Mid-Sixteenth-Century Venetian Keyboard Intonations and Toccatas: Towards a System of Improvised Embellishments

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Abstract

The development of psalm-based Venetian keyboard intonations and toccatas in mid-sixteenth century was mainly propelled by the evolution of keyboard-specific embellishment techniques. Despite the apparent homogeneity in embellishment style observed among surviving repertory of this genre, no codification of the presumably prevailing method of improvised embellishments, either in the sixteenth century or in current time, is found.

In this dissertation, the author proposes a method of keyboard-specific improvised embellishments applicable to the improvisation on the cantus firmus in a four-part setting. The proposed rules of embellishment are built upon the prescriptive examples in embellishment treatises (e.g. Ortiz 1553, Bassano 1585, Diruta 1593, Bovicelli 1594) and notated embellishments in surviving repertory (e.g. BERTOLDO1591, DIRUTA1593, GABRIELI1593, PADOVANO1594). The efficacy of the proposed method is tested by its application to various structural points along a given psalm tone.

Keywords

sixteenth-century embellishment, Venetian keyboard intonation and toccata, Gregorian psalm tone, improvised embellishment, keyboard embellishment

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Statement of Originality

This is to certify that to the best of my knowledge, the intellectual content of this dissertation is the product of my own work, and that all the assistance received in preparing this dissertation and sources have been acknowledged. In addition, this dissertation has not been submitted for any degree or other purposes.

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Abbreviations

The following abbreviations are used throughout this dissertation unless otherwise specified.

Musical Collections[1]

"BERTOLDO1591" = Bertoldo, Spirindio. *Toccate, Ricercari et Canzoni francese intavolate per sonar d'Organo da Sperindio Bertoldo, Nouuamente Stampati in Venetia*, Appresso Giacomo Vincenti M. D. XCI. RISM A/I B 2130.

"DIRUTA1593" = Diruta, Gabrieli. *Il Transilvano Dialogo sopra Il Vero Modo di Sonar Organi, et Istromenti da Penna, del R P Girolamo Diruta Perugino, dell'ordine de' Frati Minori Conu, di San Francefco, Organista del Dvomo di Chioggia,* Appresso Venetia Giocomo Vincenti 1593. RISM B/I, 159725.

"GABRIELI1593" = Gabrieli, Andrea et Giovanni Gabrieli. *Intonationi d'Organo di Andrea Gabrieli, et Di Gio: Svo Nepote Organisti della Sereniss. Sig. Di Venetia in S. Marco, Libro Primo*, In Venetia Appresso Angelo Gardano 1593. RISM B/I, 159310

"MERULO1598" = Merulo, Claudio. *Toccate d'intavolatura d'organo di Claudio Merulo da Coreggio organista del Sig. Duca di Parma et Piacenza ecc. Nuovamente da lui date in luce, et con ogni diligenza corette. Libro primo.* In Roma appresso Simone Verovio, 1598 – con licenza de Superiori. RISM A/I M 2376.

"MERULO1604" = Merulo, Claudio. *Toccate d'intavolatura d'organo di Claudio Merulo da Coreggio organista del Sig. Duca di Parma et Piacenza ecc. Nuovamente da lui date in luce, et con ogni diligenza corette. Libro secondo.* In Roma appresso Simone Verovio, 1604 – con licenza de Superiori. RISM A/I M 2376.

"PADOVANO1594" = *Toccate et Ricercari d'Organo del Excellentissimo Annibale Padovano Gia Organista della Serenissima Signoria di Venetia Nouamente Stampate, & date in Luce.* In Venetia Appresso Angelo Gardano. M. D. C IIII. RISM A/A 1252.

[1] The hyperlinks for the consulted music manuscripts in the RISM database can be found in the list of references at the end of the dissertation.

Structural Points of Psalm tone

"RA_n" = first recitation of the n^{th} statement of the psalm tone

"M_n" = mediant of the n^{th} statement of the psalm tone

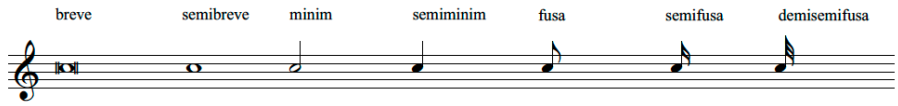
"X_n" = flex of the n^{th} statement of the psalm tone

"RB_n" = second recitation of the n^{th} statement of the psalm tone

"T_n" = termination of the n^{th} statement of the psalm tone

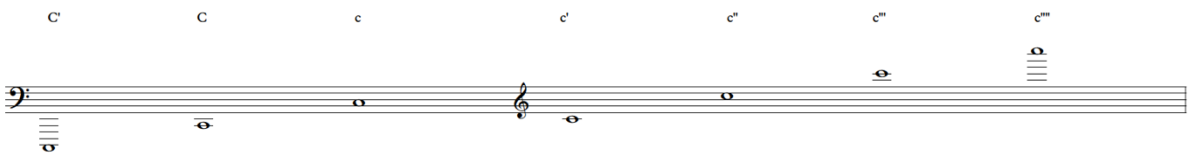
Mensural Notation

This dissertation adopts the modern rhythmic notation in lieu of the white mensural notation in the original manuscripts.



Helmholtz Pitch Notation

Throughout this dissertation, the pitch reference is made with the Helmholtz pitch notation. The following diagram gives the pitch notation of the lowest note of each octave in the Helmholtz system.



Chapter 1 Introduction

1.1 Cantus firmus procedure

The genesis of instrumental music in the late fifteenth and early sixteenth centuries is rooted in the modification, elaboration and embellishment of vocal monophony. During the ensuing decades spanning the better part of the sixteenth century, the substantial output of instrumental writing arising out of the modification and adaptation of antecedent vocal prototypes indicates both an insatiable appetite and a persistent effort in the exploration of instrumental embellishment techniques. The resulting compositional style is one characterised by the contrast between the fluidity of improvised ornamentation and rigidity of the modal framework preset by the cantus firmus.[2]

The cantus firmus procedure, by definition, is the method of improvising counterpoint and ornamentation using the melodic and harmonic framework of a selected cantus firmus.[3] Early application of the procedure in the form of four-part harmonisation of Gregorian psalm tones (e.g. the *falsobordone* style), in the absence of the added embellishments, dates back to the late fifteenth century, but it was not until the early decades of the sixteenth century that this procedure underwent significant evolution and contributed to the emergence of several new forms of instrumental music such as instrumental falsobordoni and intabulations.

At the centre of the sixteenth-century cantus firmus procedure were the eight Gregorian psalm tones, each corresponding to a traditional church mode (see Example 1.1.1).[4] Texturally monophonic and unaccompanied, structurally simple and rhythmically unstrained, the eight psalm tones of great liturgical familiarity provided a suitable framework for the improvisation of counterpoint and embellishment techniques. As shown in Example 1.1.1, the structure of each psalm tone is such that it is divisible into two equal halves. The first half consists of a formulaic intonation (*inchoatio*), a recitation (*tenor*), which is sometimes disrupted by an occasional downward melodic inflection (*flexa*) and the middle cadence (*mediatio*). The second half is comprised of a

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[2] Murray C. Bradshaw, *The Origin of the Toccata*, (American Institute of Musicology, 1972), 25.
[3] Murray C. Bradshaw, *The Falsobordone: A Study in Renaissance and Baroque Music (*American Institute of Musicology: Hänssler-Verlag, 1978), 31.
[4] Around the middle decades of the sixteenth century, the modal system was expanded by Glareanus (*Dedecachordon*, 1547) from eight tones to twelve tones, which resulted in the inclusion of four additional modes and psalm tones. The additional four psalm tones are not part of the focus of this study.

second recitation, and a choice of final cadences (*terminatio*), which are given to ensure smooth transition into the ensuing antiphon.[5] The mode and key pitches of each psalm tone and the definitions of the key structural points of a psalm tone are summarised in Table 1.1.1 and Table 1.1.2 respectively.

If the recitation of each psalm tone is considered as its most common pitch, there are four types of inflection along progression of a psalm tone, namely the intonation, flex, mediant and termination. The intonation is an optional part that precedes the beginning of a psalm tone and usually features an ascent to the ensuing recitation pitch. The flex is a small and fleeting deviation in pitch from a long held recitation. The mediant and termination, as alluded to above, are the cadential melodies that conclude the first and second halves of a psalm tone respectively.

So common was the usage of the eight psalm tones as cantus firmus of instrumental works that improvisation of embellishments over a predetermined series of their harmonic schema became an integral component in the education of sixteenth-century musicians.[6] Table 1.1.3 gives a summary of the key embellishment manuals by eminent sixteenth-century theorists. Despite the specificity of the intended readership of the said treatises, theoretical prescription of sixteenth-century embellishments was rarely reserved for particular classes of instruments and vocalists.[7] Most prescribed examples in these embellishment manuals were considered to be equally applicable to disparate mediums of realisation, as instrumental embellishment tutors rarely took into account the idiomatic capabilities of their specialised instruments.[8] In addition, no clear demarcation of vocal and instrumental embellishments was observed at least during the early decades of the sixteenth century, with many theorists insisting that prescribed embellishments in their treatises were equally appropriate for voice, and for wind and stringed instruments.[9] Instrumental authors such as Sylvestro Ganassi (1492–1565) and Diego Ortiz (c. 1510–c. 1576), placed great importance on the instrumentalists' capacity to emulate the human voice, not only in "expressiveness and melodic flexibility", but also in "the technique and style of vocal ornamentation".[10]

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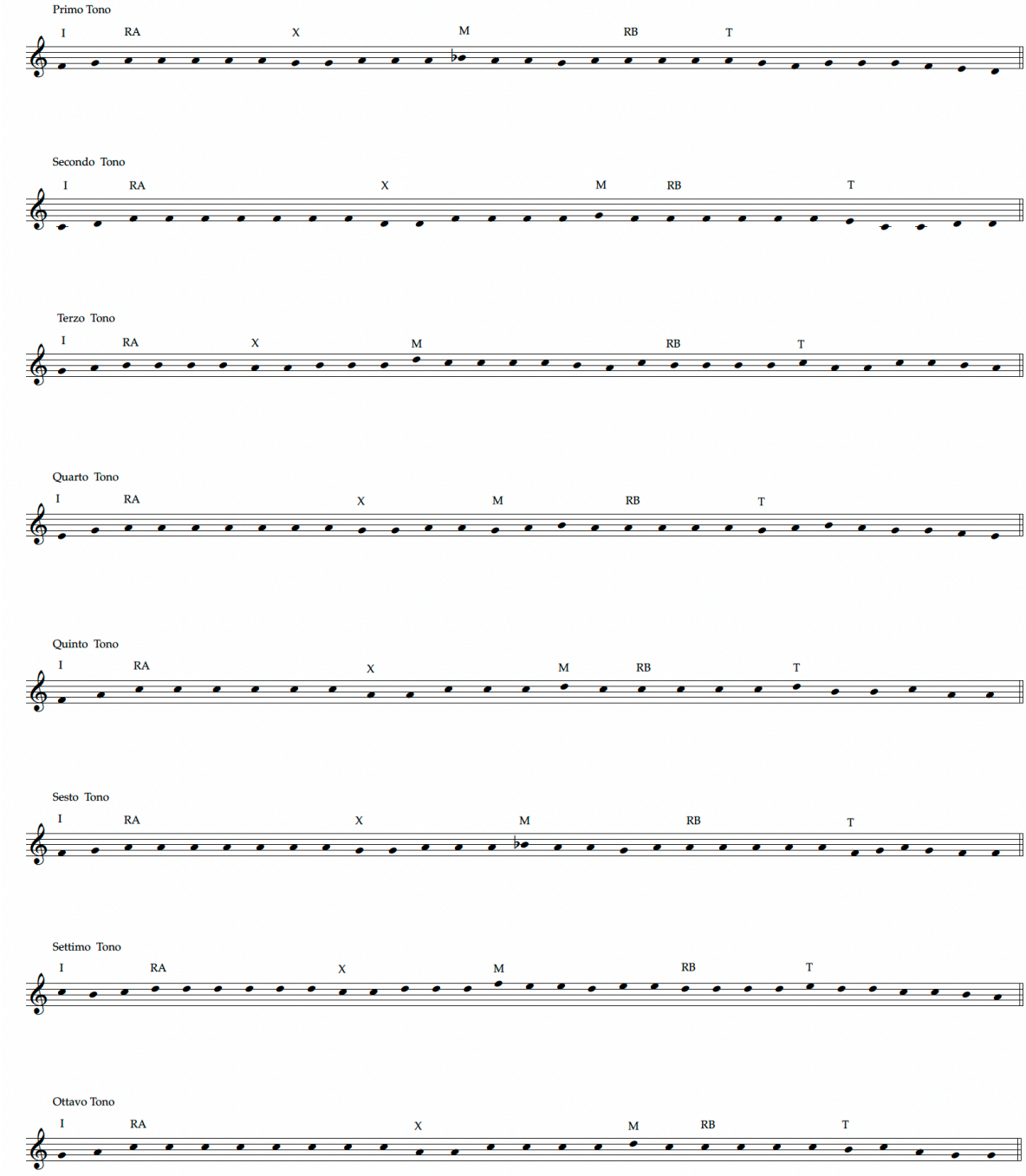
[5] Editors of Encyclopaedia Britannica Article History, Psalm Tone, https://www.britannica.com/art/psalm-tone.
[6] Howard Mayer Brown, *Embellishing Sixteenth-Century Music*, (London: Oxford University Press, 1976), viii.
[7] Mayer Brown, *Embellishing Sixteenth-Century Music*, 14.
[8] Imogene Horsley, "Improvised Embellishment in the Performance of Renaissance Polyphonic Music," *Journal of the American Musicological Society*, Vol. 4, No. 1 (Spring, 1951): 15.
[9] Ibid.
[10] Mayer Brown, *Embellishing Sixteenth-Century Music*, viii.

Example 1.1.1 Eight psalm tones in traditional church modes[11]



[11] K. T. Lartigue, *Ad Communionem: Antiphons and Psalms*, (CreateSpace Independent Publishing Platform 2016), 1210–1216. Refer to Table 1.1.2 for a set of psalm-related abbreviations that will be used throughout the remainder of the dissertation.

Table 1.1.1 Key pitches of the eight psalm tones

Psalm tone	Mode	Recitation A	Mediant	Recitation B	Termination[12]
I	dorian	a	b♭	a	d
II	hypodorian	f	g	f	d
III	phrygian	c	d	c	a
IV	hypophrygian	a	b	a	e
V	lydian	c	d	c	a
VI	hypolydian	a	b♭	a	f
VII	mixolydian	d	e	d	a
VIII	hypomixolydian	c	d	c	g

Table 1.1.2 Key structural points of a psalm tone

Latin Term	English Translation	Abbreviation	Definition
inchoatio	intonation	I	melodic introduction at the onset of psalm tone
tenor	recitation	R	repeated pitch in between cadences of psalm tone
flexa	flex	X	a minor variation from the recitation
mediatio	mediant	M	cadence of the first half of psalm tone
terminatio	termination	T	cadence of the second half of psalm tone

[12] Alternative endings ("*differentiae*") exist.

The chief focus of the aforementioned treatises is the prescription of *passaggi* examples. In the collation of their vast library of embellishments, embellishment tutors made great effort to organise the prescribed examples in a user-friendly way. Among other factors, unfailing consideration was given to the length of the embellished melodic note, size of the embellished melodic interval, whether the embellishment was made for a cadence, and if so, the mode of the cadence. A quick survey of the prescribed passaggi by various theorists reveals a certain level of idiosyncrasy in the prescription of embellishment techniques. Example 1.1.2, Example 1.1.3, Example 1.1.4 juxtapose the passaggi examples for the melodic interval of an ascending second as prescribed by three authors of different professional backgrounds. Ortiz, a pedagogue, places emphasis upon simple construction of ready-to-use cadential formulas. Bassano, a cornetist, seems preoccupied with speed and virtuosity. Bovicelli, a singer, explores nuance in the rhythmic division of a tactus.

With regard to improvised embellishments in an actual performance, contradictory accounts exist in relation to the extent to which the added embellishments altered the underlying vocal model. Mayer Brown observes that, by modern standard, a greater degree of performative liberty was bestowed upon the sixteenth-century musician to realise un-notated compositional intention beyond the score.[13] Therefore, what is perceived as the obscurement and modification of the original melodic contour may have happened as a result of the performer's effort to elaborate an intrinsic compositional idea. Others, including many contemporaneous theorists in the sixteenth century, caution against the addition of extravagant embellishments. McDermott notes that a learned and refined sixteenth-century patronage was unlikely to be impressed with an overabundance of embellishments on the sheer account of technicality and excessive decoration, which, if unchecked, stood to reduce the effectiveness of a keyboard performance.[14]

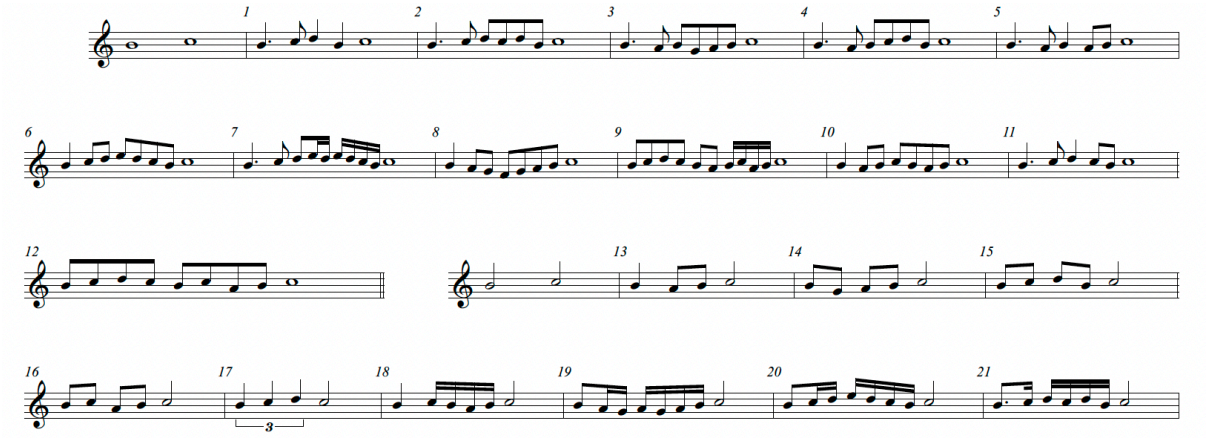
[13] Ibid., 74.
[14] Charles Michael McDermott, "The Canzoni d'Intavolatura of Claudio Merulo" (PhD diss., University of California, 1974), 19.

Table 1.1.3 Key treatises on sixteenth-century Venetian embellishment practice

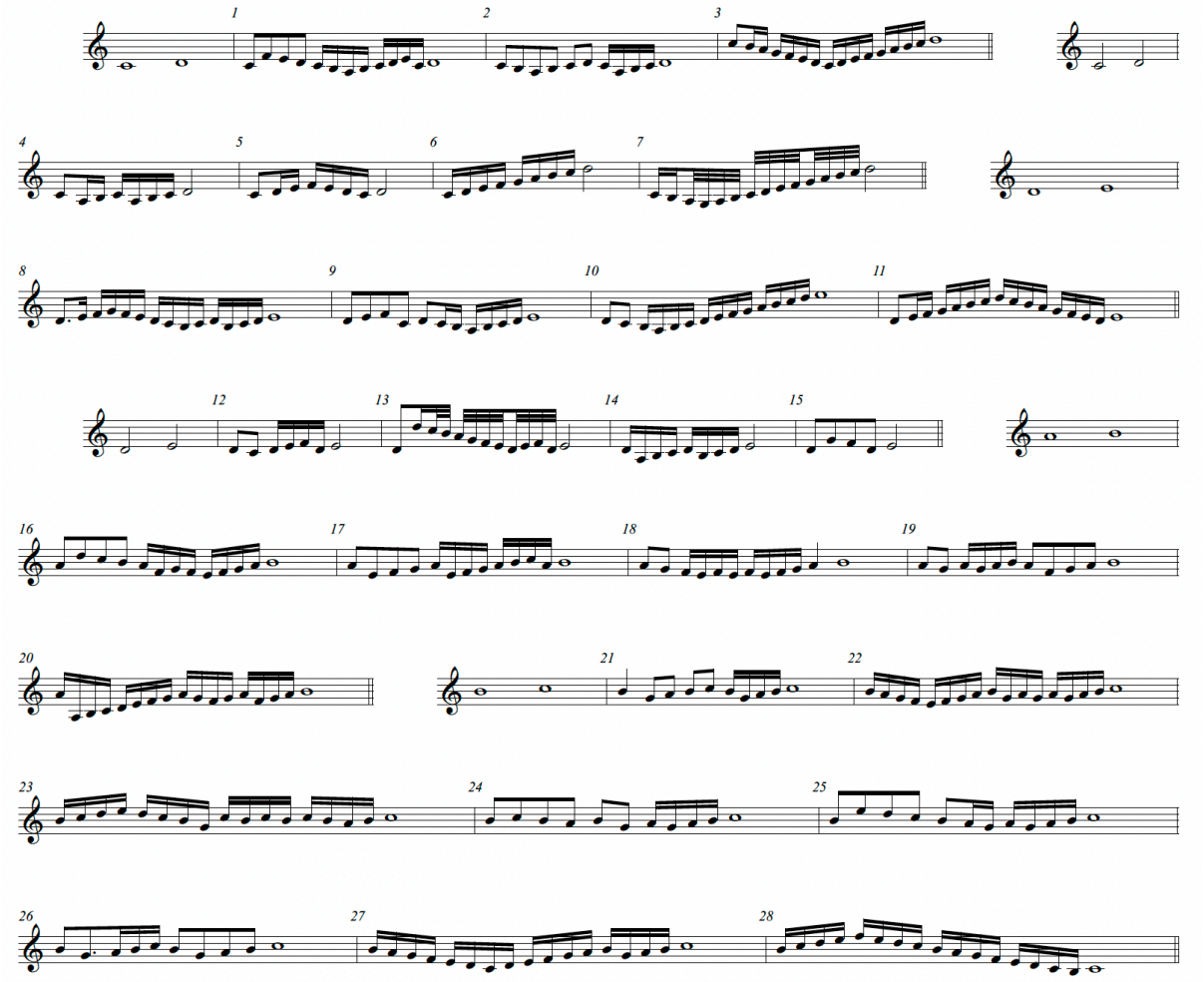
Author	Title (Year of Publication)	Type[15]	Primarily intended for
Silvestro Ganassi dal Fontego (1492–1565)	Opera Intitulata Fontegara (1535)	∀	viol and recorder
Adrianus Petit Coclico (1499–1562)	Compendium Musices (1552)	Ψ	unspecified
Diego Ortiz (c. 1510–c. 1576)	Tratado de Glosas (1553)	∀	viola da gamba
Gioseffo Zarlino (1517–1590)	Le Institutioni harmoniche (1558)	Ψ	unspecified
Giovanni Camillo Maffei (fl. 1562–c. 1573)	delle lettere del Sr. Gio. Camillio Maffei da Solofra (1562)	∀	voice
Girolamo Dalla Casa (?–1601)	Il vero modo di diminuir (1584)	∀	voice
Giovanni Bassano (c. 1571–1617)	Ricercate, passaggi et cadentie (1585)	∀	cornetto
Lodovico Zacconi (1555–1627)	Prattica di Musica (1592)	Ψ	unspecified
Girolamo Diruta (c. 1546–c. 1624)	Il Transilvano (1593)	Ψ	keyboard
Giovanni Luca Conforto (1560–1608)	Breve et facile maniera d'essercitarsi a far passaggi (1593)	∀	voice
Riccardo Rogniono (c. 1550–c.1620)	Passaggi per potersi essercitare nel diminuire terminatamente (1594)	∀	violin
Giovanni Battista Bovicelli (c. 1550–c. 1594)	Regole, passaggi di musica, madriagli et motetti passegiati (1594)	∀	voice

[15] ∀ = Embellishment Manual, Ψ = General Theory (containing reference to embellishment practice)

Example 1.1.2 Diego Ortiz, prescribed passaggi examples for an ascending second[16]



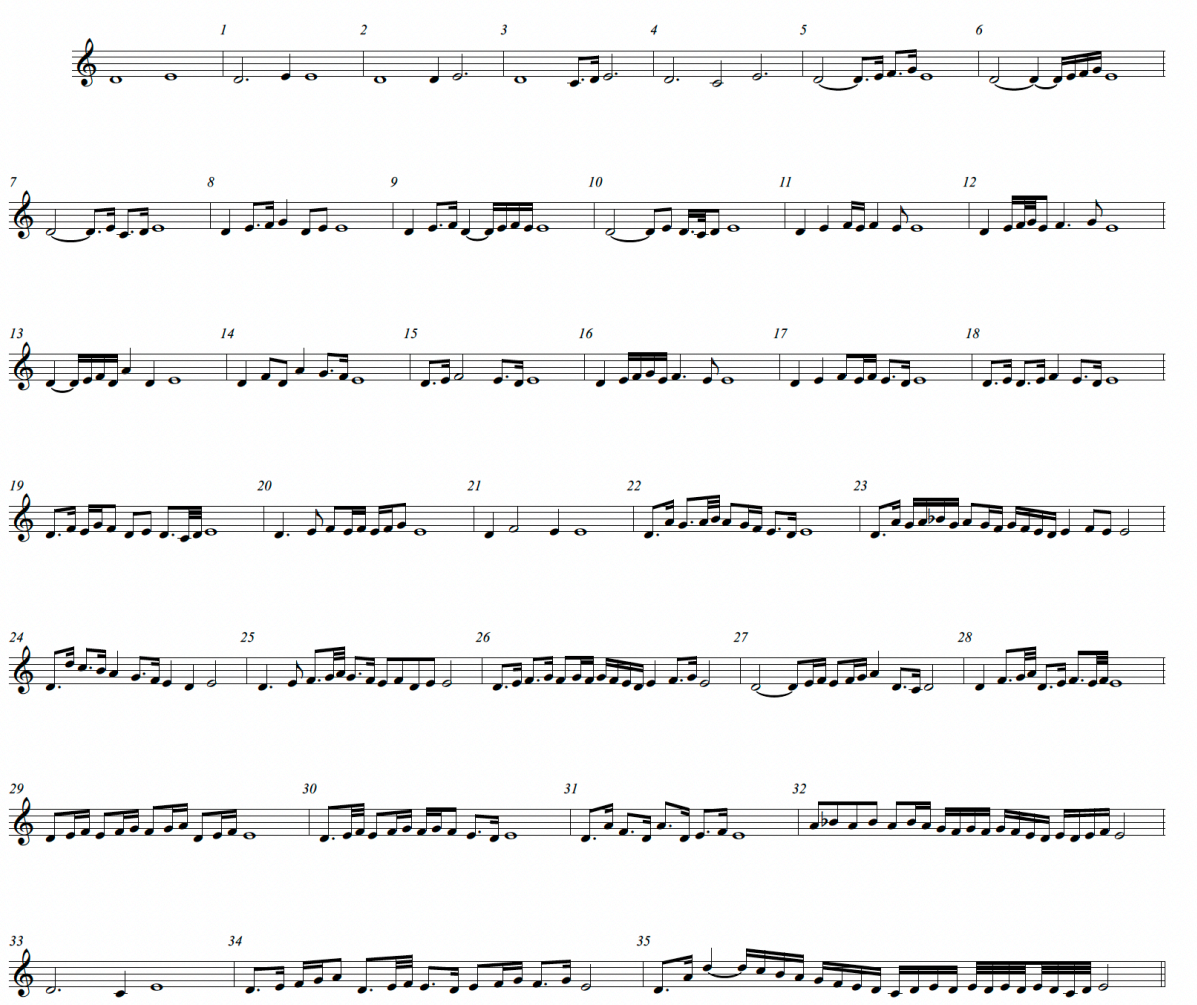
Example 1.1.3 Giovanni Bassano, prescribed passaggi examples for an ascending second[17]



[16] Diego Ortiz, *Tratado de glosas sobre clausulas y otros generos de puntos en lan musica de violones* (Rome: Valerio & Luigi Dorico, 1553), 4.

[17] Giovanni Bassano, *Ricercate, passaggi et cadentie per potersi essercitar nel diminuir terminatamente con ogni sorte d'istrumento; et anco diversi passaggi per la semplice voce* (Venice: Giacomo Vincenzi & Ricciardo Amadino, 1585), 22.

Example 1.1.4 Giovanni Battista Bovicelli, prescribed passaggi examples for ascending second[18]



[18] Giovanni Battista Bovicelli, *Regole, passaggi di musica, madriagli et motetti passegiati*, 1594, trans. Jesse Rosenberg, *Historical Brass Society Journal*, 38.

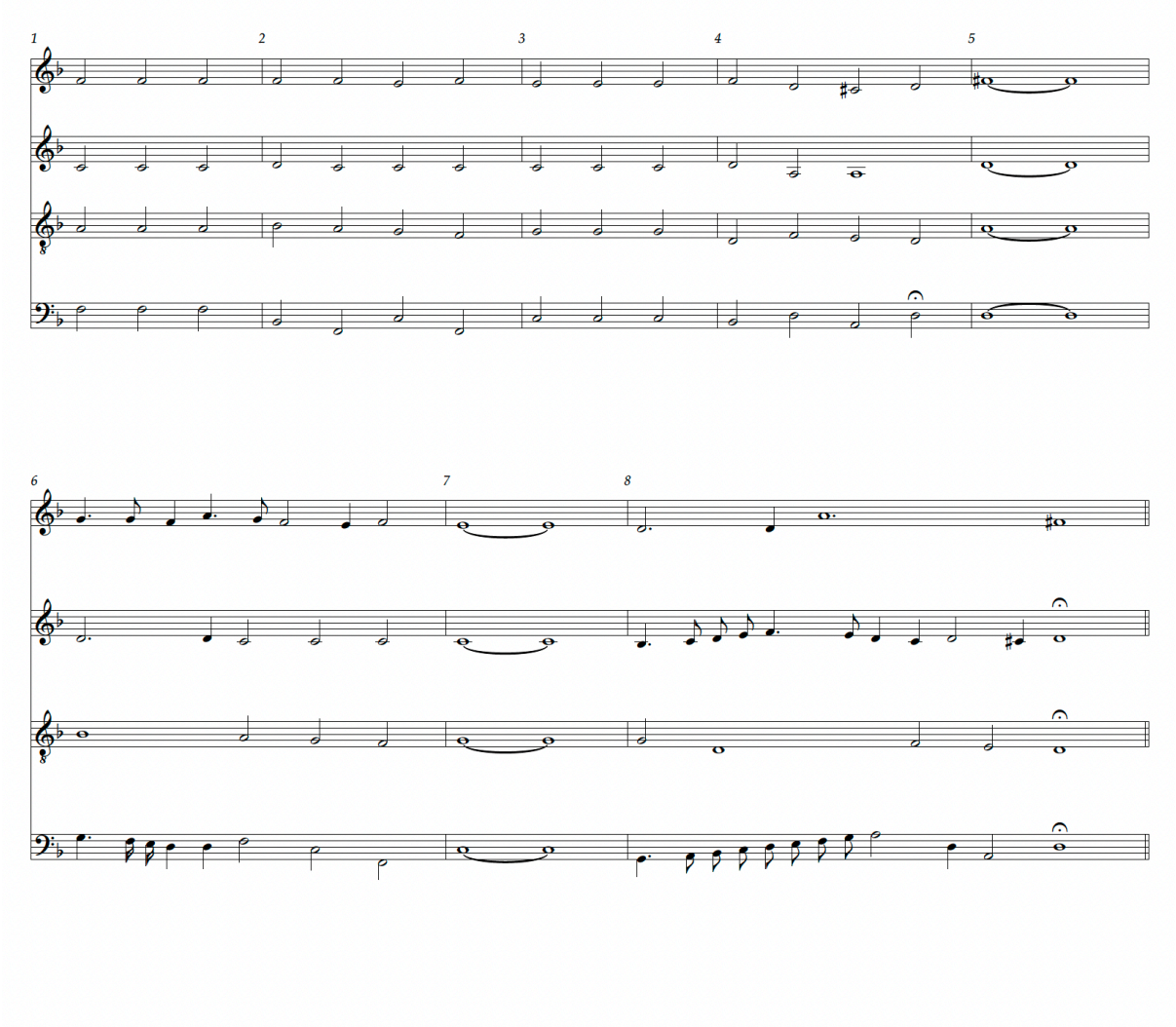
1.2 Venetian keyboard intonations and toccatas

The cantus firmus procedure outlined in Chapter 1.1 contributed to the significant growth in the output of keyboard music during the second half of the sixteenth century. Among the various musical models which emerged from several decades of persistent compositional experimentation, the Venetian toccata attained a unique status of distinction for its technical virtuosity and expressive intensity. Predominantly set in the keyboard idiom, the toccata form subjected well-known psalm tones to varied embellishments in the prevailing style of ornamentation and improvisation.[19] So elaborate and ingenuous were the embellishments near the end of the sixteenth century that the newly composed toccatas became increasingly divorced from their vocal antecedents.

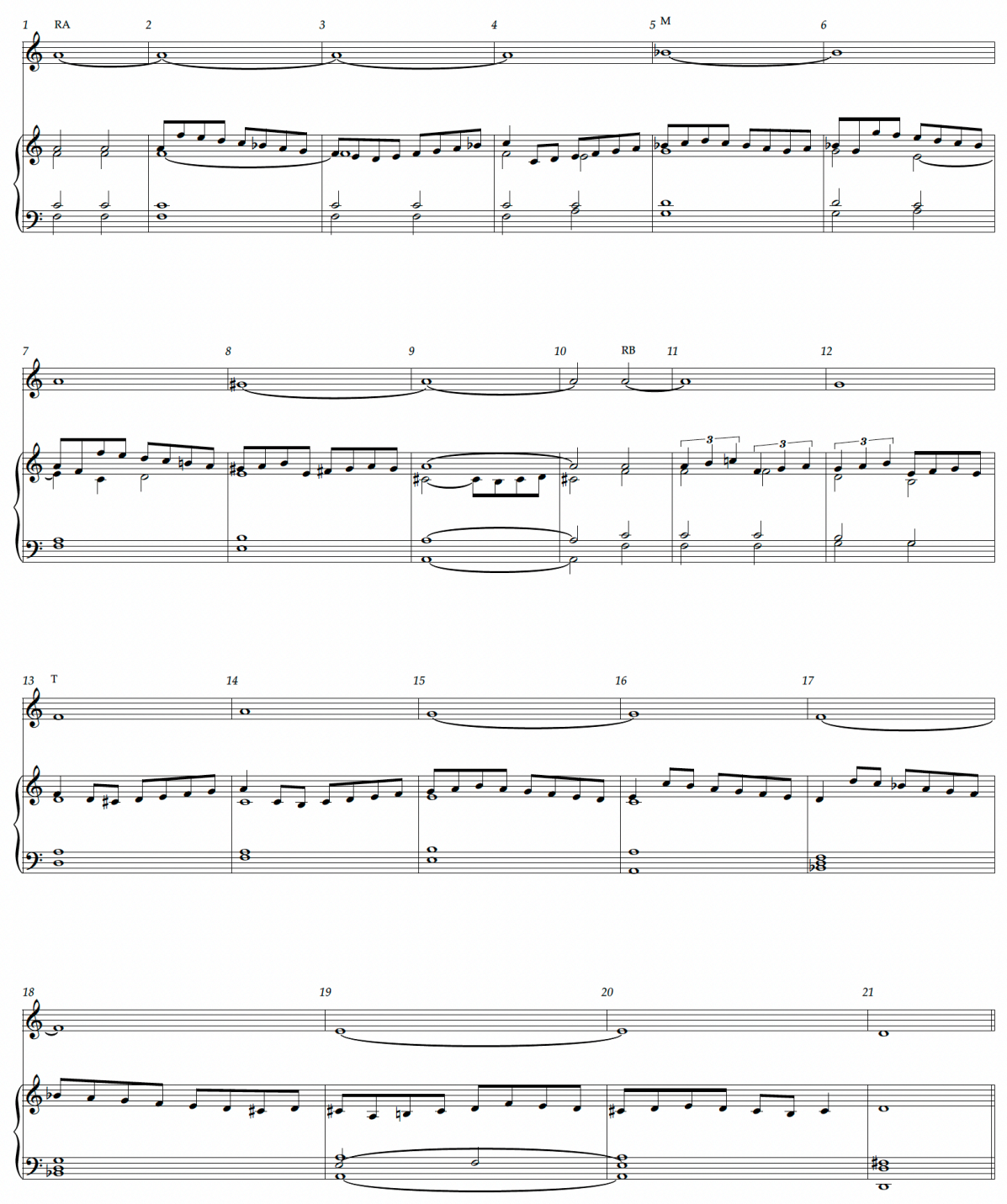
Notwithstanding their unprecedented complexity in a most mature form, the late-century Venetian toccatas are rooted in the simple vocal models dating back to the late fifteenth and early sixteenth century. The *classical falsobordone*, a popular vocal model during the early sixteenth century, contains many structural and functional elements that would appear in later keyboard works. In Example 1.2.1, the first psalm tone is delivered in the tenor part and surrounded by stepping intervals. Notated embellishments are kept to a minimum and usually appear at the mediant and termination of the psalm tone.

[19] Susan Cotton Perry, "The Development of the Italian Organ Toccata: 1550–1750" (DMA diss., University of Kentucky, 1990), 9–10.

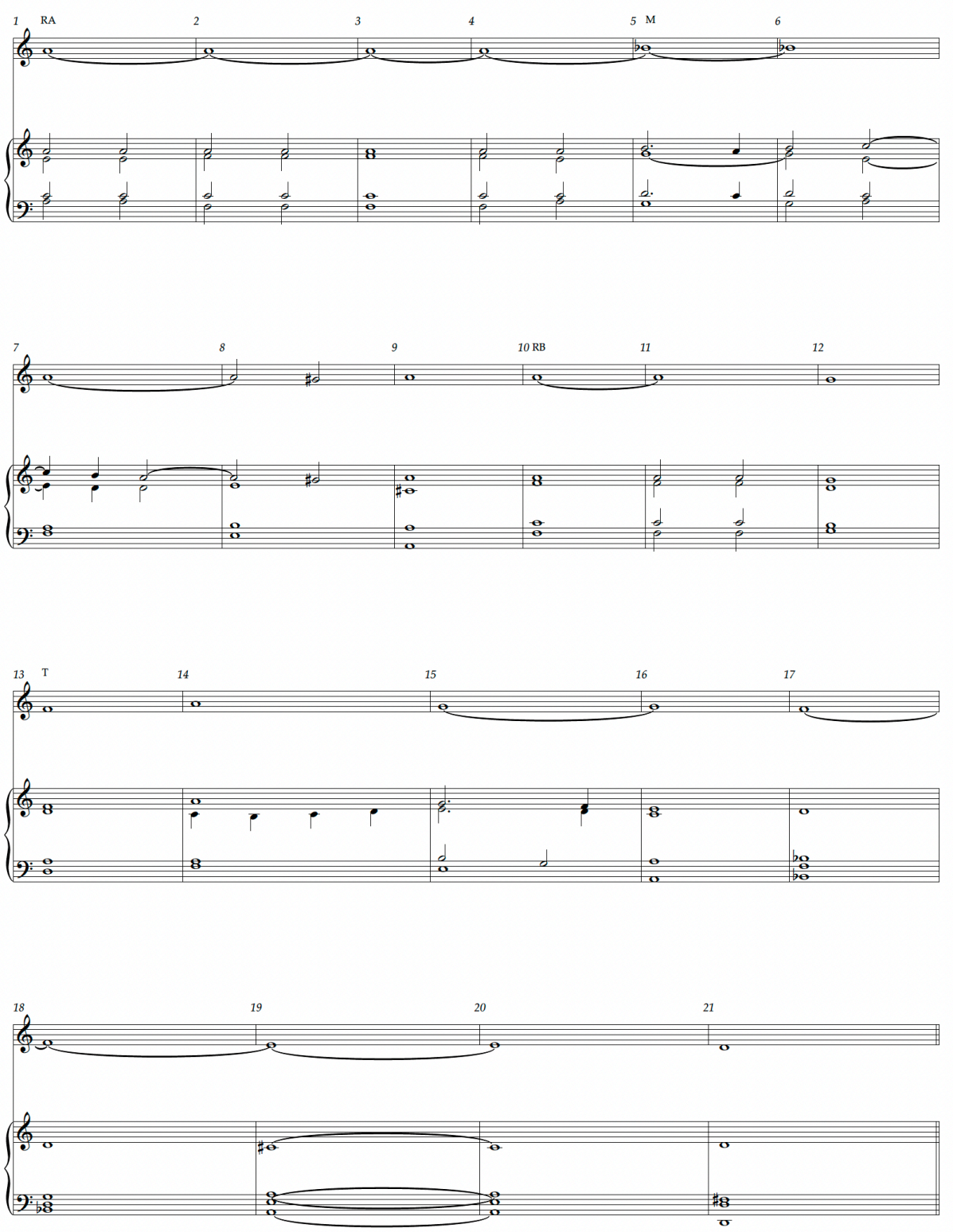
Example 1.2.1 Giaches de Wert, *Falsobordone in exitu Israel*



Example 1.2.2 Antonio de Cabezón, *Fabordon y glosas del Primer Tono llano: Glosado con el Tiple*



Example 1.2.3 Antonio de Cabezón, *Fabordon y glosas del Primer Tono llano: Fabordon* (unembellished)[20]



[20] In this and other instances in the remainder of this dissertation, the unembellished or modified version of the original published work is created by the author for analytical purposes.

The first keyboard falsobordone appeared around 1530 and unsurprisingly stemmed from the classical vocal falsobordone. Unlike its vocal progenitor, the keyboard falsobordone was based on the *idealised* cantus firmus.[21] Bradshaw points out that the idealisation of the cantus firmus, or the presentation of the borrowed melody in an altered manner, is a conventional sixteenth-century compositional technique that is not unique to keyboard works. Such idealisation often entails a combination of the usual practices of the transposition, harmonisation, modification and embellishment of the original melody, thus emancipating the compositional constraints resulting from the strict adherence to the unaltered melodic contour. An example of the early keyboard falsobordoni is found in eight versets by Antonio de Cabezón (1510–1566). As seen in Example 1.2.2, the psalm tone, which was once distinctly delivered in the classical falsobordone, is now submerged in the continuous flow of scalar passaggi in the soprano, which effectively obscures the various sectional transition points that would be otherwise evident in the unembellished version (Example 1.2.3).

The developmental lineage from the classical vocal falsobordone to keyboard falsobordone was resumed with the emergence of the Venetian keyboard intonations during the mid-sixteenth century. The current surviving repertory is found in a collection (i.e. GABRIELI1593) consisting of eight intonations by Andrea Gabrieli (1532–1585) and a further eleven by Giovanni Gabrieli (c. 1554–1612). In spite of the late-sixteenth-century publication date (1592) of the collection, it is plausible that Andrea's intonations were in actuality conceived between 1550 and 1560, only to be published posthumously, by virtue of the collection's use of the traditional eight church modes (instead of the twelve).[22] In addition, the general stylistic uniformity of Andrea's intonations (see Example 1.2.4 and Example 1.2.5) — the use of slow sustained chords to establish the tonality of the recitation, the embellishment of either the soprano or bass part in a four-part vocal texture with interminable and sweeping scalar passages, the formulaic nature of cadential ornamentation and the adherence of such embellishments to the idealised psalm monody — seems to characterise the homogeneity and rigidity which one would expect in the early developmental stage of the intonation and toccata music. By comparison, Giovanni Gabrieli's intonations are in all likelihood to have been composed during a later period, as they show considerably more restraint in the overuse of scalar passages and greater variety in the progression of chordal polyphony (see Example 1.2.6 and Example 1.2.7).

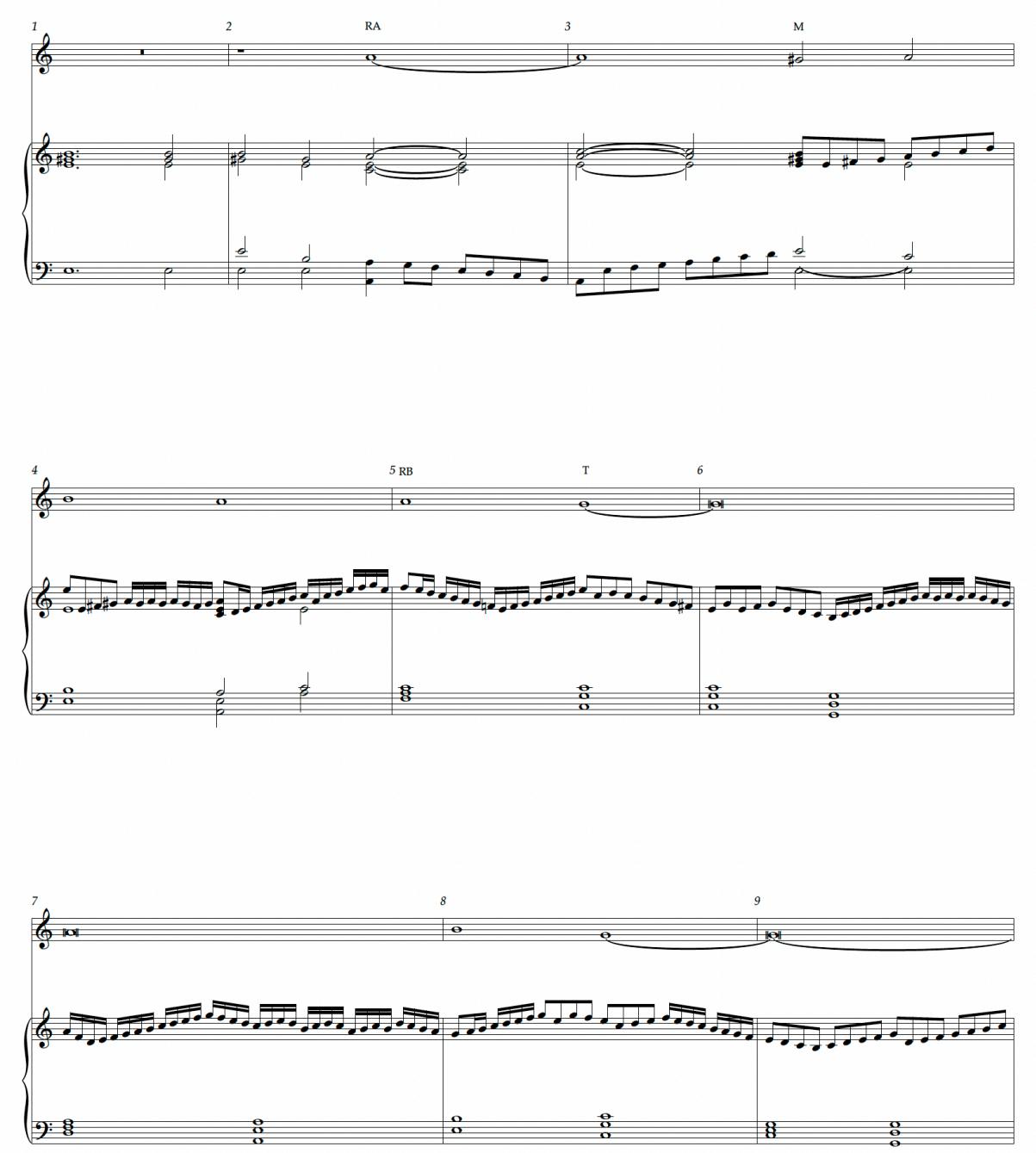
[21] Bradshaw, *The Origin of Toccata*, 26.
[22] Willi Apel, *The History of Keyboard Music to 1700* (Indiana University Press, 1972), 218.

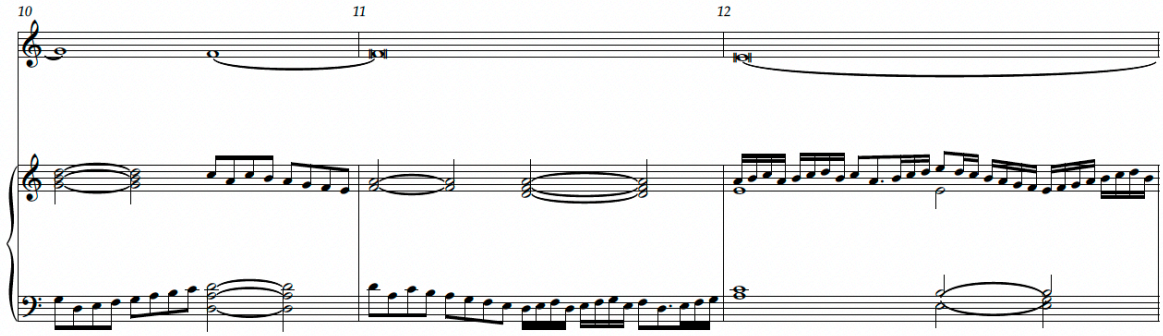
The stylistic uniformity that characterised the embellishing procedure of mid-sixteenth-century keyboard intonations was short-lived (see Table 1.2.1). Andrea Gabrieli, who wrote both intonations and toccatas, recognised the need for the toccata form to outgrow the miniature form of intonation.[23] The inherent weakness of such embellishment language, which Apel regards as being "only suitable for music of small framework", eventually proved insufficient as keyboard music lengthened over time.[24] In the last few decades of the sixteenth century, the various constraints imposed on the intonation were gradually abandoned in a rapidly advancing toccata form at the hands of Venetian organists, such as Andrea Gabrieli (1532–1585), Annibale Padovano (1527–1575), Giovanni Gabrieli (1554–1612), and Claudio Merulo (1533–1604).

The evolution of the Venetian keyboard toccatas during the second half of the sixteenth century is characterised by Bradshaw to have proceeded in three sub-periods.[25] The early period (c. 1550–1570) saw the advent of a refreshingly distinctive keyboard style which embellishes the psalm tones in block chords with interminable scalar passages sweeping from one end of the keyboard to the other. The parameters of the vocal falsobordone were abandoned in favour of improvisatory passageworks, flourishing cadences and free counterpoint. The middle period (c. 1570–1585) witnessed the important insertion of the ricercar sections in between virtuoso passageworks and the resulting convergence of two vocal styles (i.e. falsobordone and motet) in the keyboard idiom. The imitative section served to contrast the toccata texture with its comparably slower melodic rhythm, faster harmonic rhythm, greater focus on polyphony, and narrowed range of notes. The late period (c. 1586–1600) witnessed the widening gulf between the elaborate and diverse embellishing figurations and the vocal cantus firmus, which made the presence of the idealised cantus firmus increasingly inaudible. In addition, harmonic rhythm and textural changes quickened due to the emerging predominance of motivic writing and increasing acceptance of dissonance and leaping intervals. This three-period developmental trajectory is summarised in Table 1.2.2.

