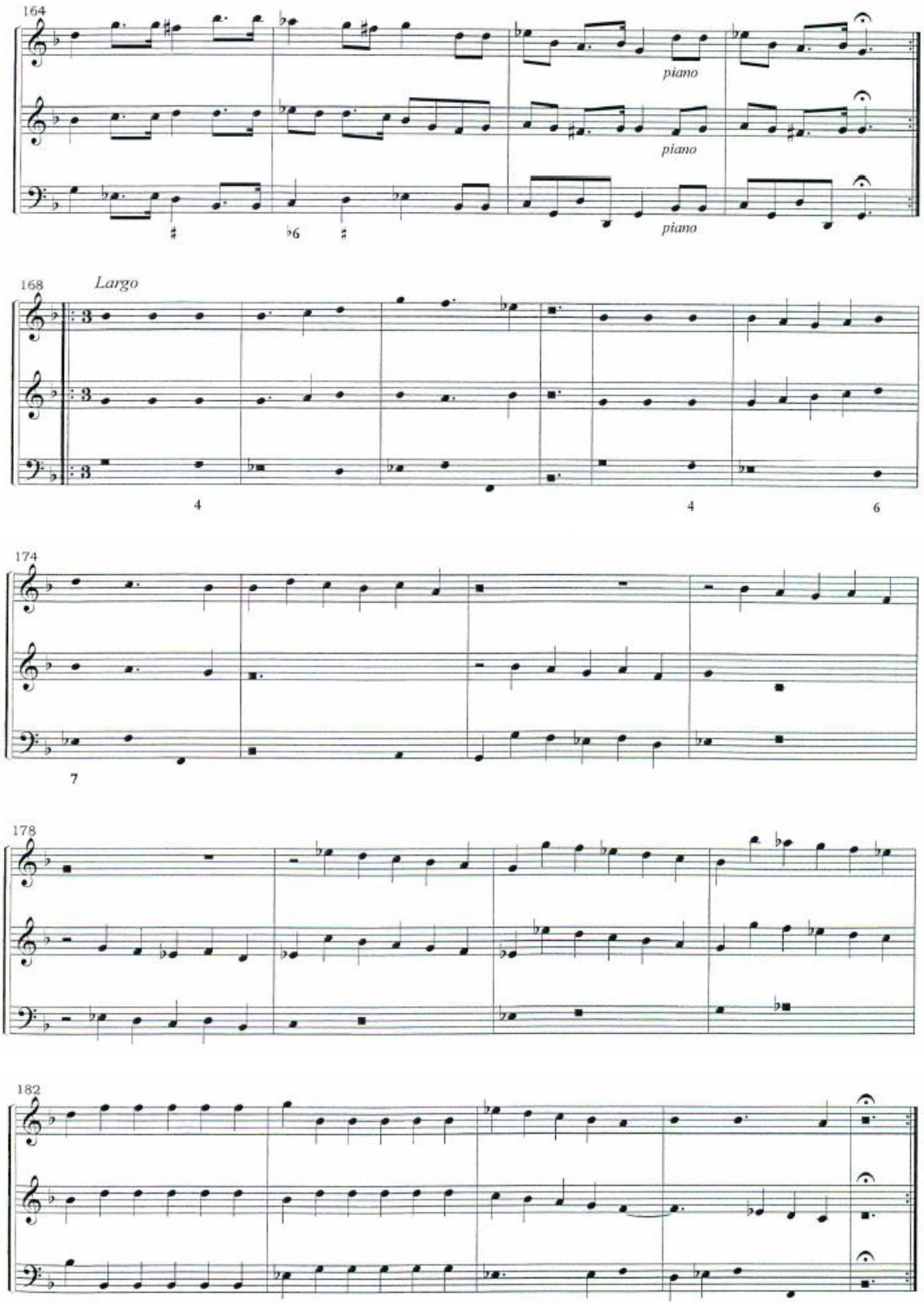


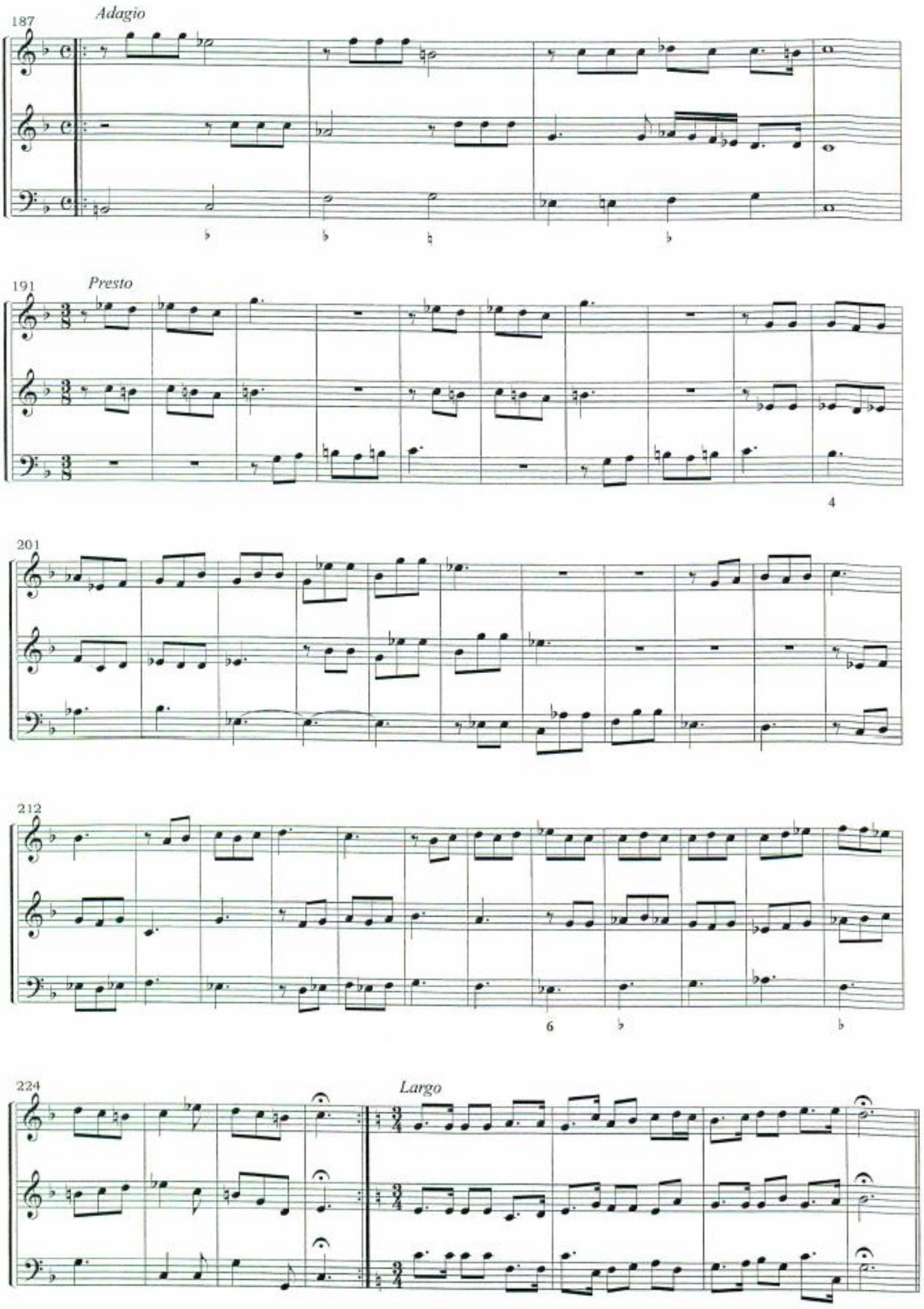

49
Vivace
56
59
Allegro
62
66

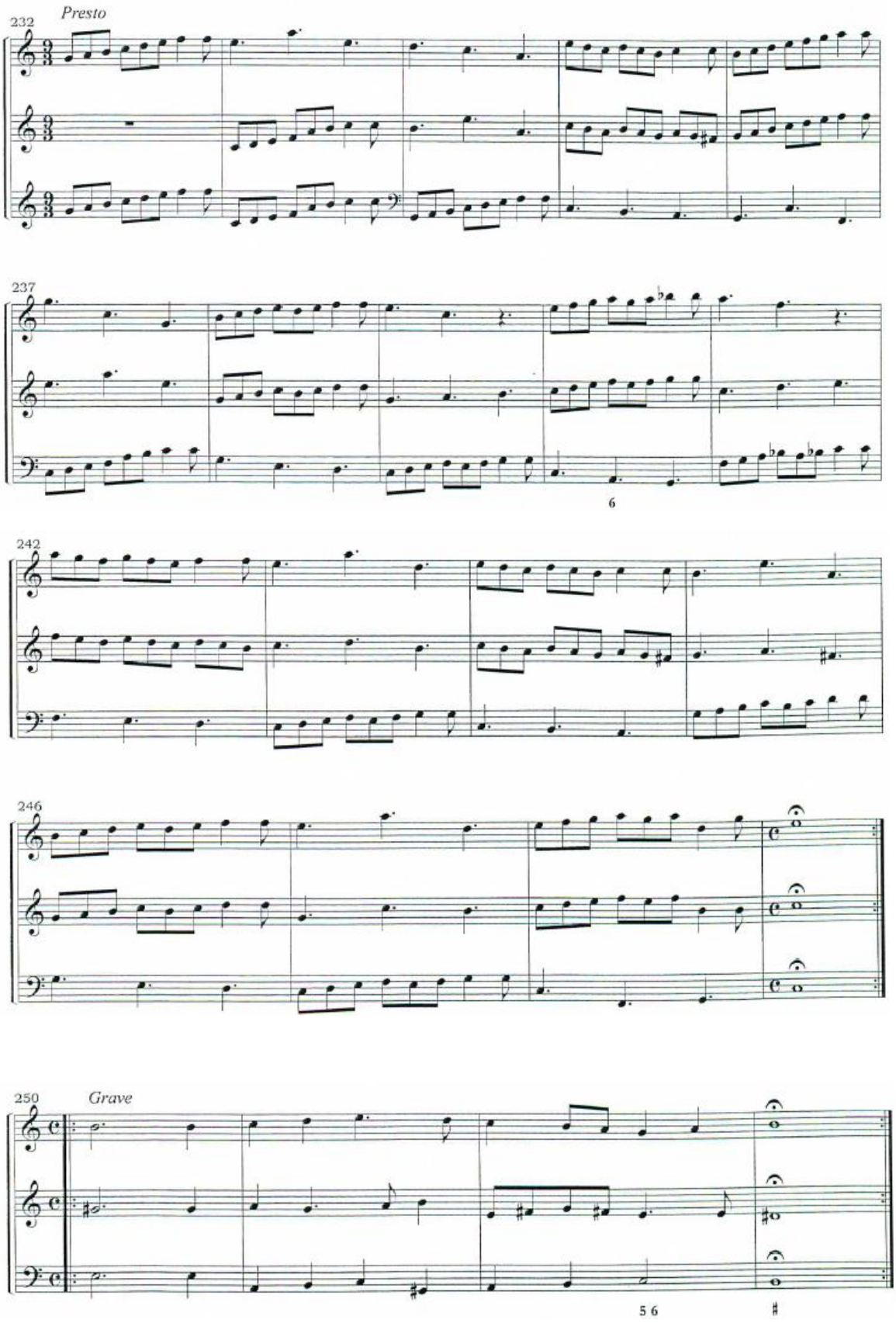

71
Grave
t.
4 3
76
Allegro
3
83
90
97
(!)

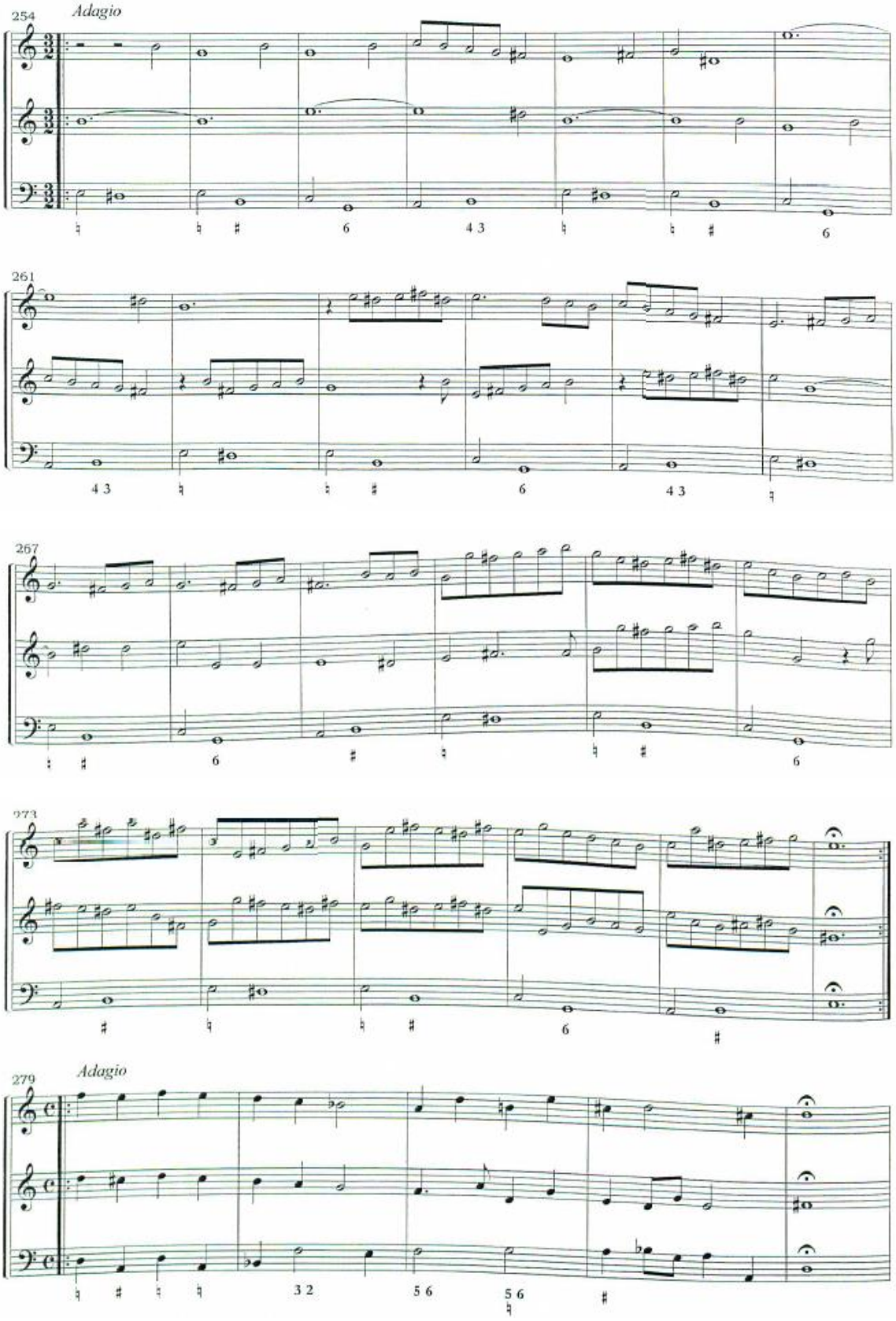

103
Vivace
7
108
Presto
5 6
7 6
115
6
125
Presto
134

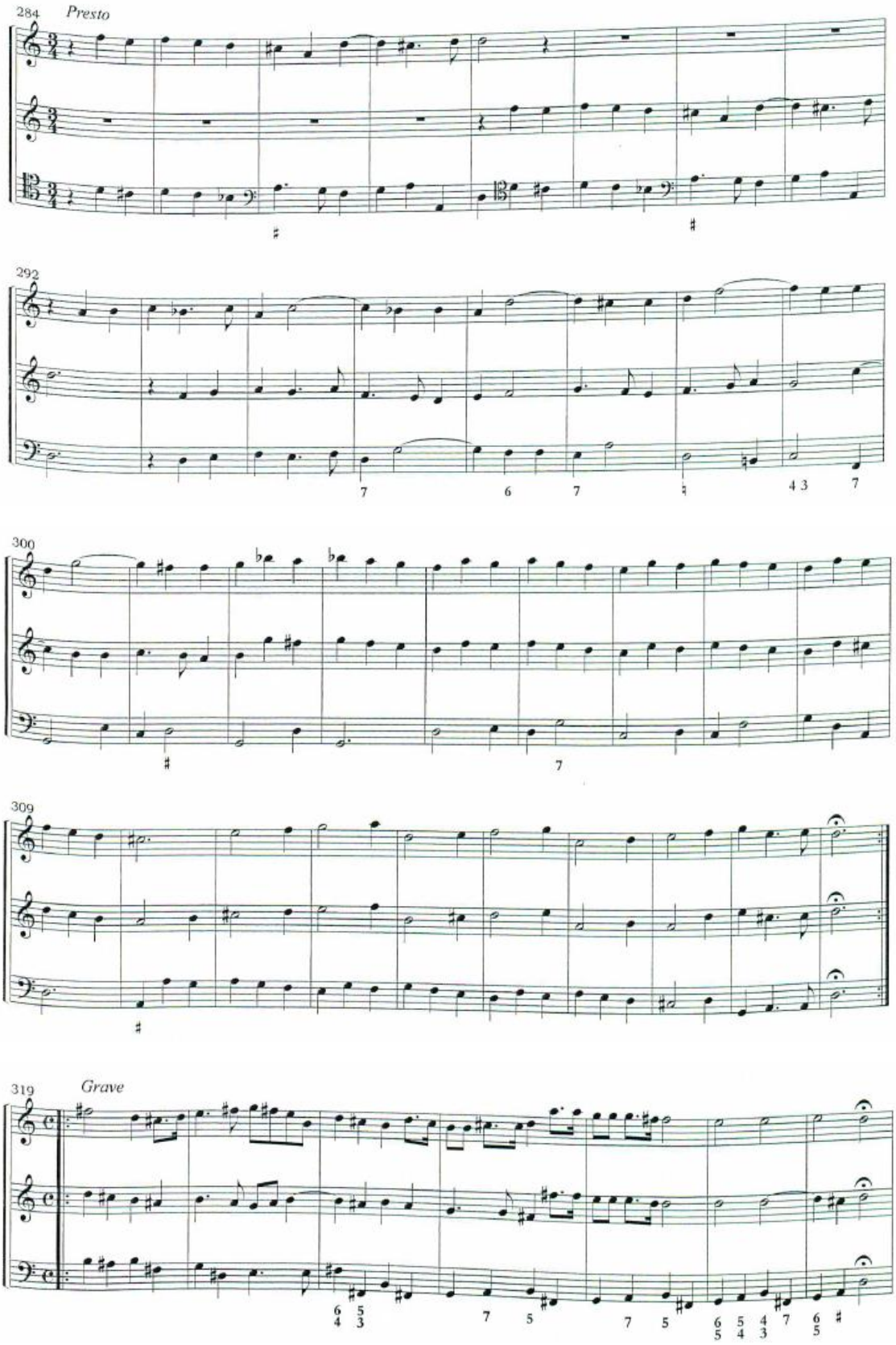

Presto
140
145
150
6 ♭5
4
Adagio
155
Presto
160

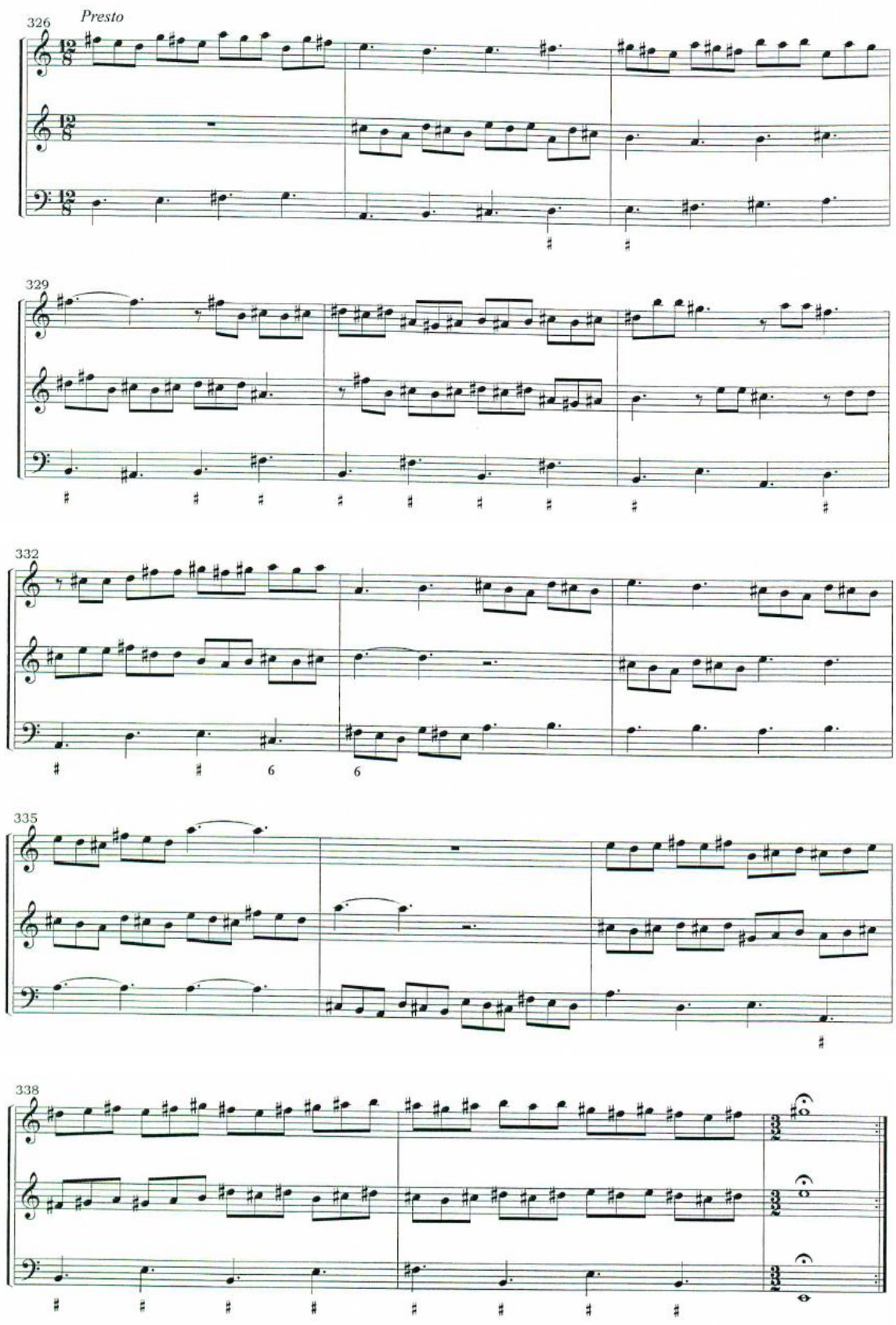