[23] Apel, *The History of Keyboard Music to 1700*, 222.
[24] Ibid.
[25] Murray C. Bradshaw, "The Influence of Vocal Music on the Venetian Toccata," *Musica Disciplina,* vol. 42 (1988): 167–180.

Example 1.2.4 Andrea Gabrieli, *Intonazione del Quarto Tono*, GABRIELI1593

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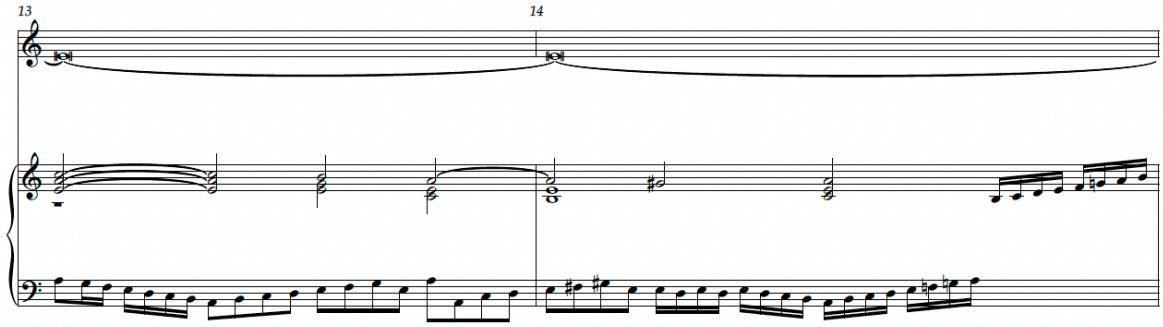
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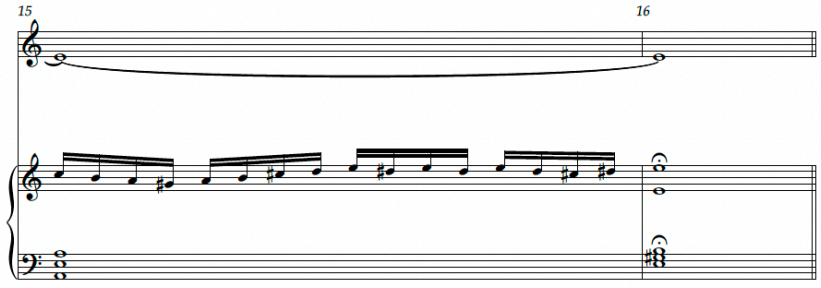
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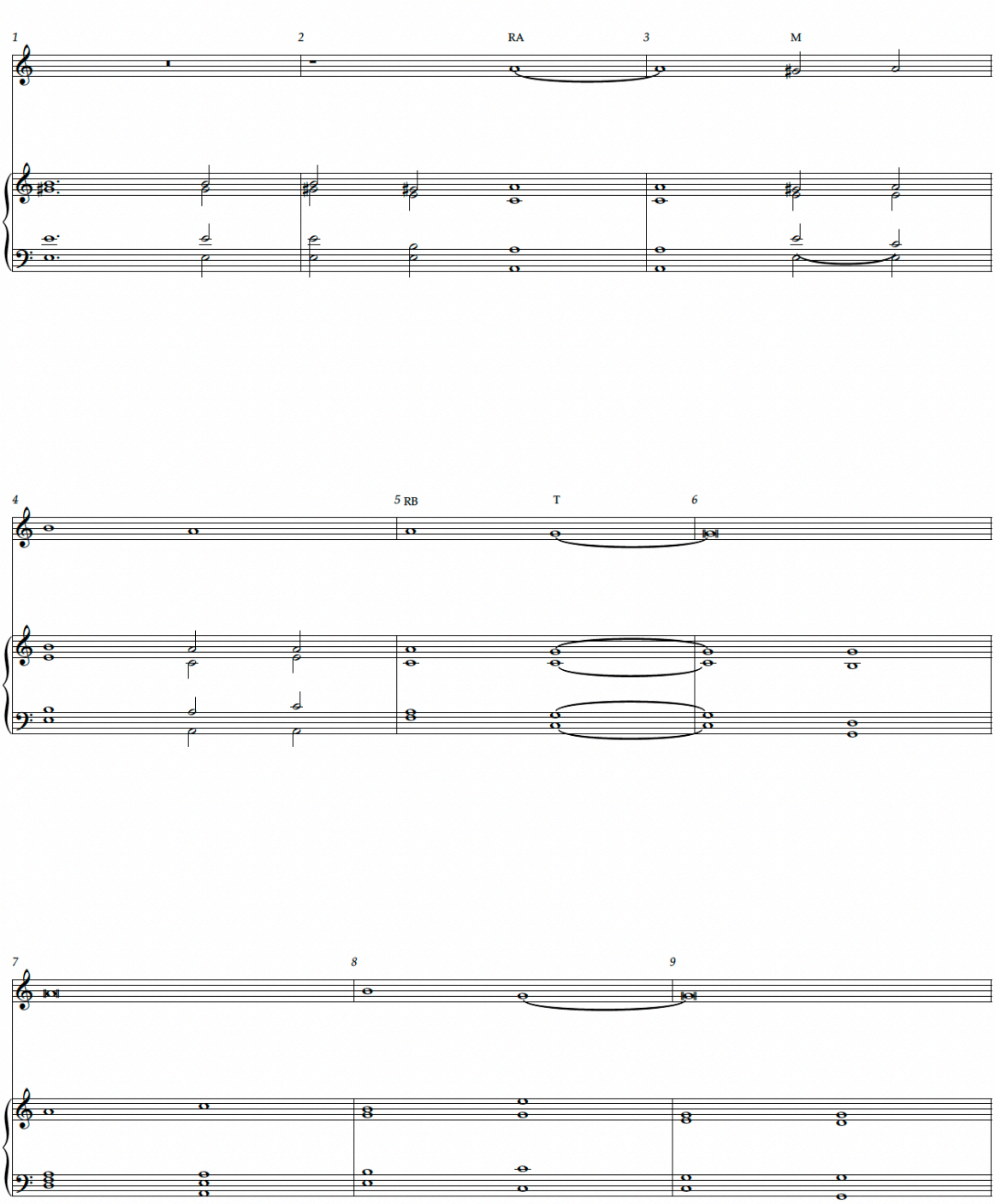
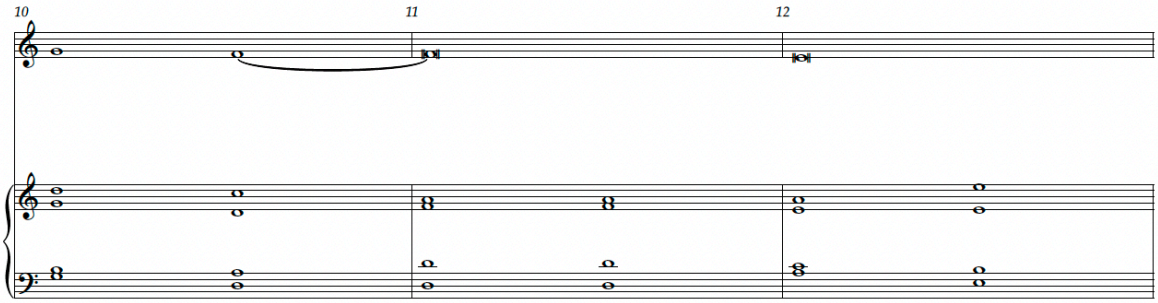
Example 1.2.5 Andrea Gabrieli, *Intonzione del Quarto Tono*, GABRIELI1593 (unembellished)

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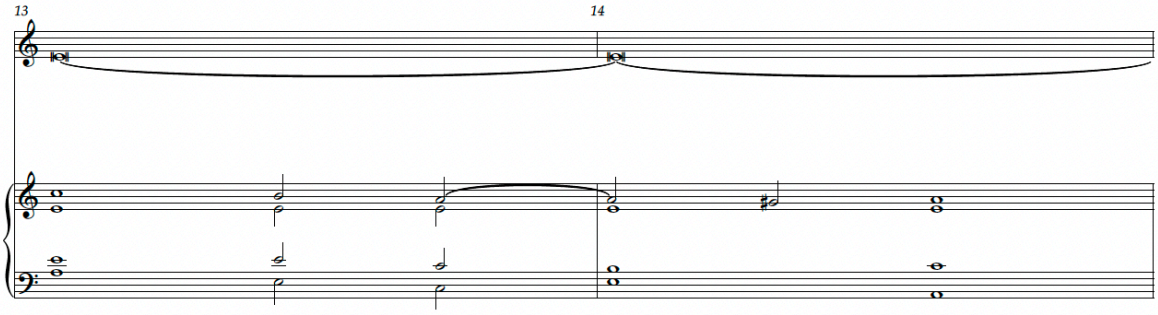
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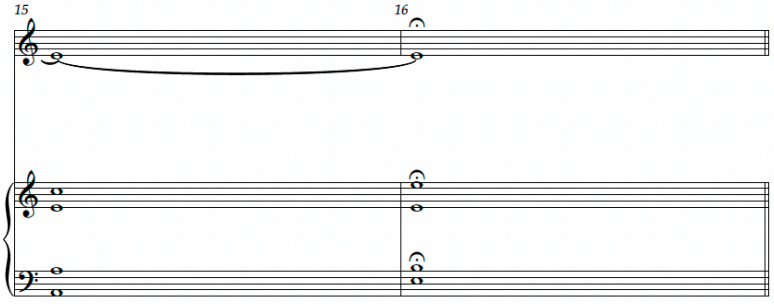
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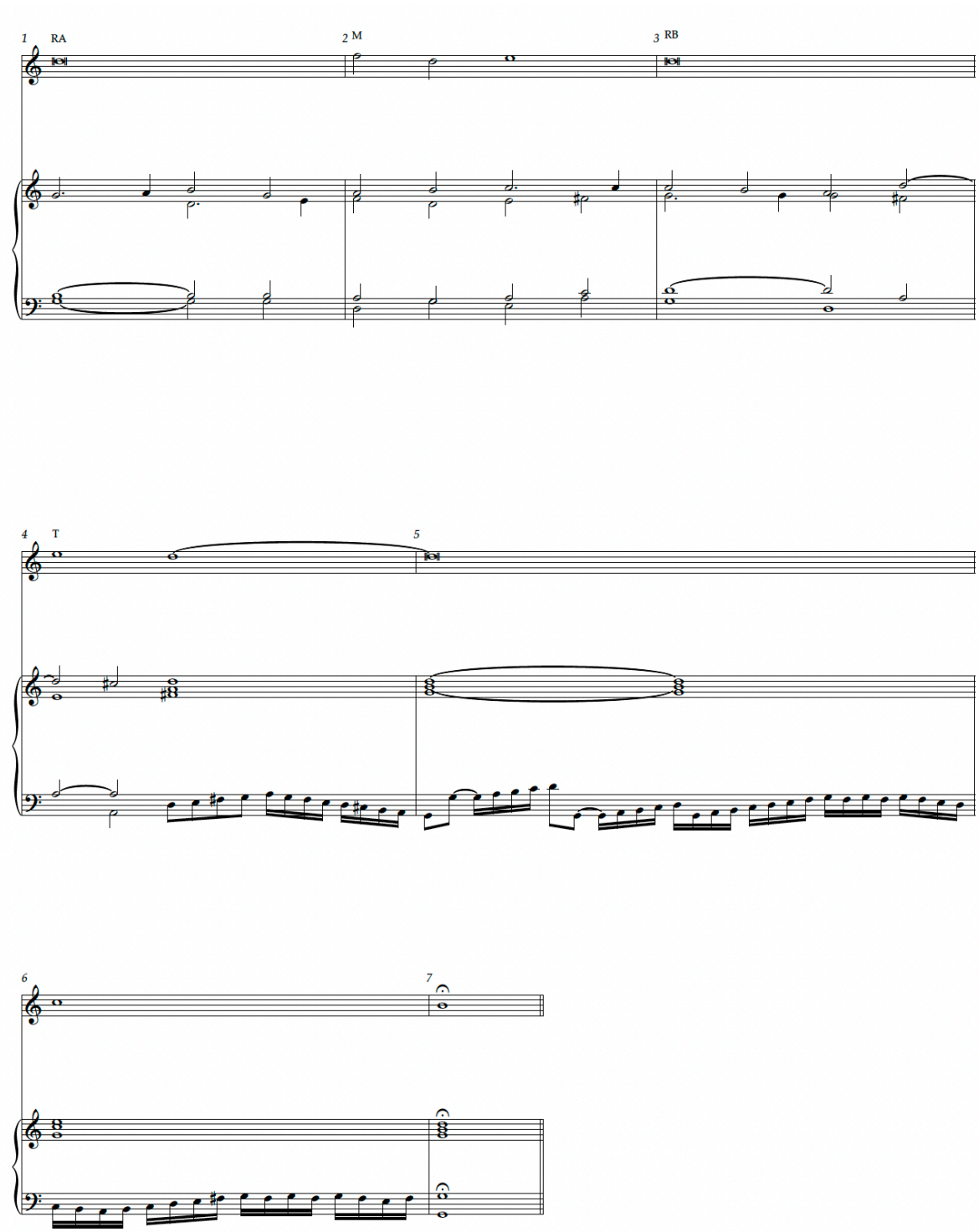
Example 1.2.6 Giovanni Gabrieli, *Intonazione del Settimo Tono*, GABRIELI1593



Example 1.2.7 Giovanni Gabrieli, *Intonazione del Settimo Tono*, GABRIELI1593

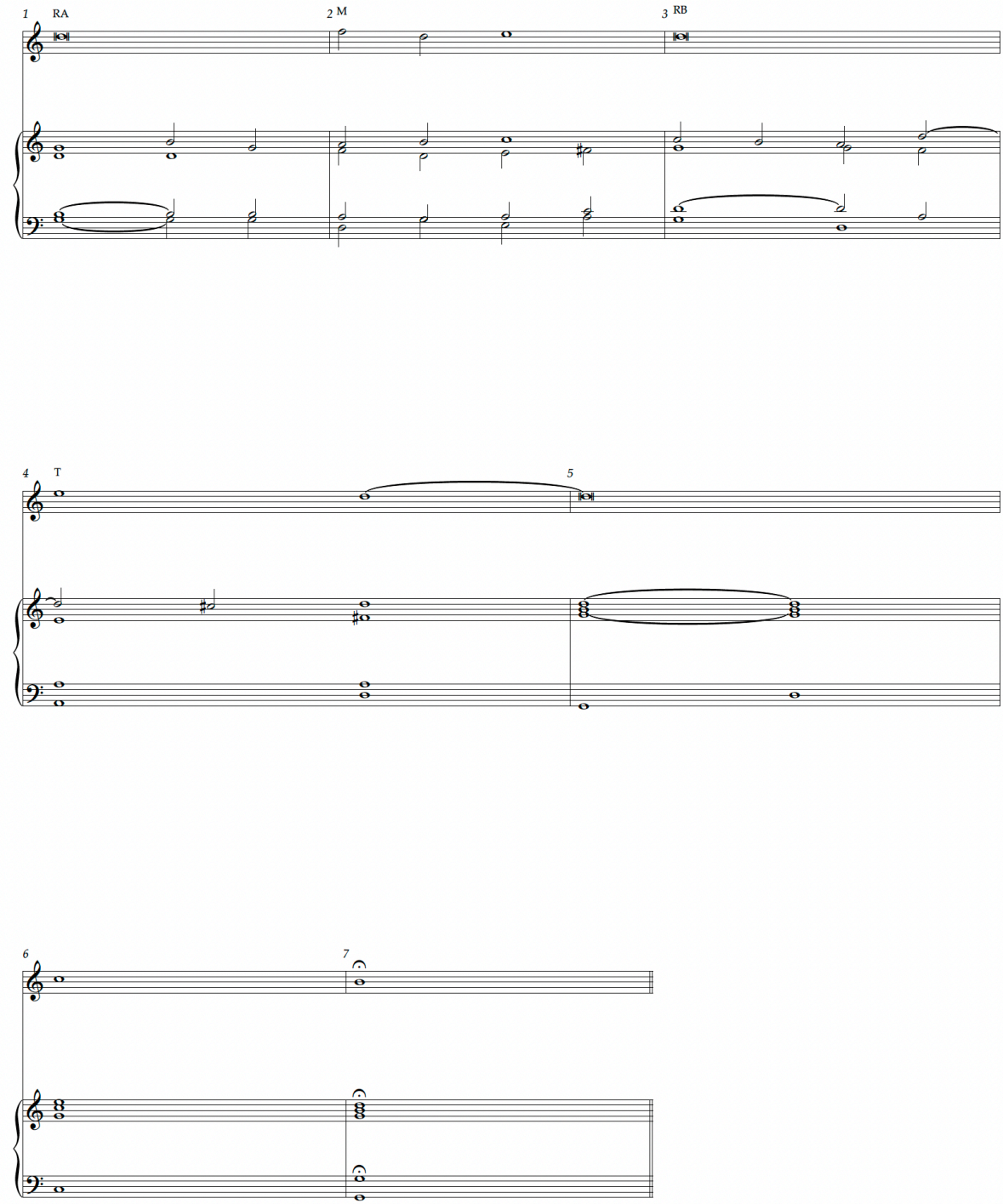


Table 1.2.1 Development of psalm-based keyboard intabulation techniques

	Classical vocal falsobordone	Keyboard falsobordone	Venetian keyboard intonation	Venetian keyboard toccata
First appearance	c. 1490–1510	c. 1530–1540	c. 1540–1550	c. 1550–1560
Modification of cantus firmus	rare	limited	common	standard
Complexity of notated embellishments	simple	uniform	evolved	convoluted
Division of recitation and cadence	distinct	blurred	fluid	continuous

Table 1.2.2 A three-period evolution of the Venetian keyboard toccata form

	Early Period	Middle Period	Late Period
Time	c. 1550–1570	c. 1570–1585	c. 1585–1600
Presence of psalm tone	evident	idealised	disguised
Cadential embellishments	formulae	varied	diverse
Harmonic rhythm	slow	accelerated	fast
Inclusion of imitative section	rare	emerging	standard
Dissonance	rare	tolerated	accepted

1.3 Classification of embellishments

The classification of sixteenth-century embellishments is problematic due to two difficulties. First, the disparate and ever evolving nomenclatures of embellishment techniques as adopted by sixteenth-century embellishment tutors and theorists renders the codification of a unified system an impossible task. Second, the classification methods proposed in the surviving sixteenth-century embellishment treatises (see Table 1.1.3) often erroneously suggest non-mutually-exclusive categories of embellishments and do not seem to account for all possibilities of figurative constructs.[26]

Modern scholars such as Horsley[27] and McDermott[28] follow the conventional distinction made between embellishments that are applied to a single melodic note ('grace') and embellishments that are applied to a melodic interval ('passaggio'). Such demarcation, albeit conceptually straightforward, creates a few problems. First, the definition of note-based embellishments leads to a false impression of their temporal instantaneity and discounts their frequent usage in sustaining sound. In the performance of sixteenth-century music, conventional graces such as the *tremoli* and *tremoletti* are frequently improvised independently of the notated embellishment and executed for an arbitrary duration. Second, if the definition of a single-note embellishment is allowed, ambiguity may arise when one tries to determine which of the two adjacent melodic notes the notated single-note embellishment belongs to, as the commencement of the grace does not necessarily coincide with that of the embellished melodic note. Third, an interval-based embellishment such as a passaggio is sometimes the figurative sum of a series of single-note embellishments, and, at least in such cases, it makes little sense to treat graces and passaggi as parallel categories. Last, many embellishments are of hybrid character and cannot be classified into either category due to the addition of single-note auxiliary embellishments to the melodic contour of the main interval-based embellishment.

It is for the reasons above that, for the purpose of this study, the author has chosen to adopt a simplified classification system and treat all embellishments as instances of a *passaggio*, an interval-

[26] McDermott, "The Canzoni d'Intavolatura," 19.
[27] Horsley, "Improvised embellishment," 7.

based embellishment that subdivides melodic notes into notes of smaller time values. If the embellishment starts and ends on the same note, the embellishment is considered to be in correspondence with a melodic interval of unison. A minimum number of embellishment terms are used throughout this study to describe stereotyped constructs of an embellishment. The ensuing sections will describe each type in greater detail.

Table 1.3.1 List of embellishment terms

Embellishment Term	Figurative Characteristics
tremolo (tremoli, pl.)	on the beat, alternation with upper note
tremoletto (tremoletti, pl.)	can be on the beat, before beat, through the beat, generally applicable to descending scalar construct
cadential groppo (cadential groppi, pl.)	generally placed on the penultimate beat of the cadence, preceded by a segment of passaggi
tirata (tirati, pl.)	scalar passaggi used to connect phrases
mixed groppo (mixed groppi, pl.)	made up of progressively smaller notes, typically used to cover a melodic interval of third
passaggio (passaggi, pl.)	any way to bridge over a melodic interval, a generic term encompassing all above

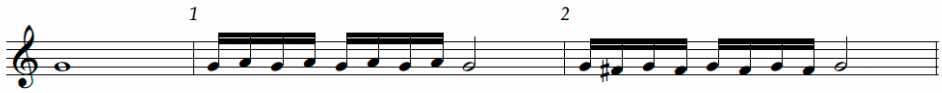
1.3.1 Tremolo

Though the tremolo is regarded by many sixteenth-century theorists as a most basic embellishment, there is little consensus in its definition. Praetorius defines the tremolo as the alternation between the embellished note and its upper note ('*tremolo ascendus*') or its lower note ('*tremolo discendus*').[29] While this definition accommodates both the ascending and descending variants, Praetorius advises keyboard players against employing tremoli ascendus, which are usually adopted by string and wind instrumentalists.[30] Diruta adopts a similar definition but his pedagogical examples, as shown in

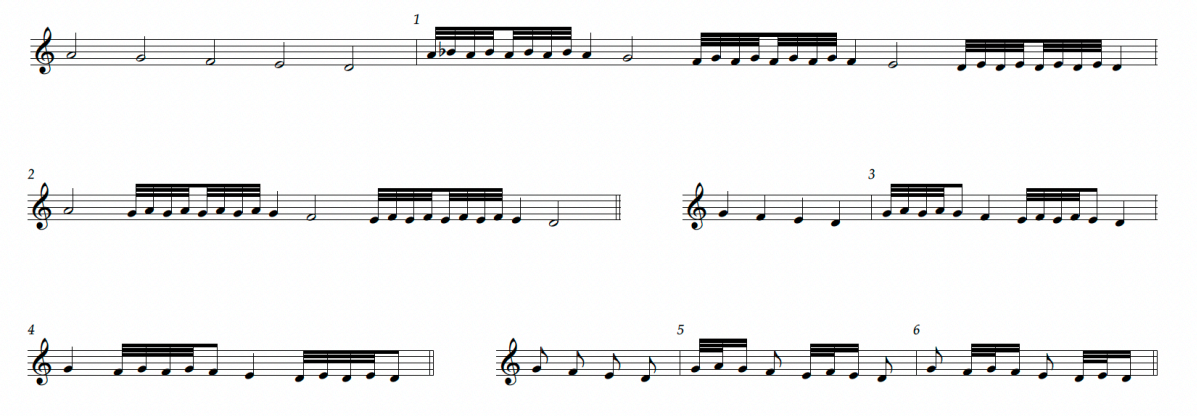
Example 1.3.2, contain only tremoli ascendus, not tremoli discendus. On the appropriate duration of a tremolo, Diruta insists that a tremolo last half the time value of the embellished note, which is consistent with his pedagogical examples. Bovicelli, a vocalist who likens tremolo to the trembling of human voice on a note, allows in his definition for alternation between the embellished note and more than two adjacent pitches.[31] In addition, Bovicelli's examples, as shown in Example 1.3.3, contain notation of varied rhythms in consecutive tremoli, as one can reasonably demand from a trained singer.

[29] Michael Praetorius, *Syntagma Musicum*, Vol. 1, 1614: 38.
[30] Ibid., 40.
[31] Giovanni Battista Bovicelli, *Regole, passaggi di musica, madriagli et motetti passegiati*, 1594, translated by Jesse Rosenberg, Historical Brass Society Journal, 38.

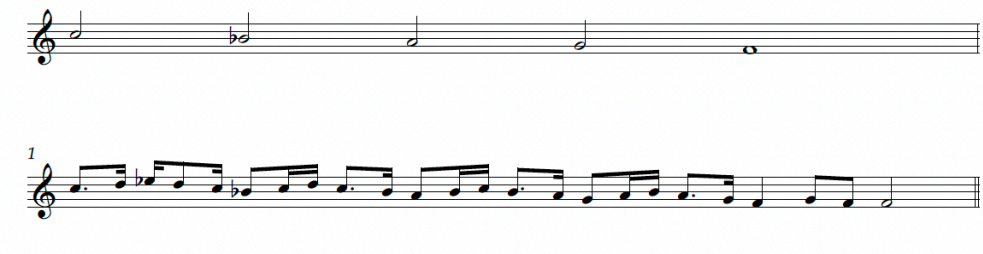
Example 1.3.1 Michael Praetorius, tremolo ascendus and tremolo discendus



Example 1.3.2 Girolamo Diruta, tremoli on minims, semiminims and fusas[32]



Example 1.3.3 Giovanni Bovicelli, tremoli on minims



[32] Girolamo Diruta, *Il Transilvano*, 1593, trans. Murray C. Bradshaw and Edward J. Soehnlen, *The Transylvanian,* (Institute of Medieval Music, 1984, vol. 1), 69–70.

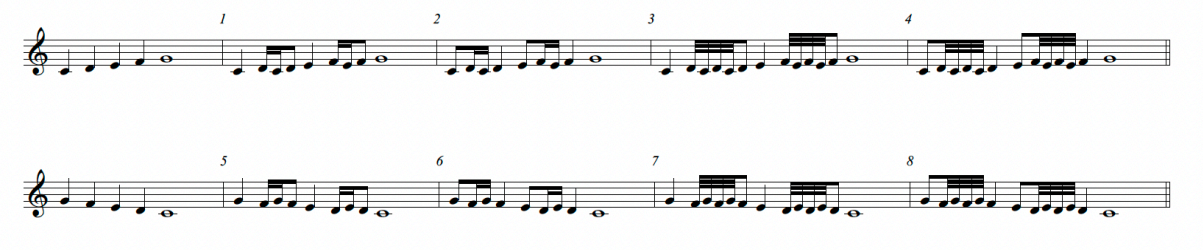
1.3.2 Tremoletto

All prescribed examples of tremoli in the last section feature the simultaneous commencement of the trill and embellished note. The tremoletto is an alternative term used by some theorists (e.g. Diruta) to encompass variants of tremolo–like embellishments that does not require the commencement of the trill to coincide with that of the embellished note.

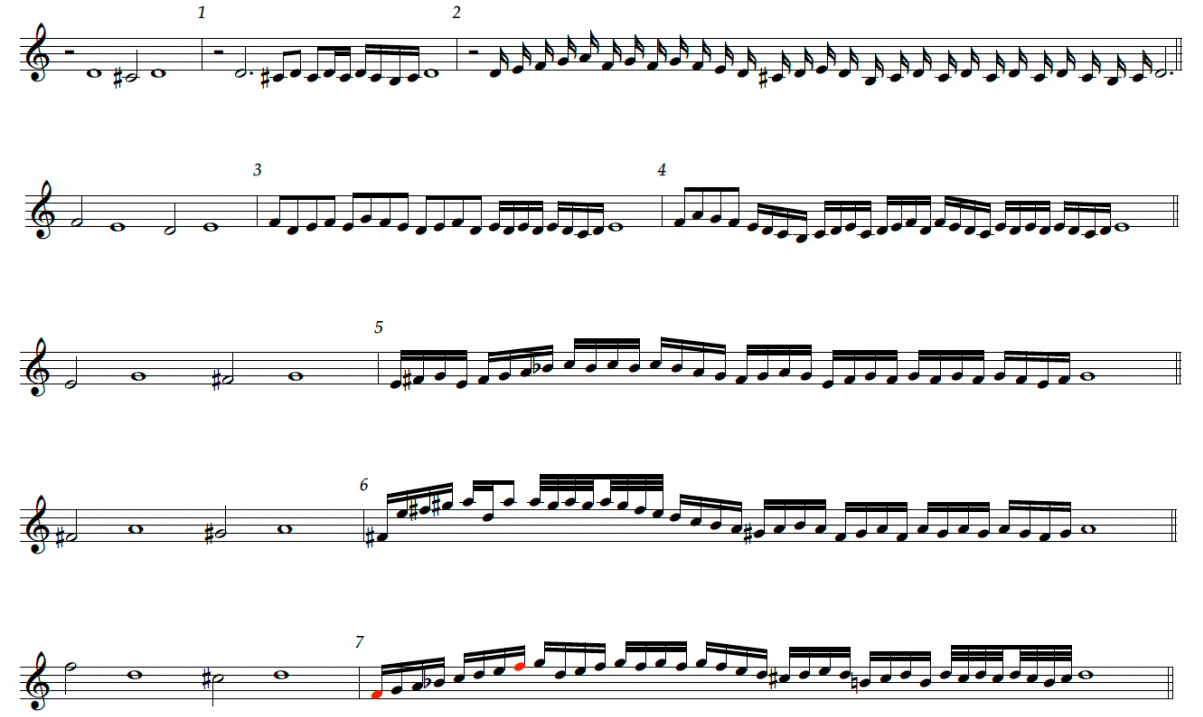
There are two types of tremoletti depending whether the tremoletto starts on the embellished note ('*dactylic tremoletto*') or before the embellished note ('*anapaestic tremoletto*'). If a tremoletto starts on the embellished note (1, 3, 5, 7 in Example 1.3.4) it leads to a *dactyl* (i.e. one stressed beats followed by two unstressed beats). If a tremoletto starts before the embellished note (2, 4, 6, 8 in Example 1.3.4), it leads to an *anapaest* (i.e. two unstressed beats followed by one stressed beat). Diruta adds that a tremoletto is more often applied to a descending scalar construct (5, 6, 7, 8 in Example 1.3.4) than an ascending scalar construct (1, 2, 3, 4 in Example 1.3.4.)[33] As shown in Example 1.3.4, regardless of the direction of the embellished scalar construct, the auxiliary note of the tremoletto is invariably the note immediately preceding to the embellished note in the melodic line.

[33] Ibid., 25.

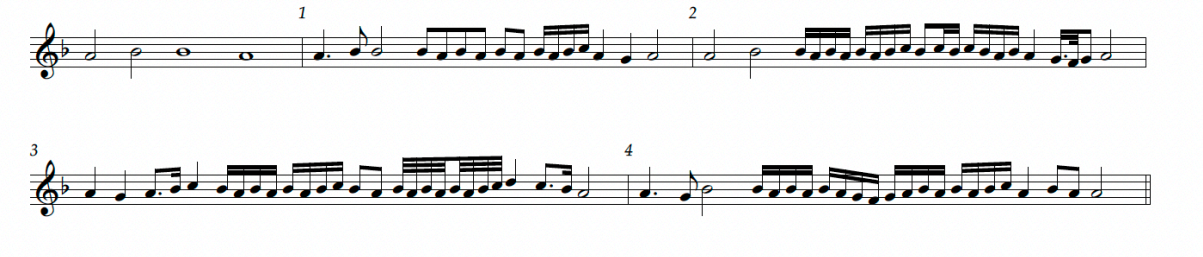
Example 1.3.4 Anapestic tremoletto vs dactylic tremoletto[34]



Example 1.3.5 Girolamo Diruta, cadential groppi examples[35]



Example 1.3.6 Giovanni Battista Bovicelli, groppetti note seguenti vs gropetti raffrenate[36]



[34] Ibid., 70.
[35] Diruta, *Il Transilvano*, 38.
[36] Bovicelli, *Regole, passaggi di musica, madriagli et motetti passegiati*, 54.

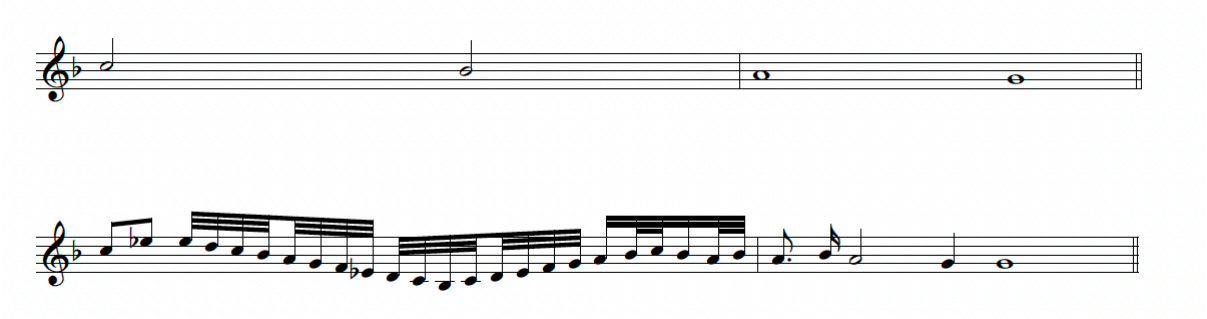
1.3.3 Cadential groppo

The cadential groppo, known for its stereotyped ending, is a most common embellishment notated in sixteenth-century musical works. As is evident in Diruta's pedagogical examples (Example 1.3.5), cadential groppi are mainly differentiated by the introductory division that precede their near-identical endings. Bovicelli prescribes that one may end a cadential groppo in two ways, either by keeping equal note values ('*groppetti seguenti*', 1 and 2 in Example 1.3.6) or by using elongated note values ('*gropetti raffrenate*', 3 and 4 in Example 1.3.6). He opines that the latter is generally superior as it lends greater charm to the voice and accommodates the finish of words, though he does acknowledge the value of the former for the sake of variety. He further cautions that, in the case of gropetti raffrenate, the elongated notes must not be much too longer than the embellished notes so as not to reduce the music to a grinding halt.

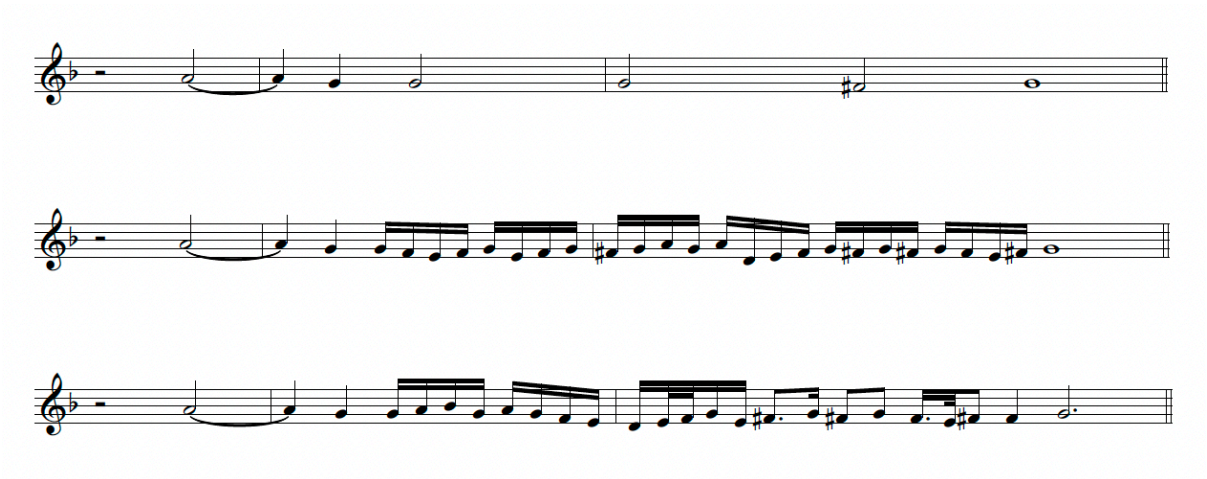
1.3.4 Tirata

A tirata is a commonly notated sixteenth-century embellishment of lengthy scalar construct. It is often used to alter the size of melodic intervals by multiples of an octave (e.g. second to ninth, second to sixteenth). In the introduction part of the cadential groppo in 7 in Example 1.3.5 , a tirata is used to 'octave-switch' the starting melodic note from f´´ to f´. On the execution of a tirata, Bovicelli suggests two techniques that can be used by a vocalist to make a tirata sound more graceful. One is to lengthen its introductory notes relative to the following step notes (Example 1.3.7). The other is to rhythmically distinguish the small-value notes (Example 1.3.8). The rhythmic nuance in the execution of equal-valued passaggi is not always captured in the notation. Bovicelli stresses the importance of varying the manner of rendering the passaggio even if its pitches are fixed (Example 1.3.9).

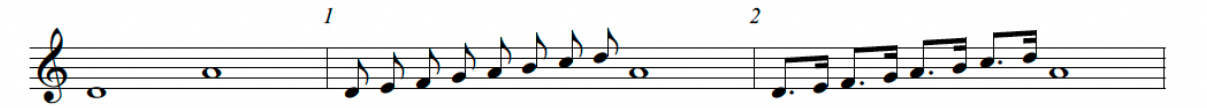
Example 1.3.7 Giovanni Battista Bovicelli, lengthened introductory notes in a tirata[37]



Example 1.3.8 Giovanni Battista Bovicelli, rhythmic nuance in the execution of a tirata[38]



Example 1.3.9 Giovanni Battista Bovicelli, dotted rhythmic variation of a passaggio[39]

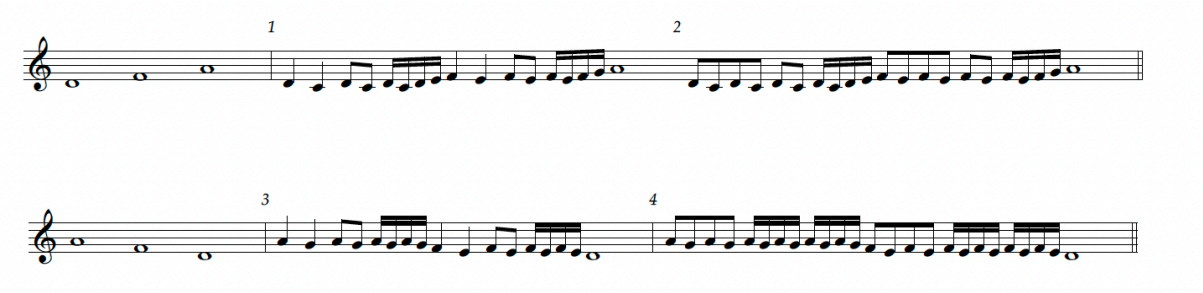


[37] Bovicelli, *Regole, passaggi di musica, madriagli et motetti passegiati*, 41.
[38] Ibid., 42.
39 Ibid. 43.

1.3.5 Mixed groppo

The mixed groppo is a term coined by Diruta to reflect the combined use of progressively smaller note values (e.g. fusas, semifusas and demisemifusas) in a passaggio.[40] As seen in Example 1.3.10, mixed groppi are typically reserved for the melodic interval of either an ascending or descending third, a common occurrence in vocal polyphony. The embellishment technique of leveraging the gradual reduction in note value in the creation of growing momentum in a melodic line is not unique to the mixed groppo. Sixteenth-century composers frequently used similar techniques in other types of passaggi (see Chapter 3).

Example 1.3.10 Girolama Diruta, Mixed Groppo



1.4 About this study

1.4.1 Objectives

This analytical study, which pertains to the delineation and elaboration of a vocal monody on the keyboard, is motivated by three main objectives:

i) to describe the stereotypical embellishing techniques in mid-sixteenth-century Venetian keyboard writing (Chapter 2);
ii) to devise a practical system of improvising embellishments based on an analysis of the notated examples in the surviving repertory (Chapter 3); and
iii) to demonstrate the applicability of the said system on various structural points along a given psalm tone (Chapter 4).

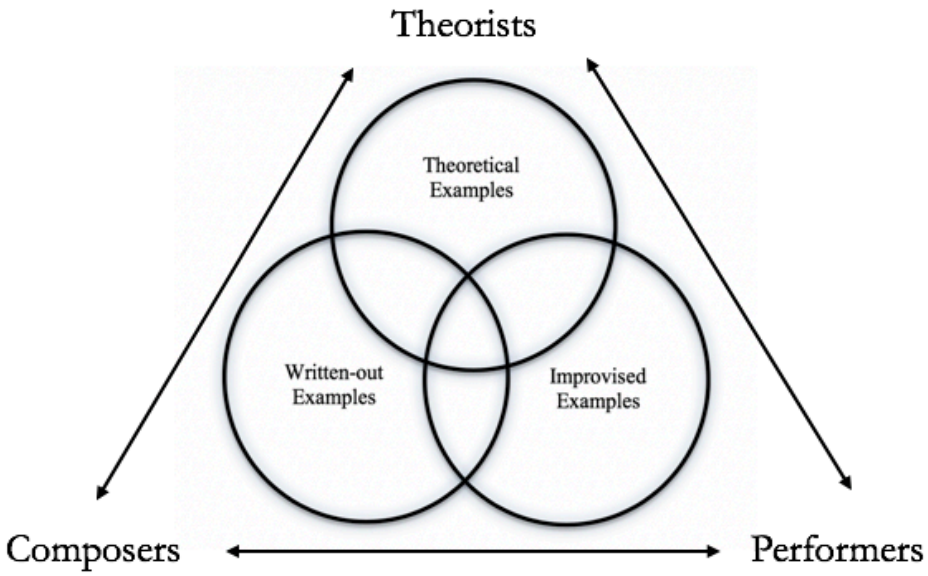
1.4.2 Methodology

Of relevance to this study are three sources of embellishments, namely the prescribed examples by sixteenth-century theorists in pedagogical works, notated examples by composers in surviving musical works, and improvised examples by sixteenth-century keyboardists in actual performances. While historical evidence demonstrates considerable overlapping between these three types of embellishments, some embellishment examples are available only from one or two sources. The inter-relationship between the three types of embellishment examples and their respective area of creative practice is captured in Figure 1.4.1.

Though little current research exists to suggest any significant relationships between the three and their respective area of creative practice, the abundant of overlapping suggests the high likelihood of mutual influence. In the Catholic churches of sixteenth-century Venice, it would not be difficult to envisage the role of the composer, theorist and performer being assumed by the same person. Pritchard stresses the conceptual overlap between notation and performance by characterising the notated scores as "the instantiations of a musical work that existed, in an unfixed state, in the mind

of the composer."[41] He further points that the prescribed examples contained in sixteenth-century embellishment treatises were commonly borrowed from the embellishment techniques of contemporaneous composers and performers, therefore serving as a good proxy for the prevailing embellishment practice based on the theorist's understanding.

Figure 1.4.1 Inter-relationship of three types of sixteenth-century embellishment examples



[41] Ian Pritchard, "Keyboard Thinking: Intersections of Notation, Composition, Improvisation, and Intabulation in Sixteenth-Century Italy," Phd. diss. University of Southern California, 2018, 12.

Whether theoretical prescription of embellishment procedure was actively replicated in practice is, however, a matter of debate. First, the effect of theoretical prescription in sixteenth-century embellishment treatises on contemporaneous embellishment practice is to current knowledge largely indeterminate.[42] Even if one were to assume that pre-existing embellishment techniques had undeniably influenced compositional and improvisational activities of the Venetian keyboardists, it is far from certain knowledge that this prescriptive effect was binding. In addition, some modern scholars opine that what is now retrospectively labelled as theoretical prescription was in fact the product of an observational study of the prevailing style of embellishment techniques.[43] In other words, the overlapping of the notated and improvised examples with their prescribed counterparts was not the result of the former replicating the latter, but the latter summarising the former. This argument is likely given that many theoretical works were published after, not before, their stylistically related musical compositions and improvisational activities, rendering the presumed prescription effect chronologically unlikely, especially in a period of fast advancing embellishment techniques. Further, many argue that the rigorous regularity of theoretical prescription was rarely replicated in practice.[44] The systematic collation of embellishment examples that one observes in a theoretical study is not mirrored in practice, for which a diverse range of techniques abounds due to a myriad of factors such as the national school, prevailing taste of ornamentation, musical genre and composer idiosyncrasy.

Another area of contention is the extent of fidelity shown by the improvising keyboardist to the notated score on the spur of the moment. While it is nearly impossible to ascertain the extent of improvisational deviation from the notated score in absence of sound evidence, modern scholars note the close relationship between the improviser and composer who are either the same person or collaborate in proximity.[45] In fact, the notation of stereotyped embellishments and omission of 'non-standard' embellishment techniques by sixteenth-century keyboard composers is often perceived as a deliberate invitation to the improvising keyboardist, who was presumably apt at adapting the notated embellishments to the sound capabilities of the instrument and acoustics of the performance space.[46] In the opposite direction, some of the improvised examples deemed of superior quality, were inevitably kept in written record by the diligent hands of composers, which may inspire future experimentation of embellishment techniques.

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[42] McDermott, "The Canzoni d'Intavolatura," 75.
[43] Ibid., 98.
[44] Sachs and Measurery Ife, *Anthology of Early Keyboard Methods* (Cambridge: Gamut Publications Ltd, 1981), 5.
[45] Mayer Brown, *Embellishing Sixteenth-Century Music*, 36.
[46] McDermott, "The Canzoni d'Intavolatura," 159.

Despite the problematic inter-relationships between the three areas of creative practice, the validity of the proposed embellishment system depends on whether there likely existed a prevailing embellishment system that was part of the common knowledge of Venetian keyboardists during the studied period. In other words, whether embellishment techniques sourced from the surviving treatises and works are sufficiently homogeneous to serve as the basis of a codified system of improvisation. The answer is likely. McDermott argues that the appearance of the diverse and idiosyncratic diminution styles of sixteenth-century theorists and composers does not negate the effect of an established ornamentation procedure on the compositional process.[47] The ingenious embellishment of virtuosic late-sixteenth-century composers such as Claudio Merulo are likely to have been creatively adapted from a pre-existing school of ornamentation. Bradshaw notes the unlikelihood of the assumption that toccata writing constitutes a mere notational record of the periodic improvisatory practice with limited compositional input.[48] In addition, the considerable overlapping between the pedagogical examples and notated examples by various esteemed sixteenth-century tutors and theorists lends support to the notion of a probable standardised embellishment practice and body of stereotyped embellishments, as such uniformity would be highly unlikely without the existence of one.

1.4.3 Surviving repertory

Central to this analytical study are the notated embellishment examples contained in the currently surviving repertory of mid-century Venetian keyboard intonations and toccatas.[49] As seen in Table 1.4.1, the majority of the said repertory are sourced from three collections of sixteenth-century Venetian keyboard works (i.e. BERTOLDO1591, GABRIELI1593, PADAVANO1594) and one pedagogical treatise (i.e. DIRUTA1593). Featured in these works are embellishments notated by key members of the Venetian keyboard school, such as Annibale Padovano (1527–1575), Sperindio Bertoldo (c. 1530–1570), Girolamo Diruta (1546–1624), Andrea Gabrieli (1532–1585) and Giovanni Gabrieli (1557–1612).

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[47] Ibid., 161.
[48] Bradshaw, *The Origin of the Toccata*, 16–17.
[49] The scope of this study is limited to notated embellishments in the toccata sections of these works. The ricercar sections, if any, and the notated embellishments therein are not examined.

Table 1.4.1 Surviving repertory of mid-century Venetian keyboard intonations and toccatas

Composer	Title	Psalm Tone[50]	Transposition	Length[51]	Collection[52]
G. Gabrieli	*Intonzione del Primo Tono*	I	none	5	GABRIELI1593
G. Gabrieli	*Intonzione del Primo Tono Trasportado alla*	I	up fourth	5	GABRIEL1593
G. Gabrieli	*Intonzione del Terzo & Quarto Tono*	IV	none	8	GABRIELI1593
G. Gabrieli	*Intonzione del Terzo e Quarto Tono*	IV	up fourth	8	GABRIELI1593
G. Gabrieli	*Intonzione del Quinto Tono*	V	none	8	GABRIELI1593
G. Gabrieli	*Intonzione del Quinto Tono Trasportado alla*	V	up fourth	8	GABRIELI1593
G. Gabrieli	*Intonzione del Sesto Tono*	VI	none	7	GABRIELI1593
G. Gabrieli	*Intonzione del Sesto Tono Trasportado alla*	VI	up fourth	7	GABRIELI1593
G. Gabrieli	*Intonzione del Settimo Tono*	VII	none	7	GABRIELI1593
G. Gabrieli	*Intonzione del Settimo Tono Trasportado alla*	VII	down fifth	7	GABRIELI1593
G. Gabrieli	*Intonzione del Ottauo Tono*	VIII	none	7	GABRIELI1593
G. Gabrieli	*Intonzione del Ottauo Tono Trasportado alla*	VIII	up fourth	7	GABRIELI1593
G. Gabrieli	*Intonzione del Nono Tono*	IX	none	8	GABRIELI1593
G. Gabrieli	*Intonzione del Nono Tono Transportado all*	IX	down fifth	8	GABRIELI1593
G. Gabrieli	*Intonzione del Decimo Tono*	X	none	9	GABRIELI1593

[51] number of bars

[52] It is noted that the publication date of the collection, to which a particular work belongs, acts as an unreliable guide of its composition date as many works were published posthumously.

Composer	Title	Psalm Tone[50]	Transposition	Length[51]	Collection[52]
G. Gabrieli	*Intonzione del Decimo Tono Trasportado alla*	X	up fourth	9	GABRIELI1593
G. Gabrieli	*Intonzione del Vndecimo Tono*	XI	none	7	GABRIELI1593
G. Gabrieli	*Intonzione del Vndecimo Tono*	XI	down fifth	7	GABRIELI1593
G. Gabrieli	*Intonzione del Duodecimo Tono*	XII	none	8	GABRIELI1593
G. Gabrieli	*Duodecimo Tono Tasportao alla Quinta*	XII	down fifth	8	GABRIELI1593
A. Gabrieli	*Intonzione del Primo Tono*	I	none	16	GABRIELI1593
A. Gabrieli	*Intonzione del Secondo Tono*	II	none	13	GABRIELI1593
A. Gabrieli	*Intonzione del Terzo Tono*	III	none	14	GABRIELI1593
A. Gabrieli	*Intonzione del Quarto Tono*	IV	none	16	GABRIELI1593
A. Gabrieli	*Intonzione del Quinto Tono*	V	none	17	GABRIELI1593
A. Gabrieli	*Intonzione del Sesto Tono*	VI	none	15	GABRIELI1593
A. Gabrieli	*Intonzione del Settimo Tono*	VII	none	17	GABRIELI1593
A. Gabrieli	*Intonzione del Ottauo Tono*	VIII	none	12	GABRIELI1593
A. Gabrieli	*Toccata del Quinto Tono*	V	down fourth	18	GABRIELI1593
A. Gabrieli	*Toccata del Sesto Tono*	VI	none	68	GABRIELI1593
A. Gabrieli	*Toccata del Ottauo Tono*	VIII	none	45	GABRIELI1593
A. Gabrieli	*Toccata del Nono Tono*	IX	none	74	GABRIELI1593
S. Bertoldo	*Tocata Prima*	I	none	42	BERTOLDO1591

Composer	Title	Psalm Tone[50]	Transposition	Length[51]	Collection[52]
S. Bertoldo	*Tocata Seconda*	VI	none	30	BERTOLDO1591
G. Gabrieli	*Toccata*	I	none	24	DIRUTA1593
G. Gabrieli	*Toccata*	II	none	36	DIRUTA1593
G. Gabrieli	*Toccata*	VI	none	38	DIRUTA1593
C. Merulo	*Toccata*	III	none	46	DIRUTA1593
A. Gabrieli	*Toccata*	VI	none	50	DIRUTA1593
G. Gabrieli	*Toccata*	II	none	27	DIRUTA1593
L. Luzzaschi	*Toccata*	IV	none	23	DIRUTA1593
A. Romanini	*Toccata*	VIII	none	25	DIRUTA1593
P. Quagliati	*Toccata*	VIII	none	36	DIRUTA1593
V. Bell'Havere	*Toccata*	I	none	52	DIRUTA1593
G. Guami	*Toccata*	II	none	24	DIRUTA1593
A. Gabrieli	*Toccata*	X	none	33	DIRUTA1593
G. Diruta	*Toccata*	XI, XII	none	29	DIRUTA1593
A. Gabrieli	*Toccata del Quinto Tono*	V	none	18	GABRIELI1593
A. Gabrieli	*Toccata del Sesto Tono*	VI	none	68	GABRIELI1593
A. Gabrieli	*Toccata del Ottauo Tono*	VIII	none	45	GABRIELI1593
A. Gabrieli	*Toccata del Nono Tono*	IX	none	74	GABRIELI1593

Composer	Title	Psalm Tone[50]	Transposition	Length[51]	Collection[52]
A. Padovano	*Toccata del Primo Tono*	I	none	125	PADOVANO1594
A. Padovano	*Toccata del Sesto Tono*	VI	none	54	PADOVANO1594
A. Padovano	*Toccata del Ottavo Tono*	VIII	none	50	PADOVANO1594
anon.	*Tocatta del Primo d'Incerto*	I	none	32	PADOVANO1594
anon.	*Toccata del Primo et Secondo Tono d'Incerto*	I, II	-	37	PADOVANO1594
anon.	*Toccata del Terzo et Quarto Tono d'Incerto*	III, IV	-	32	PADOVANO1594
anon.	*Toccata del Sesto Tono d'Incerto*	VI	-	81	PADOVANO1594
anon.	*Toccata del Sesto Tono d'Incerto*	VI	-	24	PADOVANO1594

Chapter 2 Analysis of notated embellishments in surviving repertory

This chapter contains an analysis of the stereotyped embellishing techniques in mid-sixteenth-century psalm-based Venetian keyboard writing. Chapter 2.1 surveys the general characteristics of the notated embellishments in an exemplary work. The ensuing three sections discuss in detail the harmonic function, rhythmic and figurative constructs of three types of notated embellishments, namely the stationary embellishments (Chapter 2.2), non-cadential embellishments (Chapter 2.3) and cadential embellishments (Chapter 2.4).

2.1 General characteristics

If one marvels at the splendour and completeness of the embellishment procedure as demonstrated in late-sixteenth-century Venetian keyboard works, one is better served to be reminded of the brevity and uniformity of its mid-sixteenth-century counterparts only several decades earlier. Composed at the onset of the exploration of instrumental embellishment techniques, mid-sixteenth-century Venetian keyboard intonations and toccatas displayed a great degree of stylistic and figurative homogeneity that was largely upheld by the standardised treatment of the cantus firmus and ample notation of stereotyped embellishments (see Chapter 1.3).

The conservatism by mid-sixteenth-century composers and pedagogues in their treatment of cantus firmus is reflected in both their limited structural adaption and harmonic exploration. Despite the ongoing abandonment of the early-sixteenth-century vocal prototype, the chief function of the mid-sixteenth-century embellishment procedure on the keyboard remained the delineation and accentuation of the underlying vocal monody.[53] The added embellishments were rarely intrusive upon the harmonic and structural confinements as set by the original vocal prototype. As evident in the surviving repertory, modification of the cantus firmus (i.e. psalm tone) was often modest and did not go further than simple omission or truncation of certain sections (e.g. introduction, recitation). In addition, the clear demarcation between the recitations and their accompanying cadences along the progression of a psalm tone was rarely sacrificed, thanks to the frequent notation of stereotyped cadential embellishments.

Harmonic conservatism is reflected in the composer's reluctance to deviate from the tonal centre and challenge the harmonic structure of the underlying vocal prototype.[54] Despite their superfluous complexity, the notated embellishments in mid-sixteenth-century Venetian keyboard works make use of few embellishment ideas, all which seemingly contribute to the upholding of consonance not only at the changeover of neighbouring tactus, but also midway through a tactus (see Chapter 3). The outcome that results from such tentative embellishing efforts on the keyboard is a great deal of reinforced harmonic stagnation around the tonal centre as determined by the choice of underpinning psalm tone.

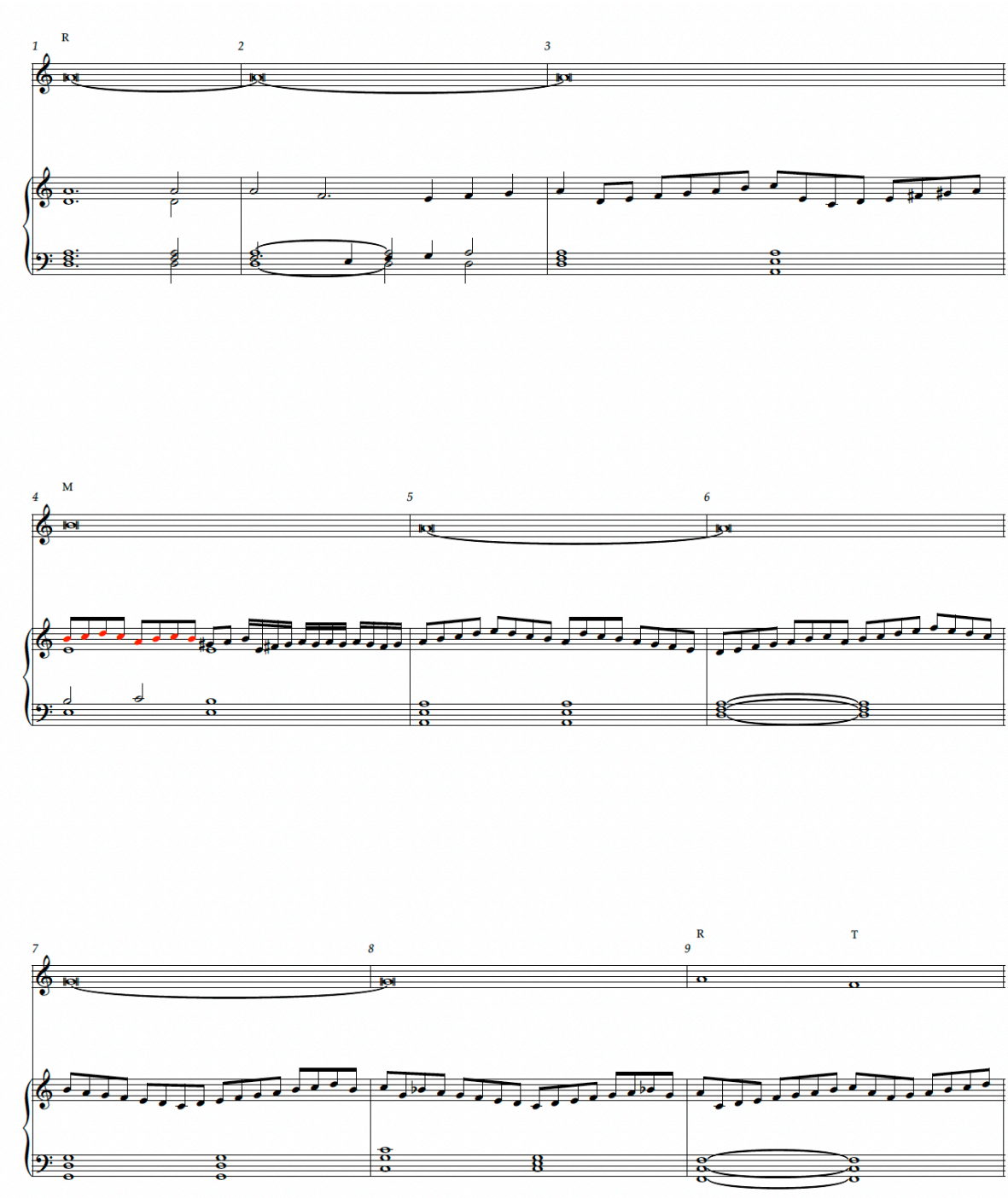
Example 2.1.1 and Example 2.1.2 respectively provide the original embellished version and modified unembellished version of a mid-sixteenth-century keyboard intonation of the first psalm

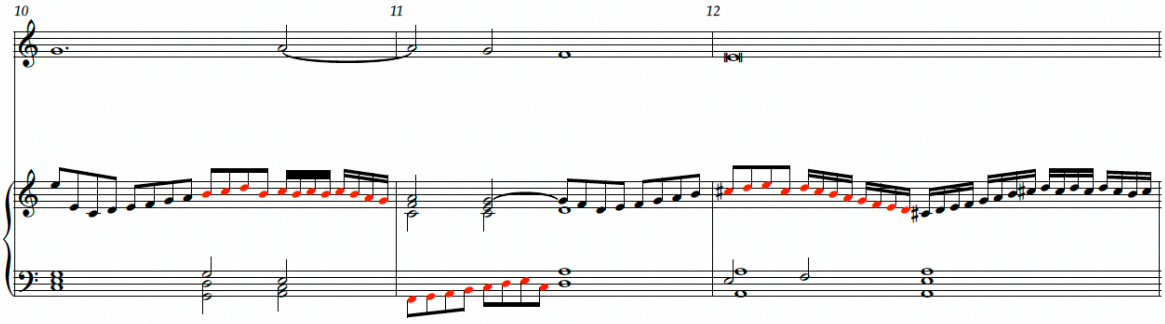
[53] Mayer Brown, *Embellishing Sixteenth Century Music*, 25.
[54] Bradshaw, *The Origin of the Toccata*, 38.

tone. Apart from fidelity to the pitch of the cantus firmus, the default time of an embellishment through the psalm tone is largely kept consistently at a semibreve, with the occasional use of minim tactus at cadences due to the acceleration of harmonic rhythm (e.g. bars 4, 10, 11, 12 and 14 in Example 2.1.1, coloured in red). As the psalm tone approaches its two cadences, namely the mediant and termination, there is a gradual decline in the note values comprising the embellishments. In Example 2.1.1, the first half of the psalm tone (bars 1–8) starts with a recitation that is embellished with a combination of minims, dotted minims and semiminims and ends with a mediant that is embellished with fusas and semifusas. The second half of the psalm tone (bars 9–16) starts with a second recitation that is embellished by a steady stream of fusas and ends with a termination that is embellished by a combination of fusas and semifusas.

The figurative construct of the embellishments in Example 2.1.1 displays several characteristics. First, passaggi are for the most part of stepping motion and devoid of repeating pitch. As seen in Example 2.1.1, any leaping motion typically takes place at the first half of a tactus, often upon arrival of a new harmony in the underlying vocal polyphony (bars 3, 5, 8, 9, 10 and 15). A leaping movement is typically followed by either a stepping movement (bar 3) or a leaping movement of a smaller size in the opposite direction (bars 8 and 15). An exception to this observation occurs when the composer elaborates the diatonic triad to accentuate the tonal centre of the surrounding passage (bars 9 and 10). In rare instances, small-scale motivic ideas of stepping motion are featured in the notated embellishment (bar 4). Second, cadential groppi typically follow the formulaic eight–note figuration with an ending turn (bars 4, 12 and 15) with occasional variations (bar 10). Last, tirati are frequently used to signify harmonic changes of the underlying vocal polyphony (bars 10 and 13). The length of cadential tirati is generally proportional to the importance of the embellished cadence, with the lengthiest being reserved for the composition–ending termination (bars 13 and 14).

Example 2.1.1 Andrea Gabrieli, *Intonazione del Primo Tono*, GABRIEL1593

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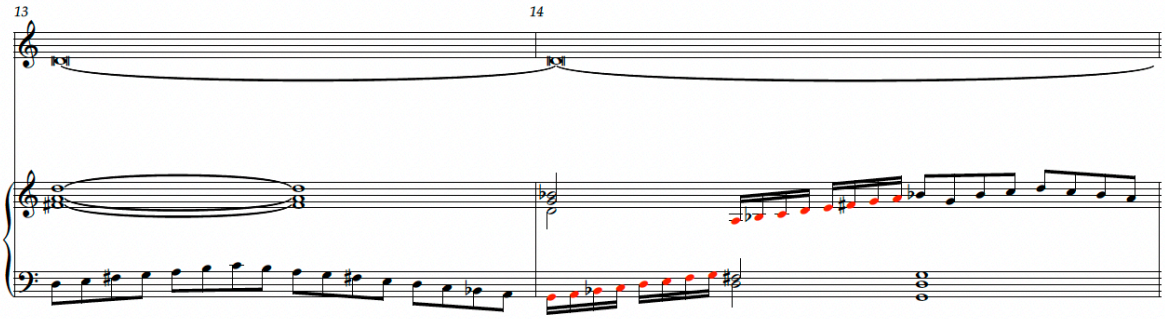
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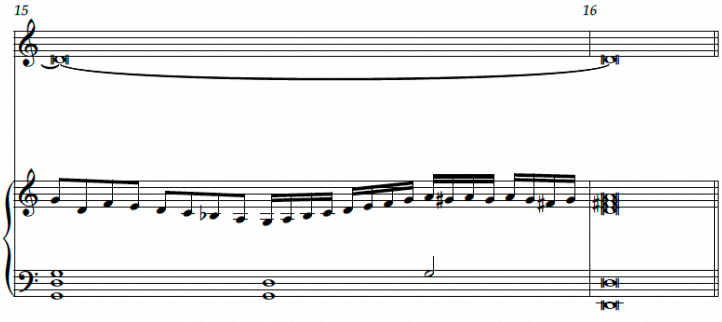
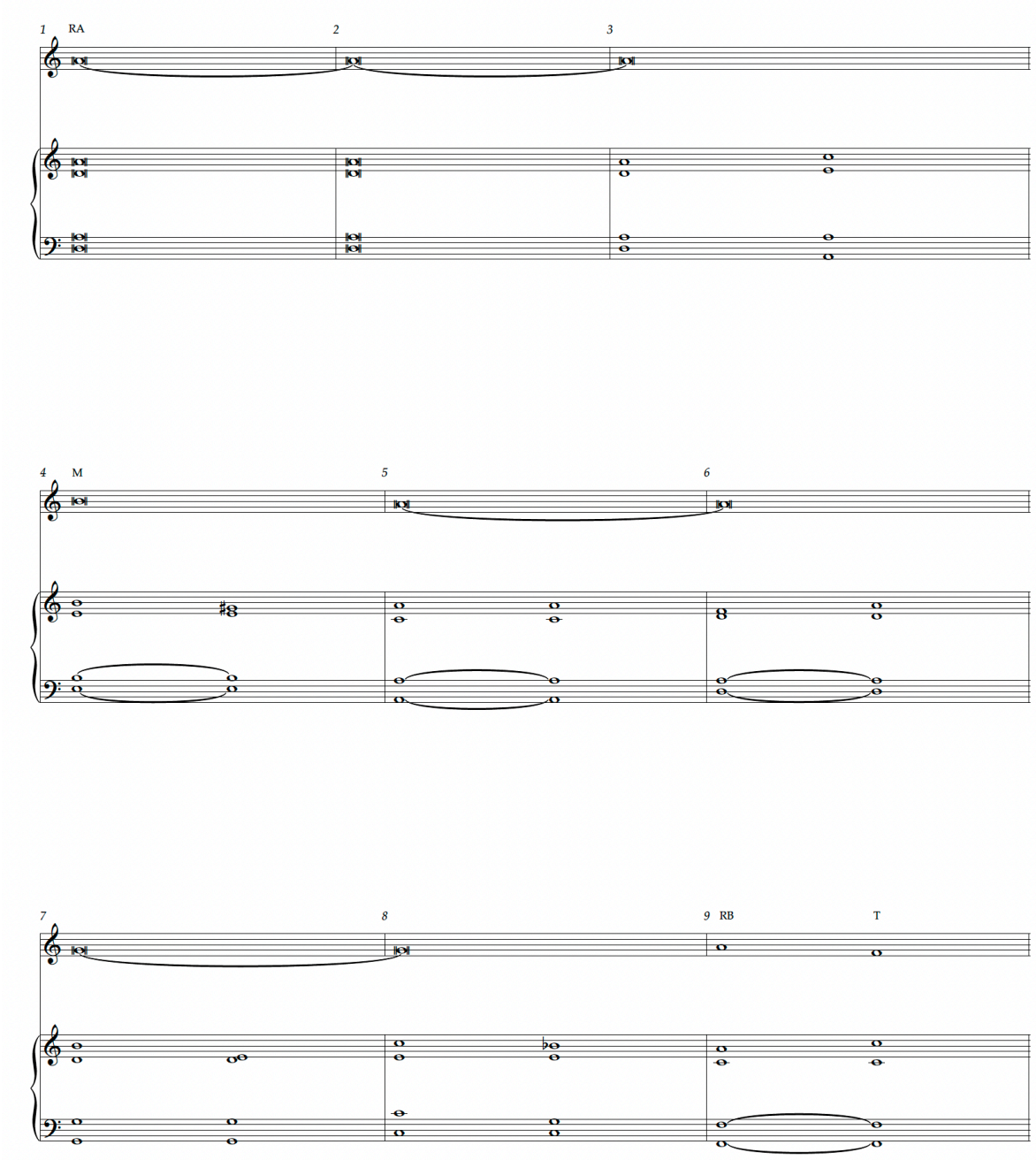
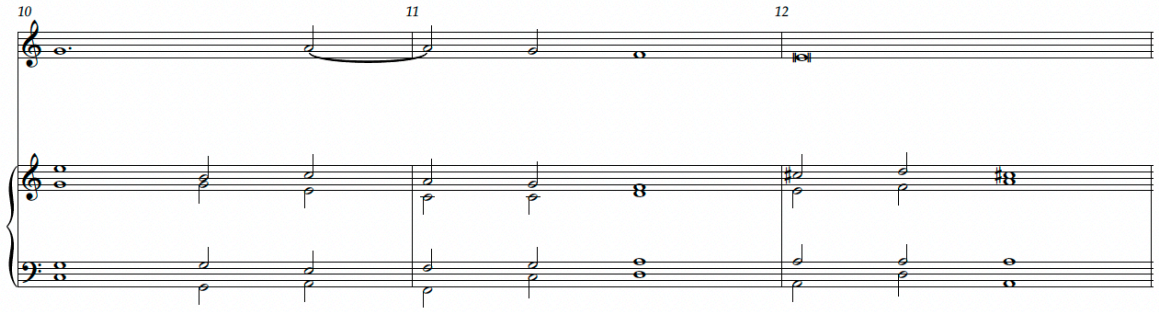

15
16

Example 2.1.2 Andrea Gabrieli, *Intonazione del Primo Tono*, GABRIEL1593 (unembellished)

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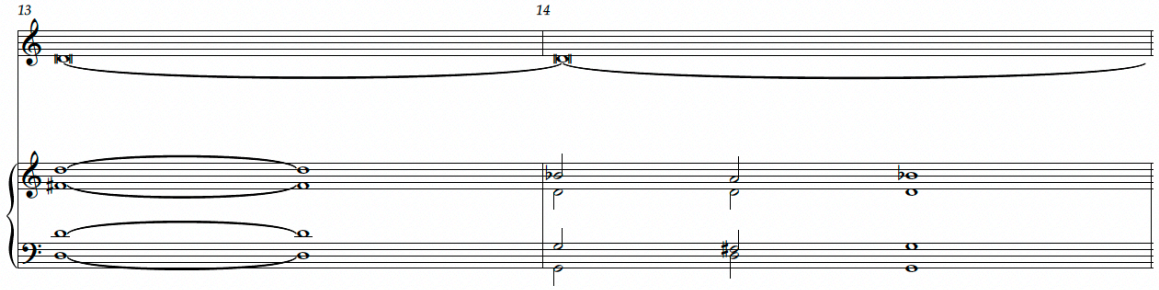
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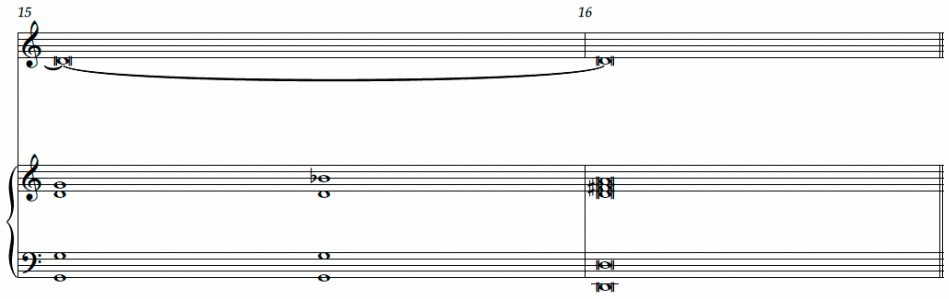
15
16

2.2 Stationary embellishments

When compared to their late-sixteenth-century counterparts, mid-sixteenth-century keyboard composers and improvisors seem far less concerned with the possible monotony resulting from the simple repetition of identical harmony in consecutive tactus. After all, the primary liturgical function of a sixteenth-century keyboard intonation was to intone the congregation by firmly establishing the tonal centre of a succeeding vocal work.[55] An accompanying, albeit plausibly unintended, benefit of the resulting harmonically stable musical context is the conducive environment that is created for the exploration and innovation of embellishment techniques.[56]

Example 2.2.1 is a collation of the commonly notated harmonically stationary embellishments (hereafter referred to as "I–I embellishments") in the surviving repertory.[57] The figurative constructs of these examples feature motion sustained by equal-valued notes. The leaping action is primarily reserved for the displacement of pitch (e.g. bar 35) or as part of a stereotypical construct (e.g. bar 21). The occasional inclusion of small-scale motifs (e.g. bars 5 and 29) can be considered as an extension of the scalar construct, which is now formed by the first note of each repetition of the motif.

One direct effect from such pervasive application of I–I embellishments on the melodic notes is the prolongation of the cantus firmus. Under the common practice of a *paired-tactus*, a characteristic construct in sixteenth-century instrumental music,[58] the length of each melodic note is doubled through a simple repetition of the same harmony for a second time, effectively forming a paired tactus of two disparate embellishments corresponding to the same melodic note. In the surviving repertory, this simple technique of harmonic repetition is applied on both standalone melodic notes in isolation and several connecting melodic notes in succession. In Example 2.2.2, this technique is used in bar 29 on the last melodic note of the termination of the second psalm tone so that its transposed tonal centre is repeated and emphasised. In Example 2.2.3, the same technique is used on all melodic notes comprising the mediant of the sixth psalm tone, doubling them in length from a semibreve to a breve.

One would be remiss to assume that this simple technique of harmonic repetition halts at two consecutive tactus. Later works of the mid-sixteenth century saw the application of this technique

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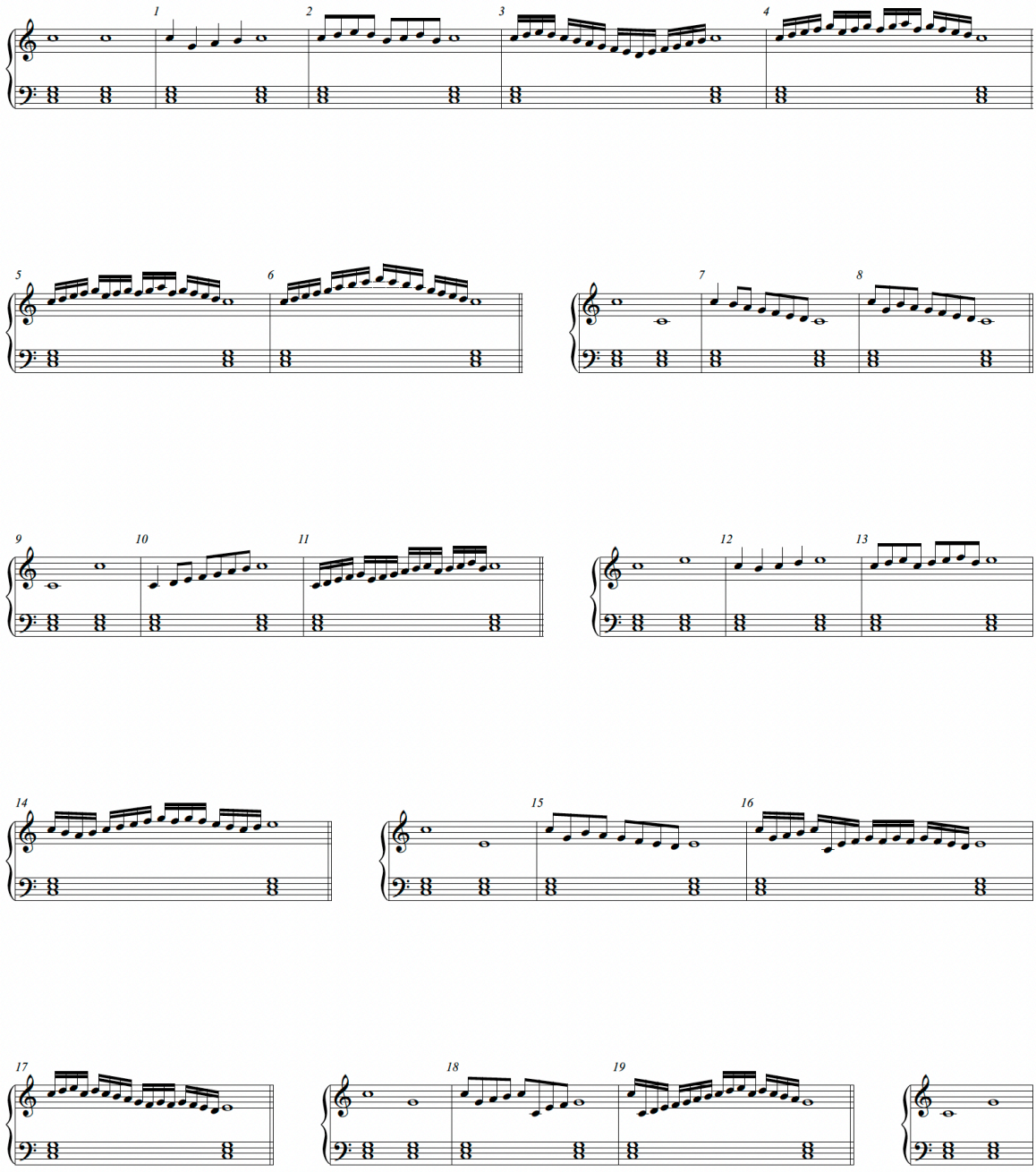
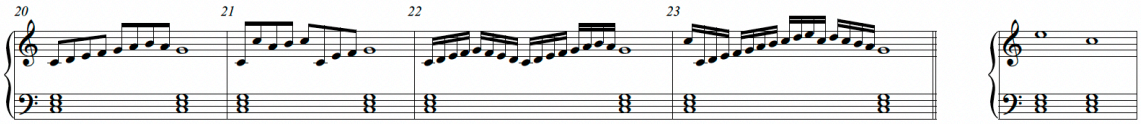
[55] Apel, *History of Keyboard Music*, 95.
[56] Murray C. Bradshaw, *The Falsobordone*, 125.
[57] A catalogue of stationary embellishments is found in Appendix 1 of this dissertation.
[58] Anne Smith, *Performance of Sixteenth-Century Music: Learning from the Theorists*, (Oxford University Press, 2011), 78.

to multiple consecutive tactus of identical harmony, which led to both the greater prolongation of the cantus firmus and a more elaborate style of writing. In Example 2.2.4, the mediant pitch of the psalm tone continues for six consecutive tactus, from halfway through bar 29 to halfway through bar 32, in unaltered harmony and propelled by the lengthy stepping motion of the notated embellishments.

Example 2.2.1 Commonly notated I–I embellishments in surviving repertory

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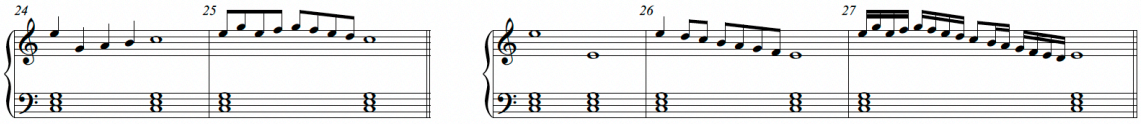
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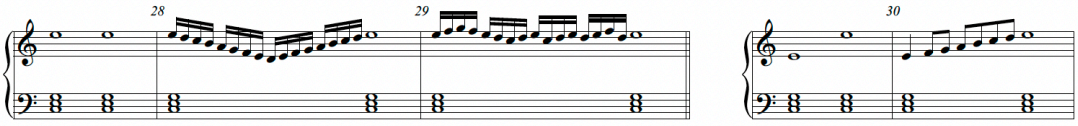
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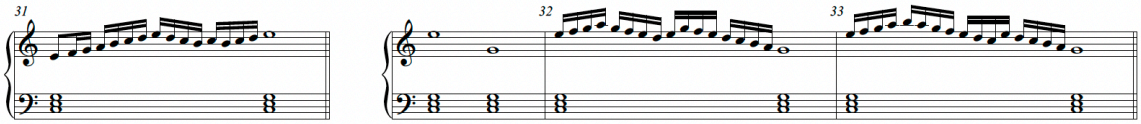
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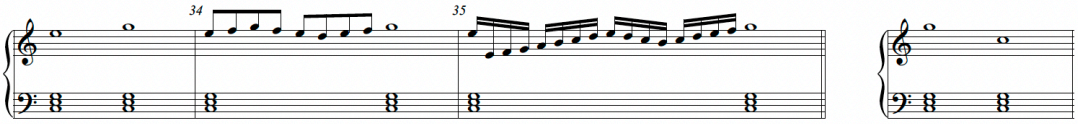
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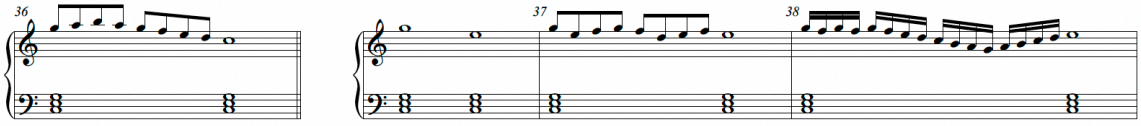
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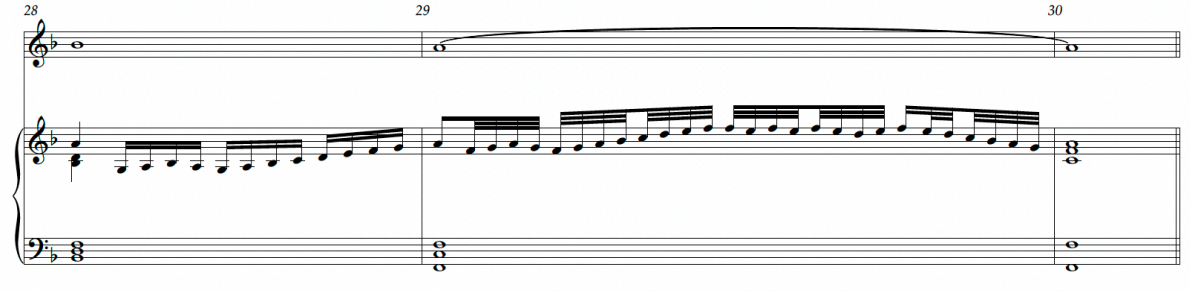
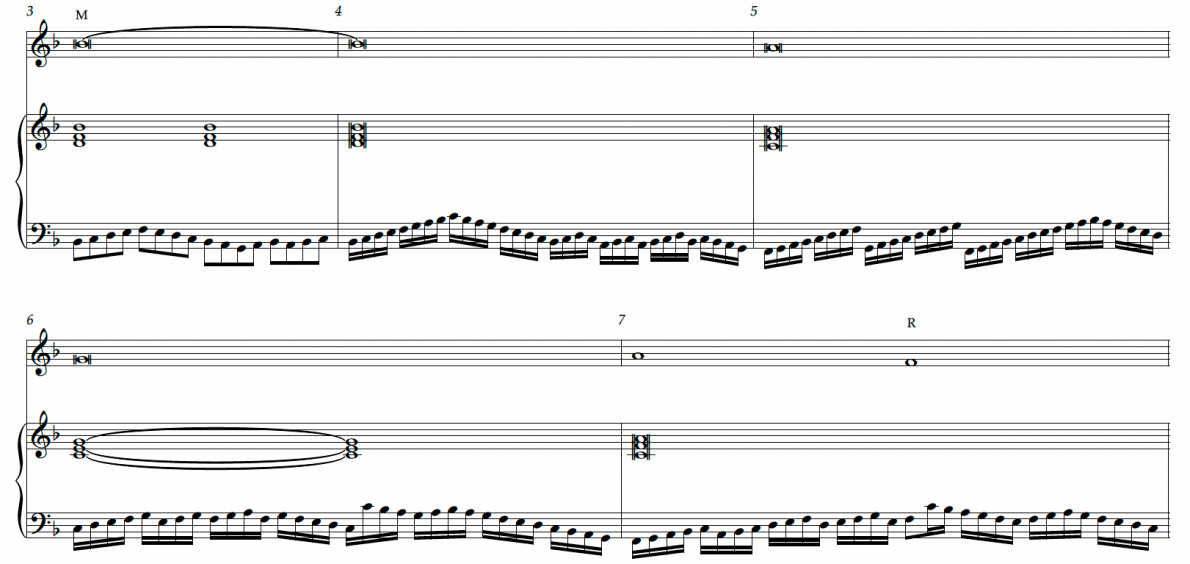
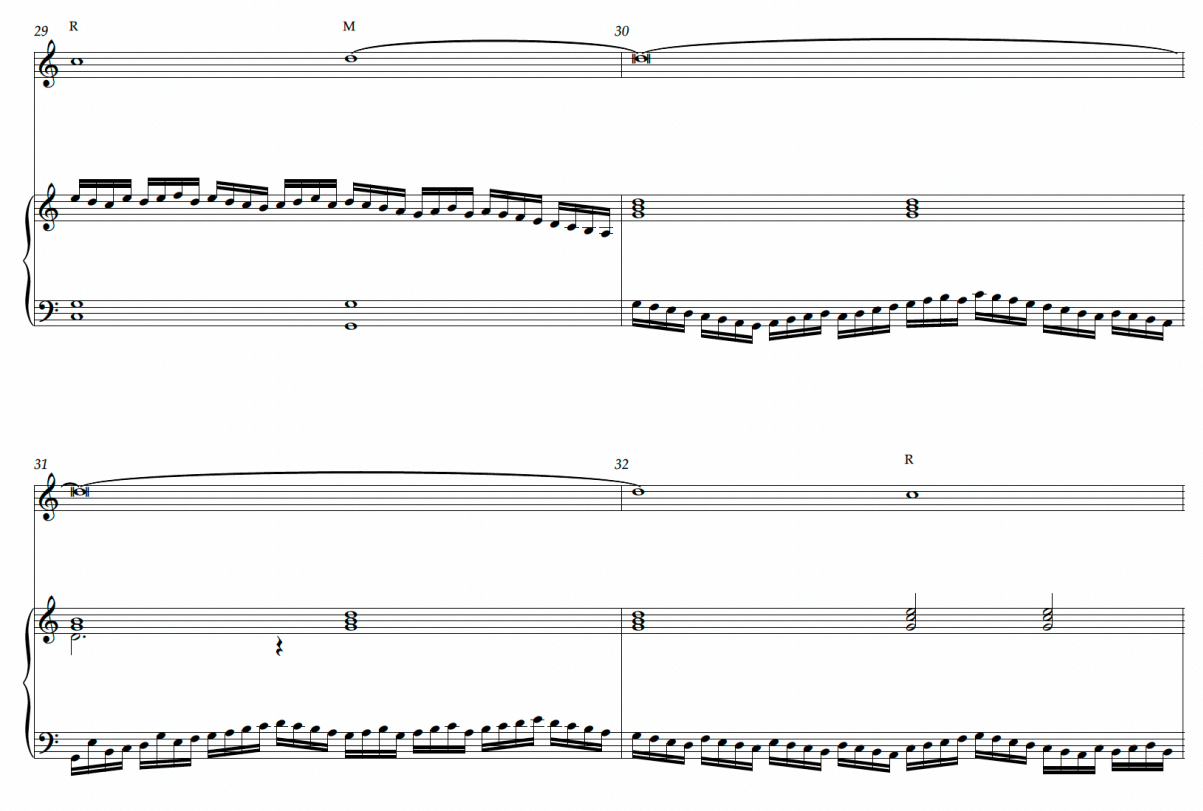
Example 2.2.2 Sperindio Bertoldo, *Toccata Seconda*, bars 28–30, BERTOLDO1591



Example 2.2.3 Andrea Gabrieli, *Toccata del Sesto Tono*, bars 3–7, GABRIELI1593



Example 2.2.4 Andrea Gabreli, *Toccata del Ottavo Tono*, bars 29–32, GABRIELI1593



2.3 Non-cadential embellishments

As alluded to in Chapter 2.2, the compositional ideal of harmonic stagnation around the tonal centre of the cantus firmus is largely upheld by the pervasive application of I–I embellishments on consecutive tactus of unaltered harmony. Contrary to what one may be inclined to believe, the realisation of this ideal is additionally aided by well-placed temporary harmonic deviations from the tonal centre, which often reinforces the principal harmony rather than obfuscates it. The I–V embellishment is one such non-cadential embellishment that initiates a harmonic excursion away from the tonal centre.

Example 2.3.1 is a collation of the commonly notated I–V embellishments in the surviving repertory. The figurative construct of these embellishments is not dissimilar to those in Example 2.2.1— non-cadential, unfailingly stereotyped, dominated by stepping motion rather than leaping motion, free of melodic motifs and any unnecessary points of inflection that may prove too distracting for the presentation of the cantus firmus. In addition, many notated examples (e.g. bars 4, 17 and 32 in Example 2.3.1) are comprised of notes of progressively smaller time values due to their intended effect of a gradual departure from the already established tonal centre.

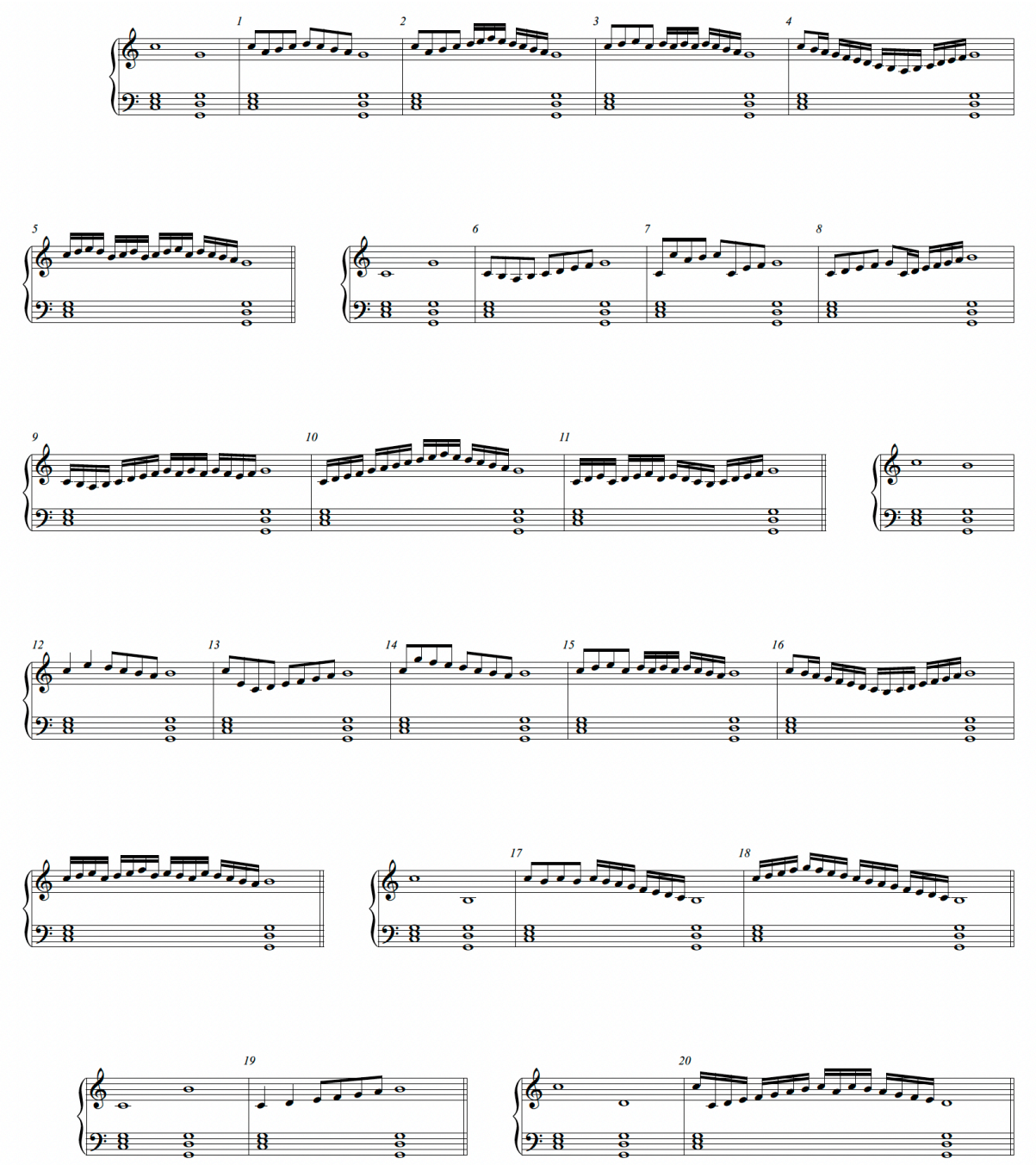
There are two common scenarios in which an I–V embellishment is invoked. In the first scenario, the motivation for invoking an I–V embellishment is to prolong the time value of the embellished melody note, be the recitation tone or a note part of a cadential motif, through a fleeting harmonic excursion and immediate return from a pre-established tonal centre. The I–V embellishment is invariably paired with a V–I embellishment (see Chapter 2.4), which may or may not immediately succeed the I–V embellishment. In Example 2.3.2, the insertion of a I–V embellishment in the second half of bar 2 is followed by the preservation of V in bar 3 and resolved by a V–I embellishment in the first half of bar 4, allowing the opening recitation in C to continue in a total of eight tactus. It is noted that, in this usage, the degree of complexity and length of this pair of embellishments is typically correlated with the importance of the embellished melodic note. In Example 2.3.3, the composition–ending final note of the termination undergoes an I–V–I progression that features the relentless stepping motion of a lengthy string of demisemifusas. In the more developed works of the studied period, the use of this note-lengthening technique tends to be obscured by the ostensible figurative complexity of added embellishments. It may take an astute reader to notice that the harmonic rhythm of Example 2.3.4

Example 2.3.4 is no different to that of Example 2.3.2. In the second scenario, the prioritised function of the I–V embellishment is no longer to preserve and lengthen the status-quo harmony but to depict a harmonic changeover. The I–V embellishment is invoked in the transitional tactus connecting two sub-sections of the psalm tone (i.e. from recitation to cadence), and unresolved by a paired non-cadential V–I embellishment. Compared to its none-lengthening counterpart, the figurative construct of this second type of I–V embellishments is more likely to feature notes of uniform time value (as opposed to gradual reduction in note values) and unrelenting stepping motion (e.g. bars 4, 16, 28 in Example 2.3.1), which are designed to create a sense of precipitated resolution of the status–quo harmony. In many instances, a single I–V embellishment suffices to enable the sectional transition (bar 29 in Example 2.2.4). In other instances, a more elaborate sectional change is realised using multiple consecutive I–V embellishments. In

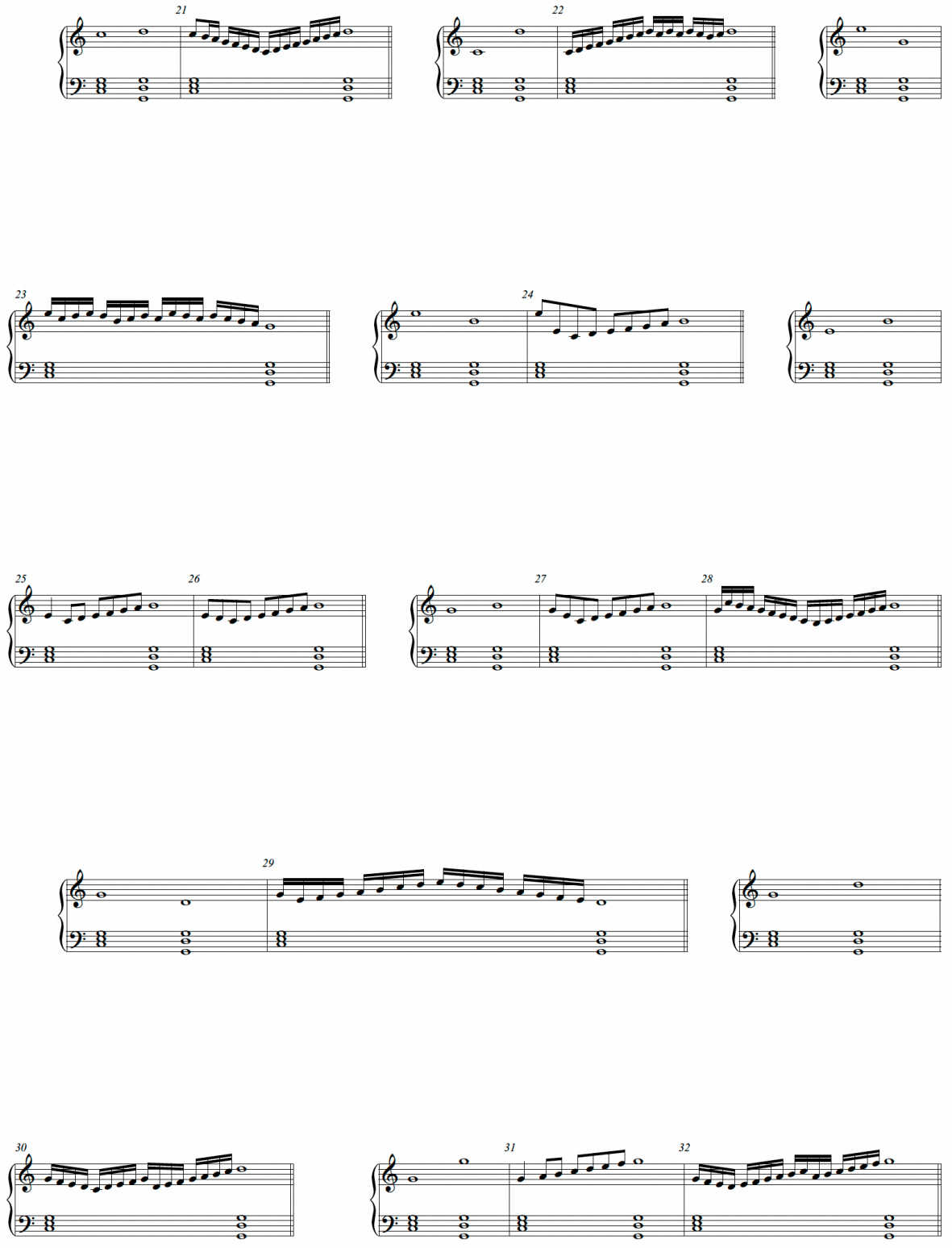
Example 2.3.5, the recitation is presented in a total of six tactus (i.e. bars 1–3) with the first four in unchanging harmony, and the last two employing two consecutive I–V embellishments to enable the completion of a sectional transition from the recitation to the mediant.

A common alternative to the non-cadential I–V embellishment is an I–IV embellishment. The note-lengthening method described in Chapter 2.3 by way of an I–V–I progression can be executed similarly by an I–IV–I progression. In Example 2.3.6, the last note of the termination (f´) is lengthened in an I–IV–I progression.