164
piano
piano
piano
168
Largo
174
178
182

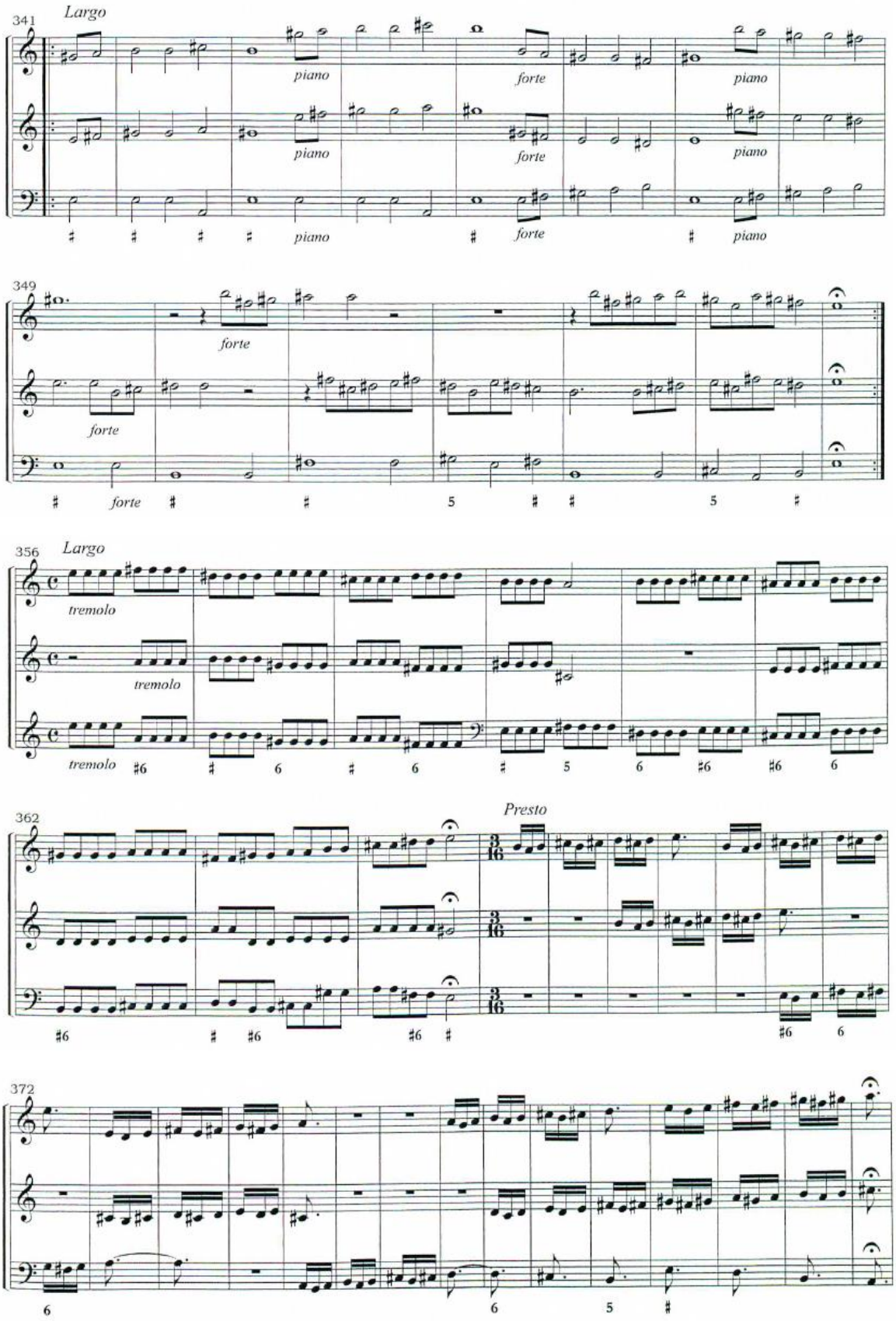

187
Adagio
191
Presto
4
201
212
6
224
Largo

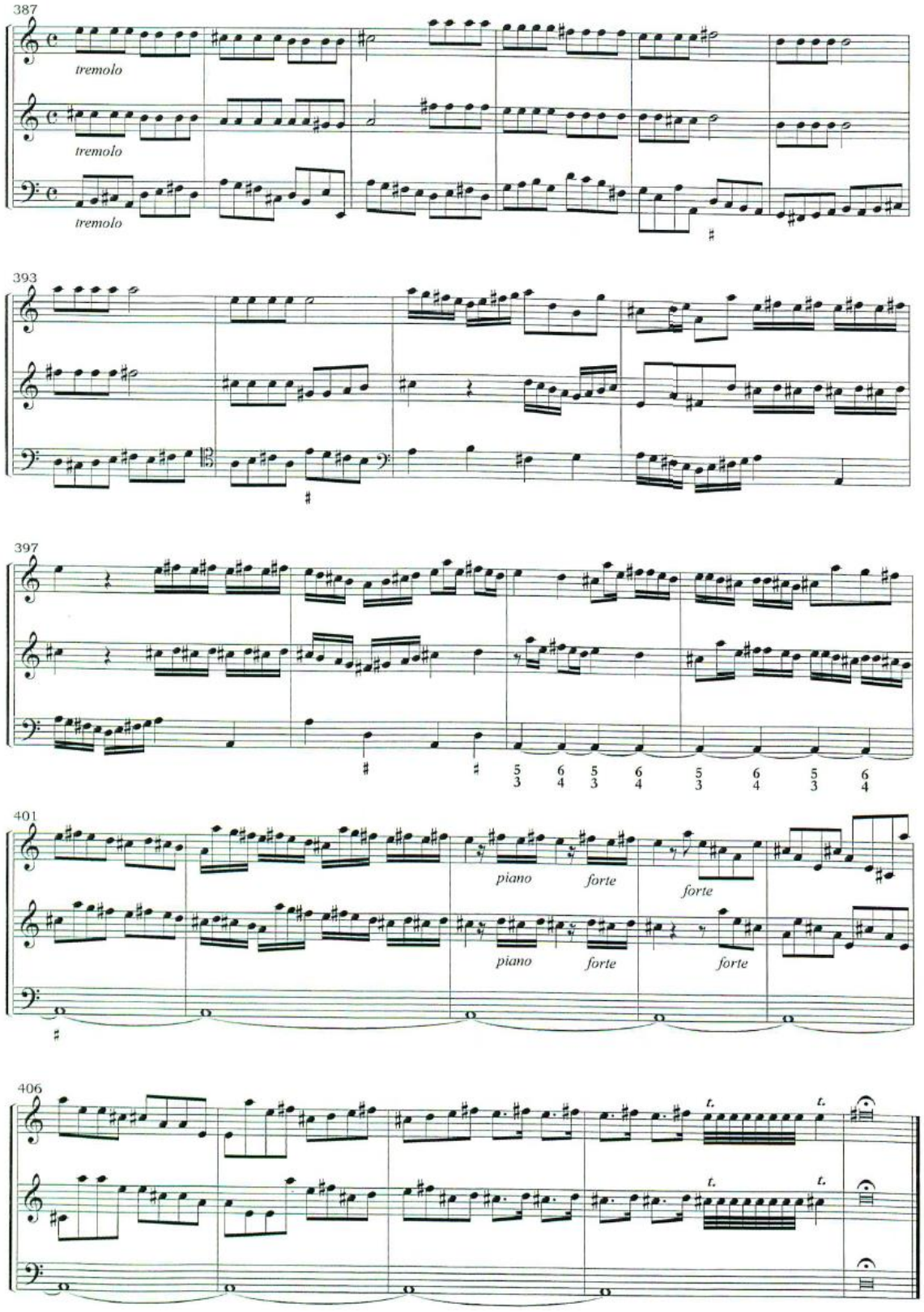

232
Presto
237
6
242
246
250
Grave