Example 2.3.1 Commonly notated I–V embellishments in surviving repertory[59]



[59] All examples have been transposed to C.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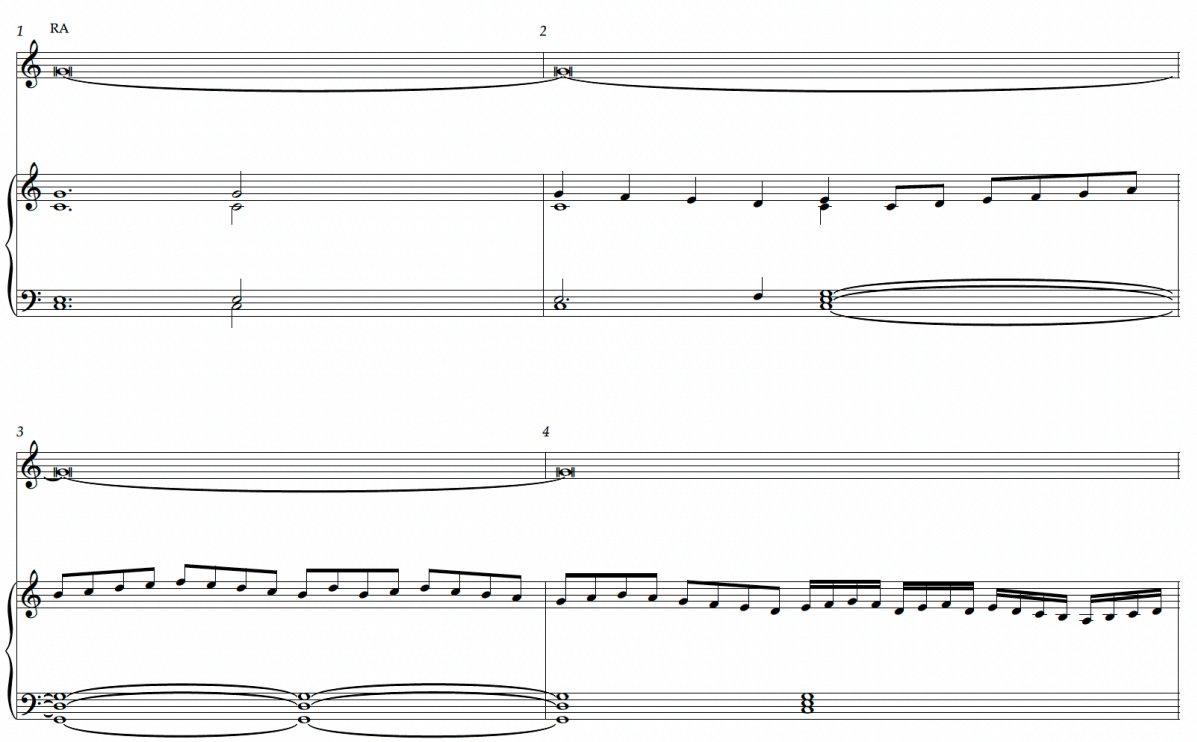
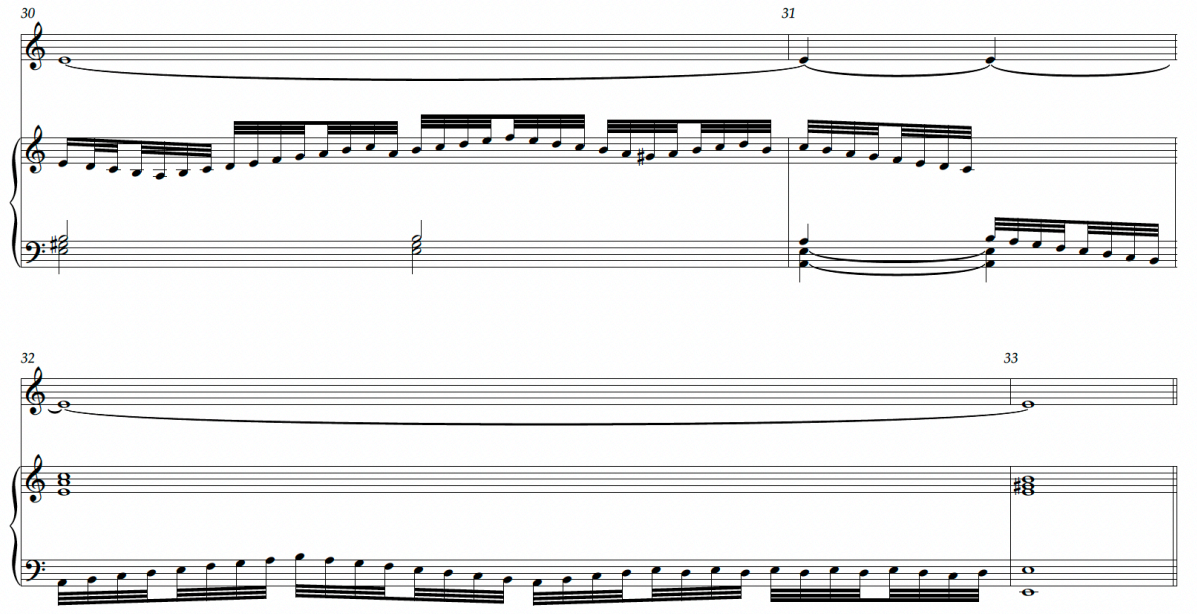
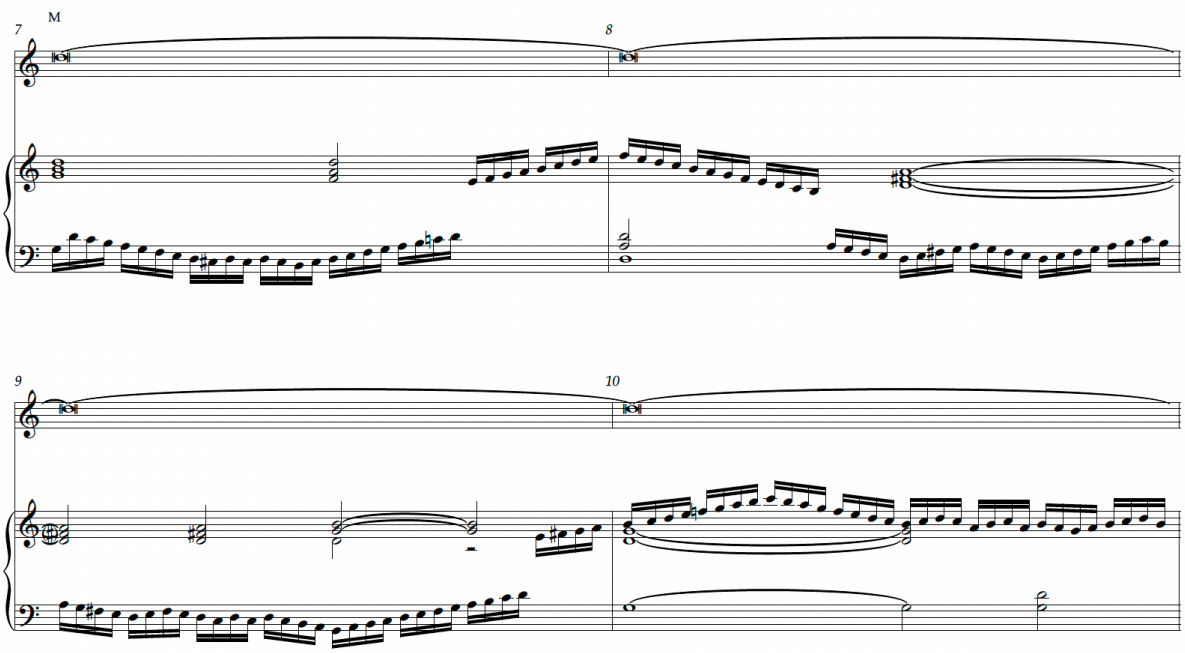
Example 2.3.2 Andrea Gabrieli, *Toccata del Quinto Tono*, bars 1–4, GABRIELI1593



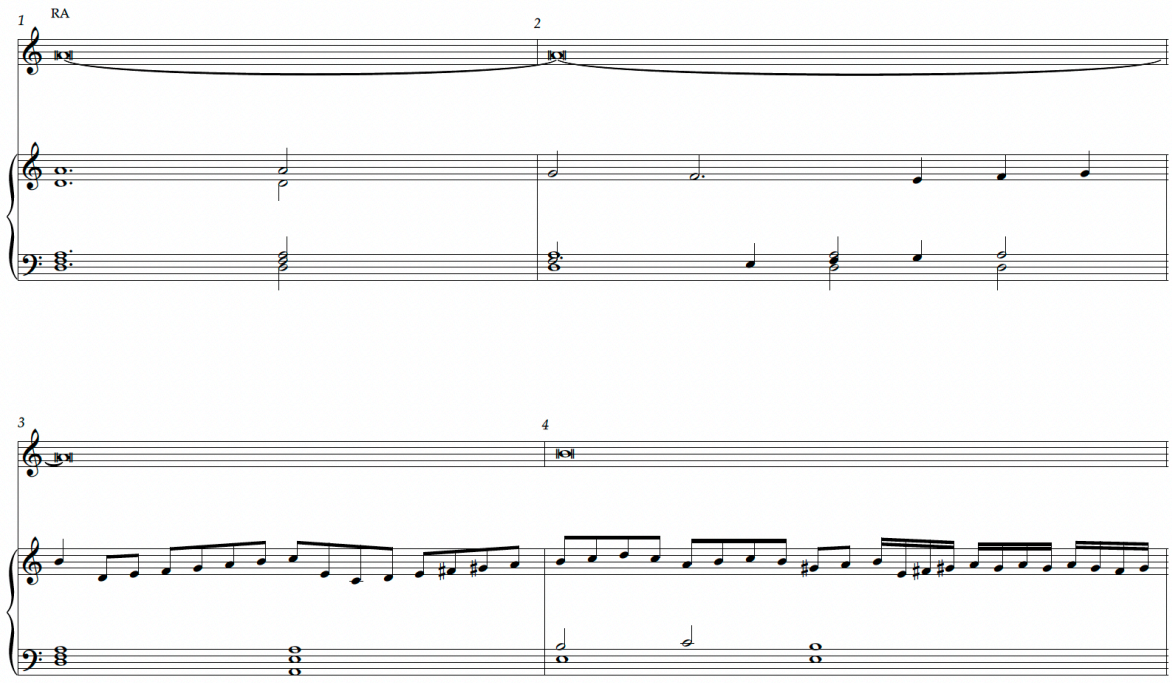
Example 2.3.3 d'Incerto, *Toccata del Terzo et Quarto Tono*, bars 30–33, BERTOLDO1591



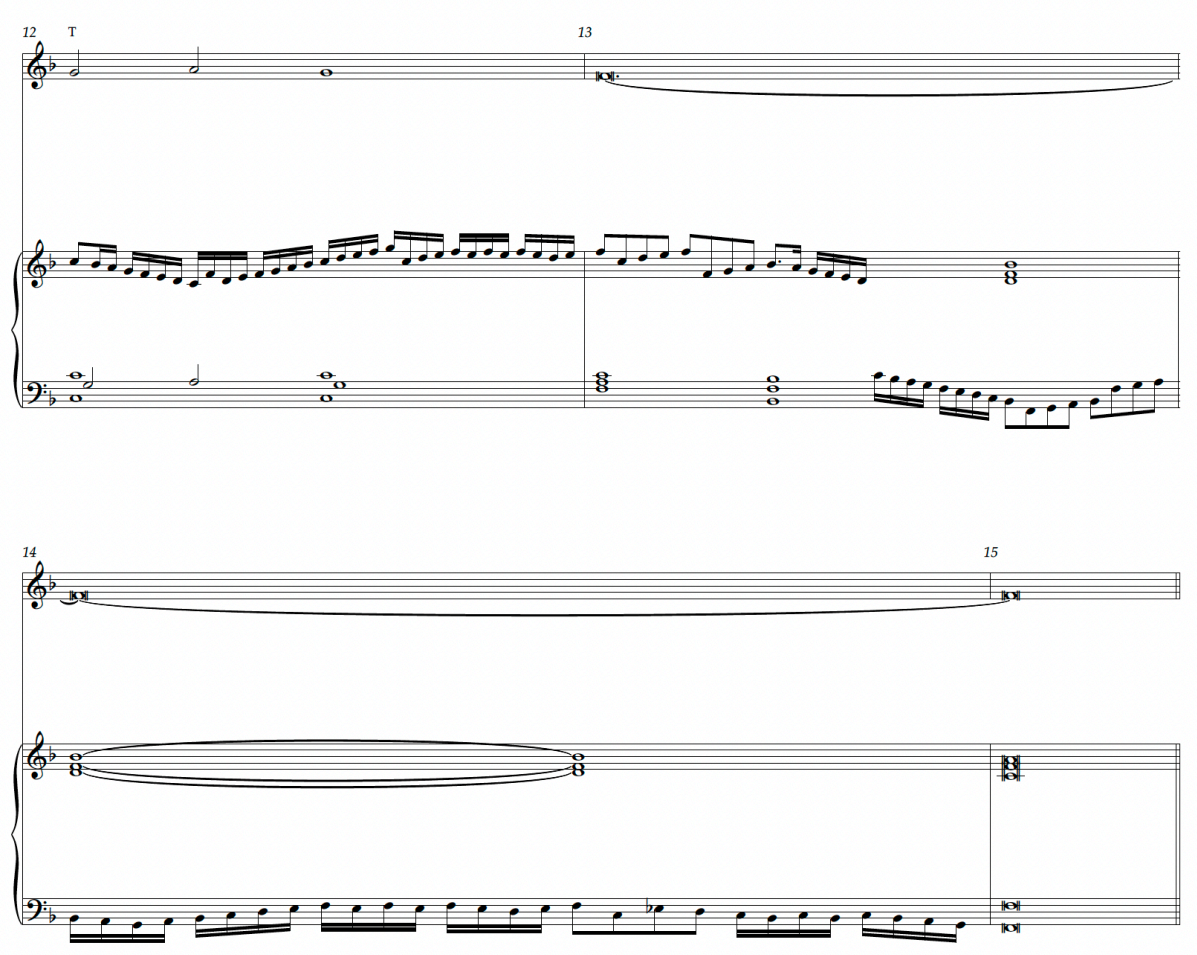
Example 2.3.4 Andrea Gabrieli, *Toccata del Ottavo Tono*, bars 7–10, GABRIELI1593



Example 2.3.5 Andrea Gabrieli, *Tocata del Primo Tono*, bars 1–4, GABRIELI1593



Example 2.3.6 Andrea Gabrieli, *Toccata del Sesto Tono*, bars 12–15, GABRIELI1593



2.4 Cadential embellishments

The return to the tonal centre of the cantus firmus in most surviving sixteenth-century works is marked by the notation of a stereotypical cadential groppo. In the surviving repertory, many of the V–I embellishments notated at the two main cadential points of a psalm tone (i.e. mediant and termination) correspond to a perfect authentic cadence (i.e. a V–I cadence), ending on the recitation of the psalm tone.

Example 2.4.1 is a collation of the commonly notated cadential V–I embellishments in the surviving repertory. A cursory review of these cadential embellishments reveal some common characteristics. First, a cadential groppo, in V–I progression or otherwise, typically consists of two halves, namely the preparation and resolution. Second, the resolution of a cadential groppo is typically notated in the stereotypical trill-and-turn formation. The beginning note of the trill is either the top note of the ending chord (e.g. bars 6, 14, 23) or a lengthened third degree of the starting chord (e.g. bars 1, 5, 17). Third, the preparation generally consists of longer notes than the resolution, effecting a sense of precipitation through the groppo (e.g. bars 3, 14, 22). While a groppo typically ends in quick succession of semifusas, it often starts with fusas and semiminims. Last, any leaping motion observed in a V–I groppo is likely to occur in its preparation, the resolution is typically devoid of leaping motion which can disrupt the effect of a complete resolution.

As seen in Example 2.4.1, the disparity between the notated V–I cadential groppi largely stems from the preparation, not the stereotyped resolution. One factor that influences the choice of cadential embellishments by keyboard composers and improvisors is the strength of the embellished cadence. In most cases, the stronger the embellished cadence is, the greater the need for a more elaborate cadential groppo (i.e. a more elaborate preparation). For example, the notated embellishment for the mediant has a less elaborate preparation than that for the termination (cf. bars 4 and 6 in Example 2.1.1). For example, the mediant is generally decorated by a less elaborate groppo than that for the termination (cf. bars 4 and 6 in Example 2.1.1).

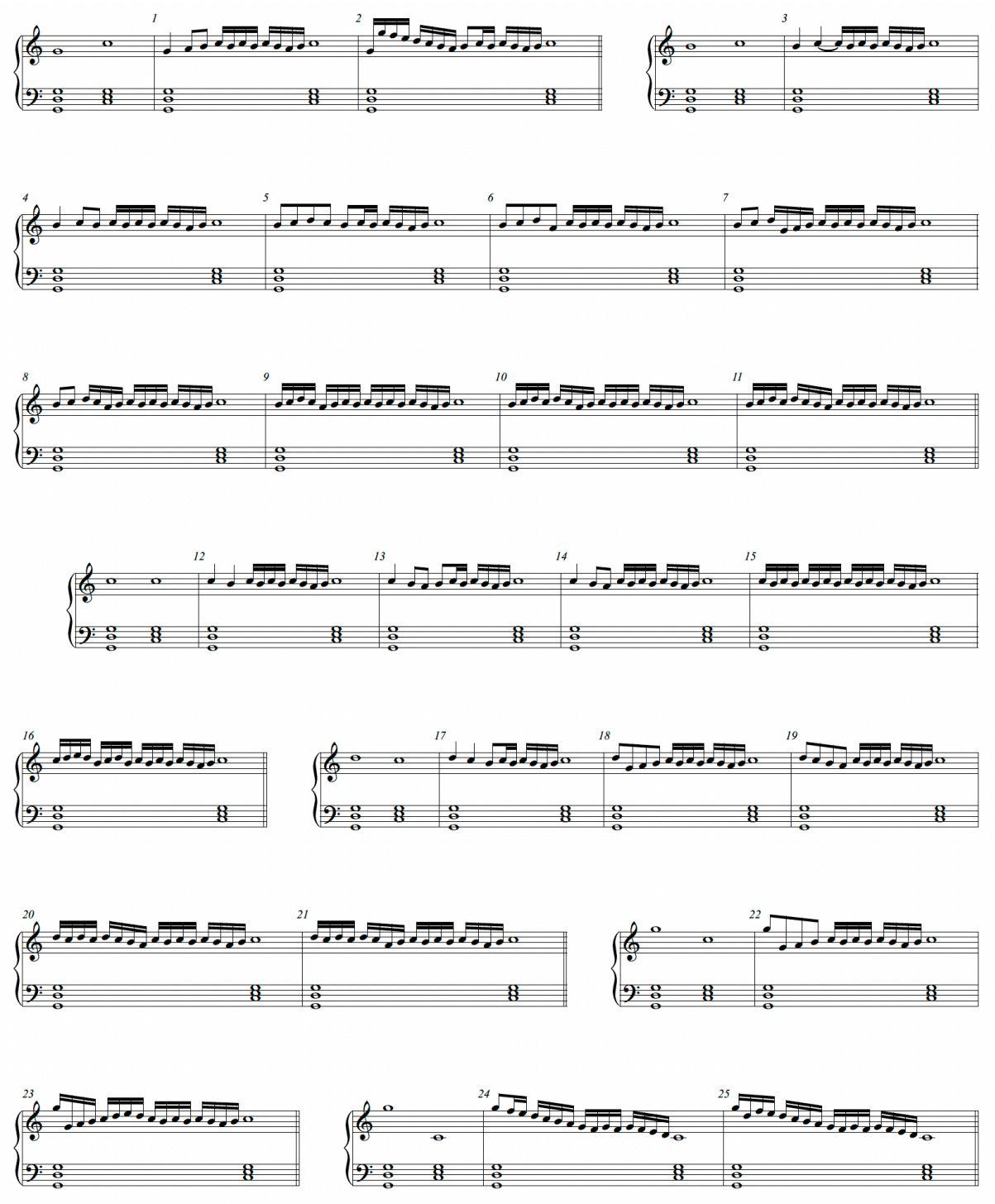
In addition to choosing an appropriately elaborate preparation for the cadential groppo, a V–I cadence can be accentuated by the addition of embellished tactus around the cadential tactus. Example 2.4.2 demonstrates a general tendency among late-sixteenth-century composers to alter the cadential melody of the psalm tone in order to include a greater number of embellished tactus of preparation that precede the cadential tactus in bar 65. As alluded in Chapter 2.2 and Chapter

2.3, the length of the final melodic note of the composition–ending cadence is often prolonged by the addition of an I–I embellishment or an I–V embellishment on the final melodic note (Example 2.3.3). Conversely, a V–I cadence can be weakened through choosing either a V–I embellishment with a weak preparation or one of non-cadential construct. In

Example 2.4.3, the notated V–I embellishment in the second tactus of bar 20 is figuratively non-cadential and corresponds to a weak termination, which is immediately followed by the recitation of a second statement of the psalm tone. It is noted that a V–I embellishment does not have to be cadential in construct. The V–I embellishment (see Chapter 2.3), that immediately follows an I–V embellishment and returns the harmony to the tonal centre, is often non-cadential in construct.

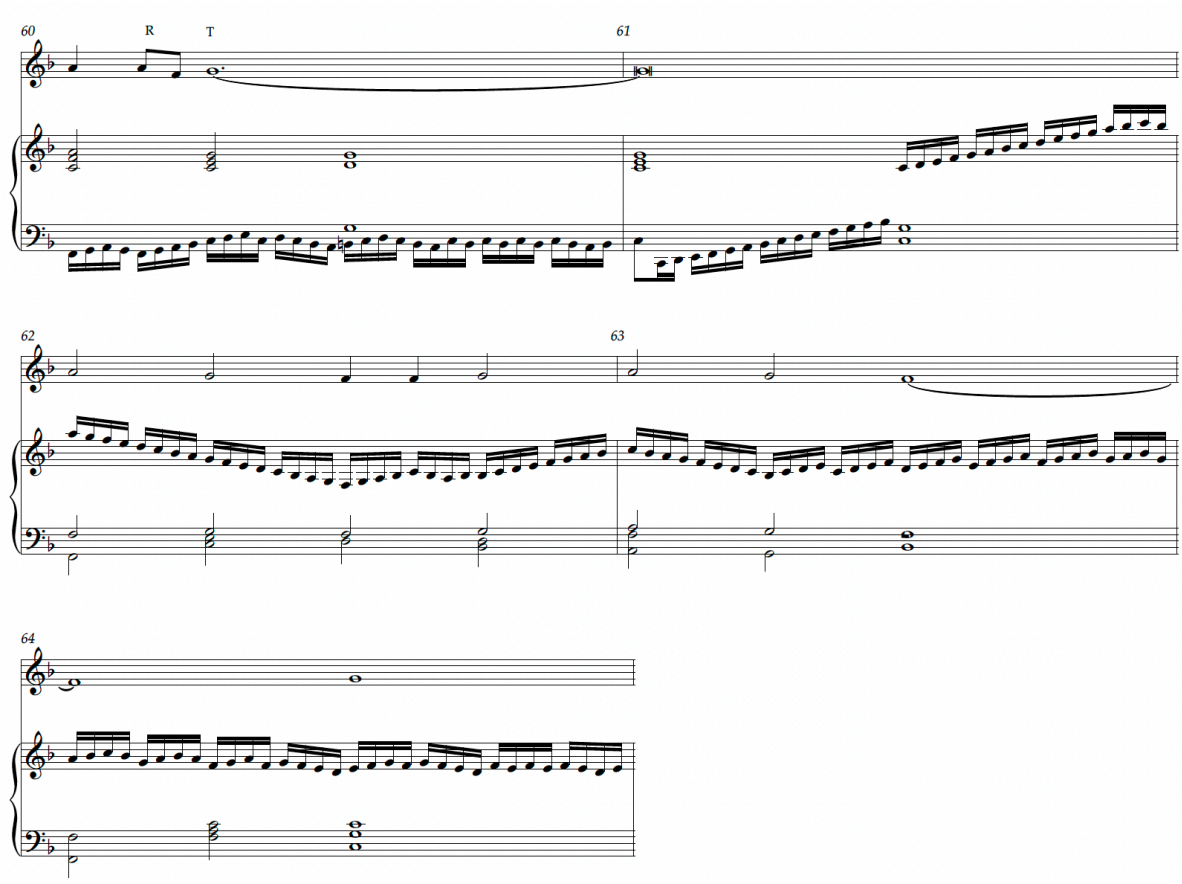
While the majority of the cadential points in the surviving repertory take the form of a perfect authentic cadence, there also exists some plagal cadences, mostly authentic, that are embellished by a VI–I embellishment. Example 2.4.4 is a collation of the commonly notated VI–I embellishments in the surviving repertory. Similar to their V–I counterparts in Example 2.4.1, these exemplary IV–I cadential constructs feature predominately stepping motion, varied preparation, stereotyped resolution ending on the root note of the final chord, and typically a gradual reduction in note values along its progression. In addition, as shown in Example 2.4.5 and Example 2.4.6, which juxtapose the same embellished VI–I cadence in an intonation and a toccata, the degree of complexity of the employed cadential embellishment varies based on the length and overall embellishment style of the composition.

Example 2.4.1 Commonly notated V–I cadential embellishments[60]

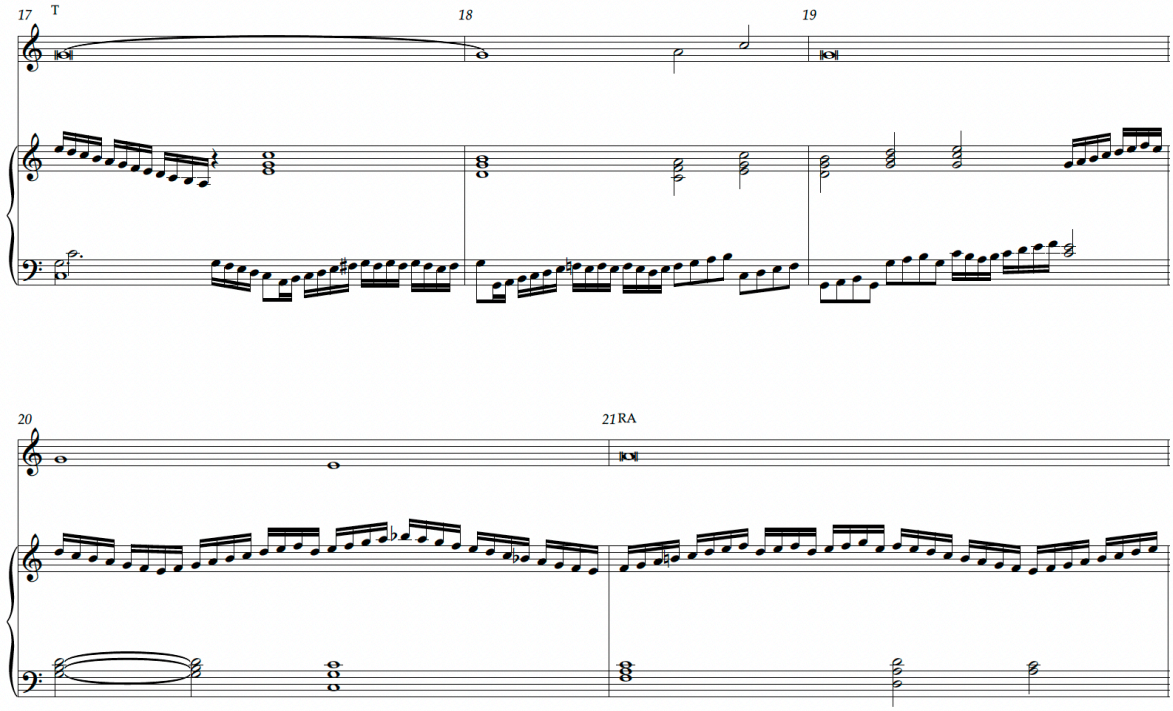


Example 2.4.2 Andrea Gabrieli, *Toccata del Sesto Tono*, bars 60–65, GABRIELI1593

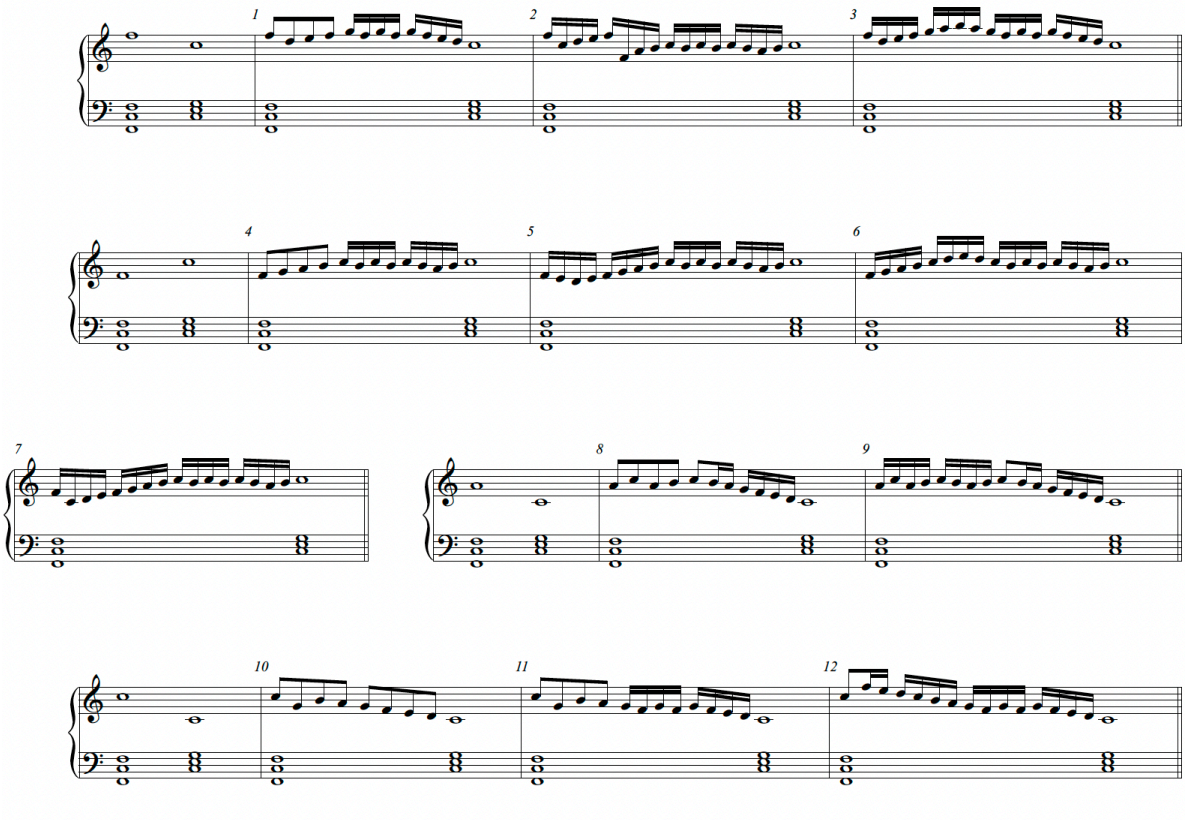
[60] All examples have been transposed to C.



Example 2.4.3 Andrea Gabrieli, Toccata del Nona Tono, bars 17–21, GABRIELI1593

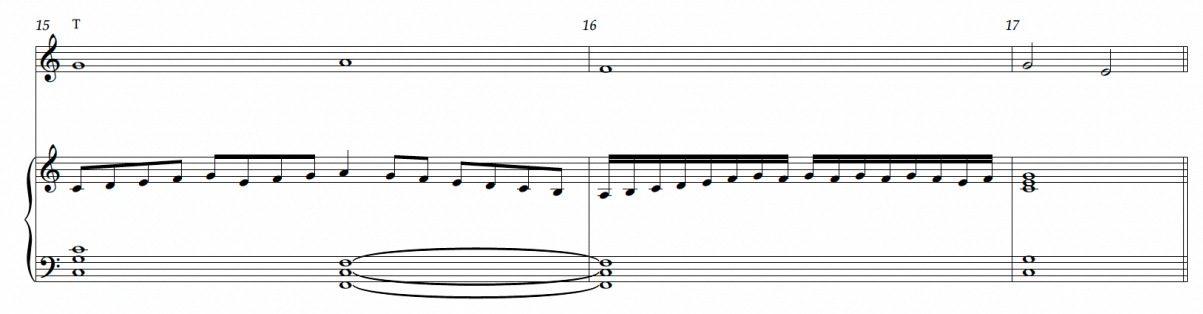


Example 2.4.4 Commonly notated IV–I cadential embellishments[61]

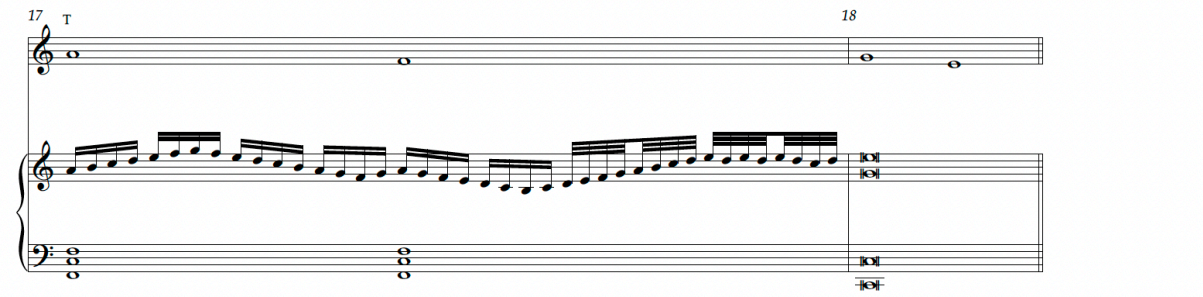


[61] All examples have been transposed to C.

Example 2.4.5 Andrea Gabrieli, Intonazione del Quinto Tono, bars 15–17, GABRIELI1593



Example 2.4.6 Andrea Gabreli, Toccata del Quinto Tono, bars 17–18, GABRIELI1593



Chapter 3 Proposed system of improvised embellishments

Following the analysis of the notated embellishment examples in Chapter 2 and consultation of sixteenth-century embellishment treatises, the author hereby proposes a system of improvised embellishments. The main objective of this system is to provide the improvising keyboardist with a practical guide with which to embellish any given psalm tone (see Table 1.1.1) in a style congruent with the surviving repertory.

To facilitate a clear discussion on the figurative construct of embellishments, key terms are expressly defined (Chapter 3.1). These definitions are either borrowed directly from historical embellishment treatises or construed by the author. Rules of embellishment are delivered in two groups, namely the "hard rules" (Chapter 3.2) and "soft rules" (Chapter 3.3). The former pertains to the foundational harmonic and figurative construct of embellishments and are assumed to have been tacitly upheld by all composers of the surviving repertory. The latter concerns the stylistic and artistic considerations of the embellishment style which, albeit not invariably adhered to, were likely to be frequently heeded by contemporaneous composers. In addition, corollaries (Chapter 3.4), in the form of adjunct propositions and improvisational advice, are provided with direct reference to the relevant rules of embellishment from which they are derived.

3.1 Definitions

D_1. An embellishment is comprised of good notes and bad notes. A *good note* is one that falls on the strong beat within a tactus. A *bad note* is one that falls on the weak beat within a tactus. The goodness and badness of a note is referred to as the *polarity* of the note.

The definition of the polarity of notes highlights the opposition and co-existence of the strong and weak elements of the duple metrical structure, a constant and important feature of sixteenth-century keyboard compositions. Example 3.1.1 illustrates the pairing of a good note (in red) and a bad note (in blue) in various rhythmic divisions of a tactus. In tandem with the definition of note polarity, in which Diruta further prescribes that good notes be taken with the good fingers (i.e, index finger and ring finger) and bad notes be taken with the bad fingers (i.e. thumb, middle finger, and fifth finger).[62]

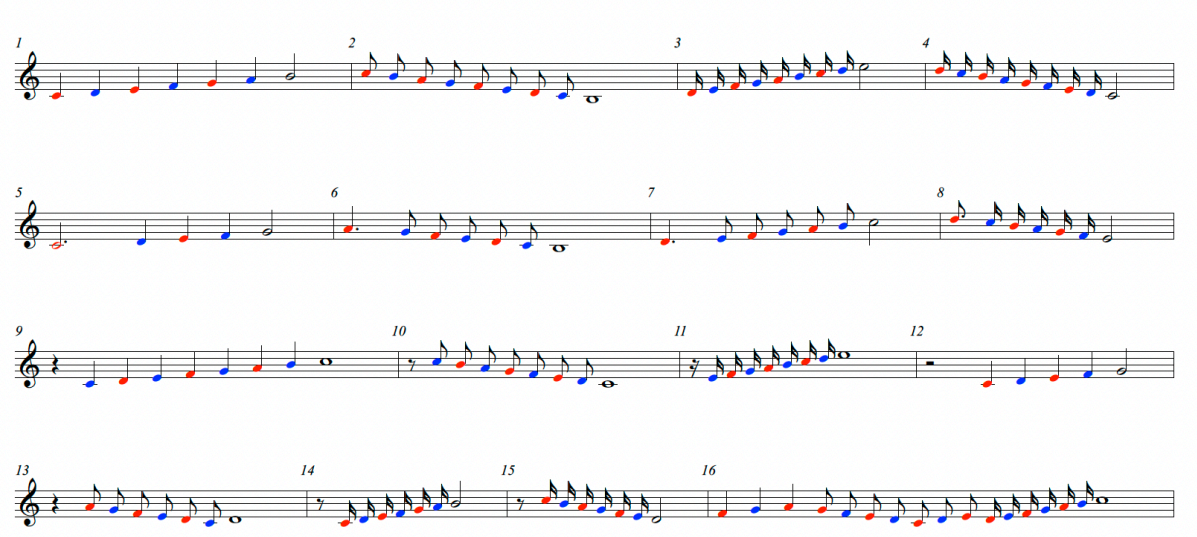
D_2. Consonance refers to either or both perfect consonance and imperfect consonance. A *perfect consonanc*e refers to an interval of the unison, fifth, and any multiples thereof. An *imperfect consonance* refers to an interval of the third and sixth, and any multiples thereof.[63] *Dissonance* refers to an interval of the second, fourth, augmented fourth, diminished fifth and seventh, and any multiples thereof.

D_3. The root note of the starting chord of an embellishment is called the *initial root note* of the embellishment, that of the ending chord the *final root note* of the embellishment.

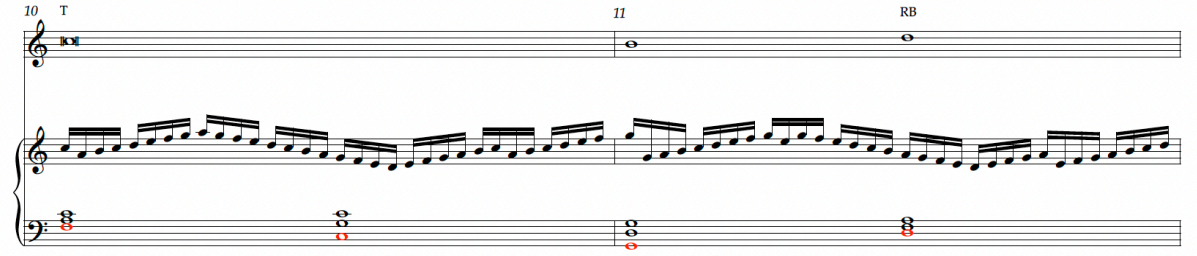
In Example 3.1.2, the initial root of the first embellishment is f. The final root note of the first embellishment, or the initial root of the second embellishment, is c. The final root note of the second embellishment, or the initial root note of the third embellishment is G. The final root note of the third embellishment, or the initial root note of the fourth embellishment is d.

[62] Diruta, *Il Transilvano*, 35.
[63] Ibid. 33.

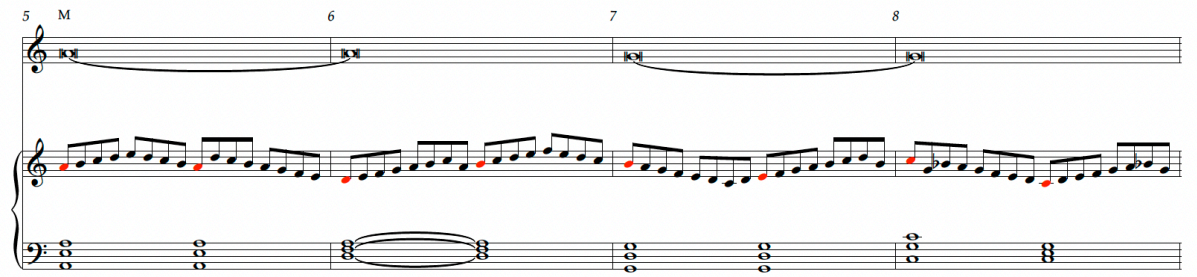
Example 3.1.1 Good notes and bad notes in various rhythmic division of a tactus



Example 3.1.2 Andrea Gabrieli, *Intonazione del Settimo Tono*, bars 10–11, GABRIELI1593



Example 3.1.3 Andrea Gabrieli, *Intonazione del Primo Tono*, bars 5–8, GABRIELI1593



D_4. The *time value of the embellishment* is defined as the summation of the time values of all its comprising notes. A *semibreve-embellishment* is one whose time value is a semibreve. A *minim-embellishment* is one whose time value is a minim.

Unless otherwise stated, the standard time value of an embellishment is a semibreve (see H_1 in Chapter 3.2).

D_5. The time value of the embellishment is subdivisible into four quadrants of equal time value, namely the *first quadrant*, *second quadrant*, *third quadrant*, and *fourth quadrant*. The starting note of each quadrant is called the *anchor note*. Specifically, the anchor note of each of the four quadrants is called the *first anchor note*, *second anchor note*, *third anchor note*, and *fourth anchor note* respectively.

In Example 3.1.2, the time value of each embellishment (i.e. a semibreve) is divisible into four quadrants, each of which is comprised of four semifusas. The first semifusa at the commencement of each quadrant is the anchor note. For example, the four anchor notes in the first embellishment are c´´, d´´, a and d´´.

D_6. The *direction of an embellishment* is defined as the direction of the melodic interval to which the embellishment corresponds. An *ascending embellishment* is one that corresponds to an ascending melodic interval. A *descending embellishment* is one that corresponds to a descending melodic interval. A *stationary embellishment* is one that corresponds to a unison melodic interval.

In Example 3.1.3, the directions of the eight embellishments are stationary (a´ to a´), descending (a´ to d´), ascending (d´ to b´), stationary (b´ to b´), descending (b´ to e´), ascending (e´ to c´´), descending (c´´ to c´) and ascending (c´ to a´) respectively.[64]

D_7. The *embellishment range* is the directional size of the melodic interval formed by the starting and ending note of the embellishment.

The embellishment ranges of the eight embellishments in Example 3.1.3 are unison (0), descending fifth (-5), ascending sixth (+6), unison (0), descending fifth (-5), ascending sixth (+6), descending eighth (-8) and ascending sixth (+6) respectively.[65]

[64] The ending note of the last embellishment (a´) is not in view of the excerpt.
[65] The first note in bar 9 (a´) is not in view of the excerpt.

D_8. The top and bottom note of the embellishment range of an embellishment is called *the upper limit and lower limit of the embellishment*. If the melodic interval is unison, the upper limit and lower limit refer to the same note.

By this definition, the upper limits and lower limits of the eight embellishments in Example 3.1.3 are a´ and a´, d´ and a´, b´ and d´, b´ and b´, b´ and e´, c´ and e´, c´´ and c´, and a´ and c´ respectively.[66]

D_9. The *leap degree* of a note is defined as the directional interval formed by itself and its immediately preceding note. A *step note* is a note of leap degree of ascending second or descending second. A *leap note* is one which is not a step note.

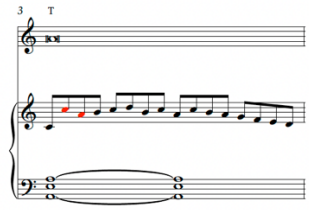
In Example 3.1.4, the eight fusas comprising the first embellishment have the following leap degrees: descending second (-2)[67], ascending eighth (+8), descending third (-3), ascending second (+2), ascending second (+2), ascending second (+2), descending third (+3) and ascending second (+2).

D_{10}. A *good leap* is a leaping motion that starts on a bad note and ends on a good note. A *bad leap* is a leaping motion that starts on a good note and ends on a bad note.

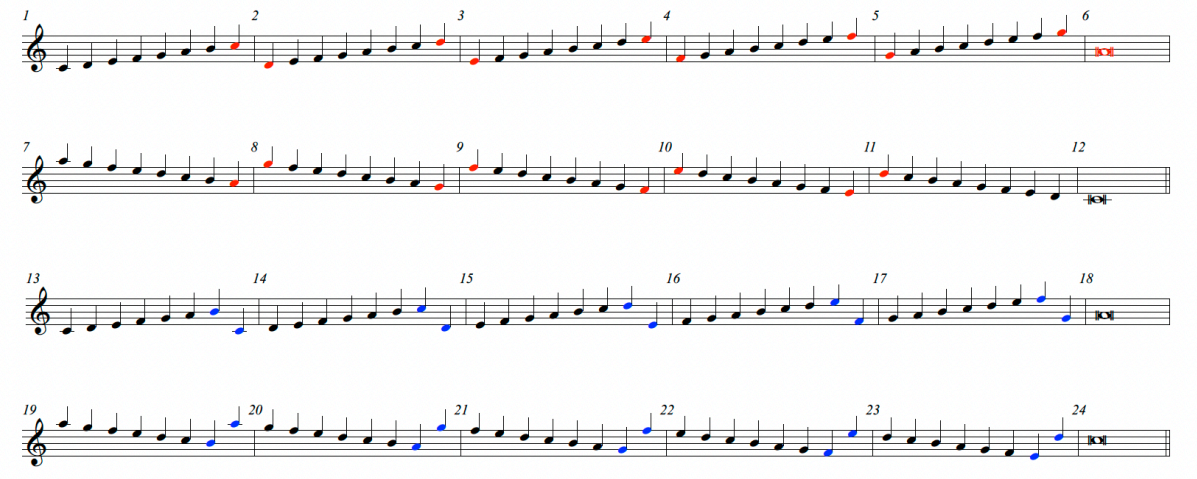
Example 3.1.5 is a right-hand finger exercise for the good leaps (in red) and bad leaps (in blue) provided in Diruta's treatise.[68]

[66] The upper limit of the eighth embellishment (a´) is not in view of the excerpt.
[67] The immediately preceding note (d´) in bar 2 is not in view of the excerpt.
[68] Diruta, *Il Transilvano*, 64.

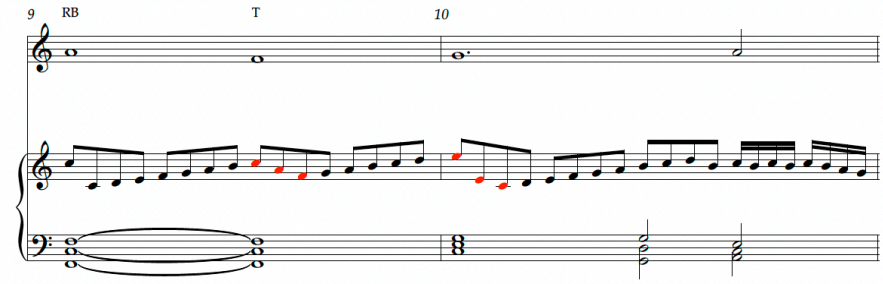
Example 3.1.4 Giovanni Gabrieli, *Intonazione del Primo Tono*, bar 3, GABRIELI1593



Example 3.1.5 Examples of good leaps and bad leaps



Example 3.1.6 Andrea Gabrieli, *Intonazione del Primo Tono*, bars 9–10, GABRIELI1593



D_{11}. A *consecutive leap* occurs when there are in succession two or more connecting leap notes. A *non-consecutive leap*, or a *standalone leap* occurs when a leap is not immediately succeeded by another leap. A leap note which forms part of the former is further qualified as a *consecutive leap note*. A leap note which forms of the latter is further qualified as a *non-consecutive leap note* or *standalone leap note*. If a consecutive leap is made of leap notes that leap in similar direction, it is referred as a *consecutive leap in similar direction*. If a consecutive leap is made of leap notes that leap in opposite direction, it is referred as *a consecutive leap in opposite direction*.

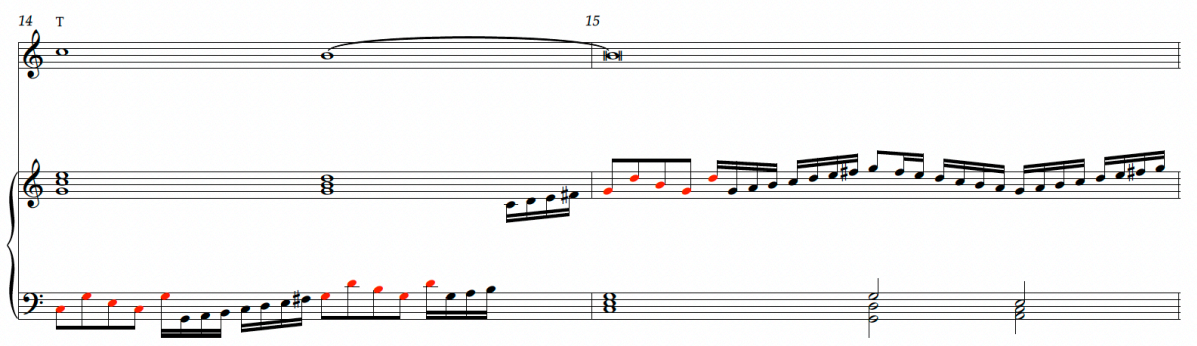
Connecting leap notes belonging to the same consecutive leap may move in either similar or opposite directions. Their usage commonly serves stereotypical ends. A consecutive leap in similar direction is stereotypically employed to accentuate the arrival of a new harmony. To this end, the number of leap notes comprising a consecutive leap may vary. In Example 3.1.6, both the second and third embellishments feature the use of a two-note consecutive leap at their commencement, though to different leap degrees. By comparison, in

Example 3.1.7, a five-note consecutive leap forms a sequential motif which is used to propel the embellishment through a simple harmonic progression. A consecutive leap in opposite direction is used as part of a stereotyped paired figurative construct which effectively disrupts a scalar construct. In Example 3.1.8, the descending scalar motion of the second embellishment and fourth embellishment is disrupted by a consecutive leap in the opposite direction.

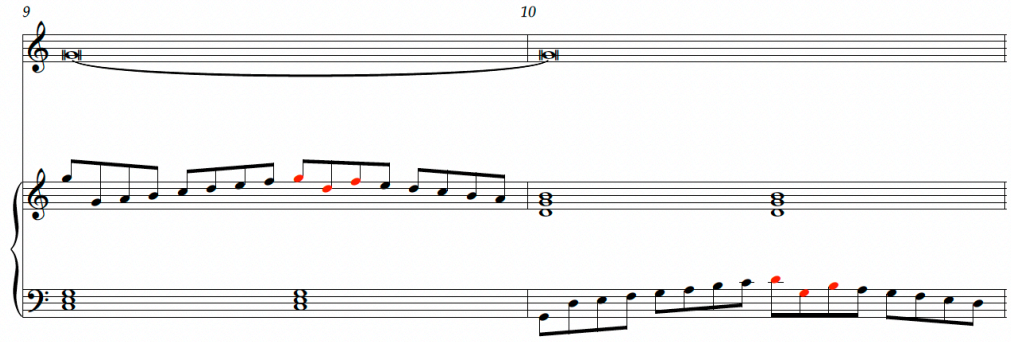
D_{12}. In an embellishment, the note which immediately succeeds either the first anchor note or the third anchor note is defined as a *guide note*. Specifically, the note which immediately succeeds the first anchor note is defined as the *primary guide note*, and the note which immediately succeeds the third anchor note is defined as the *secondary guide note*.

The rationale for singling these two notes out of all those comprising an embellishment is that they often serve to guide the pitch direction and leaping motion of all succeeding notes in their respective half of the embellishment. It is noted that, depending on the rhythmic division of the embellishment (see H_1 in Chapter 2.2), a guide note can be either a good note or a bad note. In Example 3.1.9, the polarities of the primary guide notes of all eight embellishments are: bad, bad, good, bad, bad, bad, good, good.

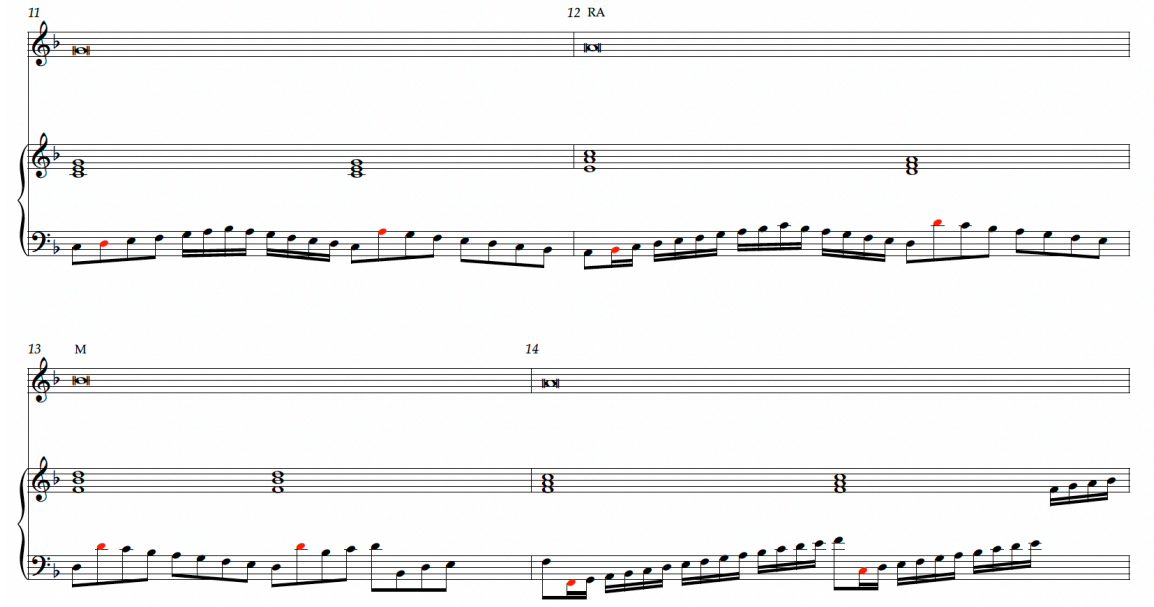
Example 3.1.7 Andrea Gabrieli, *Toccata del Settimo Tono*, bars 14–15, GABRIELI1593



Example 3.1.8 Andrea Gabrieli, *Toccata del Quinto Tono*, bars 9–10, GABRIELI1593



Example 3.1.9 Andrea Gabrieli, *Toccata del Sesto Tono*, bars 11–14, GABRIELI1593

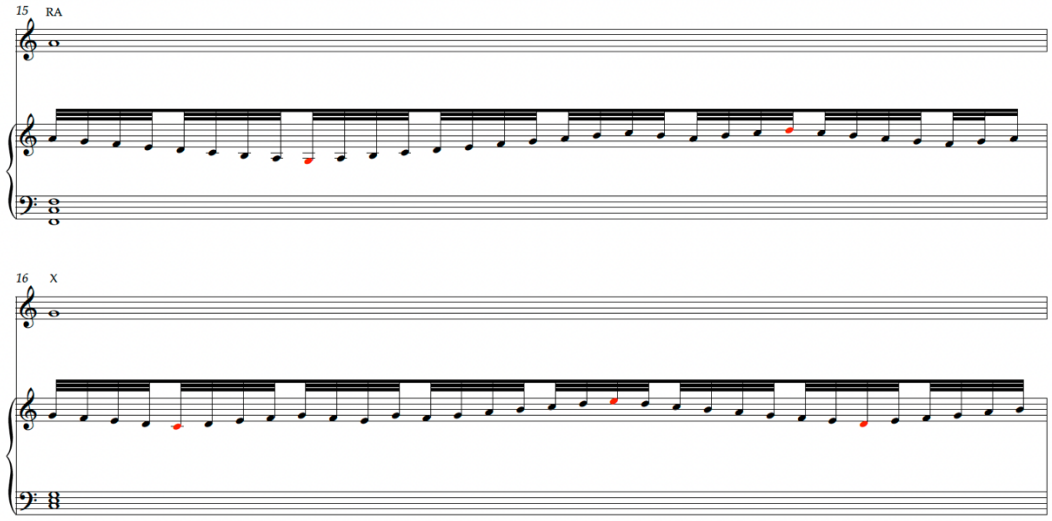


D_{13} An *inflection note* is a note that alters the general direction of a scalar portion of an embellishment. In particular, a *high inflection note* is one which redirects the general direction of the scalar portion of the embellishment from ascending to descending, a *low inflection note* is one which redirects the general direction of the scalar portion of the embellishment from descending to ascending.

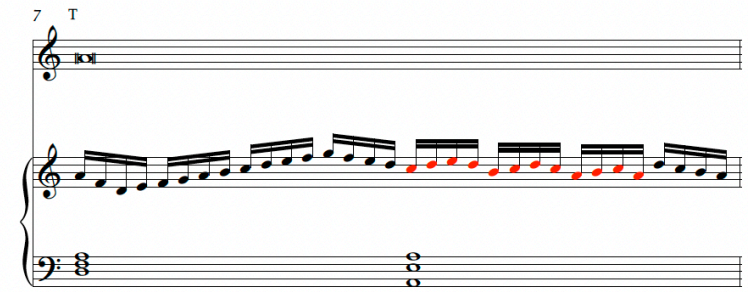
By this definition, a high inflection note is generally the note of highest pitch relative to its surrounding notes in the scalar construct, and a low inflection note is the note of the lowest pitch in its vicinity. In Example 3.1.10, which features a total of six minim-embellishments in rapid succession, the third anchor note of the first embellishment (g) is a low inflection note, the third anchor note of the second embellishment (d´´) is a high inflection note, the second anchor note of the third embellishment (c´) is a low inflection note, the third note of fourth embellishment (e´´) is a high inflection note, the tenth note of the fourth embellishment (d´) is a low inflection note.

It is noted that, based on the given definition, there are two categories of notes that are not to be confused with inflection notes. The first category encompasses notes which form part of a small-scale motivic construct, and do not contribute to the alteration of the "general direction" of the embellishment. In Example 3.1.11, the small-scale motivic construct at the onset of the second embellishment is free of inflection notes, high or low, as none of them serves to effectively alter the descending direction of the embellishment. The second category includes the leap notes which reset the pitch level of their surrounding notes but nevertheless fail to alter the general direction of the embellishment. In Example 3.1.12, the primary guide notes of both embellishments (F and c) are descending leap notes which serve to effectively lower the pitch level of the ensuing notes in their respective embellishment. However, neither serves to alter the ascending direction of the embellishment.

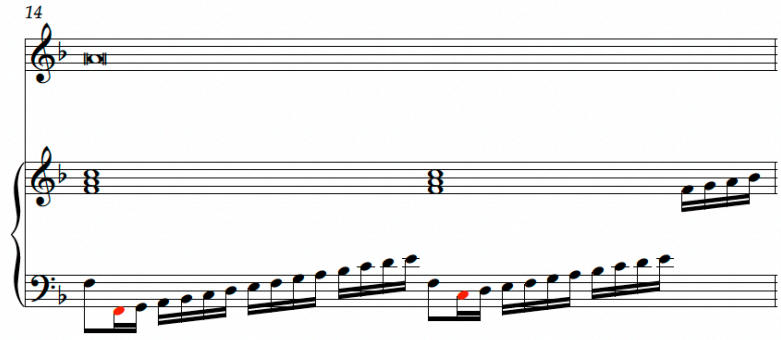
Example 3.1.10 d'Incerto, *Toccata del Primo et Secondo Tono*, bars 15–16, PADOVANO1594



Example 3.1.11 Andrea Gabrieli, *Toccata del Quarto Tono*, bar 7, GABRIELI1593



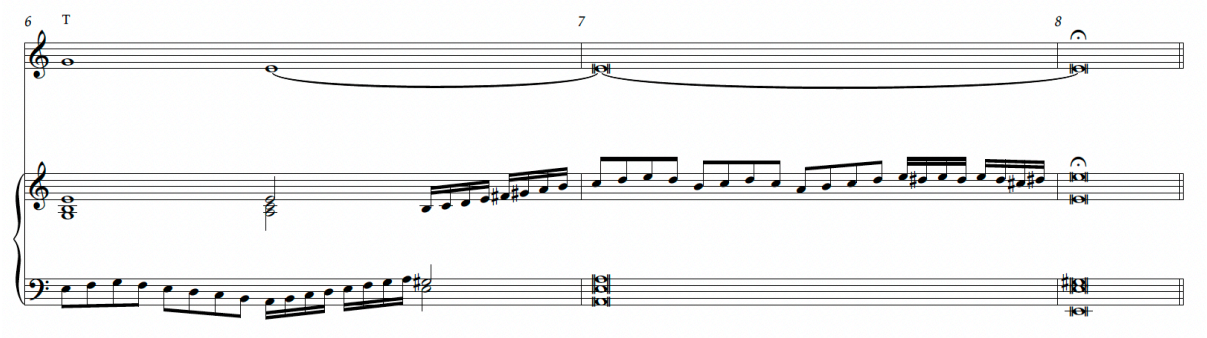
Example 3.1.12 Andrea Gabrieli, *Toccata del Sesto Tono*, bar 14, GABRIELI1593



D$_{14}$. A *non-cadential construct* is the portion of an embellishment which does not lead to an effect of resolution. A *cadential construct* is the portion of an embellishment that does.

Figuratively speaking, a non-cadential construct is open-ended and typically features a continuous linear stepping motion that is occasionally interspersed with a leaping motion, and a cadential construct is closed-ended and typically includes stereotyped cadential formulas. Example 3.1.13 demonstrates the transition from a non-cadential construct (bar 6) to a cadential construct (bar 7), both of which are used to embellish the termination of the third and fourth psalm tone. These two definitions are given to contrast two different types of figurative construct in an embellishment and do not relate to the nature of the embellished melodic section. In other words, both constructs may be used to embellish any given section of the cantus firmus, whether it is cadential or non-cadential.

Example 3.1.13 Giovanni Gabrieli, *Intonazione del Terzo et Quarto Tono*, bars 6–8, GABRIELI1593



3.2 Hard rules

H_1. The time value of an embellishment corresponds to the time value of the embellished note, whose standard value is a semibreve.[69]

While the time value of an embellishment remains consistent throughout most musical works, it may change to reflect a temporary change in the time value of the embellished melodic notes. In Example 3.2.1, where the harmonic rhythm at the termination quickens in bar 3 and the first half of bar 4, the time value of the embellished notes and accompanying embellishments is halved from a semibreve to a minim.

H_2. The rhythmic division of an embellishment is limited to one of the nine common types.

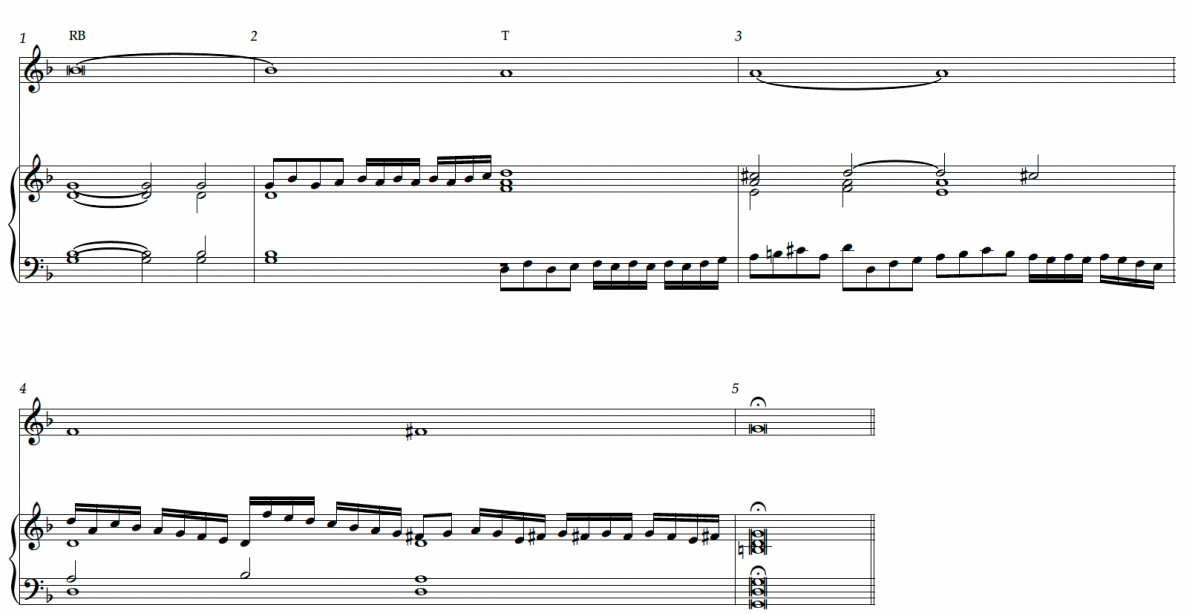
Example 3.2.2 enumerates nine most common types of rhythmic division of a semibreve tactus notated in surviving repertory. In the order of descending frequency with which they appear, the time value of a single semibreve is divided into sixteen semifusas (9), eight fusas (3), four fusas followed by eight semifusas (5), and one fusa followed by fourteen semifusas (8), two fusas followed by fourteen semifusas (6) and another fusa followed by another six semifusas (7), one semiminim followed by six fusas (2), and five fusas followed by six semifusas (4) and four semiminims (1). If the embellished note is of a different time value (e.g. a minim or a whole note), the provided embellishments can be scaled accordingly. In Example 3.2.3, the standard time value of an embellishment is reduced from a semibreve to a minim, in which case the time value of the notes comprising the embellishment is halved proportionally.

H_3. In four-part texture, only the soprano or the bass is embellished.

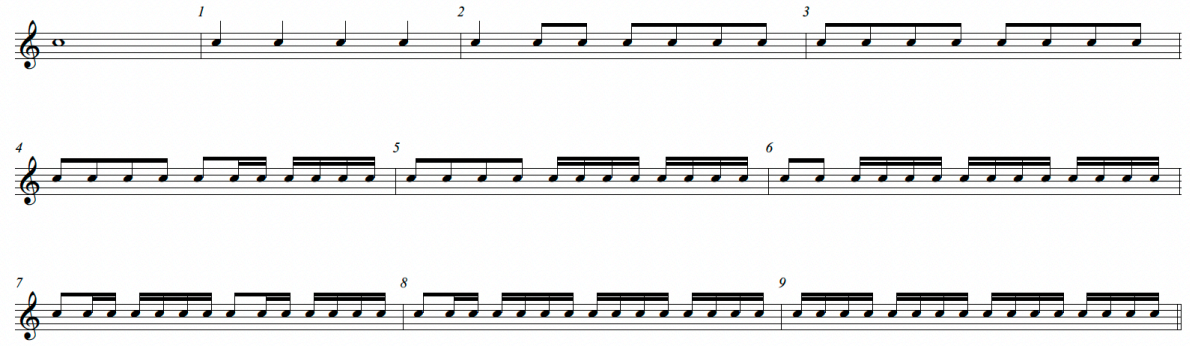
Example 3.2.4 is a short intonation composed firmly within the framework of four-part vocal polyphony. Its notated embellishments are, without exception, applied to either the soprano or the bass, and only one part at a time. This clear juxtaposition of the soprano-embellishments and bass-embellishments does not preclude circumstances where an embellishment flows from the soprano to the bass, or vice versa, within a single tactus, as shown in bar 6 in Example 3.2.4.

[69] Some sixteenth-century composers use the minim as the standard value of an embellishment, which is considered an anomaly by the author. In the ensuing discussion, unless otherwise noted, the time value of an embellishment is assumed to be a semibreve.

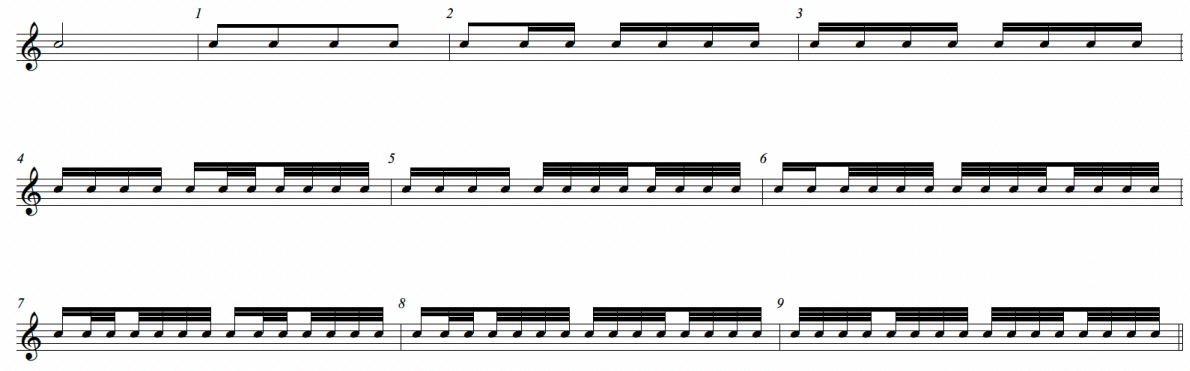
Example 3.2.1 Giovanni Gabrieli, *Intonazione del Secondo Tono*, bars 1–5, GABRIELI1593



Example 3.2.2 Commonly notated rhythmic divisions of a semibreve tactus



Example 3.2.3 Commonly notated rhythmic divisions of a minim tactus



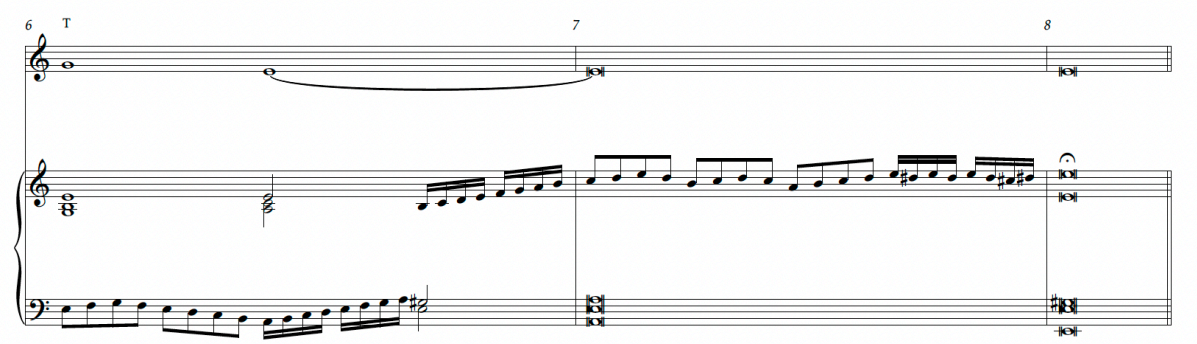
H_4. The first anchor note of an embellishment is in consonance with its initial root note. The third anchor note of an embellishment is in consonance with either its initial root note or final root note.

Sancta Maria highlights the practical function of a tactus in the context of choir performance by defining it as a time unit which enables all voices to converge in consonance at the same time.[70] This vocal tradition of all parts converging in consonance at the changeover of neighbouring tactus did not go unheeded in the mid-sixteenth-century embellishment procedure for psalm tones. In Example 3.2.5, all first anchor notes (in red) are in perfect consonance with the corresponding root notes (in pink) and all third anchor notes (in blue) are in consonance, perfect or imperfect, with the corresponding initial root notes and final root notes. Additionally, this unfailing adherence to consonance with root notes is kept by most of the second anchor notes (in orange) and fourth anchor notes (in orange) in this example.[71]

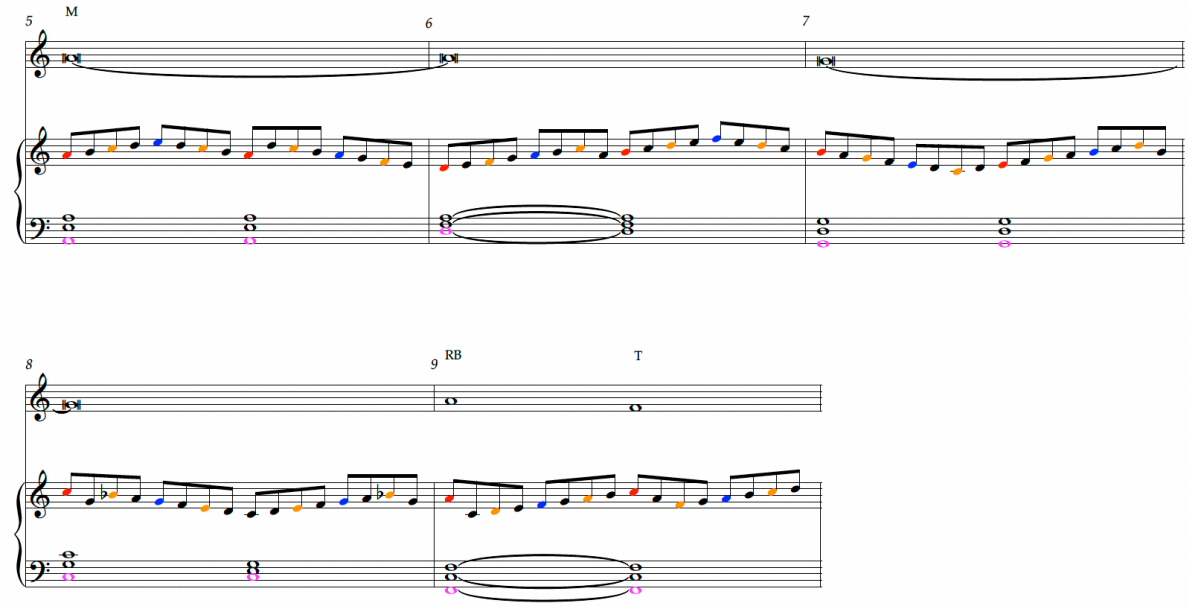
One common exception to this rule occurs when the anchor notes form part of a lengthy scalar construct. In Example 3.2.6, the third anchor note of both embellishments in bar 61 (b, d´´ in red) are in dissonance with their respective root notes (c in blue). This violation of the consonance rule is softened by the fleeting effect of the dissonance, which is disguised in the rapid ascension and ensuing descension of the lengthy tirata.

[70] Thomas de Sancta Maria, *Libro Llamdo Arte de Tañer,* 1565, trans. Sion M. Honea, 5.
[71] see S_1 in Chapter 3.3.

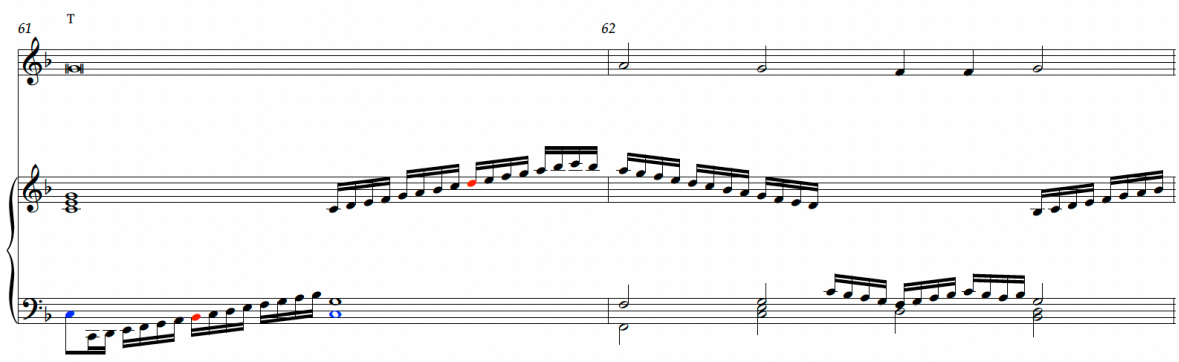
Example 3.2.4 Giovanni Gabrieli, *Intonazione del Terzo et Quarto Tono*, bars 6–8, GABRIELI1593



Example 3.2.5 Andrea Gabrieli, *Intonazione del Primo Tono*, bars 5–9, GABRIELI1593



Example 3.2.6 Andrea Gabrieli, *Toccata del Quinto Tono*, bars 61–62, GABRIELI1593

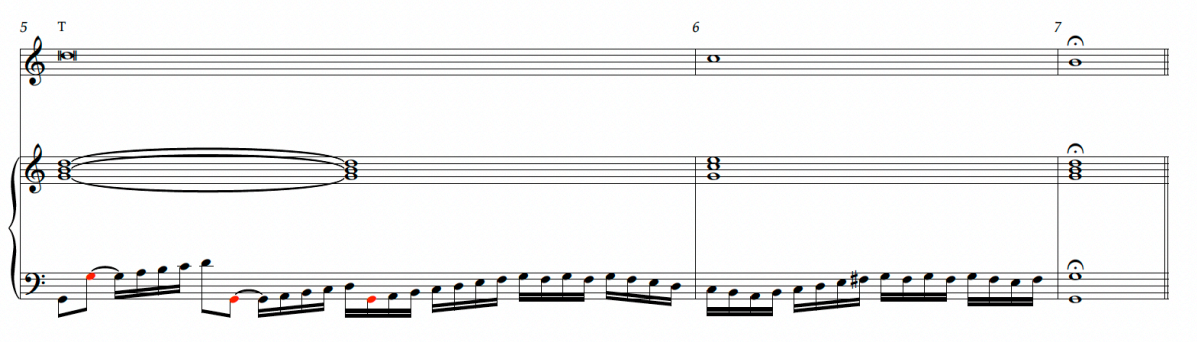


H_5. Leaping motion most frequently occurs on bad notes rather than on good notes. Among all the bad notes in an embellishment, leaping motion is most likely to occur on the primary guide note, followed by the secondary guide note.

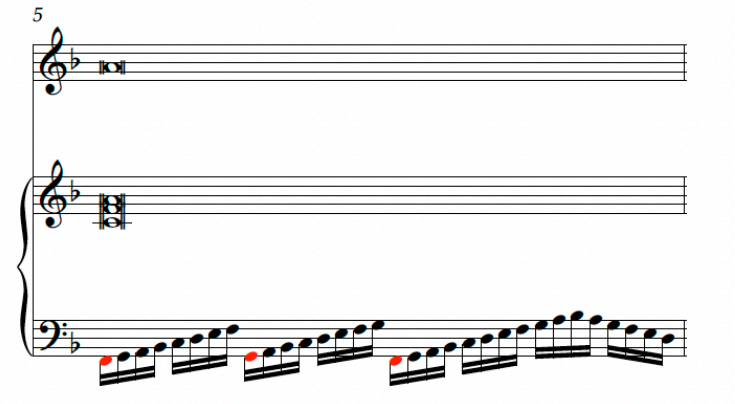
Notated examples in the surviving repertory feature predominantly bad leaps rather than good leaps (see D_{10} in Chapter 3.2), to the extent that they may be signalling to the improvising keyboardist to avoid the use of good leaps entirely. In Example 3.2.7, the first embellishment, a non-cadential construct, contains two leap notes, namely its primary guide note (g) and secondary guide note (G,), both of which are followed by an immediate succession of semifusas in step motion. The second embellishment, a cadential construct, features leaping motion exactly once on its primary guide note (G,).

There are two scenarios which contribute to the rare occurrences of good leaps. First, in the formation of a consecutive leap (see D_{11} in Chapter 3.2), leaping motion occurs on connecting notes of opposing polarity, which guarantees the occurrence of at least one good leap. For example, in the third embellishment of Example 3.1.6, the primary guide note (e´), a bad note of a leap degree of descending eighth, is immediately followed by a good note (c´) of a leap degree of descending third. Second, leaping motion can take place on the first (good) note of each motif in an embellishment featuring small-scale motivic ideas. In Example 3.2.8, all first notes of each of the three octave motifs (F, G and F) are good leap notes.

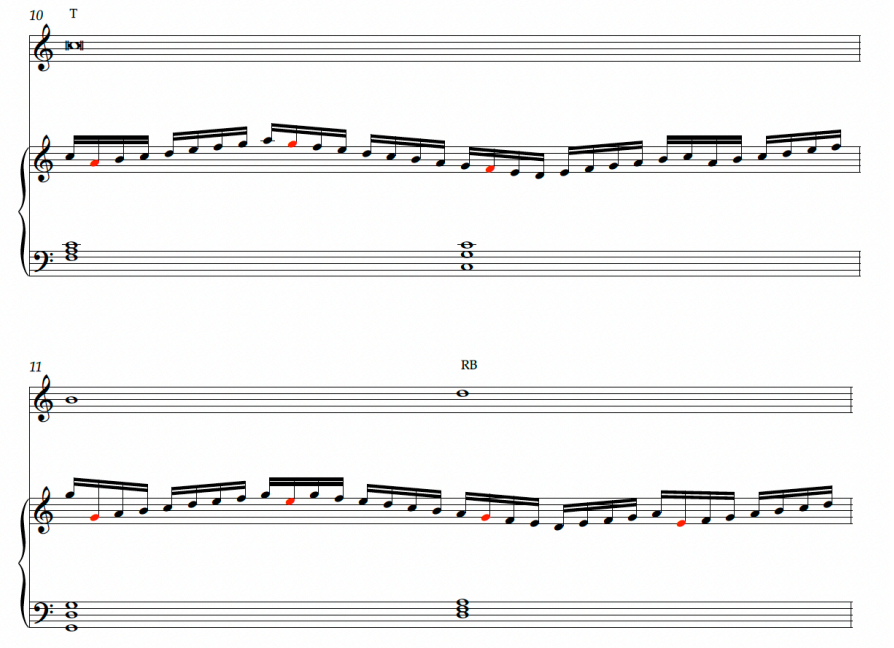
Example 3.2.7 Giovanni Gabrieli, *Intonazione del Settimo Tono*, bars 5–7, GABRIELI1593



Example 3.2.8 Andrea Gabrieli, *Toccata del Sesto Tono*, bar 5, GABRIELI1593



Example 3.2.9 Andrea Gabrieli, *Intonazione del Settimo Tono*, bars 10–11, GABRIELI1593

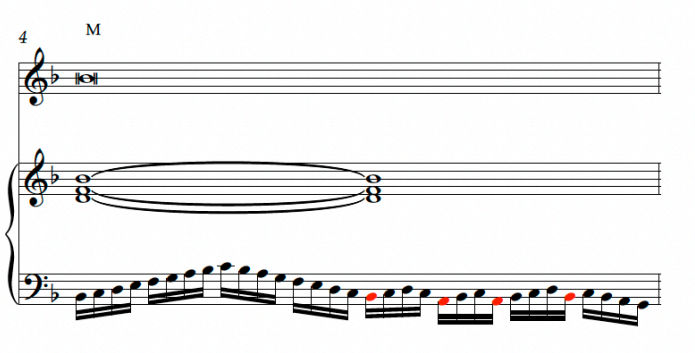


H_6. The leap degree of the primary guide note is no less than that of the secondary guide note. The leap degree of the primary guide note is no less than that of all ensuing notes in the first and second quadrant of the embellishment. The leap degree of the secondary guide note is no less than that of all ensuing notes in the third and fourth quadrant of the embellishment.

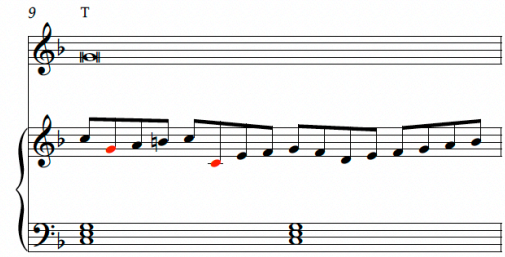
In Example 3.2.9, the four embellishments contain a total of eight guide notes (a´, g´´, f´, a´, g´, e´´, g´, e´), whose leap degrees are a third, a second, a second, a third, an eighth, a third, and a second and a fourth respectively. The leap degrees of these eight guide notes are not exceeded by those of the ensuing notes in the corresponding two quadrants of their belonging.

There are two common exceptions to this rule. The first exception is attributable to the gradual emergence of small-scale motivic ideas within a single embellishment in late sixteenth century (see Chapter 5.2). In Example 3.2.10, the second embellishment starts with a stepping primary guide note (C, leap degree = 1), and runs into several falling thirds (A, A, B, leap degree = 3) that form part of a small-scale motivic sequence. A second exception results from the general acceptance of certain stereotyped figurative constructs that contain leaping motion. In Example 3.2.11, the eight fusas comprising the first embellishment is a commonly notated figurative construct, in which the leap degree of the primary guide note (g´, leap degree = 4) is surpassed by that of the secondary guide note (c´, leap degree = 8).

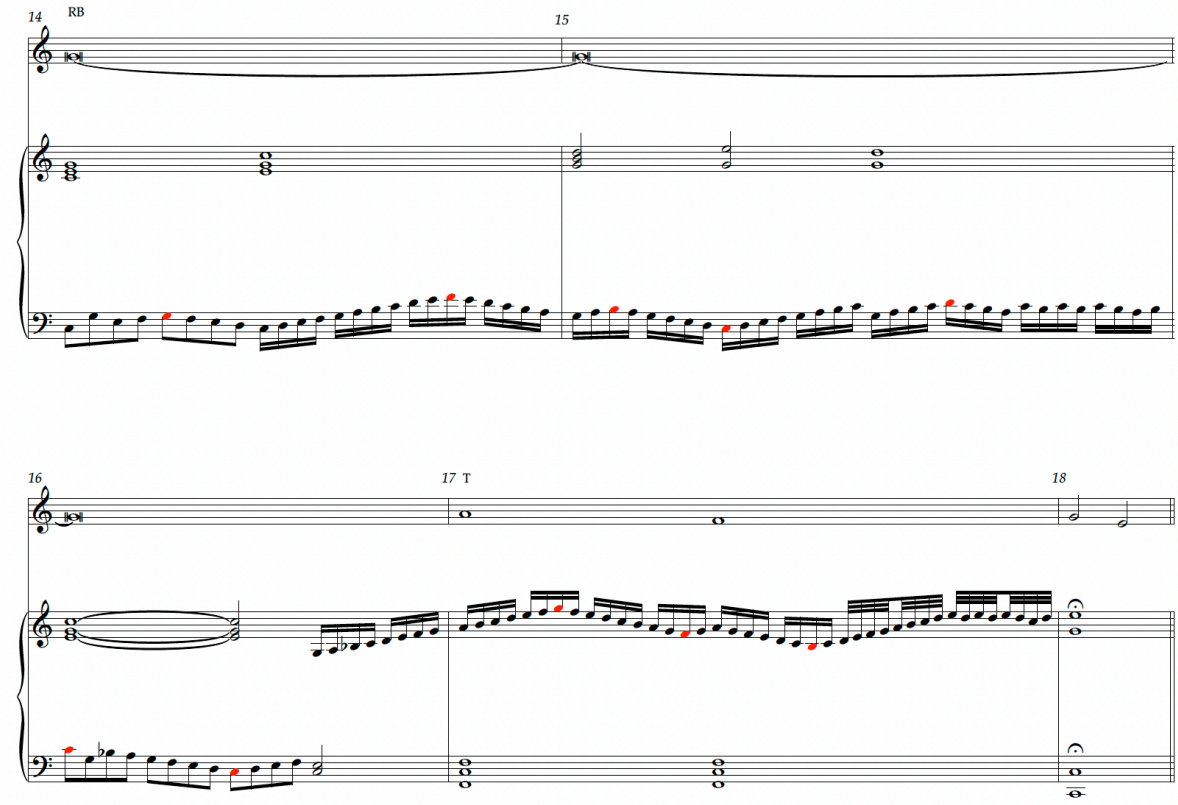
Example 3.2.10 Andrea Gabrieli, *Toccata del Sesto Tono*, bar 4, GABRIELI1593



Example 3.2.11 Andrea Gabrieli, *Intonazione del Sesto Tono*, bar 9, GABRIELI1593



Example 3.2.12 Andrea Gabrieli, *Toccata del Quinto Tono*, bars 14–18, GABRIELI1593



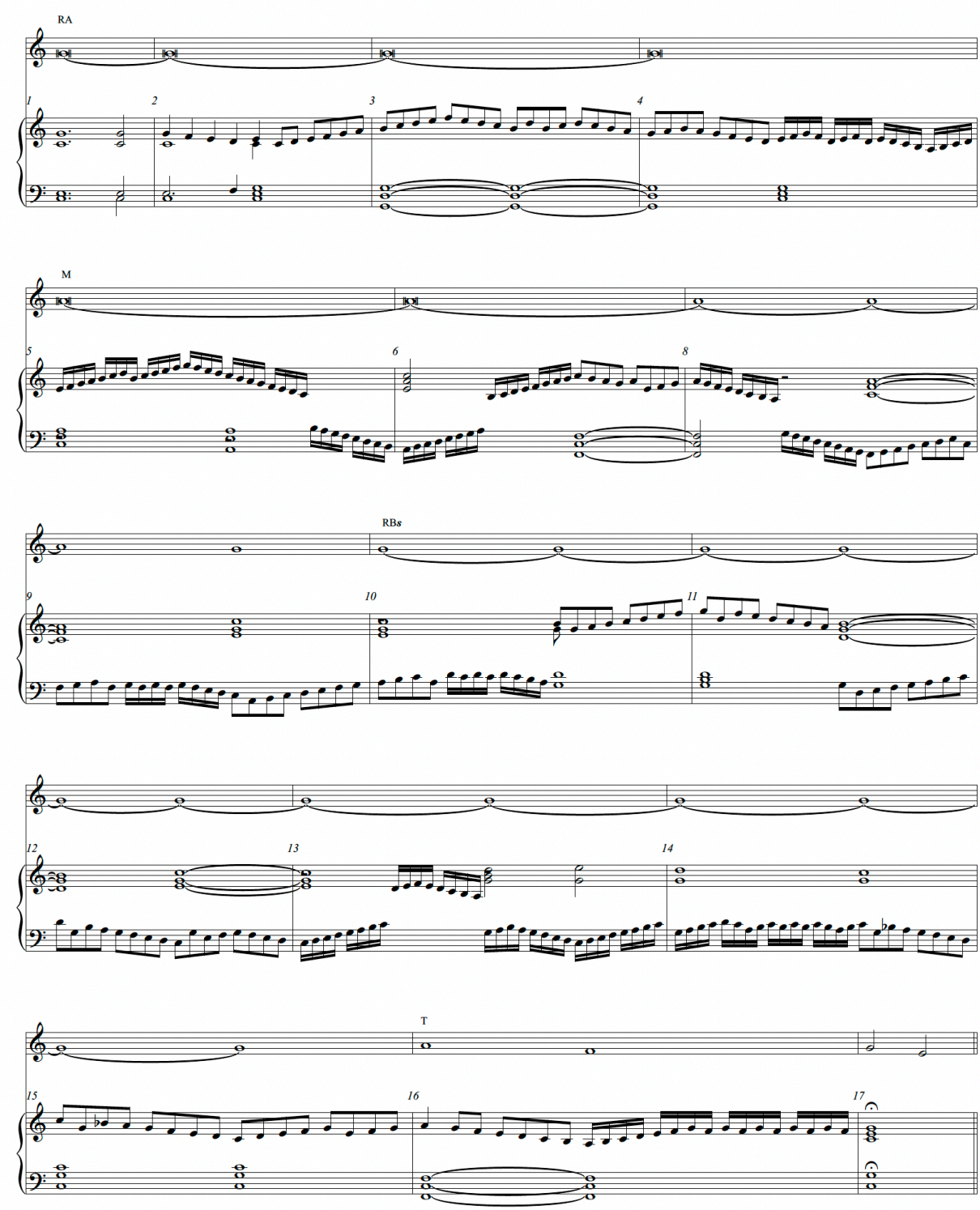
H_7. An inflection note is typically a good note, rarely a bad note.

Example 3.2.12 features a variety of types of rhythmic division of the embellished melodic note. However, the inflection notes of all embellishments in this example are good notes: g in the first embellishment, f´ in the second embellishment, b in the third embellishment, c in the fourth embellishment, d´ in the fifth embellishment, c´ in the sixth embellishment, c in the seventh embellishment, g´´ and f´ in the eighth embellishment, and b in the ninth embellishment.

H_8. The total number of inflection notes in an embellishment is zero, one, or two.

Excessive fluctuation within a single embellishment is rarely observed in the surviving repertory. Irrespective of the direction of an embellishment (i.e. stationary, ascending, descending), the total number of inflection notes within a single embellishment is generally capped at two. This restriction is to both sustain the continuous flow of the embellishments and reduce their potential obfuscation of cantus firmus. In Example 3.2.13, the clear presentation of the cantus firmus (i.e. fifth psalm tone) is aided by the judicious use of inflection points within a single embellishment, with most of the notated embellishments having either zero or one inflection note.

Example 3.2.13 Andrea Gabrieli, *Toccata del Quinto Tono*, bars 1–17, GABRIELI1593



H_9. A high inflection note is above the upper limit of the embellishment. A low inflection note is below the lower limit of the embellishment.

In Example 3.2.14, the stepping motion of the first embellishment rises above its upper limit (c´´) exactly once and falls below its lower limit (f´) exactly once. The lone high inflection note (g´´) represents the greatest deviation from its upper limit and the lone low inflection note (d) represents the greatest deviation from its lower limit.

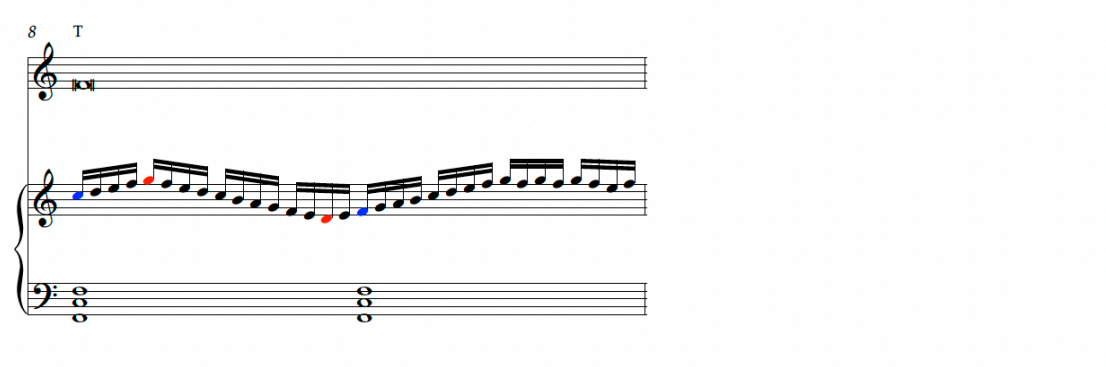
In Example 3.2.15, the modified embellishment rises above the upper limit (c´´) exactly twice and does not fall below its lower limit (f´). Compared to the original embellishment, the presence of a second high inflection note (e") serves to not only disrupt the forward momentum of the embellishment but also to compromise the harmonic certainty against the initial and final root note (F). In addition, the range of the embellishment is significantly reduced by the replacement of the low inflection note (d) with a high inflection note (e´´) in the modified embellishment, which results in an awkward M–shaped motion within a narrow pitch range.

In Example 3.2.16, the approximate S-shape of the original embellishment is kept intact, with a high inflection note (e´´) being followed by a long descent to a low inflection note (b) before a final turn in the ascending direction. This modified example is considered appropriate by the author for its elegance and simplicity.

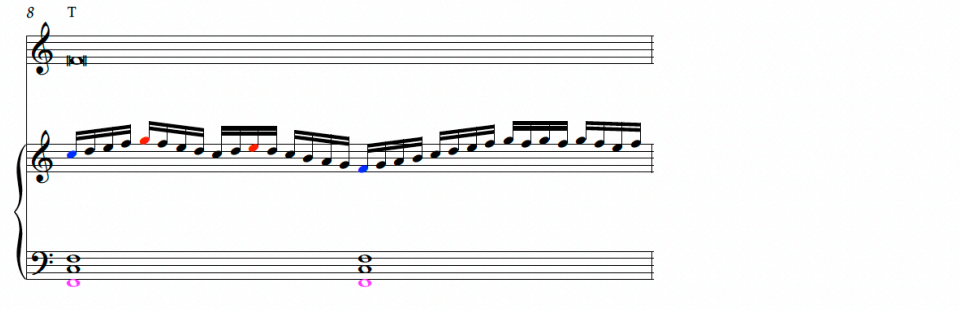
H_{10}. Repeated notes are to be avoided in an embellishment.

While repeated notes were a common vocal embellishment during the sixteenth century, comparable usage is not observed in notated embellishments in the surviving keyboard repertory.

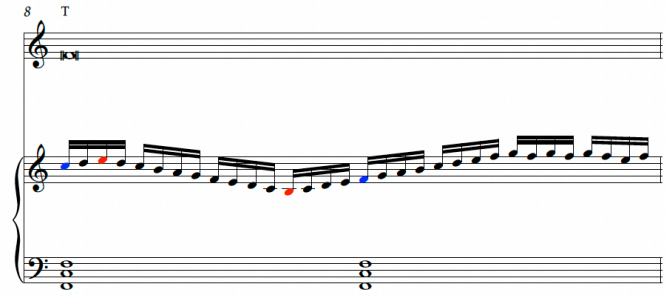
Example 3.2.14 Andrea Gabrieli, *Toccata del Quinto Tono*, bar 8, GABRIELI1593



Example 3.2.15 Andrea Gabrieli, *Toccata del Quinto Tono*, bar 8, GABRIELI1593 (modified)



Example 3.2.16 Andrea Gabrieli, *Toccata del Quinto Tono*, bar 8, GABRIELI1593 (modified)



3.3 Soft rules

S_1. The second anchor note of an embellishment is in consonance with its initial root note. The fourth anchor note of an embellishment is in consonance with its final root note.

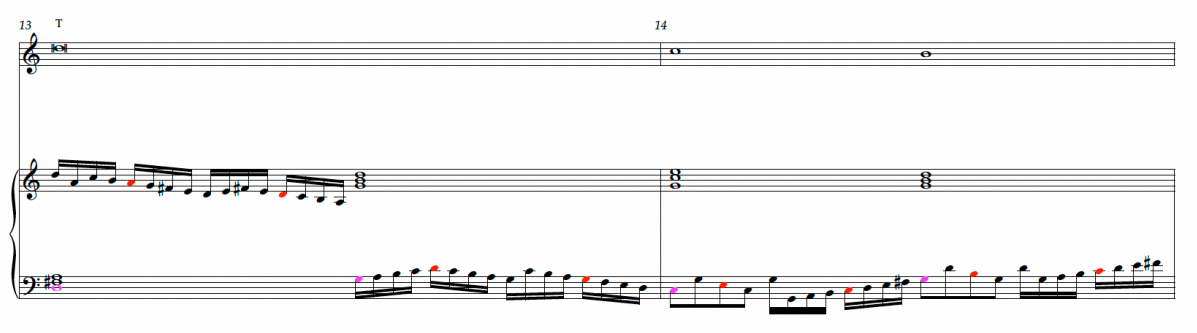
While the consonance requirement for the second and fourth anchor notes is generally less stringent than it is for the first and third anchor notes (see H_4 in Chapter 3.1), best effort should be made, where figuratively possible, to preserve both the consonance between the second anchor note and initial root note, and that between the fourth anchor note and final root note.

In Example 3.3.1, not only do the four embellishments comply with the consonance requirement on the first anchor note and third anchor note (H_4), but also that for the second anchor note (in red) and fourth anchor note (in red). In the first embellishment, the second anchor note (a´) is in perfect consonance with the initial root note (d) and the fourth anchor note (d´) is in perfect consonance with the final root note (g). In the second embellishment, the second anchor note (d´) is in perfect consonance with the initial root note (g) and the fourth anchor note (g) is in perfect consonance with the final root note (c). In the third embellishment, the second anchor note (e) is in imperfect consonance with the initial root note (c) and the fourth note (c) is in perfect consonance with the final root note (g). In the fourth embellishment, the second anchor note (b) is in imperfect consonance with the initial root note (g), and the fourth anchor note (c) is in perfect consonance with the final root note (g).[72]

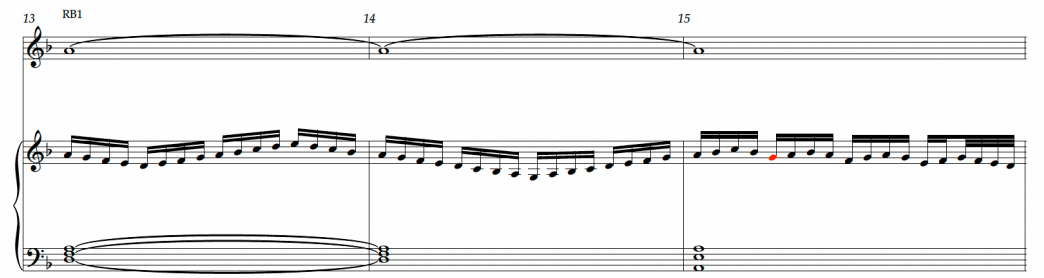
There are two common scenarios in which the adherence to S_1 may become less stringent. First, analogous to a common exception to H_4 in Chapter 3.2, an extended stretch of scalar construct in one or several embellishments is considered a sufficient excuse for non-compliance of S_1. Second, compliance with S_1 may be excused to accommodate the continuation of small-scale motivic ideas within an embellishment. In Example 3.3.2, the general adherence to S_1 is disrupted by the second anchor note of the third embellishment (g´), which forms part of a small-scale motivic sequence. This second type of deviation from S_1 became gradually more commonplace in the ending decades of the sixteenth century (see Chapter 5).

[72] The final root note of the fourth embellishment is not in view of the excerpt.

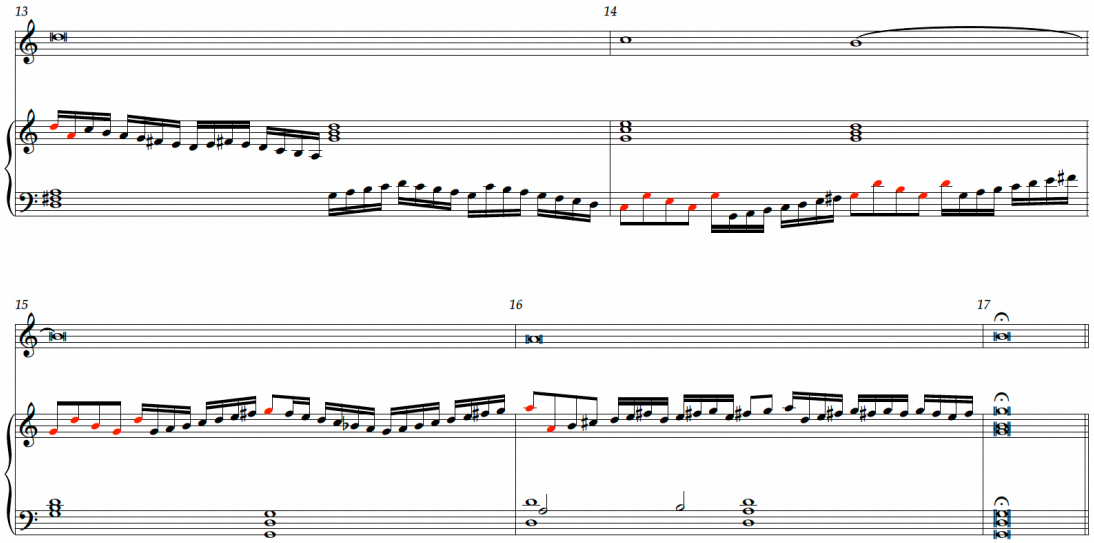
Example 3.3.1 Andrea Gabrieli, *Intonazione del Settimo Tono*, bars 13–14, GABRIELI1593



Example 3.3.2 Annibale Padovano, *Toccata del Primo Tono*, bars 13–15, PADOVANO1594



Example 3.3.3 Andrea Gabrieli, *Intonazione del Settimo Tono*, bars 13–17, GABRIELI1593



S_2. The arrival of a new harmony is typically emphasised by an "event" in the notated embellishment, such as a lengthened anchor note, a leaping guide note, or consecutive leaps.