5 6


254
Adagio
261
267
273
279
Adagio


284
Presto
292
300
309
319
Grave


326
Presto
329
332
335
338


341
Largo
piano
forte
piano
349
forte
356
Largo
tremolo
362
Presto
372


387
tremolo
tremolo
tremolo
393
397
5 6 5 6 5 6 5 6
3 4 3 4 3 4 3 4
401
piano
forte
forte
piano
forte
forte
406
t.
t.
t.
t.

Appendix J. Chart of systems according to Chafe's model.

## Flat side

**♮ system**

♭ B♭ F C g/G d/D a/A

♮ F C G d/D a/A e/E

♯ C G D a/A e/E b/B

**♭ system**

♭♭ E♭ B♭ F c/C g/G d/D

♭ B♭ F C g/G d/D a/A

♮ F C G d/D a/A e/E

**♭♭ system**

♭♭♭ A♭ E♭ B♭ f/F c/C g/G

♭♭ E♭ B♭ F c/C g/G d/D

♭ B♭ F C g/G d/D a/A

**♭♭♭ system**

♭♭♭♭ D♭ A♭ E♭ b♭/B♭ f/F c/C

♭♭♭ A♭ E♭ B♭ f/F c/C g/G

♭♭ E♭ B♭ F C g/G d/D

## Sharp side

**♮ system**

♭ B♭ F C g/G d/D a/A

♮ F C G d/D a/A e/E

♯ C G D a/A e/E b/B

**♯ system**

♮ F C G d/D a/A e/E

♯ C G D a/A e/E b/B

♯♯ G D A e/E b/B f♯/F♯

**♯♯ system**

♯ C G D a/A e/E b/B

♯♯ G D A e/E b/B f♯/F♯

♯♯♯ D A E b/B f♯/F♯ c♯/C♯

**♯♯♯ system**

♯♯ G D A e/E b/B f♯/F♯

♯♯♯ D A E b/B f♯/F♯ c♯/C♯

♯♯♯♯ A E B f♯/F♯ c♯/C♯ g♯/G♯