While not every harmonic change is accompanied by a purposeful deviation of the stereotyped stepping motion of the embellishment style, many are. In

Example 3.3.3Example 3.3.3, a myriad of embellishing devices is used throughout the excerpt to accentuate the harmonic progression preceding the impending termination: the first and seventh embellishment both employ a leaping motion on their respective primary guide notes; the third, fourth and fifth embellishment all commence with a consecutive leap; the sixth embellishment features a lengthened first anchor note.

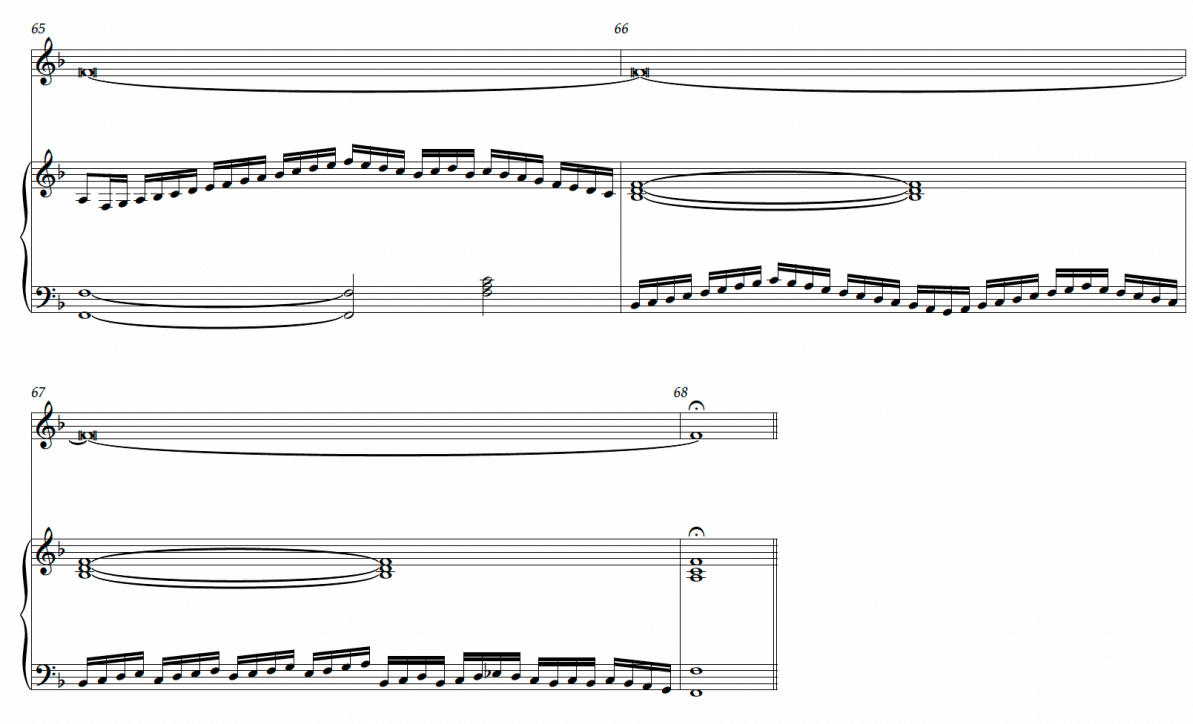
S_3. The use of stepping motion is generally preferred to that of leaping motion in the preparation part of a cadential groppo at major cadences.

The rationale of this soft rule is motivated by the gradual retardation of the harmonic rhythm and growing impetus towards resolution at major cadences. In Example 3.3.4, in embellishing the termination, the relentless step motion of the tirati in bar 65 and bar 66 precede the gradual stabilisation of the harmony in bar 67 and final resolution in the Lydian mode in bar 68.

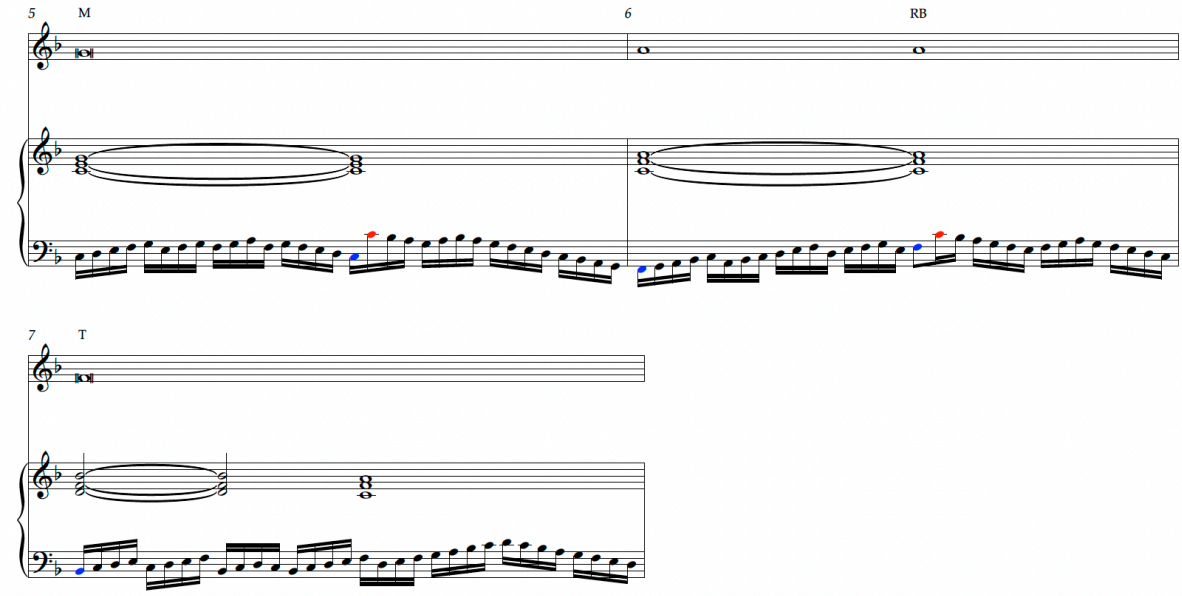
S_4. If a guide note is a leap note, its degree is limited to, in descending order of frequency, a fourth, an eighth, a third and a fifth.

This soft rule is applicable to both the primary guide note and secondary guide note and highlights the disuse of a guide note with a leap degree of a sixth and a seventh in the surviving repertory. The high frequency of guide notes with a leap degree of a fourth or an eighth is attributed to a frequently notated consecutive leap at the beginning of a scalar construct. For example, the primary guide note (a´´) of the first embellishment in bar 13 of Example 3.3.1 has a leap degree of a descending fourth (-4) and is succeeded by a note with a leap degree of an ascending third (+3); the primary guide note (c´´) of the embellishment in Example 3.1.4 has a leap degree of an ascending eight (+8) and is succeeded by a note (a´´) with a leap degree of a descending third (-3).

Example 3.3.4 Andrea Gabrieli, *Toccata del Sesto Tono*, bars 65–68, GABRIELI1593



Example 3.3.5 Andrea Gabrieli, *Toccata del Sesto Tono*, bars 5–7, GABRIELI159373



[73] B♭ is not in view of the excerpt.

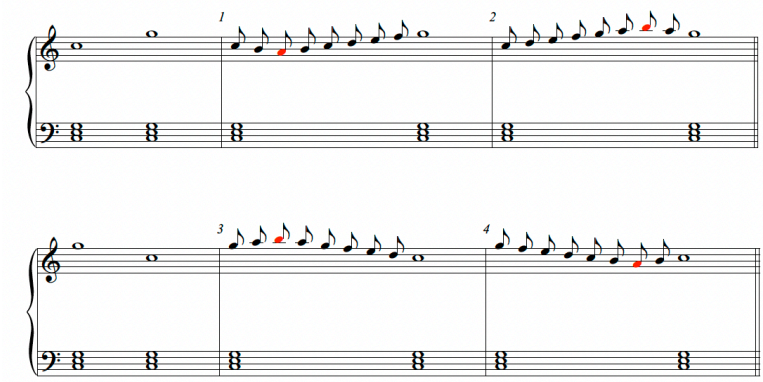
S_5. A guide note that leaps in the opposite direction to that of the embellishment is frequently used to create space for an embellishment with a small embellishment range.

In reference to H_5 in Chapter 3.2, the two guide notes, especially the primary guide note, are the most likely notes, among all notes comprising an embellishment, to feature a leaping motion. In Example 3.3.5, the second embellishment in bar 6, whose embellishment range is a descending fifth (C to F´), features a primary guide note (c´) with a leap degree of an ascending eight (+8); the second embellishment in bar 7, whose embellishment range is a descending fifth (F to B♭), features a primary guide note (c´) with a leap degree of an ascending fifth (+5). The large leap degrees of both primary guide notes afford sufficient space for the descending scalar motion in the remainder of the respective embellishments.

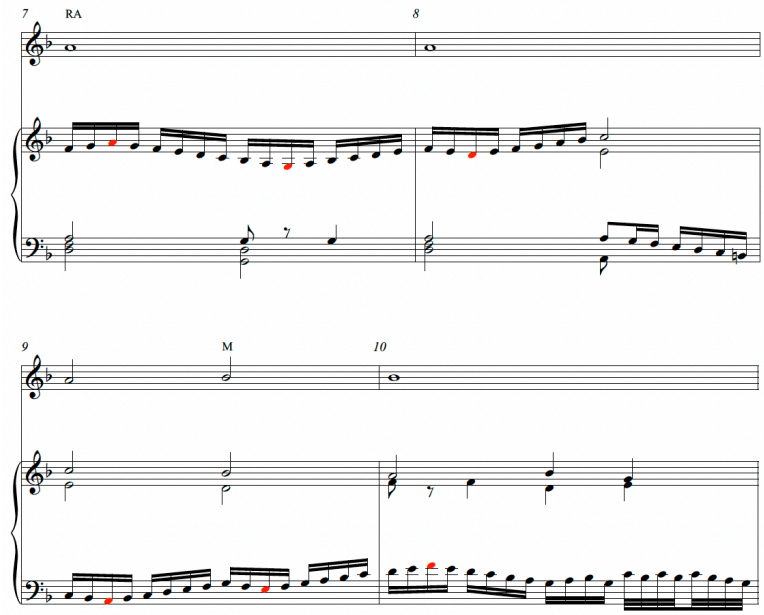
S_6. If a step-moving embellishment contains exactly one inflection note, it is located in the first two quadrants of the embellishment.

The preferred location of a lone inflection note within a single embellishment, similar to the location of leaping motion and lengthened notes, reflects the sixteenth-century musical tradition of placing greater emphasis upon the commencement of a tactus rather than its ending. Example 3.3.6, juxtaposes two embellishments, each featuring step motion only and containing a lone inflection note, that corresponds to a melodic interval of an ascending fifth and a descending fifth. The two embellishments that place the lone inflection note in the first half of the tactus (bars 1 and 3) are more commonly notated than their counterparts (bars 2 and 4). In Example 3.3.7, which has eight step-moving embellishments in minim tactus, the second anchor note, or centre of the first two quadrants of the embellishment, serves as the lone inflection note in the first, second, third, fifth, sixth and seventh minim-embellishment.

Example 3.3.6 Location of a lone inflection note in a step-moving embellishment[74]



Example 3.3.7 Sperindio Bertoldo, *Toccata Seconda*, bars 7–10, BERTOLDO1591



[74] This example is made by the author for illustration purposes.

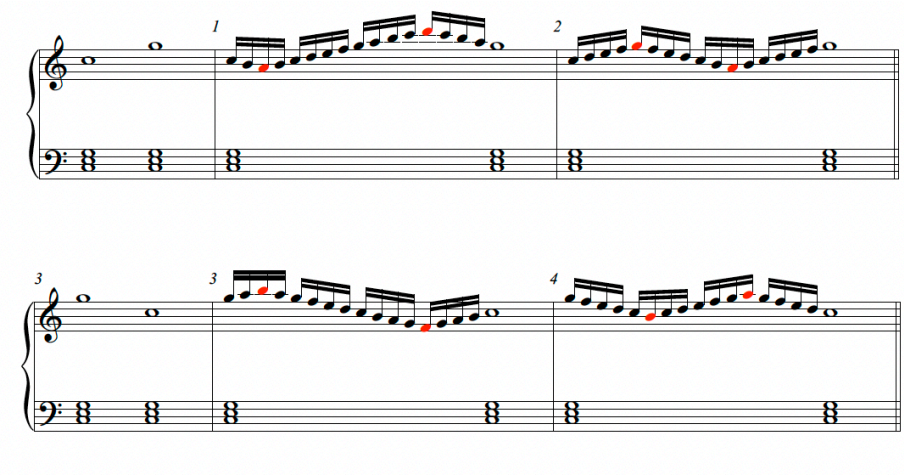
S_7. If a step-moving embellishment contains exactly two inflection notes, they are located in the first and third quadrant of the embellishment respectively.

Similar to S_6, S_7 is designed to safeguard the balance and elegance of the figurative construct of a step-moving embellishment. The preferred location of the two inflection notes highlights the relative importance of the first quadrant over the second quadrant, and that of the third quadrant over the fourth quadrant. In Example 3.3.8, regardless of the direction of the embellished interval, the first inflection note is placed within the first quadrant of the embellishment, and the second inflection note is placed within the third quadrant of the embellishment. It is in fact figuratively impossible to place the first inflection note in the second quadrant of the embellishment and still allow the step-moving embellishment to contain two inflection notes.

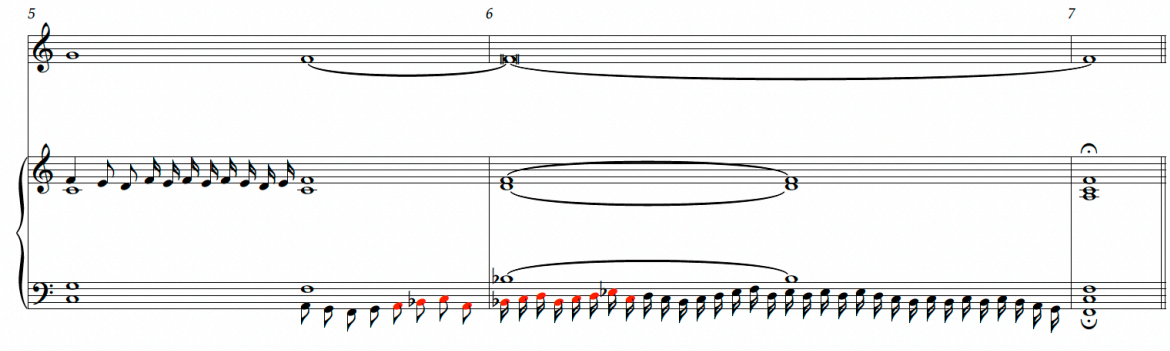
S_8. In the preparation part of a cadential groppo, a stereotyped four-note motif featuring two ascending steps and a descending third is often used.

Small-scale motivic writing, which eventually became an integral component of the keyboard embellishment language in the late sixteenth century (see Chapter 5.2), first appeared in a four-note motivic construct which frequently preceded the stereotyped mid-sixteenth-century cadential construct at its resolution. In Example 3.3.9, the usage of the said four-note motif in the second half of bar 5 and first half of bar 6 was well suited to the depiction of growing momentum that precedes the final resolution of the cadential groppo.

Example 3.3.8 Location of two inflection notes in a step-moving embellishment[75]



Example 3.3.9 Giovanni Gabrieli, *Intonazione del Sesto Tono*, bars 5–7, GABRIELI1593



[75] This example is made by the author for illustration purposes.

3.4 Corollaries

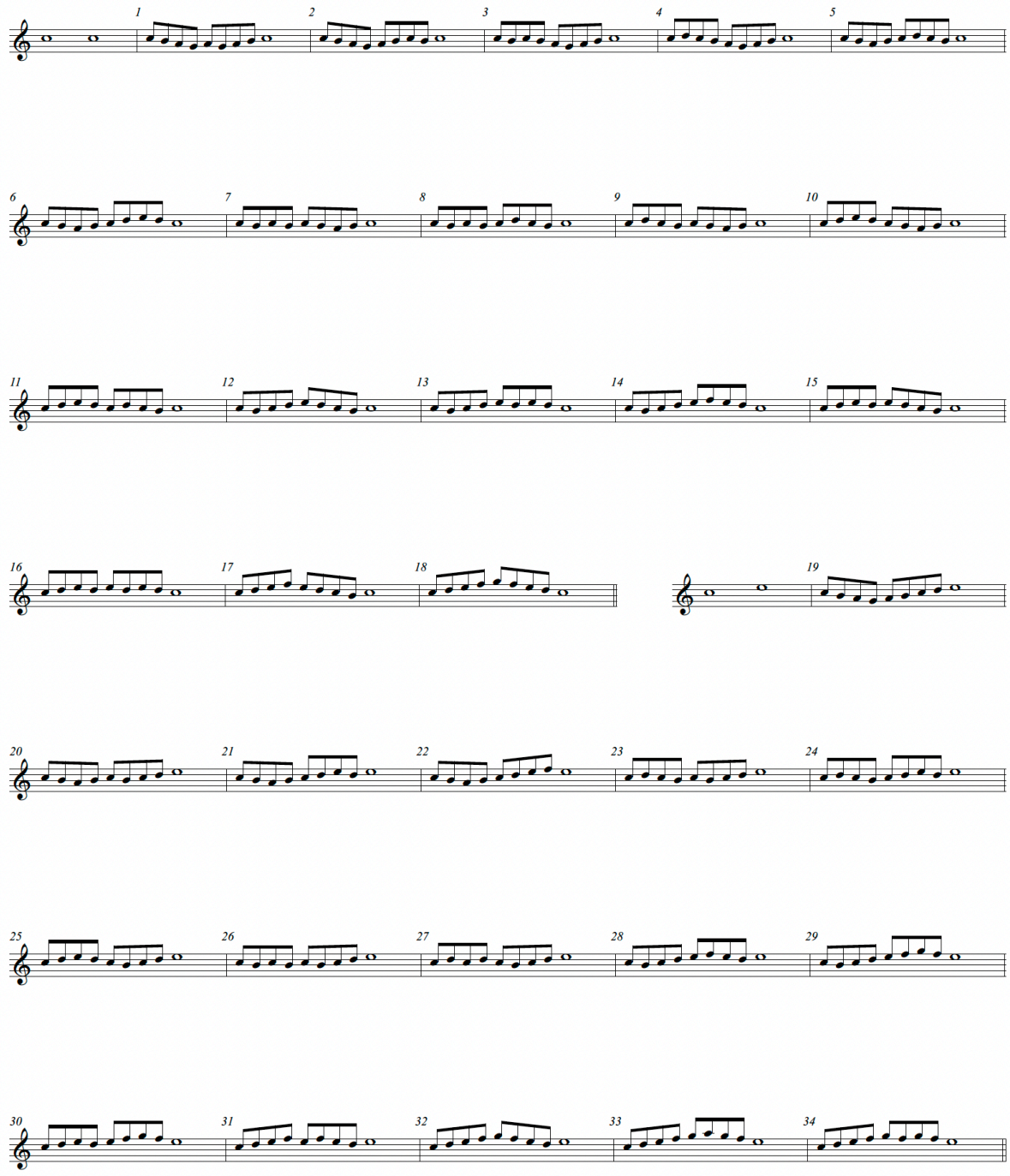
C_1. Odd-degree intervals (i.e. unison, third, fifth, seventh, ninth) can be embellished with eight consecutive step notes in immediate succession. Even-degree intervals (i.e. second, fourth, sixth, octave) cannot.

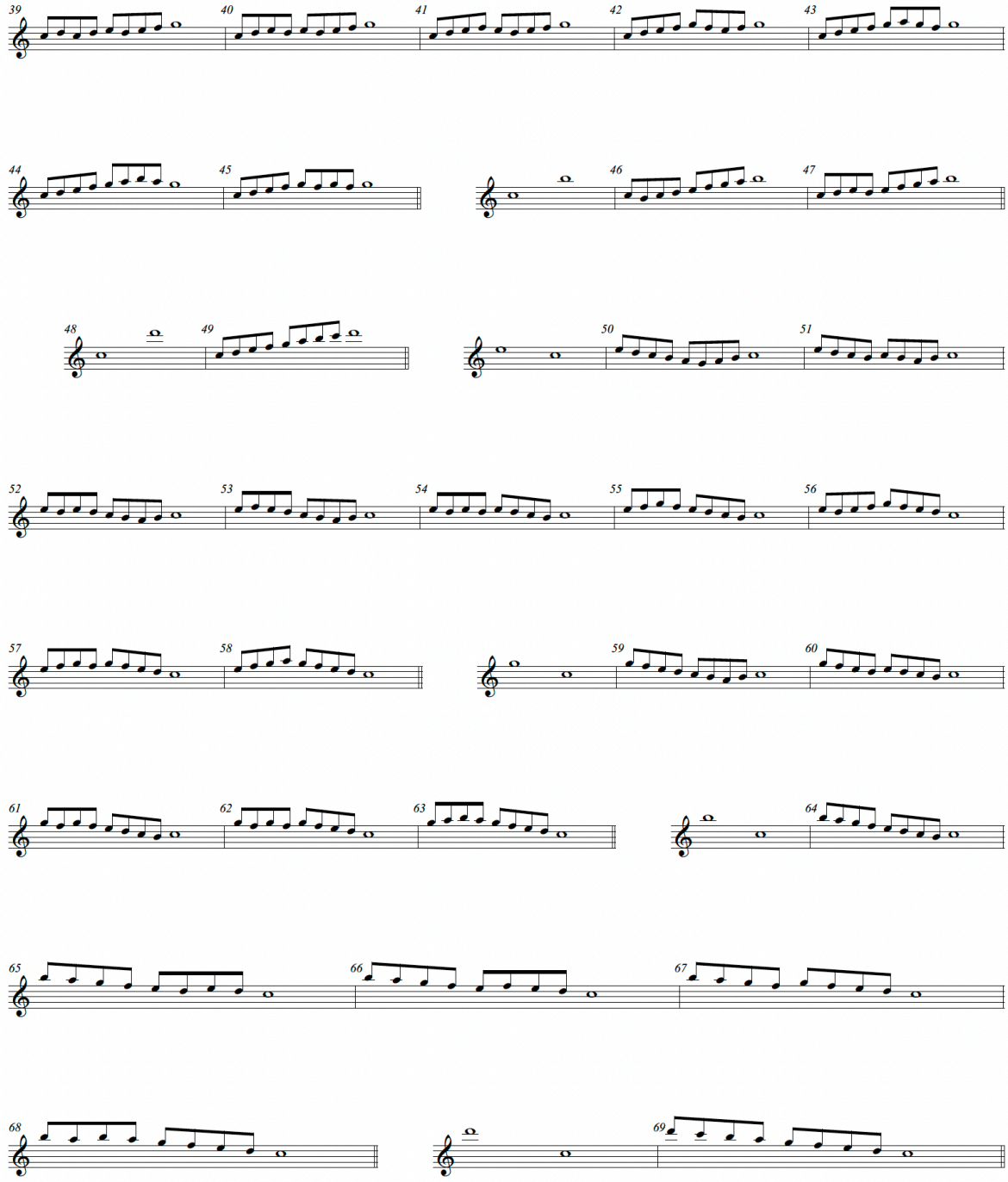
This corollary is a useful observation given the abundance of odd-degree melodic intervals in sixteenth-century vocal polyphony. Example 3.4.1 is a collation of the commonly notated eight-note embellishments in stepping motion corresponding to odd-degree intervals, namely unison, ascending and descending third, ascending and descending fifth, and ascending and descending seventh. Note that this is not a combinatorically exhaustive list of all possible eight–note embellishments in stepping motion for a particular interval.

The curated examples have a few shared characteristics. First, the eight–note formation is generally absent of motifs and cannot be divided into two halves of figuratively identical four-note formation. Second, the embellishment is far more likely to feature trills (e.g. E–D–E–D) than "reverse-trills"(e.g. D–E–D–E). Third, the last note and penultimate note of the embellishment are in the same direction (e.g. bars 18, 34, 47 and 69 in Example 3.4.1). Last, the embellishment generally contains at most one inflection note (e.g. bars 19, 33 and 56 in Example 3.4.1) unless the embellishment is in S-shape (e.g. bars 6 and 25 in Example 3.4.1).

There are two rhythmic divisions of a semibreve-tactus for which this corollary is particularly helpful. First, if the tactus were to be divided into eight fusas (bar 2 in Example 3.2.2), the embellisher can simply select a notated embellishment in Example 3.4.1. Second, if the tactus were to be divided into sixteen semifusas (bar 9 in Example 3.2.2), it is possible to first divide the semibreve–tactus into two minims, each corresponding to an odd-degree melodic interval, and then select an eight–note formation for each. Note that H_4 in Chapter 3.2 prescribes that the third anchor note is generally consonant with the starting and ending note of the embellishment.

Example 3.4.1 Commonly notated eight–note step embellishments for odd-degree melodic intervals

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C_2. A standalone leap note, or a consecutive leap in opposite direction, does not alter the direction of the scalar construct surrounding it.

In Example 3.4.2, the embellished soprano features a lengthy procession of equal-value step notes that are interspersed with some standalone leap notes that fail to alter the general direction of the scalar construct. For example, the ascending bad leap in the second embellishment in bar 5 (a´´ to d´) is preceded and succeeded by a descending scalar construct; the descending bad leap in bar 6 (c´´ to a´´) is preceded and succeeded by an ascending scalar construct. In bar 8 of Example 3.4.2, the consecutive leap in opposing direction (c´´ to g´, g´ to $b^{\flat}$´) does not alter the direction of the scalar construct that it is part of.

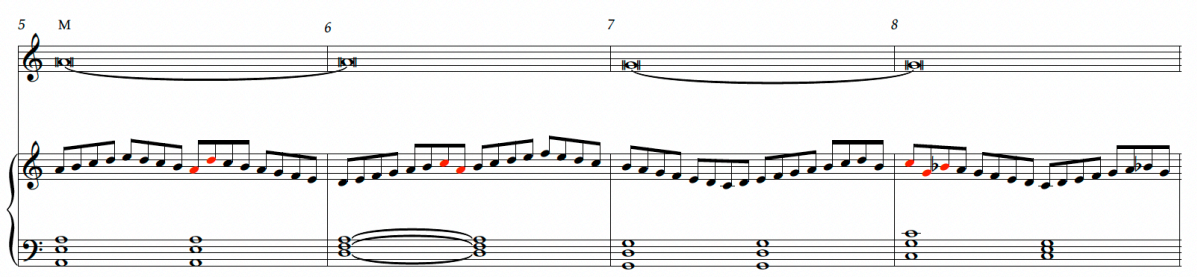
C_3. A high inflection note can only be succeeded by a low inflection note. A low inflection note can only be succeeded by a high inflection note.

This corollary follows from D_{12} in Chapter 3.1 and observes that an inflection note of a certain polarity can only be succeeded by an inflection note of the opposite polarity. In Example 3.4.3, there exists a total of four inflection notes, namely a high inflection note (a´´) in the first embellishment, a low inflection note (d´) in the second embellishment, a high inflection note in the third embellishment (g´´) and a low inflection note (d´) in the fourth embellishment (d´). Note the sequence of the alternating polarity of the inflection notes.

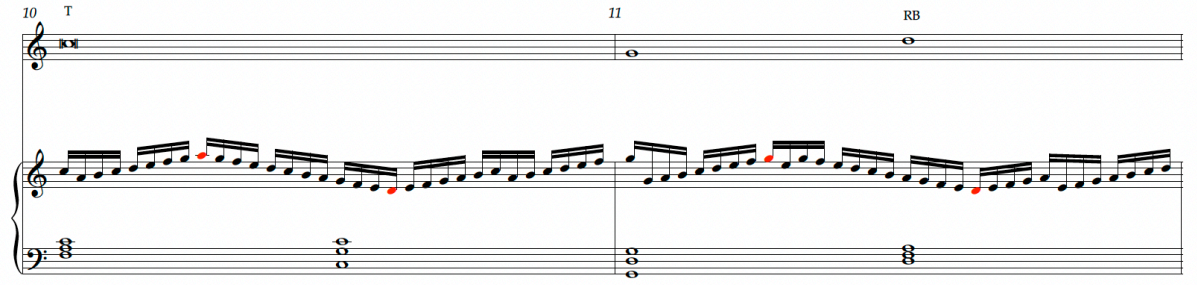
C_4. If the primary guide note of an embellishment is a step note, all notes in the remainder of the embellishment (including the secondary guide note) are step notes.

This corollary follows from H_6 in Chapter 3.2, which stipulates that the leap degree of the primary guide note sets an upper limit on that of all notes comprising the embellishment. It is therefore true that a stepping primary guide note is bound to be followed by only step notes for the remainder of the embellishment. This observation contributes to the prevalence of lengthy scalar passages through several consecutive embellishments, as is the case in Example 3.4.4.

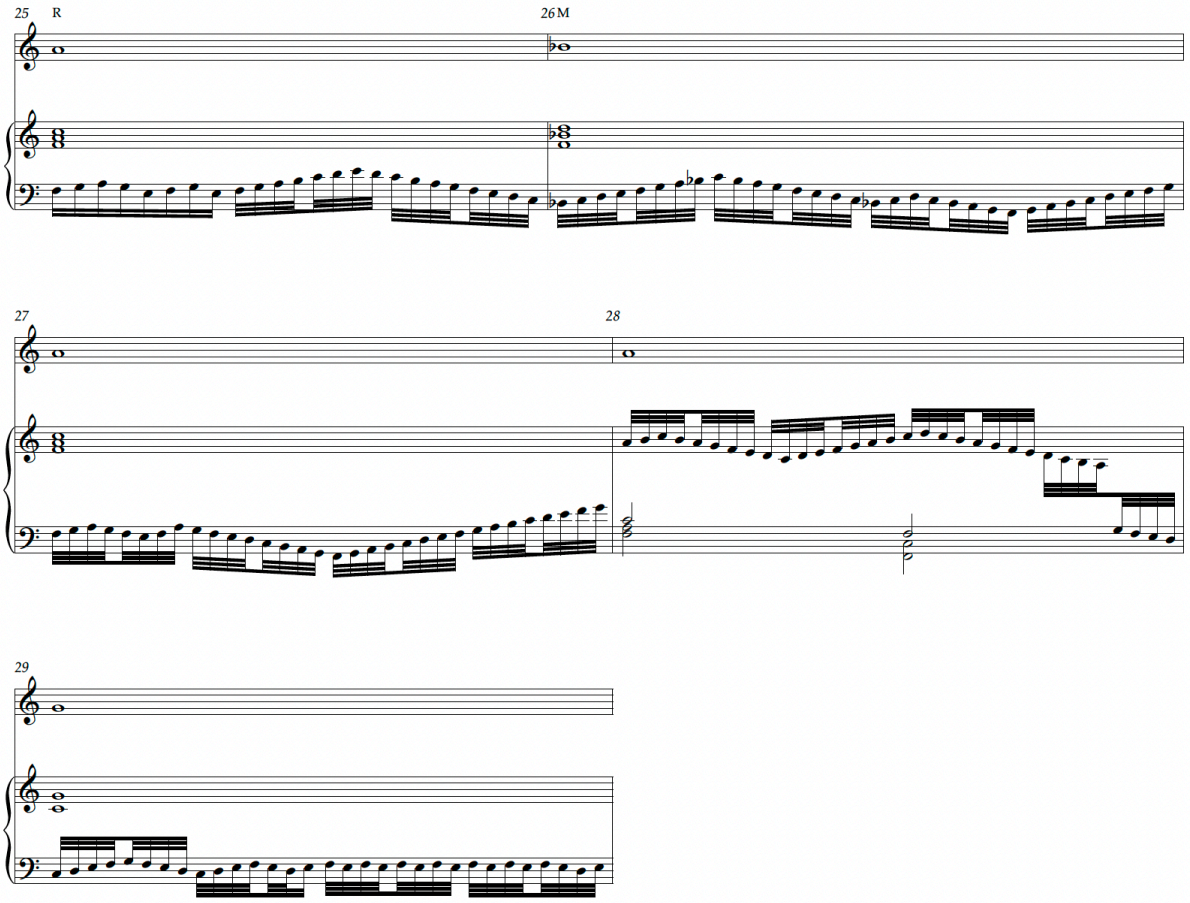
Example 3.4.2 Andrea Gabrieli, *Intonazione del Primo Tono*, bars 5–8, GABRIELI1593



Example 3.4.3 Andrea Gabrieli, *Intonzione del Settimo Tono*, bars 10–11, GABRIELI1593



Example 3.4.4 d'Incerto, *Toccata del Primo et Secondo Tono*, bars 25–29, PADOVANO1594



C_5. If a step-moving embellishment contains exactly one inflection note, the lone inflection note of an ascending embellishment is a low inflection note, the lone inflection note of a descending embellishment is a high inflection note.

This corollary follows from S_7 in Chapter 3.3, which positions the lone inflection note of an embellishment in the first half of the embellished tactus. In fact, it is figuratively impossible to construct an ascending step-moving embellishment with a lone high inflection note in the first two quadrants of the embellishment, or a descending step-moving embellishment with a lone low inflection note in the first two quadrants of the embellishment.

C_6. If a step-moving embellishment contains exactly two inflection notes, they exceed opposite limits of the embellishment range.

This corollary follows from S_8 in Chapter 3.3, which positions the first inflection note in the first quadrant and the second inflection note in the third quadrant of the step-moving embellishment. In Example 3.3.8, the first inflection note (a´) falls below the lower limit of the embellishment range (c´´), the second inflection note (b´´´) rises above the upper limit of the embellishment range (g´´).

C_7. The total number of inflection notes in an embellishment determines its shape. If it is zero, the embellishment is of I-shape; if one, the embellishment is of V-shape (low inflection) or inverted V-shape (high inflection); if two, the embellishment is of S-shape.

This corollary is related to H_8 in Chapter 3.2 and S_8 in Chapter 3.3. In Example 3.4.4, there is a total of ten minim-embellishments with the following number of inflection notes and shapes in parentheses: 1 (V), 1 (inverted V), 1 (inverted V), 1 (V), 1 (inverted V), 0 (I), 2 (S), 0 (I), 2 (S) and 0 (I). This corollary enables practitioner to visualise the shape of an embellishment before the attempted improvisation.

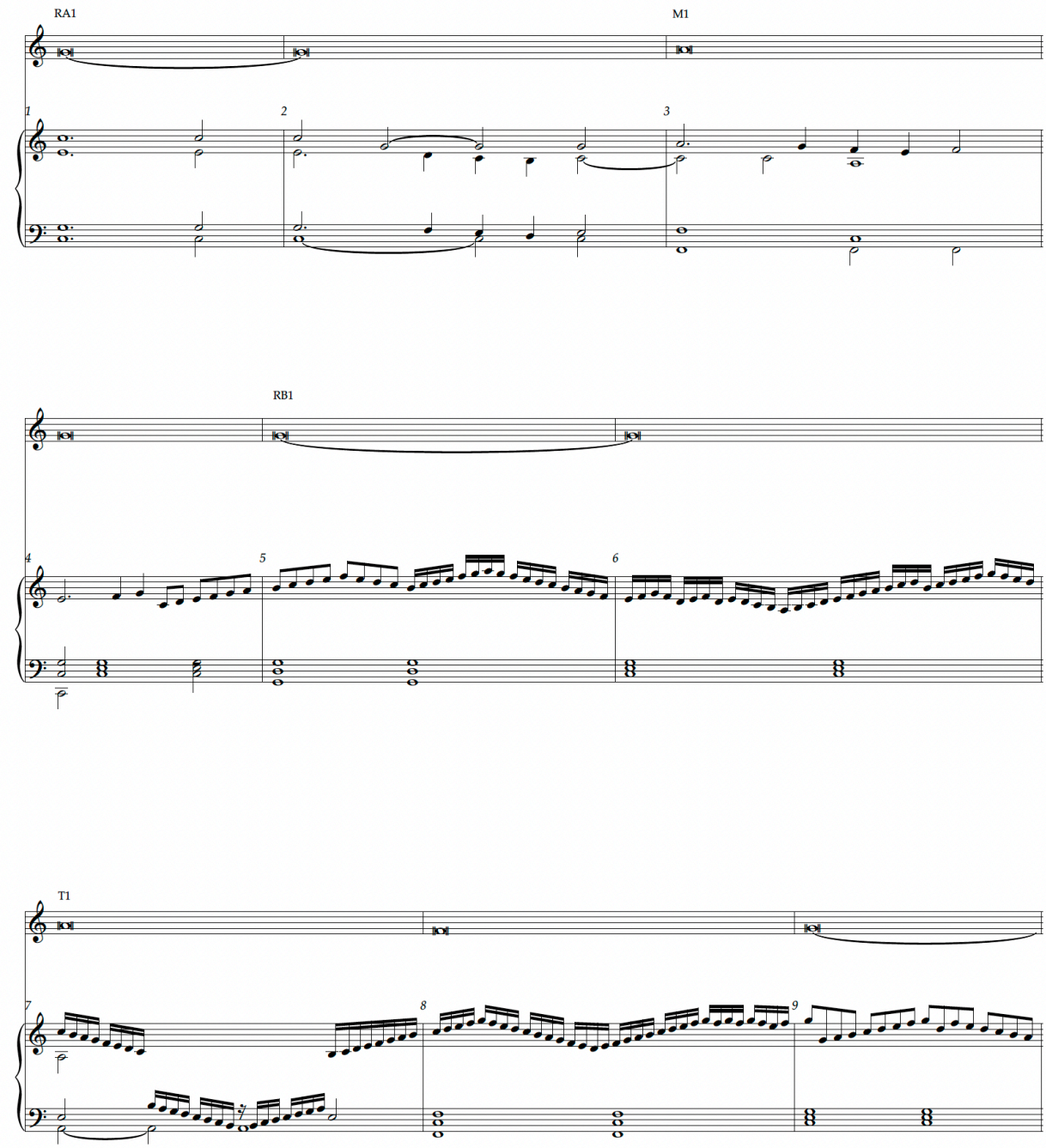
Chapter 4 Demonstrative examples

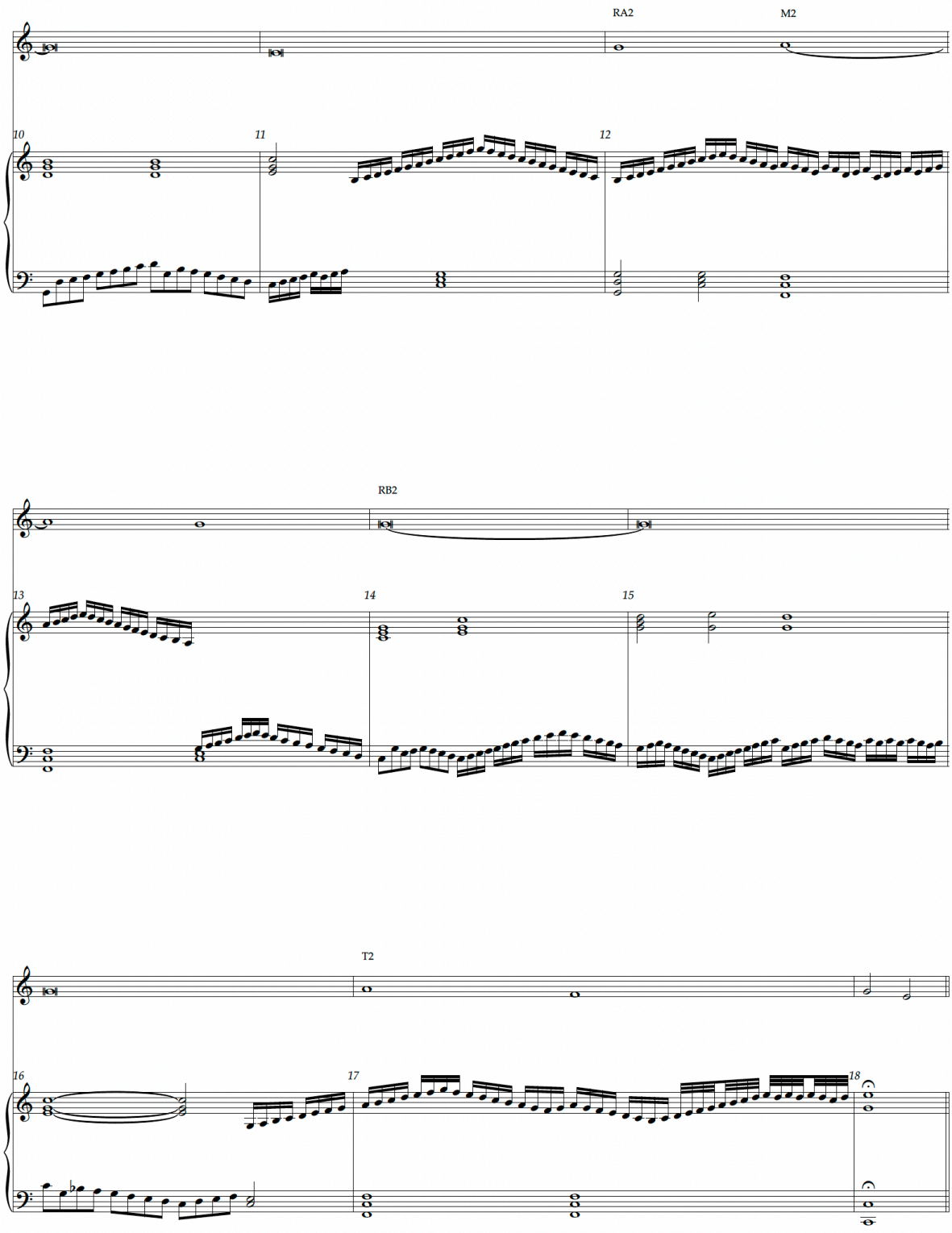
This chapter demonstrates the utility of the proposed system of improvised embellishments in Chapter 3. This chapter is divided into three parts: a description of an exemplary music work from the surviving repertory (Chapter 4.1); a comparative score analysis of three modified examples of the selected work (Chapter 4.2), and a free-composition example based on a modified harmonic schema (Chapter 4.3). In all three sections, wherever possible, discussion is made with reference to relevant rules of embellishments in Chapter 3.

4.1 Selected work

Example 4.1.1 and Example 4.1.2 respectively provide the embellished and unembellished version of a keyboard toccata composed based on the fifth psalm tone by Andrea Gabrieli. In this work, the cantus firmus of the fifth psalm tone is stated twice, first in bars 1–11 with relatively simple embellishments, and a second time in bars 12–18 in a more elaborate style. A quick survey of the selected work shows its consistency with the stereotyped embellishment style of its period (see Chapter 2.1) — predominance of step motion, limited pitch range, restriction of embellishments to either soprano or bass, stereotyped cadential resolution (bars 15 and 17 in Example 4.1.1), gradual reduction of note values throughout a musical phrase (bars 3–6 in Example 4.1.1), invariable upholding of consonance at the changeover of neighbouring tactus.

Example 4.1.1 Andrea Gabrieli, *Toccata del Quinto Tono*, GABRIELI1593




RA2
M2
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RB2
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T2
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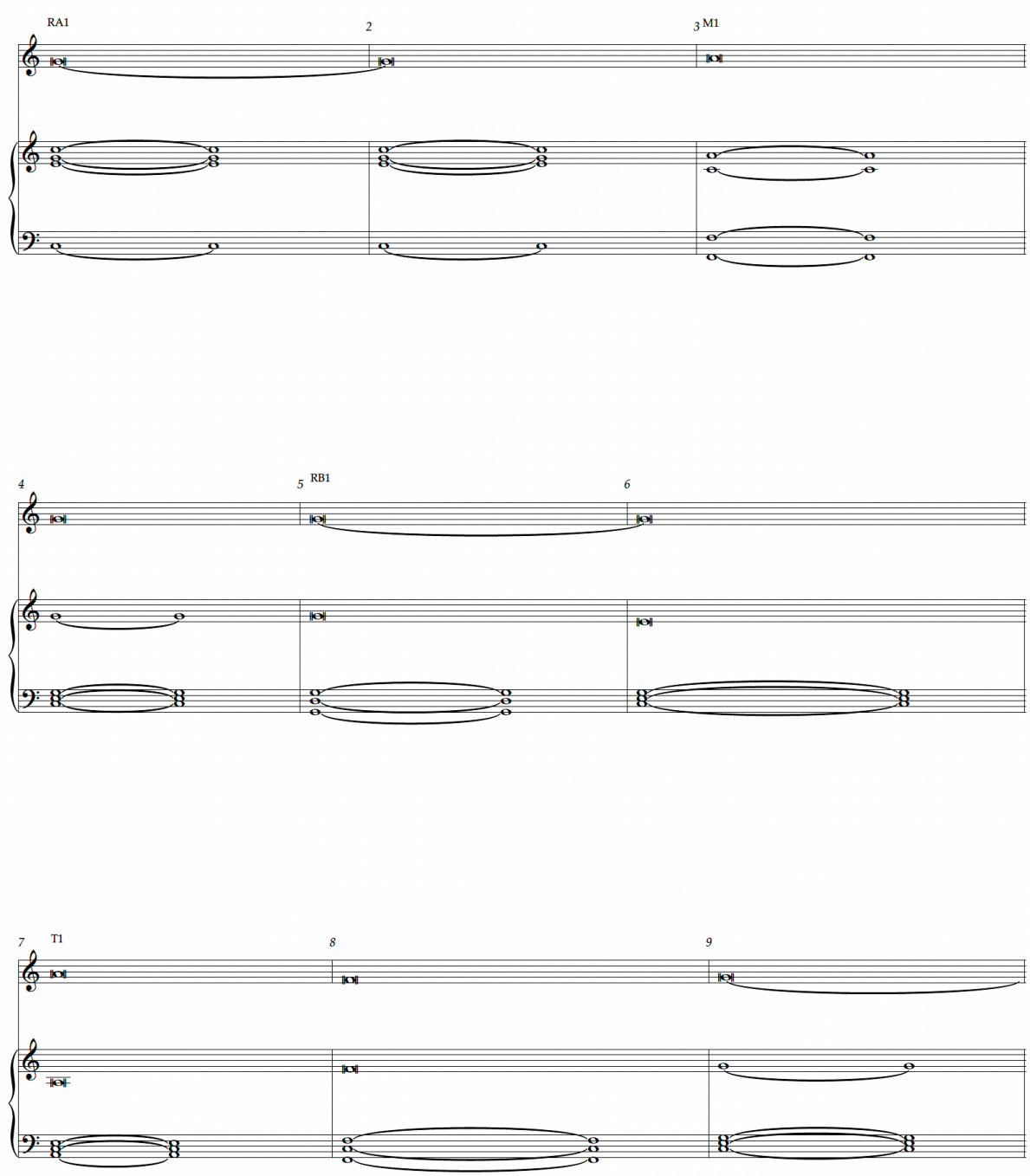
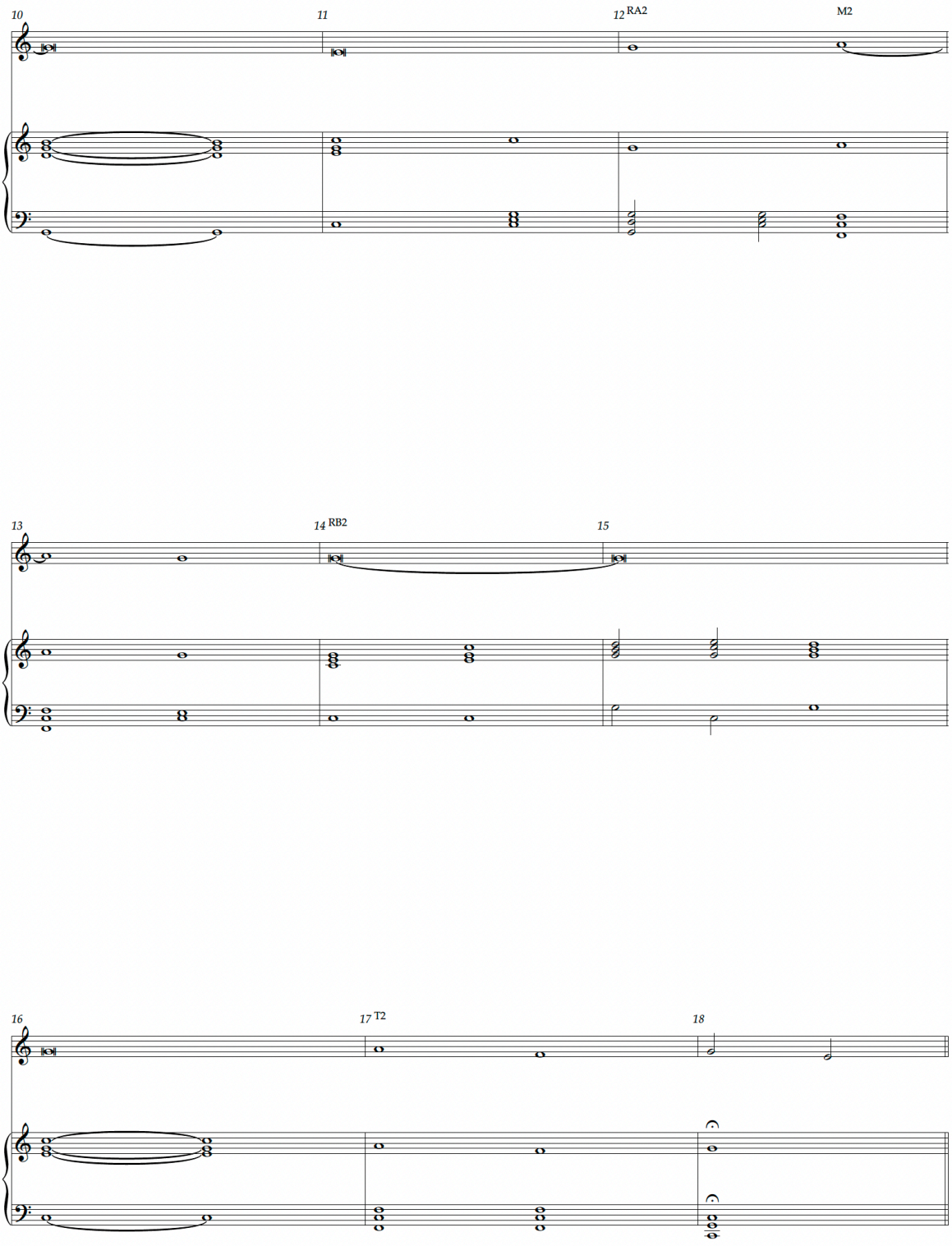
Example 4.1.2 Andrea Gabrieli, *Toccata del Quinto Tono*, GABRIELI1593 (unembellished)

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12 RA2
M2
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14 RB2
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17 T2
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4.2 Modification of notated embellishments

This section contains a comparative score analysis of three modified examples (Example 4.2.1, Example 4.2.2, Example 4.2.3) of the selected work (Example 4.1.1). Embedded within the same psalm-based harmonic schema (see Example 4.1.2) as the selected work, the varying complexity of the added notated embellishments in the three examples is intended to reflect the chronological evolution of keyboard embellishment techniques through the studied period.

Out of the three examples, the added notated embellishments in Example 4.2.1 are the most conservative in respect of its harmonic exploration and figurative construct. First, throughout this example, the consonance requirements placed upon the four anchor notes (see H_4 in Chapter 3.2 and S_1 in Chapter 3.3) of an embellishment are invariably upheld, resulting in no challenges on the psalm-based harmonic schema set out in Example 4.1.2. Second, with the exception of the opening section (bars 1–5 in Example 4.2.1), the rhythmic division of the standard semibreve tactus (see H_2 in Chapter 3.2) is for the most part limited to one of two figurative types, namely the sum of four fusas and eight semifusas (bar 5 in Example 4.2.1) or a succession of sixteen consecutive semifusas (bar 9 in H_3 in Chapter 3.2). At the start of each statement of the cantus firmus, Example 4.2.1 makes use of relatively long embellishment note values, which renders the depiction of growing momentum towards its cadence through a gradual reduction of embellishment note values more self-evident. For example, in Example 4.2.1, the embellishments for the first statement of the cantus firmus starts with minims and semiminims (bars 1–4 in Example 4.2.1) and ends with fusas and semifusas (bars 5–11 in Example 4.2.1). Third, leaping motion is scarcely notated and only applied on the primary guide notes (see D_{12} in Chapter 3.1 and bars 7, 12, 16 in Example 4.2.1) of an embellishment. In equal scarcity are cases where an embellishment exceeds the boundaries set by the upper and lower limits (bars 6 and 10 in Example 4.2.1) of its embellishment range (see D_7 in Chapter 3.2). Fourth, the melodic interval formed by the starting and ending root note of each embellishment is accentuated by the judicious placement of inflection notes (see H_8 in Chapter 3.2), strict adherence of pitch requirements on high and low inflection notes (see H_9 in Chapter 3.2), and the absence of excessive fluctuation and small-scale motifs. Last, while not all sectional ends are marked by a cadential construct (see D_{14} in Chapter 3.2), those that typically feature a stereotyped resolution construct (bars 8, 13 and 17 in Example 4.2.1).

Compared with Example 4.2.1, the consonance requirement is less stringently enforced in Example 4.2.2. For example, in the second tactus of bar 6 in Example 4.2.2, the consonance

requirement placed upon the third anchor note (d´´) against the root note of the embellishment (c) is excused by the lengthy scalar construct of which the anchor note is part (see H_4 in Chapter 3.2). Figuratively, compared to the nearly uninterrupted flow of step-moving passaggi in Example 4.2.1, notated embellishments in Example 4.2.2 feature leap motion at a much higher frequency. A most reliable source of leaping motion is the type of leaping guide notes (bars 4, 5, 6, 7, 13, 14 and 15 in Example 4.2.2) that are often used as a rhythmic device to accentuate the arrival of a new harmony (see S_2 in Chapter 3.3). In some cases, such accentuating leaping guide notes are used in consecutive tactus (bars 4–7 in Example 4.2.2) to prelude an impending cadence. A secondary source of leaping motion stems from the notation of small-scale motifs comprising of both step notes and leap notes, either in a non-cadential embellishment (bars 8 and 12 in Example 4.2.2), or in the preparation of a cadential groppo (see S_9 in Chapter 3.3, bar 18 in Example 4.2.2). In addition, compared with Example 4.2.1, Example 4.2.2 features a less consistent attempt to mark a sectional end with a stereotyped cadential construct. For example, the termination of the first statement of the cantus firmus in Example 4.2.2 (bar 11 in Example 4.2.1) is softened by a non-cadential construct (see D_{14} in Chapter 3.2). Last, compared with Example 4.2.1 and Example 4.1.1, the emphasis on moderate scalar motion is somewhat relaxed in Example 4.2.2, as evidenced by the greater distance by which an inflection note exceeds the limit of the embellishment range (bars 6 and 7 in Example 4.2.2).

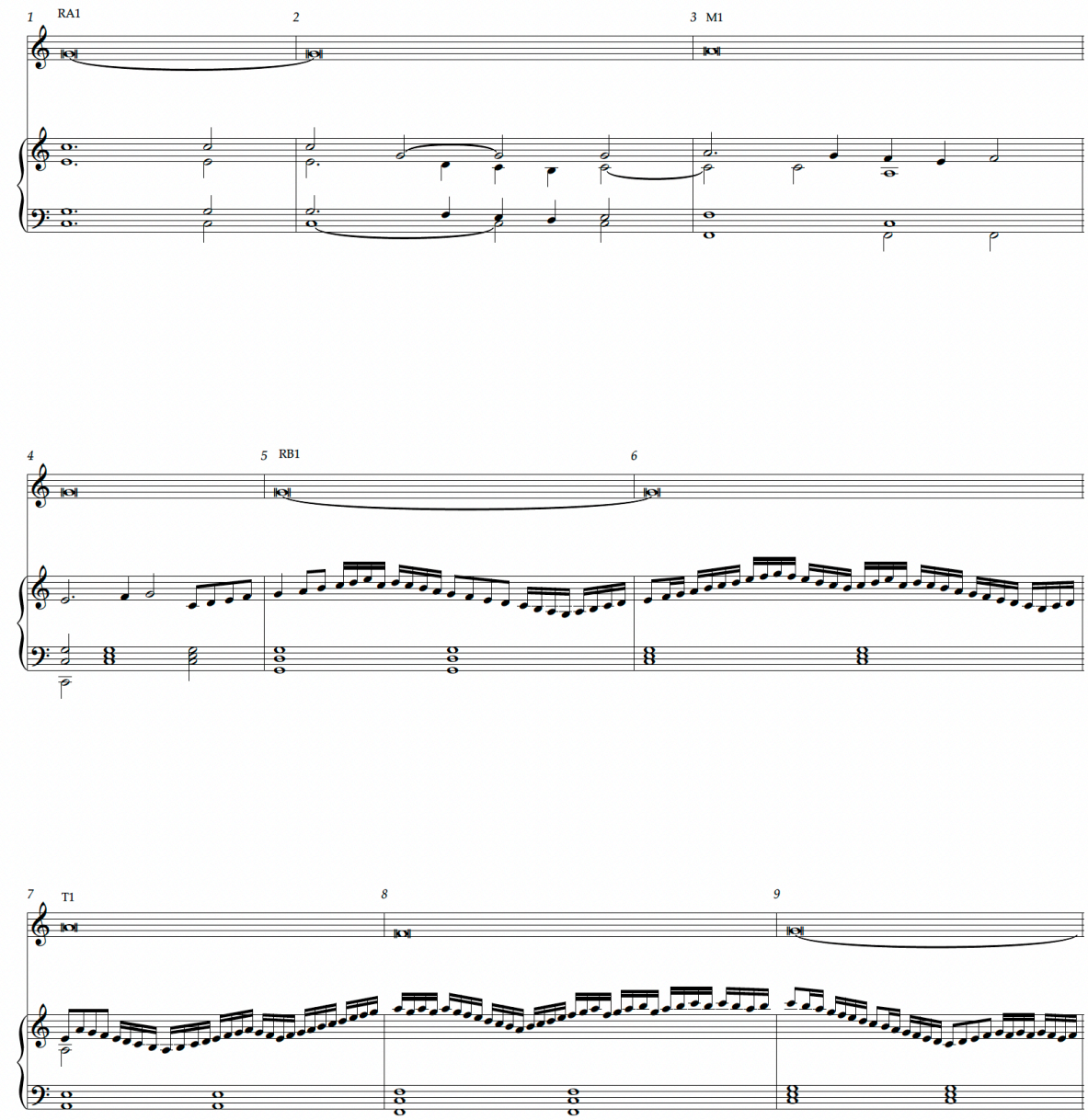
In comparison with Example 4.2.1 and Example 4.2.2, Example 4.2.3 features a greater variety of rhythmic and figurative constructs in its notated embellishments. First, a greater number of standard rhythmic divisions of a semibreve tactus (see H_2 in Chapter 3.2) are deployed, along the notation of nuanced rhythmic expression such as dotted rhythm (bar 3, 9, 15 in Example 4.2.3) and smaller note values in the more elaborate cadential embellishments (e.g. bar 17 in Example 4.2.3). With regard to leaping motion, in addition to a higher frequency of notation of standalone leaps in passagework, Example 4.2.3 features frequent notation of consecutive leaps (see D_{11} in Chapter 3.1), either in isolation (bars 6 and 15 in Example 4.2.3) or part of a sequential small-scale motif (bar 10, 11 in Example 4.2.3). In addition, compared with Example 4.2.1 and Example 4.2.2, the small-scale motivic ideas in Example 4.2.3 are repeated for a greater number of times (bar 10 and 11 in Example 4.2.3), which reflects a seemingly waning concern for the embellishment-related obscurement of the cantus firmus. Last, a greater variety of resolution constructs, other than the stereotyped formation, are notated (bars 14 and 15 in Example 4.2.3). With a greater number of options available, the stereotyped construct tends to be reserved for the more important cadences such as the termination of the second statement of the cantus firmus (bar 17 in Example

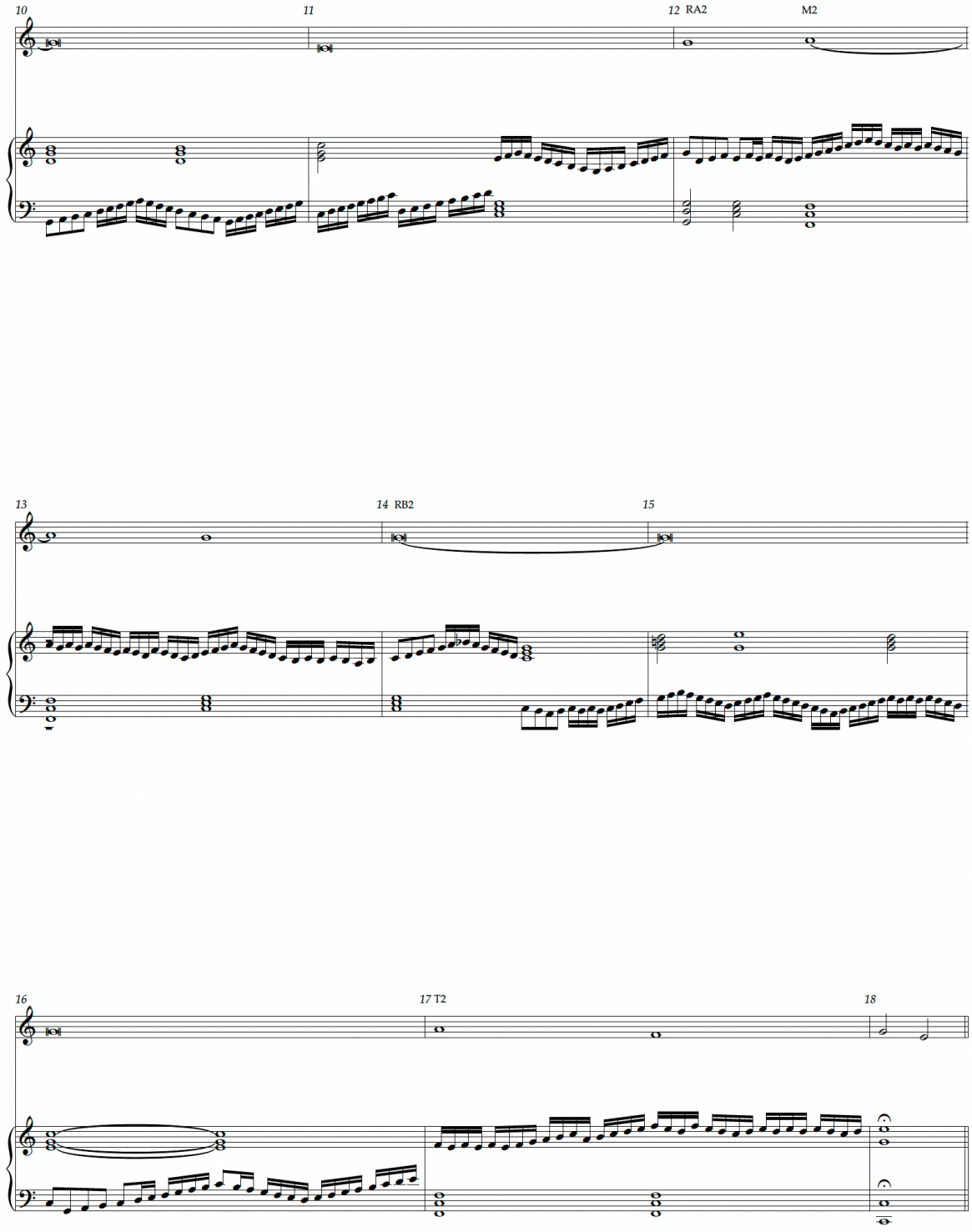
4.2.3). The characteristics of the notated embellishments in all three examples are summarised in Table 4.2.1.

Table 4.2.1 Summary characteristics of notated embellishments in three modified examples

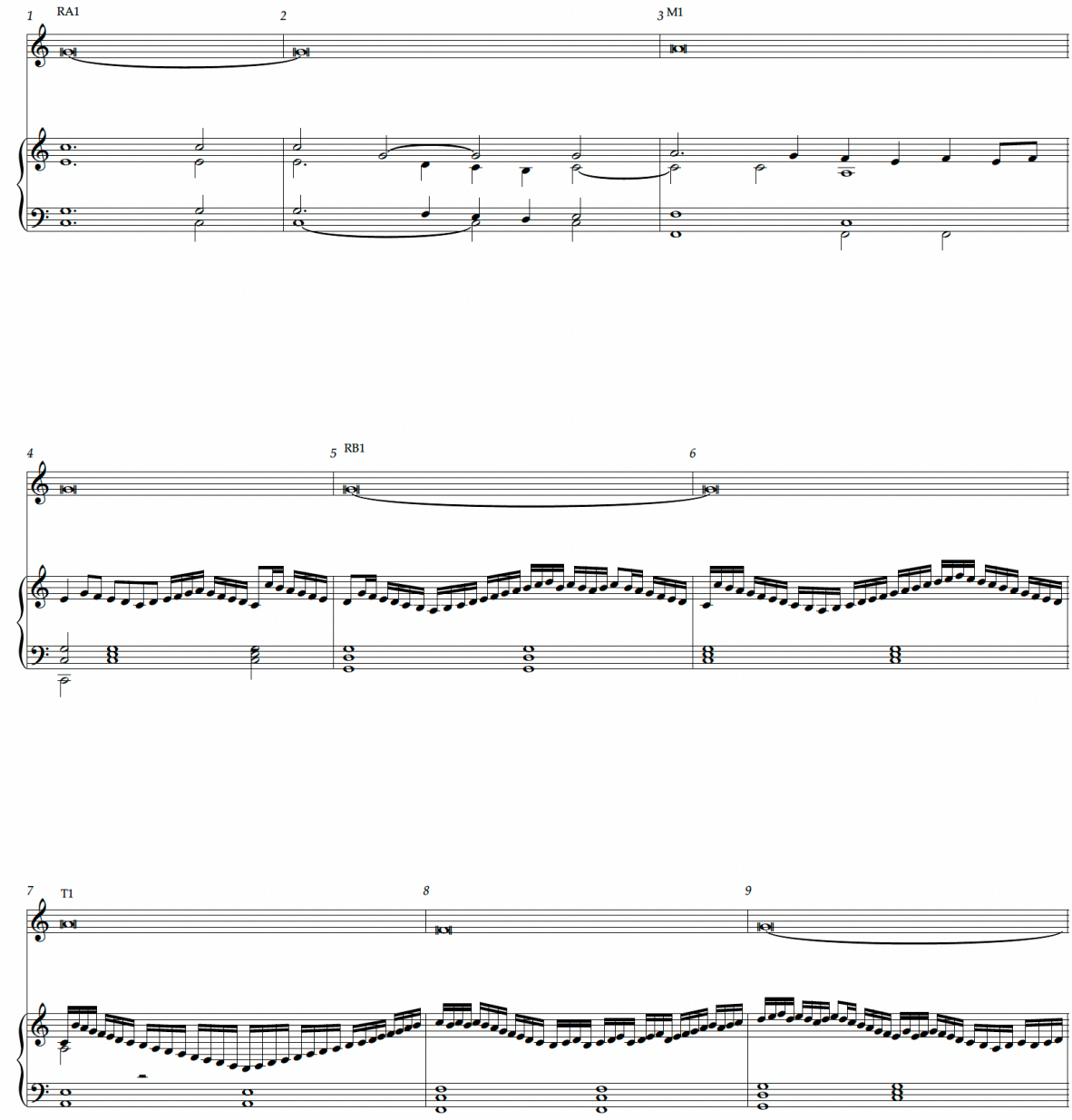
	Modified Example 1	Modified Example 2	Modified Example 3
Note value	minims, semiminims, fusas, semifusas	semiminims, fusas, semifusas,	semiminims fusas, semifusas, demisemifusas
Rhythmic division	equal-valued	mixed-valued	nuanced
Step motion	interminable	predominant	sectioned
Leap motion	occasional	limited	common
Consonance	strict	expected	relaxed
Resolution figure	invariable	stereotyped	varied
Length of tirati	short	medium	long
Motivic writing	rare	some	frequent
Pitch range	narrow	controlled	widened

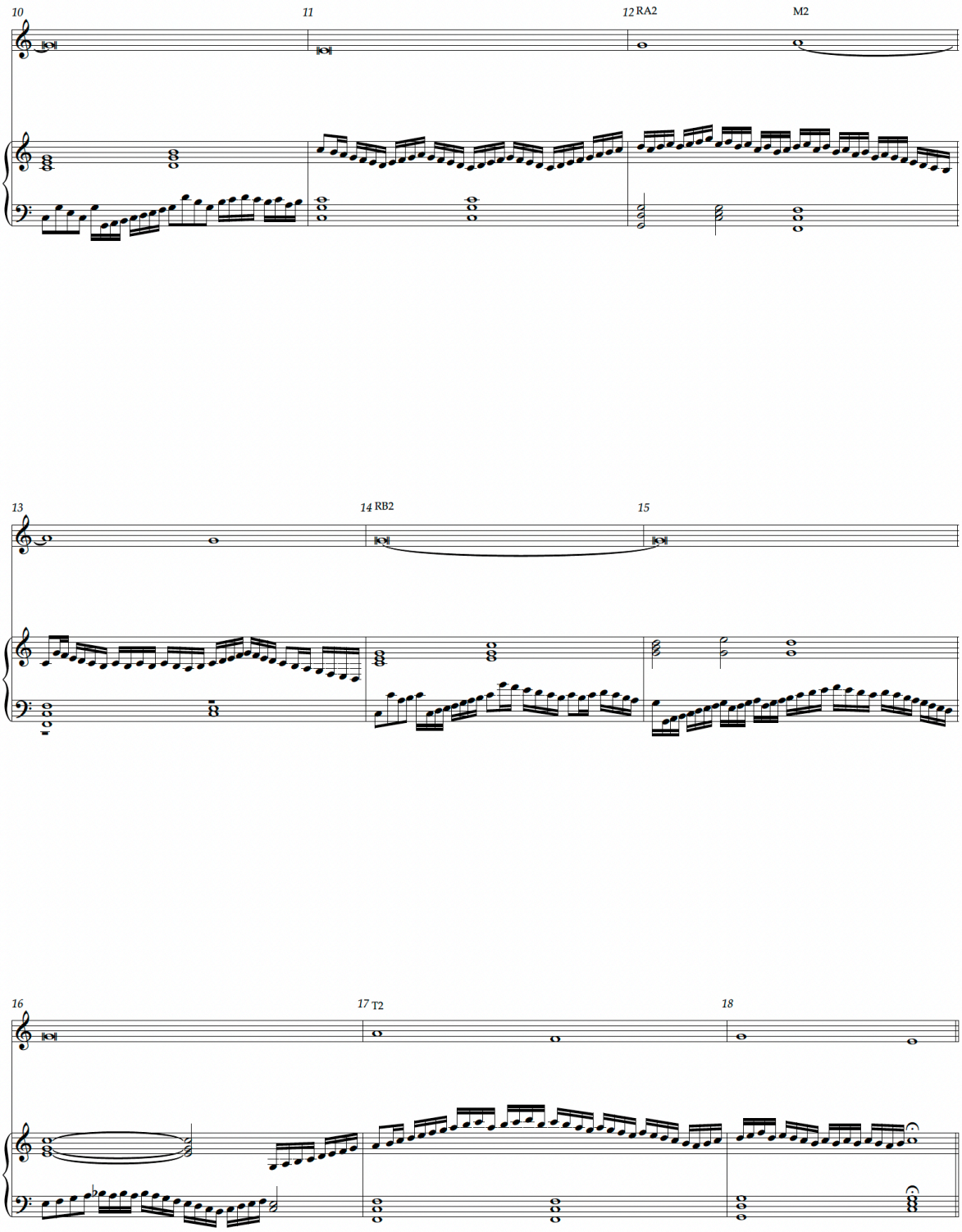
Example 4.2.1 Modified Example 1



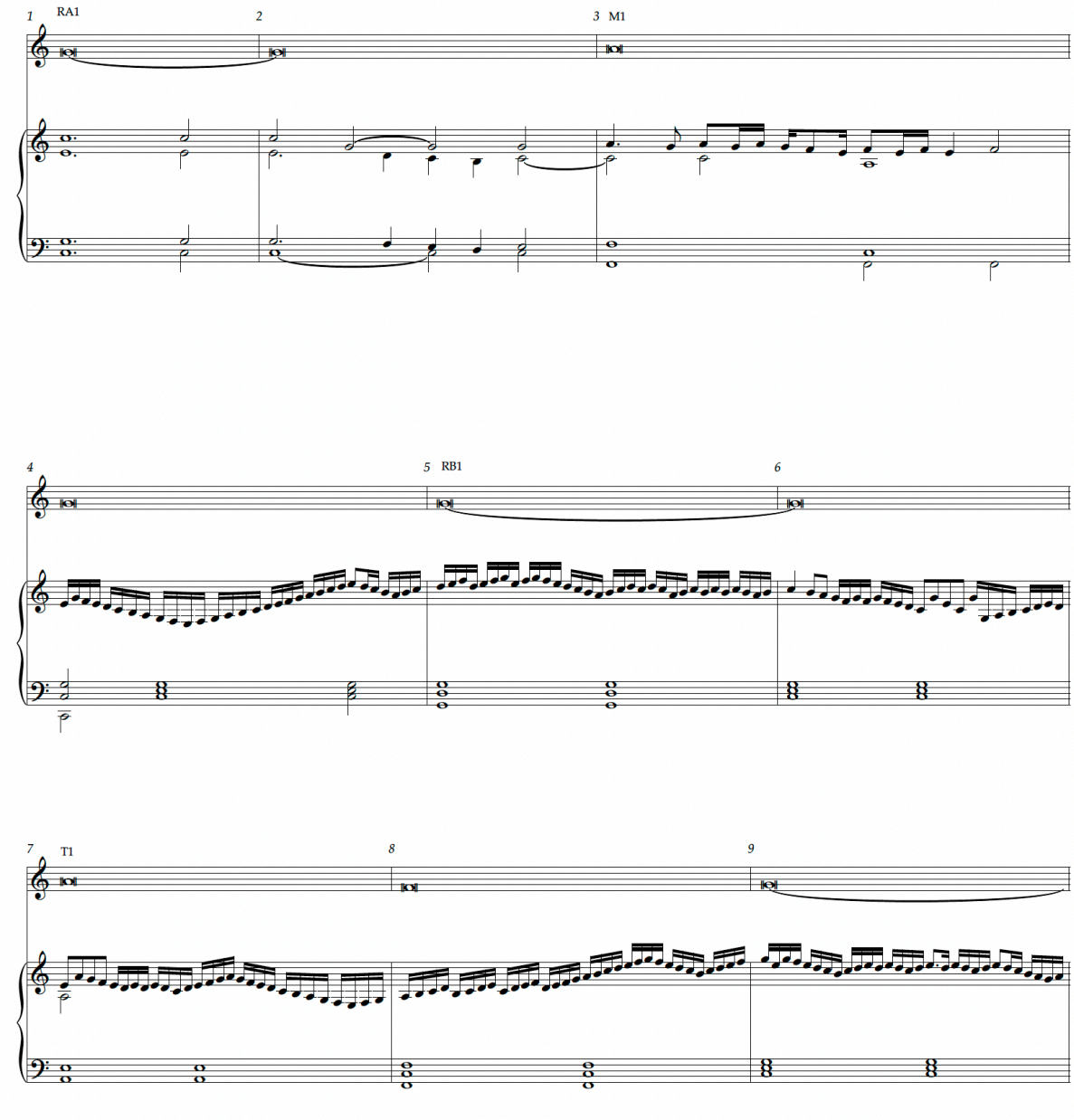

10
11
12 RA2
M2
13
14 RB2
15
16
17 T2
18

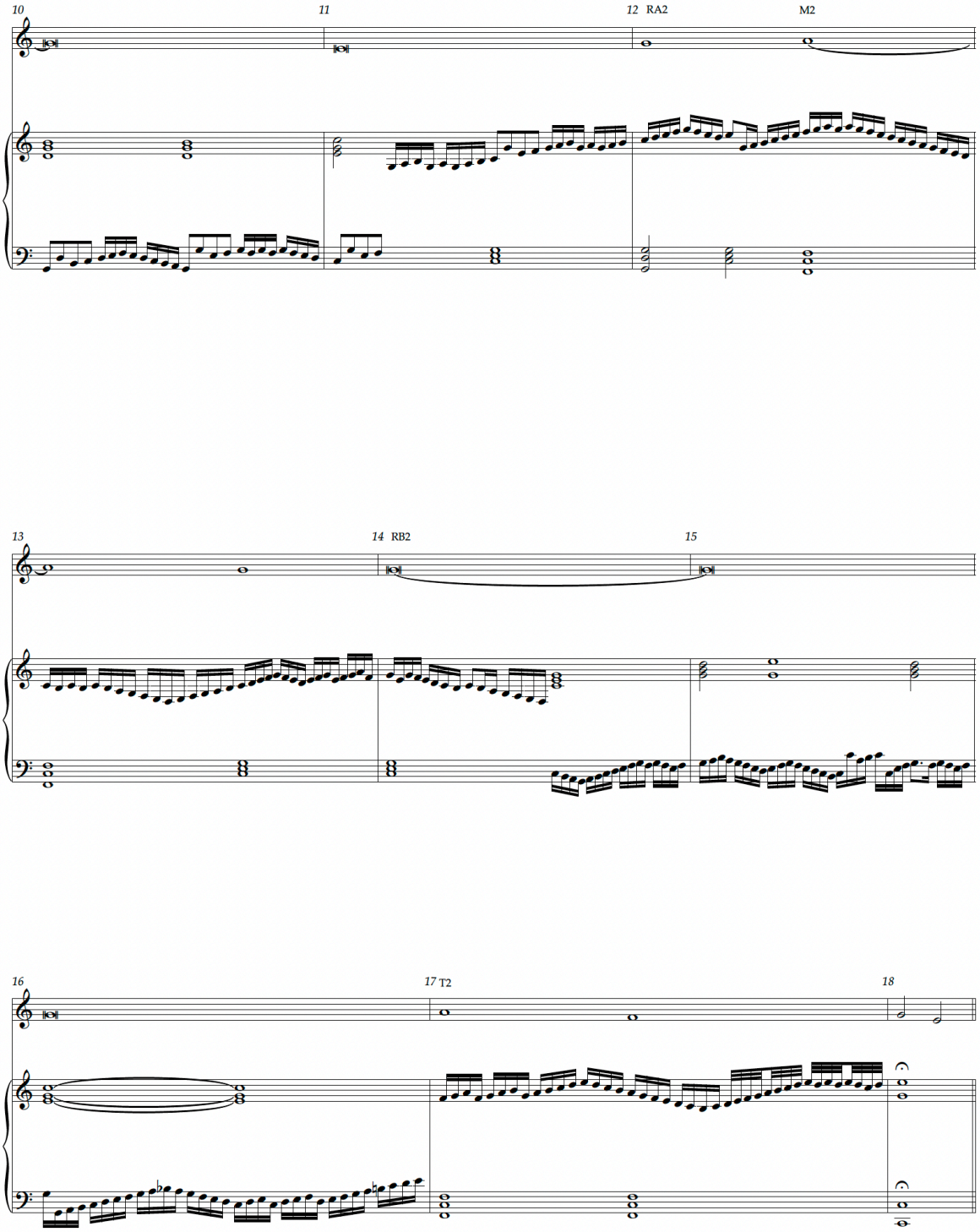
Example 4.2.2 Modified Example 2




10
11
12 RA2
M2
13
14 RB2
15
16
17 T2
18

Example 4.2.3 Modified Example 3




10
11
12 RA2
M2
13
14 RB2
15
16
17 T2
18

4.3 Modification of harmonic schema

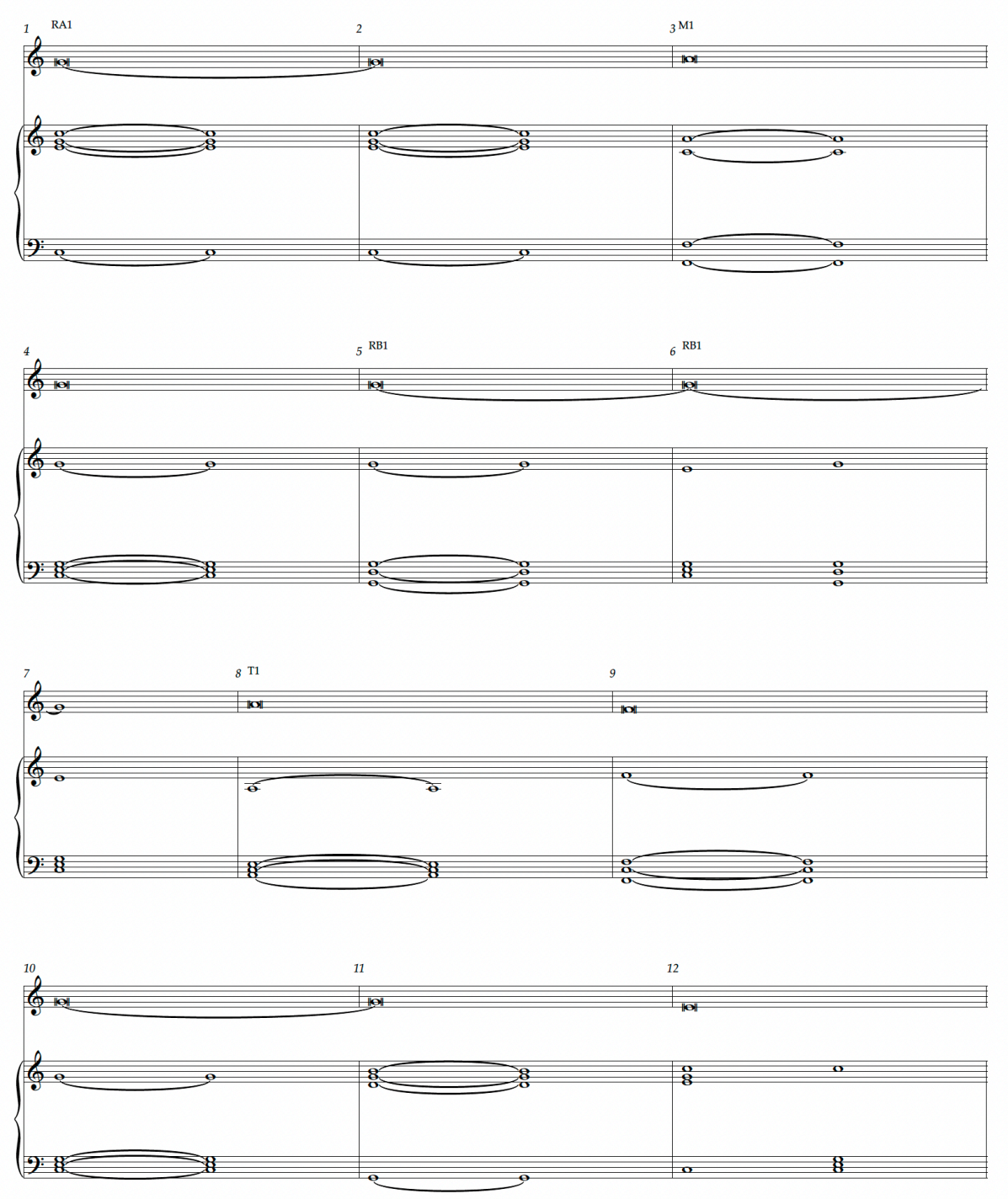
In the three examples given in Chapter 4.2, the harmonic schema of the selected work in Chapter 4.1 is kept intact. In the more complex example in this section, a modified harmonic schema (Example 4.3.2) derived from the same cantus firmus as the selected work (i.e. psalm tone V) is first devised prior to the addition of notated embellishments (Example 4.3.1). This new example is intended to reflect a more mature and elaborate style of the embellishments towards the end of the studied period.

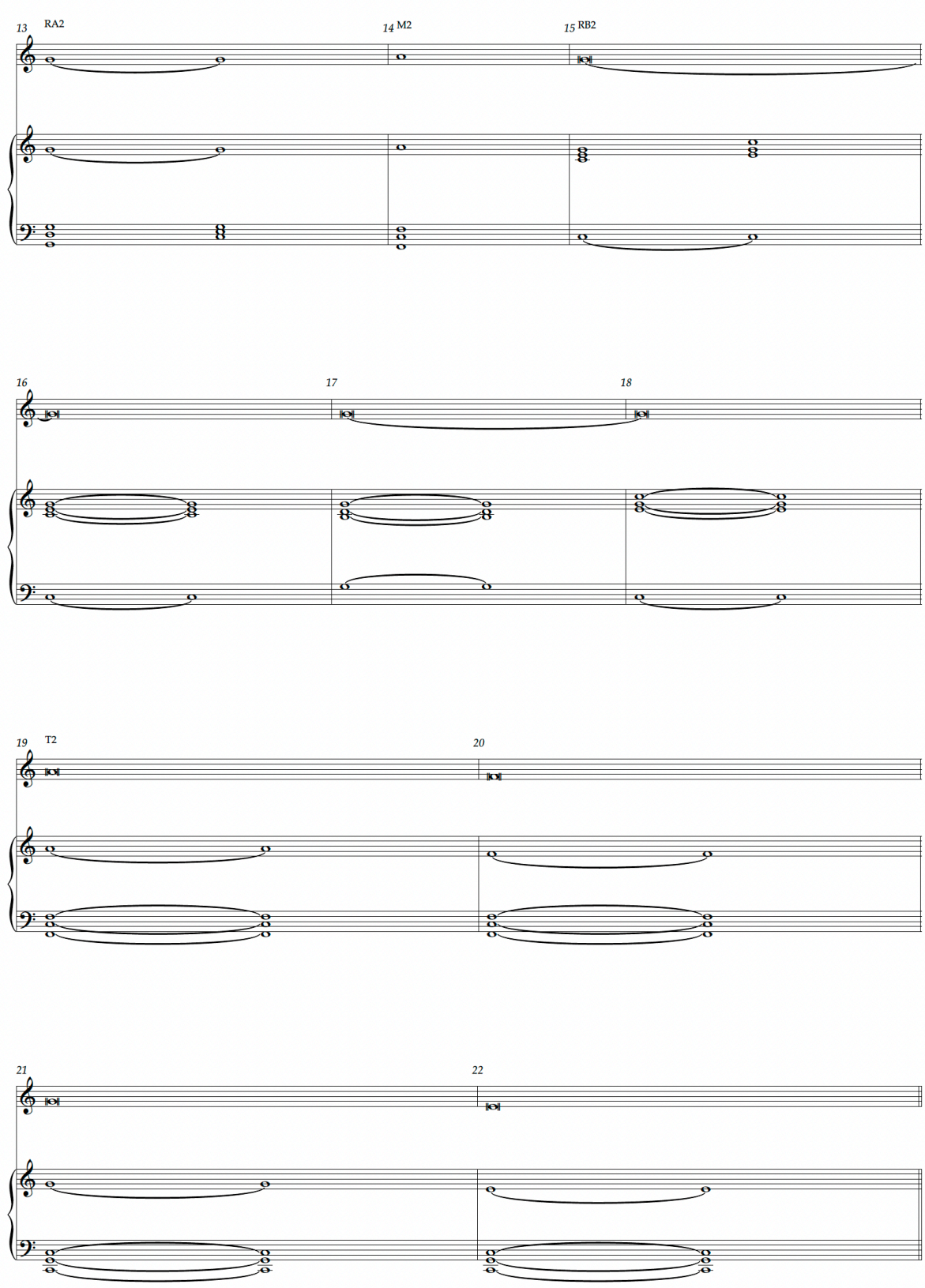
In comparison with its original counterpart (Example 4.1.2), the modified schema features moderately longer melodic notes along various structural points of the fifth psalm tone. For example, the termination of the second statement of the psalm tone (T_2), which proceeds in semibreves and minims under the original schema (bars 17–18 in Example 4.1.2), is delivered in breves under the modified schema (bars 19–22 in Example 4.3.1). In addition, the second recitation of the second statement of the psalm tone (RB_2) (bars 15–18 in Example 4.3.1) is lengthened under the modified schema by way of the insertion of the non-cadential I–I embellishments and I–V–I embellishments (see Chapters 2.2 and 2.3).

The lengthened cantus firmus under the modified schema affords the space for the demonstration of a more elaborate style of notated embellishments. First, leaping motion, the subject of many limitations per rules of embellishments in Chapter 3, is afforded great liberty in Example 4.3.2. This higher frequency of notation of leaping motion is due to both the greater usage of small-scale motifs involving some leap notes (bars 4, 6-7, 11, 12, 13, 19 and 20 in Example 4.3.2), and faster harmonic rhythm under the modified schema that may be best portray by some leaping motion (see S_2 in Chapter 3.3). In the latter case, serial notation of leaping motion in consecutive tactus (bars 10–12 in Example 4.3.2) is an effective tool in the depiction of the accelerating harmonic rhythm and growing momentum towards the end of a cadence. Second, a more refined style of embellishments is realised by the notation of varied rhythmic constructs such as the dotted rhythm (bars 4, 6, 7, 12, 13 and 17 in Example 4.3.1), syncopation (bars 6, 7, 12 in Example 4.3.1) and small note values (bars 13 and 22 in Example 4.3.1) Also notated with a higher degree of rhythmic precision are single-note embellishments (see Chapters 1.3) such as tremoletti (bars 2, 3 and 22 in Example 4.3.1) and mixed groppi (bar 13 in Example 4.3.1). Third, compared to small-scale motifs notated in the three examples in Chapter 4.2, sequential motifs notated in Example 4.3.2 are longer and more complex, which often result from the need to accommodate lengthened melodic notes

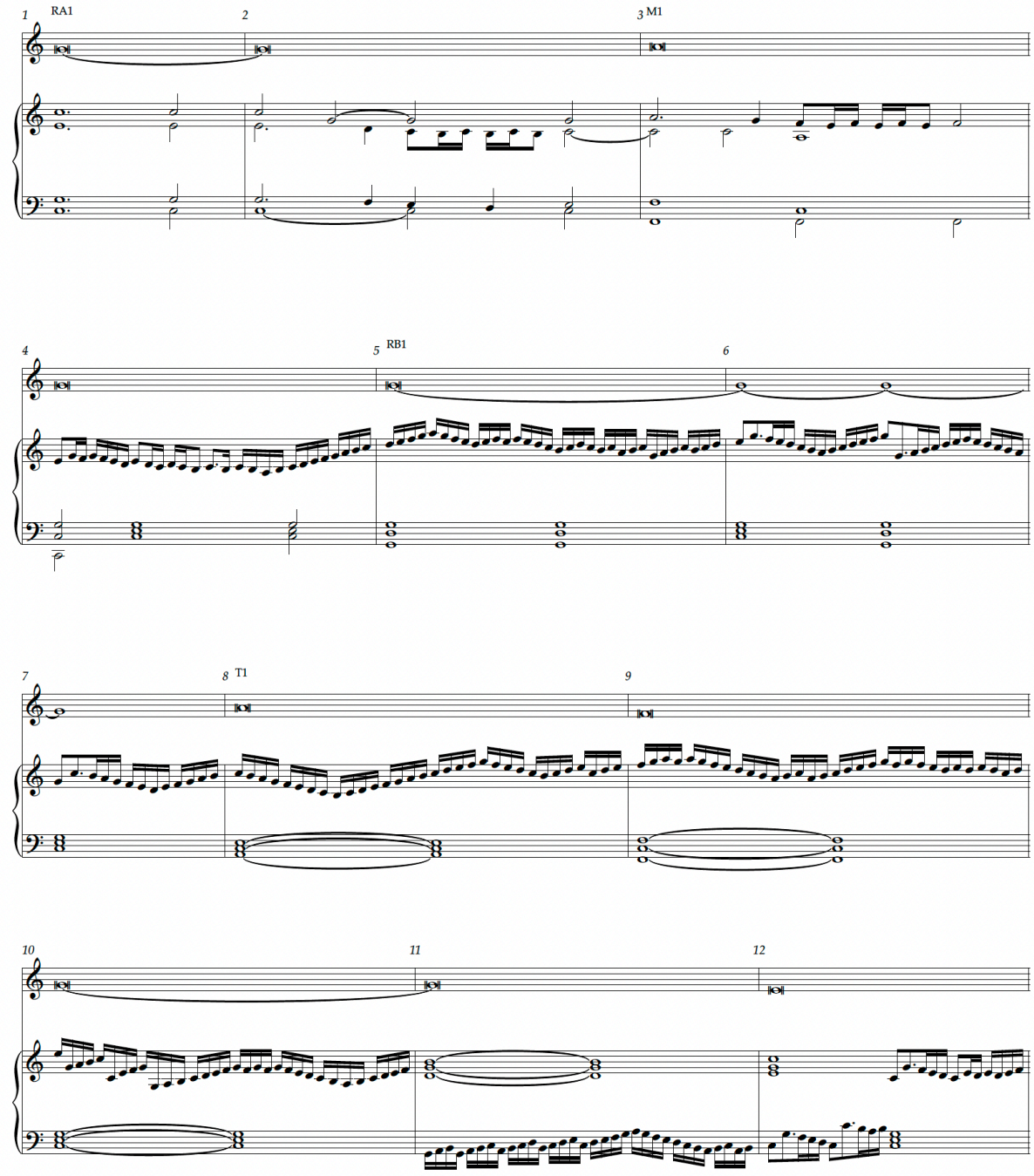
(e.g. bars 16 and 17 in Example 4.3.1). Last, cadential constructs (see D_{14} in Chapter 3.2), while still stereotyped, display greater variety in both rhythmic and figurative constructs (bars 17 and 22 in Example 4.3.1) and are not solely reserved for marking sectional ends (bar 9 in Example 4.3.1).

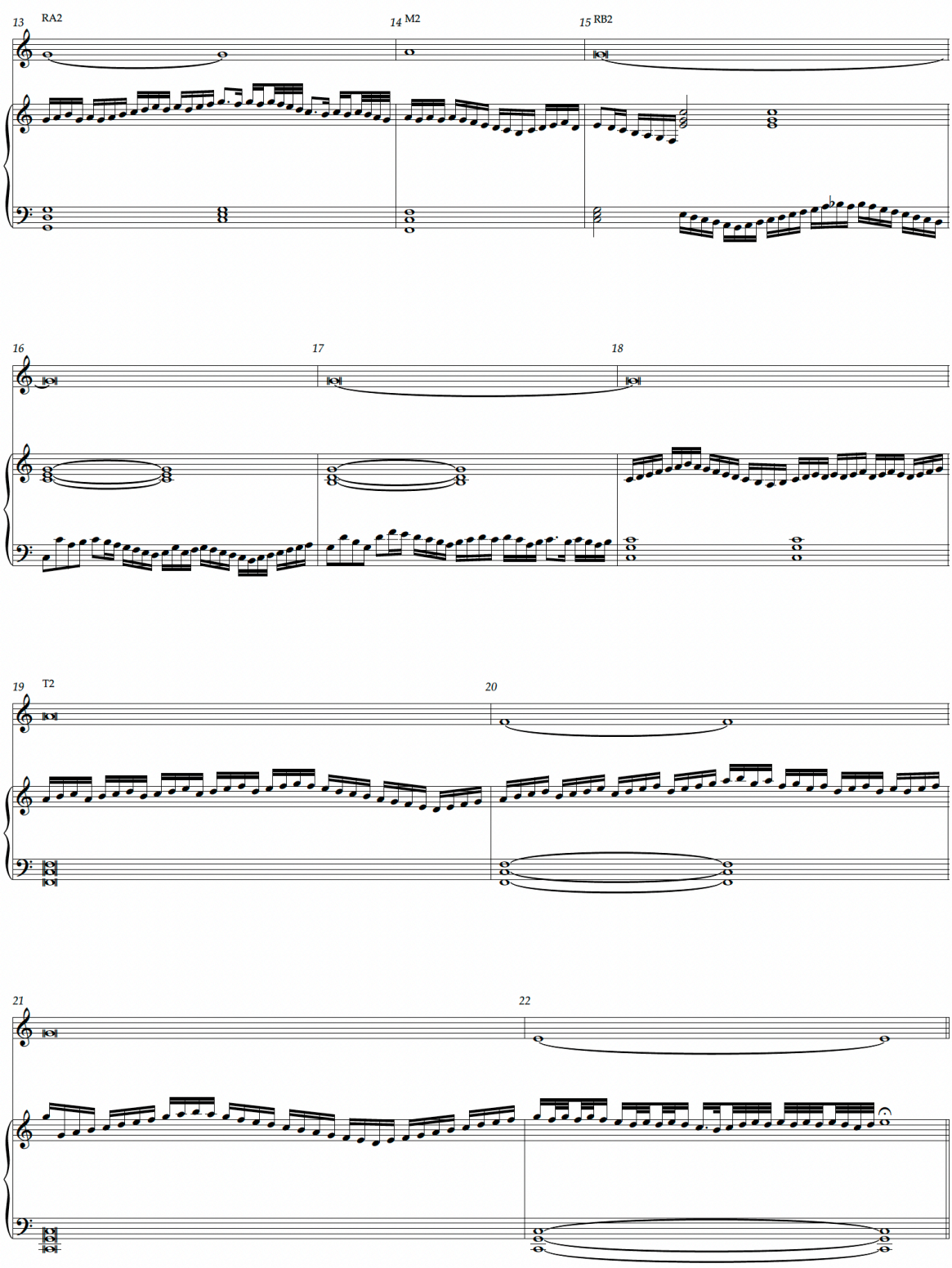
Example 4.3.1 Modified harmonic schema of the selected work




13
RA2
14
M2
15
RB2
16
17
18
19
T2
20
21
22

Example 4.3.2 Modified Example 4




13
RA2
14
M2
15
RB2
16
17
18
19
T2
20
21
22

Chapter 5 Irregularities and later developments

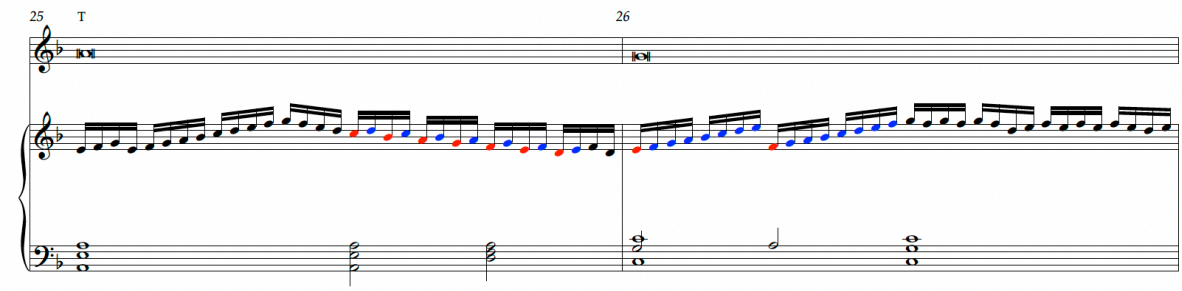
By the end of the sixteenth century, so ravishing and ingenious were the embellishment figurations under the capable hands of Venetian keyboardists that their expressive intensity was in stark contrast with that of the interminable scalar passages of the mid-sixteenth-century keyboard style. This remarkably rapid development of Venetian keyboard music over a short time span of several decades is attributable to three reasons. First, compositional experimentation on the keyboard was gradually emancipated from the underlying vocal prototype. Truncation and restatement, and rearrangement of the vocal cantus firmus became increasingly part of standard practice, as additional vocal models (e.g. ricercars and canzoni) are amalgamated into the mid-sixteenth-century keyboard model. Second, in the second half of the studied period (c. 1560–1570), general accepted embellishment principles such as those detailed in Chapter 3 began to lose their stranglehold on the improvising keyboardist. The stylistic unity that accompanied early experimentation on the keyboard was gradually undone by the irregular notation of un-stereotyped embellishment examples in the surviving repertory that eventually paved the way for later developments. Last, the ongoing specialisation of different instrumental classes during the second half of the sixteenth century allowed for the emergence of an immature but keyboard-specific and innovation–friendly embellishment language. This chapter highlights the innovative embellishment ideas that were notated in the surviving repertory of the studied period (Chapter 5.1, Chapter 5.2 and Chapter 5.3) and describes their role in the further evolution of keyboard-specific embellishment techniques during the remainder of the sixteenth century (Chapter 5.4).

5.1 Notation of small-scale motifs

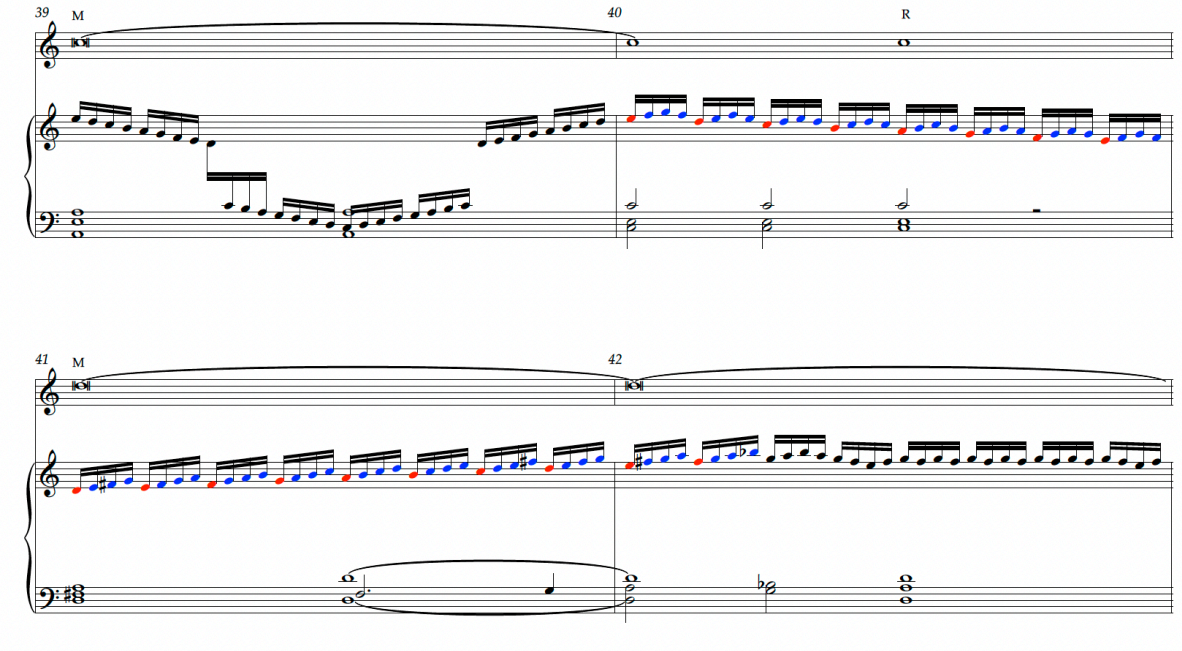
Small-scale motivic ideas can be applied to either a single embellishment or over the course of several connecting embellishments. In the notated examples of the surviving repertory, two types of small-scale motivic writing made irregular appearances. The first type is nested in a tirata-like scalar construct and resembles early attempts of composers to notate secondary embellishments (i.e. "embellishment on embellishment"). This type of small-scale motif is most often used to introduce the stereotyped resolution in a cadential groppo. In Example 5.1.1, the descending scalar construct in the second half of bar 25 is embellished by a two-note motif and ascending scalar construct in the first half of bar 26 is embellished by an eight-note motif, which precedes the stereotyped resolution in the second half of bar 26. In Example 5.1.2, the descending scalar construct in bar 40 and the ascending scalar construct in bar 41 are both embellished by a four-note motif, which precedes the stereotyped resolution in the second half of bar 42.

A second type of scale-scale motivic writing centres on the usage of a harmonically stationary imitating device, often more complex than the motif in the first type, that is passed around between different embellished parts. In Example 5.1.3, the imitating small-scale motif is repeated three times in the soprano and another three times in the bass, which accentuates the accompanying harmonies of the prolonged recitation and mediant pitch. In Example 5.1.4, the imitating small-scale motif is repeated at gradually ascending pitches in bar 14 and the first half of bar 15, which contributes to the depiction of the brewing momentum preceding the resolution at a major cadence.

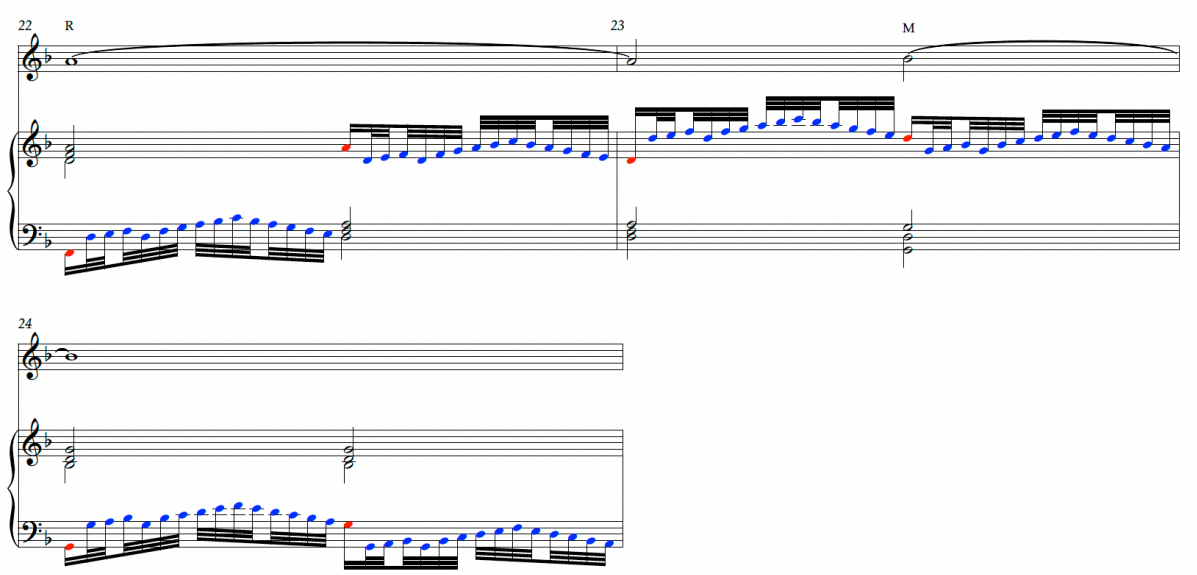
Example 5.1.1 Andrea Gabrieli, *Toccata del Sesto Tono*, bars 25–26, GABRIELI1593



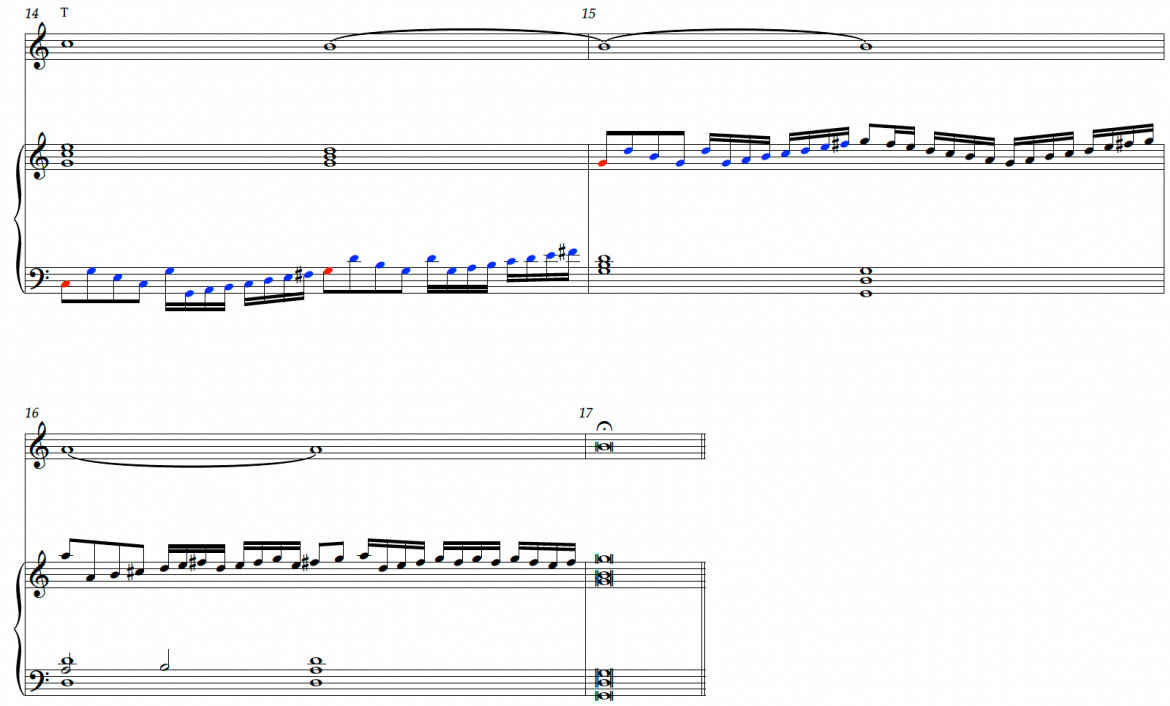
Example 5.1.2 Andrea Gabrieli, *Toccata del Ottavo Tono*, bars 39–42, GABRIELI1593



Example 5.1.3 d'Incerto, *Toccata del Primo Tono*, bars 22–24, PADOVANO1E594



Example 5.1.4 Andrea Gabrieli, *Intonazione del Settimo Tono*, bars 14–17, GABRIELI1593

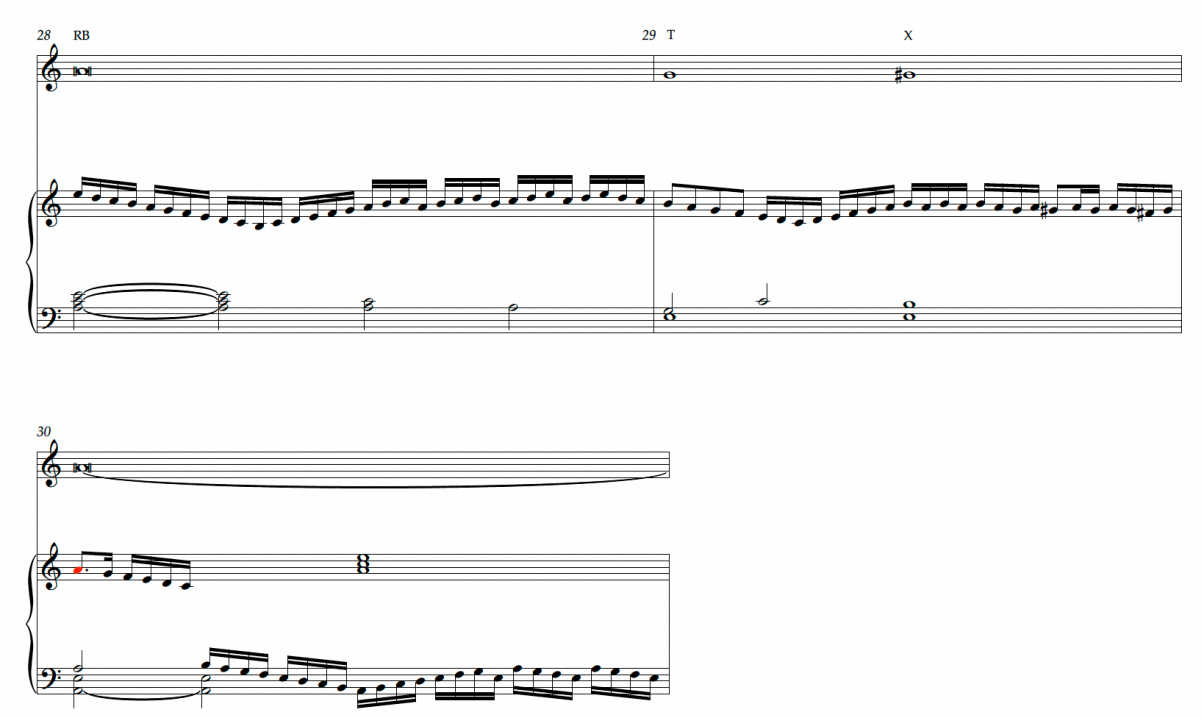


5.2 Notation of nuanced rhythmic constructs

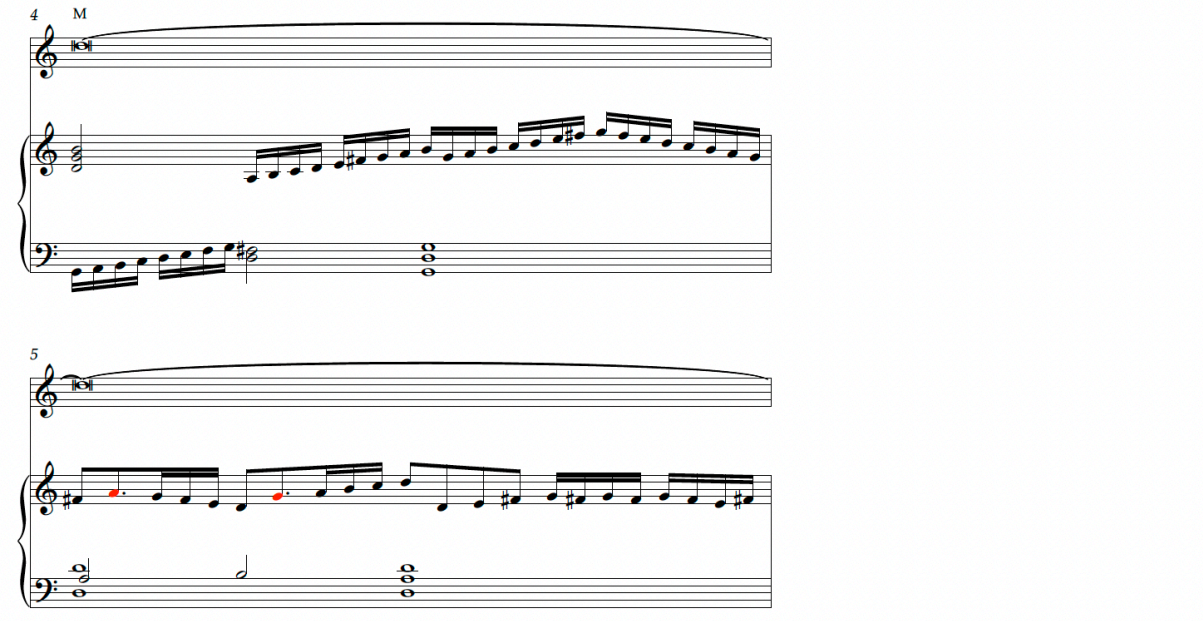
As alluded to in Chapter 1.3, in the absence of nuanced rhythmic notation, the skilful execution of embellishments on the keyboard is conventionally more rhythmically nuanced than notated. Therefore, in the sporadic instances where the composer makes a deliberate effort to notate rhythmic divisions other than those outlined in H_3.

One pioneering rhythmic device that was sporadically notated in the surviving repertory that offers an alternative to the standard rhythmic divisions is the dotted rhythm. Similar to the three devices identified in S_2 (i.e. lengthened first anchor note, leaping guide note and consecutive leap notes), a dotted rhythm or a syncopated dotted rhythm is often employed at or near the start of a tactus to accentuate the arrival of a new harmony. In Example 5.2.1, the dotted rhythm applied to the first anchor note of bar 30 (a´) accentuates the harmonic return to the recitation tone from the flexa (g´) in the termination. In Example 5.2.2, the syncopated dotted rhythm on the guide notes of two minim-tactus (a´ and g´) in the first half of bar 5, contrasts the preceding scalar motion and reinforces the I–V–I harmonic progression of the mediant. In addition, as shown in Example 5.2.3, the syncopated dotted rhythm can be used as an effective small-scale motivic device that is used to propel an elaborate cadential groppo towards its resolution. Another nuanced rhythmic construct that attained somewhat greater prevalence towards the end of the studied period is the perfect prolation of note values. In Example 5.2.4, a rare notation of triplet rhythm is notated in the preparation of a cadential groppo.

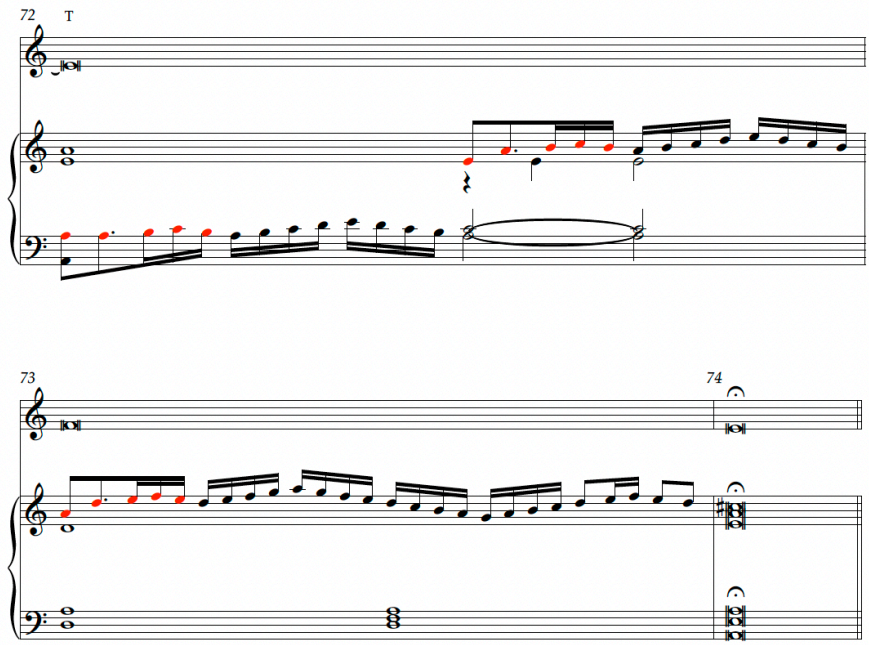
Example 5.2.1 Andrea Gabrieli, *Intonazione del Nono Tono*, bars 28–30, GABRIELI1593



Example 5.2.2 Andrea Gabrieli, *Intonazione del Ottavo Tono*, bar 4–6, GABRIELI1593



Example 5.2.3 Andrea Gabrieli, *Toccata del Nono Tono*, bars 72–74, GABRIELI1593



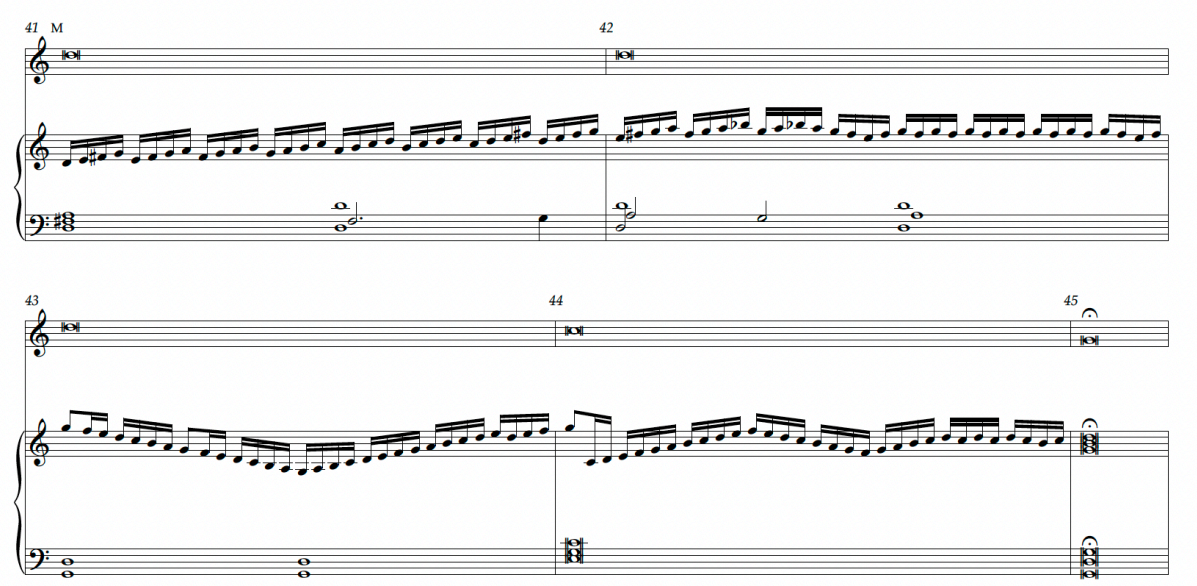
Example 5.2.4 Annibale Padovano, *Toccata del Sesto Tono*, bar 50–51, PADOVANO1594

5.3 Notation of elaborate cadential groppi

The variety and complexity of embellishments corresponding to the recitation portion of a psalm tone is limited by the harmonic stability around its pre-established tonal centre. In the surviving repertory of the studied period, a more elaborate embellishment style is more likely to be observed around the two main cadential points along the progression of a psalm tone. As alluded to in Chapter 5.1 and Chapter 5.2, a lengthened preparation, which features unorthodox figurative and rhythmic constructs and contrasts the stereotyped formation of resolution, is sometimes notated in the surviving repertory to heighten expressive intensity of an embellished cadence. Other comparable devices that are irregularly notated for similar intended effect are detailed as follows.

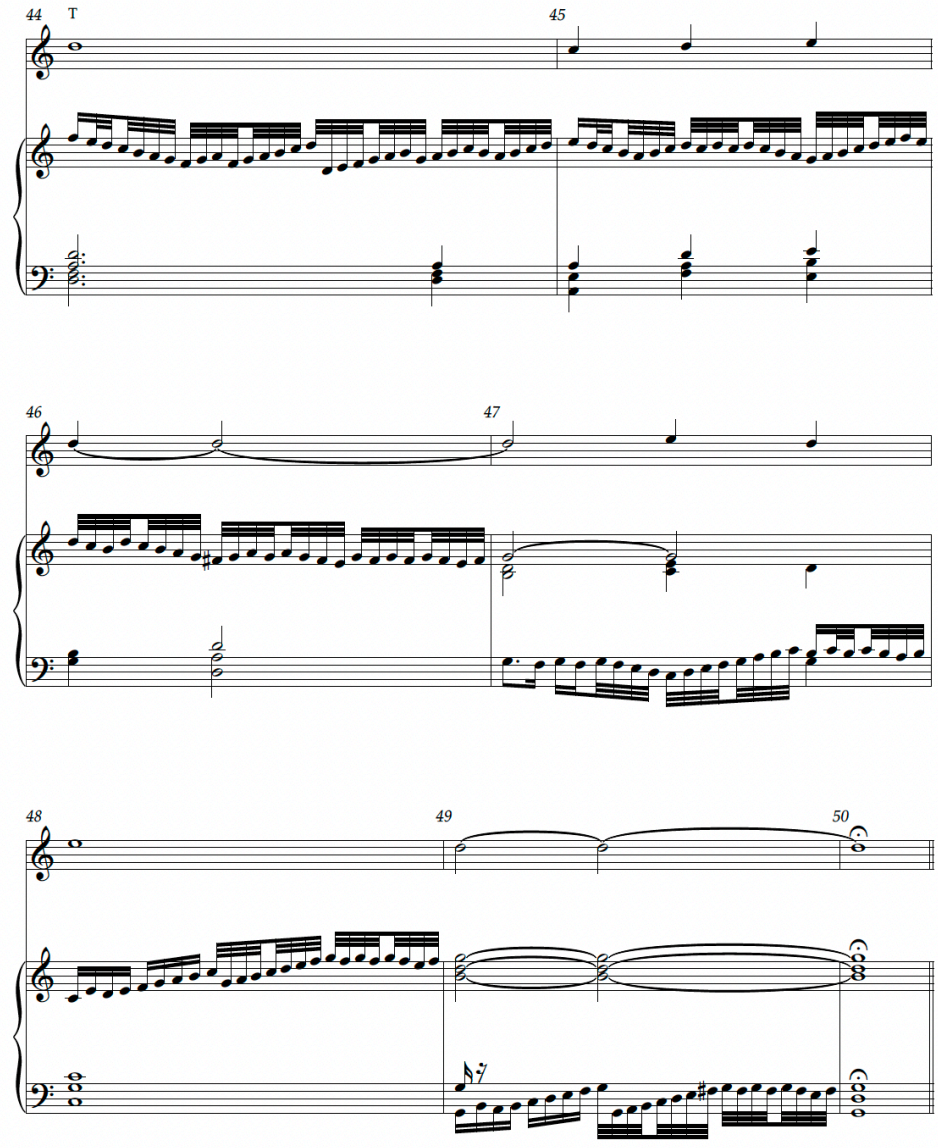
First, consecutive tirati of alternating direction, decreasing magnitude and embellishment range (see D_7 in Chapter 3.2) is sometimes used in the preparation to describe the gradual stabilisation of harmonic centre at the end of a cadential melody. In Example 5.3.1, the small-scale motivic sequence in bar 41 and the first half of bar 42 is succeeded by several connecting tirati in bar 43 and the first half of bar 44 of progressively shorter length as the mediant draws to a close. Second, the dividing of connecting tactus into progressively smaller rhythmic values of embellishment (cf. *mixed groppo* in Chapter 1.3.5) is a viable tactic for depicting the growing momentum through several connecting embellishments. In Example 5.3.2, the tactical placement of fusas, semifusas, demisemifusas enables the depiction of the growing tension as the cadential melody gallops towards its final resolution. Last, a varied pacing of harmonic rhythm and time value of tactus in the preparation of a cadential groppo can be an effective tool in describing the progression of harmonic uncertainty to harmonic certainty along the cadential melody. In Example 5.3.3, the frequent I–VI–I harmonic oscillation and uncertain time values of the tactus in bars 45–47 is stabilised in bar 48–49, where the cadence comes to an end.

Example 5.3.1 Andrea Gabrieli, *Toccata del Ottavo Tono*, bars 41–45, GABRIELI1593



Example 5.3.2 Andrea Gabrieli, *Toccata del Sesto Tono*, bar 15–17, GABRIELI1593

Example 5.3.3 Annibale Padovano, *Toccata del Ottavo Tono*, bars 44–50, PADOVANO1594



5.4 Later developments

As alluded to in Chapter 1.2, the Venetian keyboard toccata form evolved further in the late sixteenth century under the capable hands of Claudio Merulo (1533–1604). Two major collections of Merulo's keyboard toccatas published around the turn of the sixteenth century (i.e. MERULO1598, MERULO1604) are scholarly recognised as the epitome of sixteenth-century keyboard compositions.[76] The first collection contained nine toccatas written in the first to the fourth mode. A second collection contained a further ten toccatas written in the fifth to the tenth modes. A quick examination of this body of work (see Table 5.4.1) reveals a great degree of stylistic unity in both compositional structure and embellishment procedure: a sectional structure that juxtaposes polyphonic writing and passagework, greater obscurement of the cantus firmus, continuous usage of repeated and short embellishments notated in greater rhythmic precision, an accelerated harmonic rhythm and greater tolerance of dissonances.

Notwithstanding the ostentatious complexity of Merulo's keyboard toccatas, contemporary scholars discount the presupposition that Merulo's elaborate embellishment style was an anomaly that existed outside the prevailing embellishment procedure of his late-sixteenth-century peers. Bradshaw opines that the ingenuity of Merulo lies in the rearrangement and manipulation of the compositional framework of several antecedent forms of vocal music.[77] McDermott highlights the congruences of Merulo's embellishment style with that of diminution tutors in the mainstream of the late sixteenth-century century musical taste, and emphasises that the creativity of Merulo lies not in the reinvention of existing methods of embellishment, but in his personal adaption of standard procedure to the keyboard idiom.[78]

The close relation between Merulo's embellishment style and that of his predecessors can be gleaned from the figurative similarity between the commonly notated cadential groppi in Merulo's keyboard toccatas and those notated in preceding periods. Similar to their mid-sixteenth-century counterparts in Example 2.4.1 and Example 2.4.4, Merulo's notated groppi in Example 5.4.1 are constructed in two halves of equal time duration, namely an introductory passagio that ends in either the final note or its leading note, followed by a stereotyped resolution. The subtle innovation personal to Merulo is primarily engineered in the preparation part of the groppo. First, suspended

[76] Perry, "The Development," 54.
[77] Bradshaw, "Influence of Vocal Music," 35.
[78] McDermott, "Canzoni d'Intavolatura," 160–161.

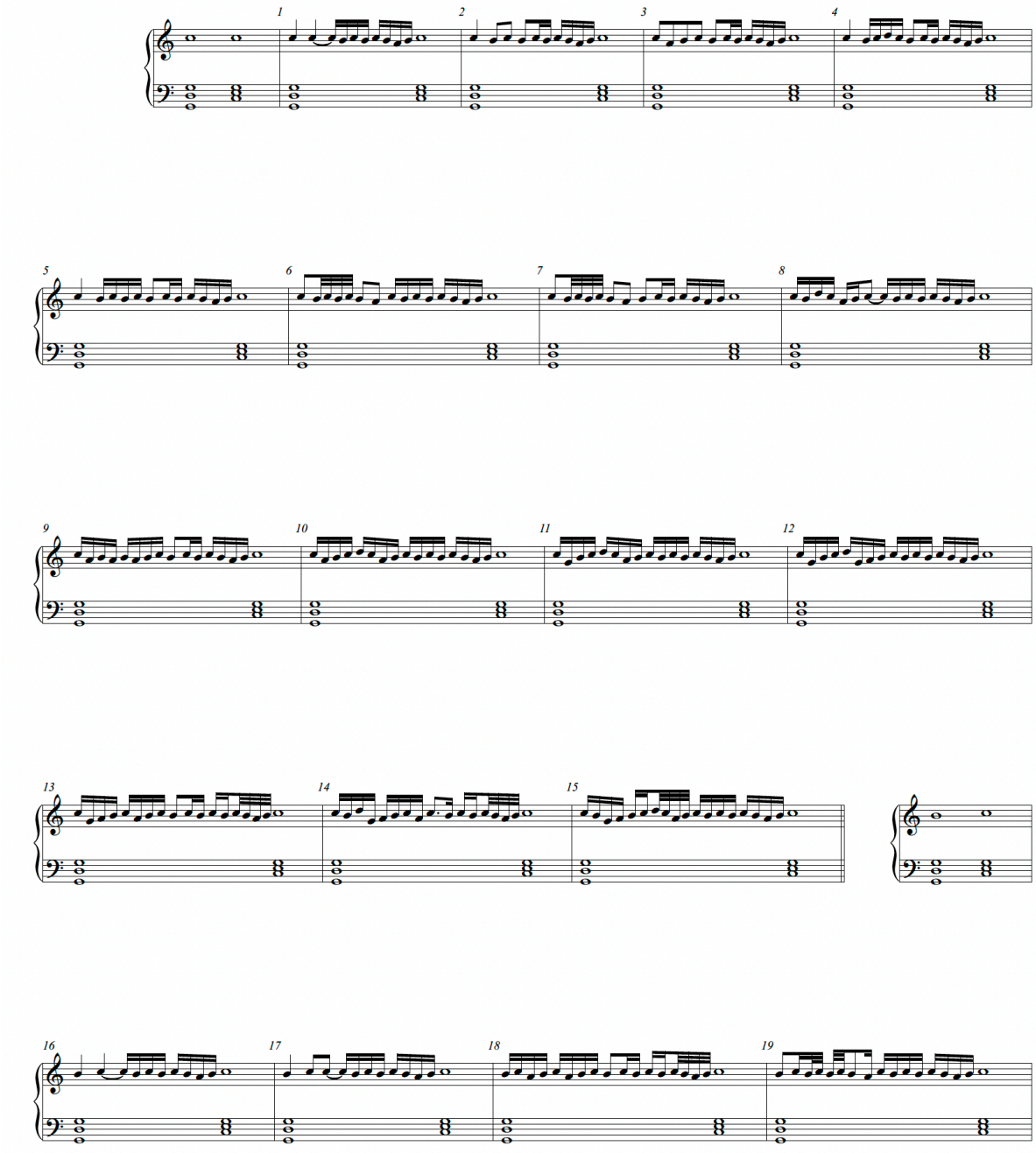
notes (e.g. bars 1, 8, 16, 17, 25, 30, 35, 37, 38,44, 46 and 52 in Example 5.4.1) are now more frequently used to set up the stereotyped resolution. Second, the notation of more nuanced rhythm (e.g. bars 28, 29 and 30 in Example 5.4.1), which had been left to the interpretative freedom of the performer, is suggestive of more precise rhythmic notation. Also featured in the preparation of many a cadential groppo is Merulo's signature addition of tremoletti (e.g. bars 5, 6, 7 and 19 in Example 5.4.1). As regards the stereotyped resolution, which has largely been kept intact by Merulo, the occasional notation of demisemifusas (e.g. bars 26, 27 and 57 in Example 5.4.1) seems to suggest the general reduction of note values in instrumental works and a more elaborate style in cadential embellishments towards the end of the sixteenth century.

Table 5.4.1 Nineteen keyboard toccatas in two collections by Claudio Merulo

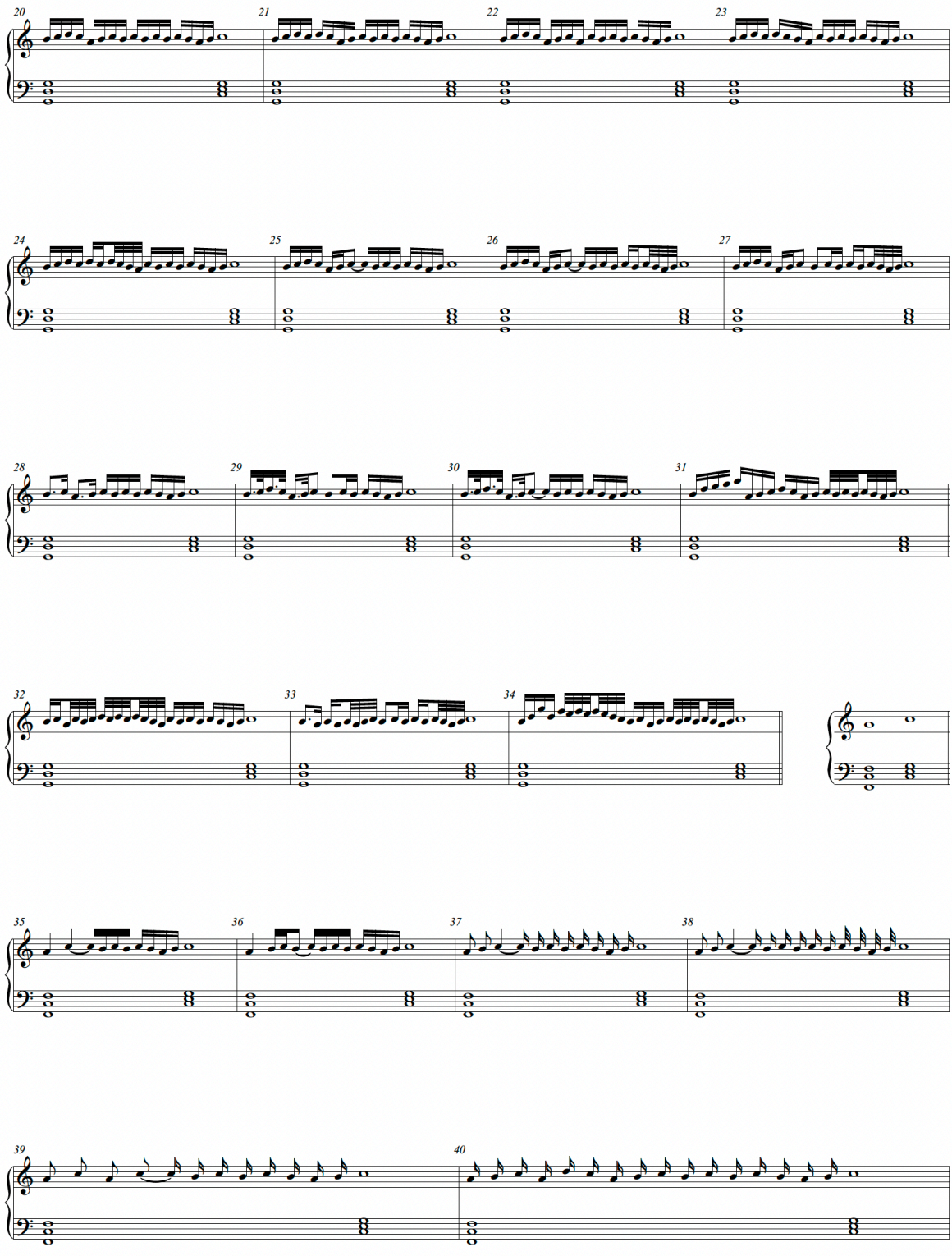
Title	Psalm tone	Transposition	Length[79]	Structure[80]
Toccata d'Intavolatura d'Organo, Libro Primo (1598)				
Toccata Prima del Primo Tono	I	-	51	R–T–R–T
Toccata Seconda del Primo Tono	I	-	78	R–T–R–T
Toccata Terza del Secondo Tono	II	up fifth	47	T–R–T
Toccata Quarta del Secondo Tono	II	up fifth	39	T–R–T
Toccata Quinta del Secondo Tono	II	up fifth	38	T–R–T
Toccata Sesta del Terzo Tono	III	up fourth	54	T–R–T
Toccata Settima del Terzo Tono	III	down fifth	64	T–R–T–R–T
Toccata Ottava del Quarto Tono	IV	up fourth	64	T–R–T–R–T
Toccata Nona del Quarto Tono	IV	up fourth	55	T–R–T–R–T
Toccata d'Intavolatura d'Organo, Libro Secondo (1604)				
Toccata Prima del Quinto Tono	V	-	57	T–R–T–R–T
Toccata Seconda del Quinto Tono	V	up fifth	74	R–T–R–T
Toccata Terza del Sesto Tono	VI	-	50	T
Toccata Quarta del Sesto Tono	VI	transposed	62	R–T–R–T
Toccata Quinta del Settimo Tono	VII	up fourth	60	R–T–R–T
Toccata Sesta del Settimo Tono	VII	up fifth	63	T–R–T
Toccata Settima del Ottavo Tono	VIII	-	76	T–R–T–R–T
Toccata Ottava del Ottavo Tono	VIII	up fourth	68	T–R–T
Toccata Nona del Nono Tono	IX	down fifth	74	R–T–R–T
Toccata Decima del Decimo Tono	X	-	86	T–R–T–R–T

[79] number of bars
[80] T = toccata section; R = ricercar section.

Example 5.4.1 Commonly notated cadential groppi in Claudio Merulo's keyboard toccatas[81]



[81] All examples have been transposed to C.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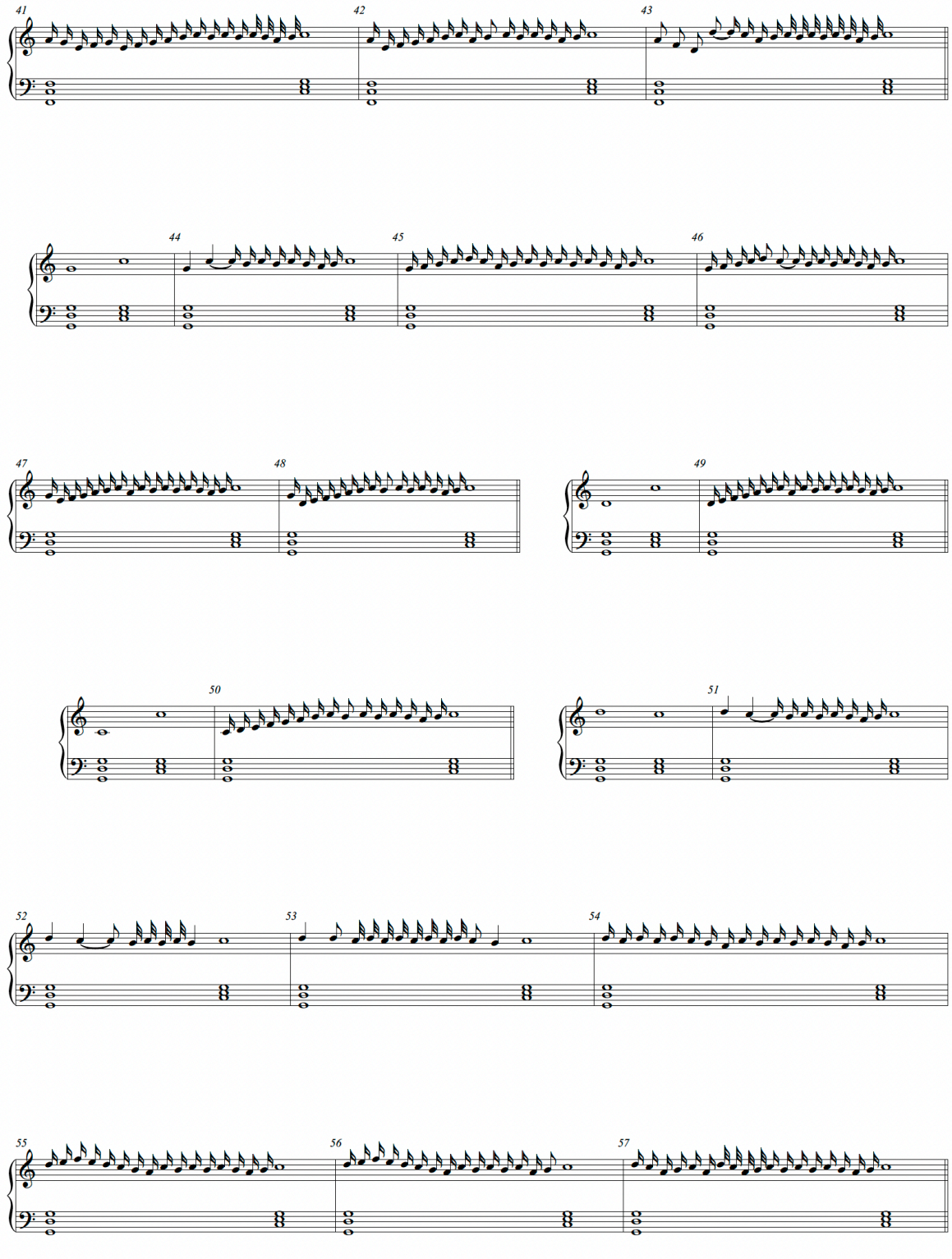
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Conclusion

This analytical study provides both a conceptual and practical framework for improvising keyboard embellishments on a vocal monody in the style of sixteenth-century Venetian keyboard writing. To the best of the author's knowledge, no systematic study or codification of the embellishment techniques of this repertory has been attempted in either surviving historical sources or modern research.

On the basis of a critical examination of the notated embellishment examples in both the surviving repertory and contemporaneous embellishment treatises (Chapter 2), this analytical study proposes a system for improvising keyboard embellishments in a style that is congruent with the surviving repertory (Chapter 3). The rules of embellishments stipulated in the said system are devised to elucidate the prevailing mid-sixteenth-century embellishment procedure that was likely followed by members of the Venetian keyboard school (Chapter 1.4). The efficacy of the proposed system is demonstrated by its application to the improvisation of keyboard embellishments in a psalm-based four-part harmonic schema (Chapter 4).

The outcome of this study is expected to be of value to researchers and practitioners with a general interest in the improvisation practices of sixteenth-century keyboard music. It may also be of value to those with an interest in the origin of the keyboard toccata form. Additionally, the proposed system of improvised embellishments could be the subject of learning courses to promote interest in improvisation on historical keyboards.

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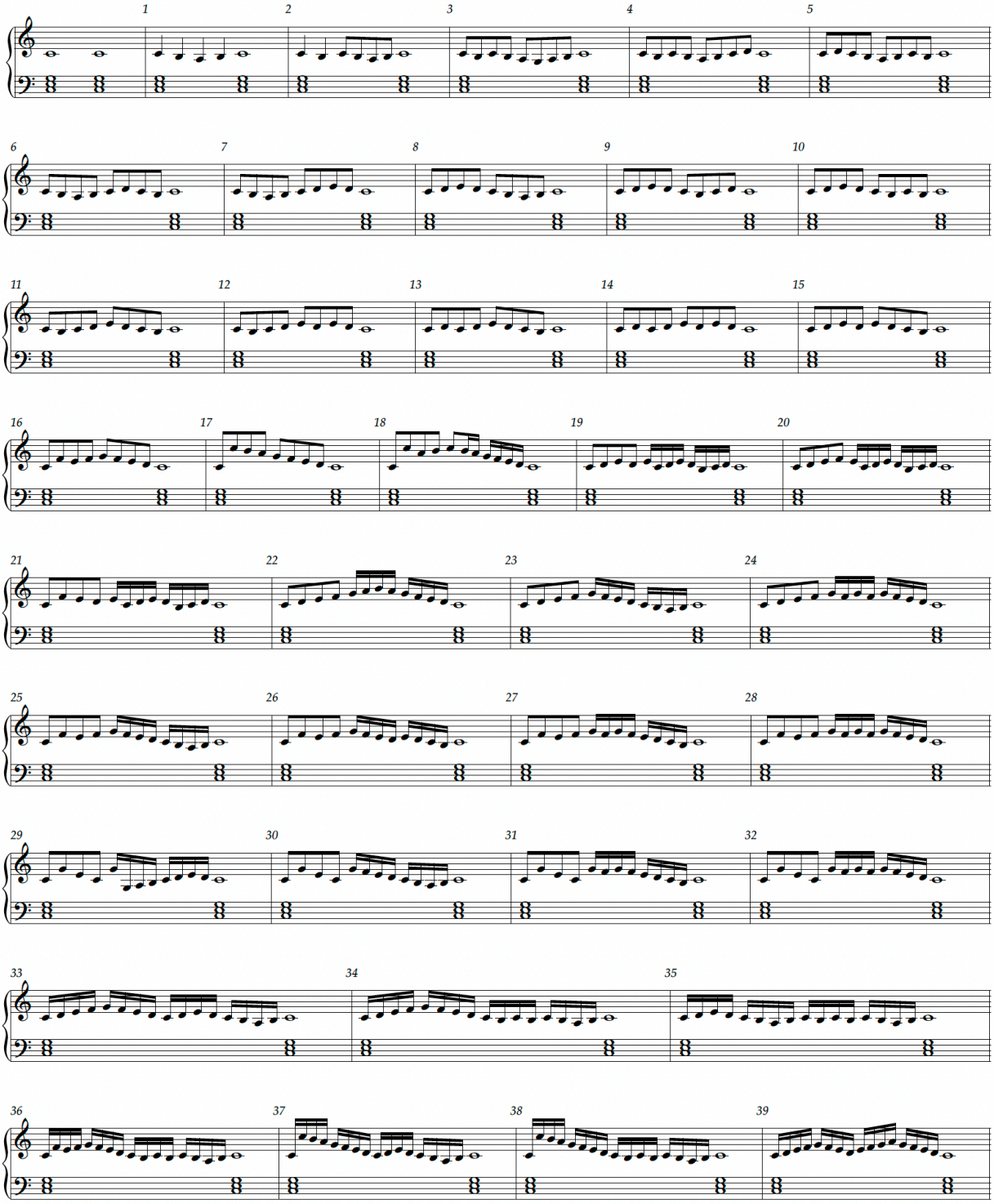
Embellishment Catalogue

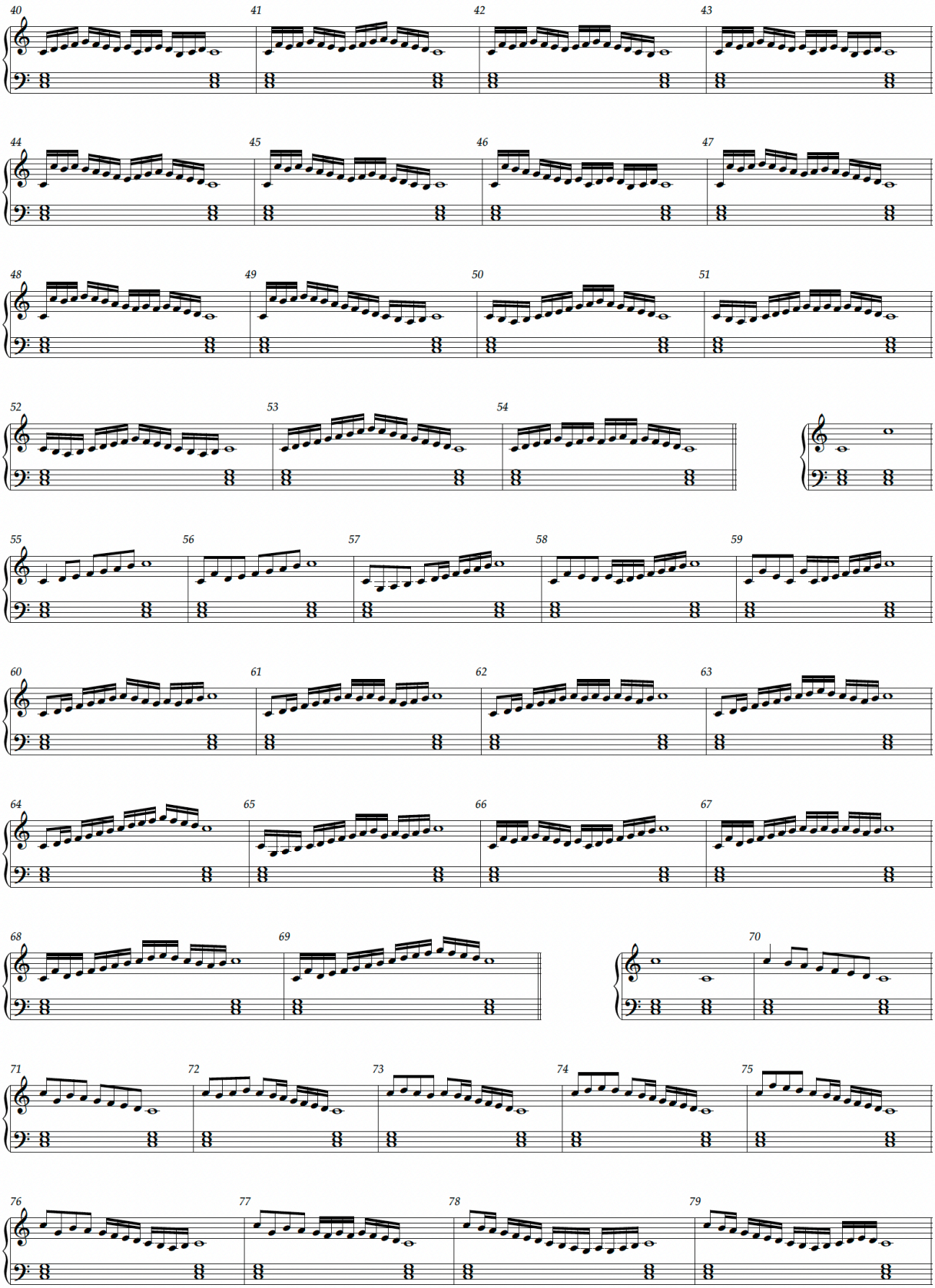
The following catalogue provides a useful tool for the improvisation of mid-sixteenth-century Venetian keyboard intonations and toccatas. So as to highlight the embellishment style of the studied period, only embellishments that satisfy both the hard rules and soft rules as detailed in Chapters 3.2 and 3.3 are collated in this catalogue.

The collated embellishments in this catalogue are first grouped into three sections based on the harmonic progressions (i.e. I–I, I–V, V–I) of the embellished interval. Within each section, a further nine subsections are then created to cater for the harmonic relation (i.e. tonic, mediant, dominant) between the starting note of the embellishment and the starting root note, and that of the ending note of the embellishment and the ending root note. Within each subsection, the catalogued embellishments are ordered by the type of rhythmic division of an embellished note (see H_2 in Chapter 3.2).

Though all embellishments provided in this catalogue correspond to the standard time value of a semibreve and have been transcribed to C, they are scalable in time and transposable to different modes.

i. I–I Embellishments: Tonic to Tonic

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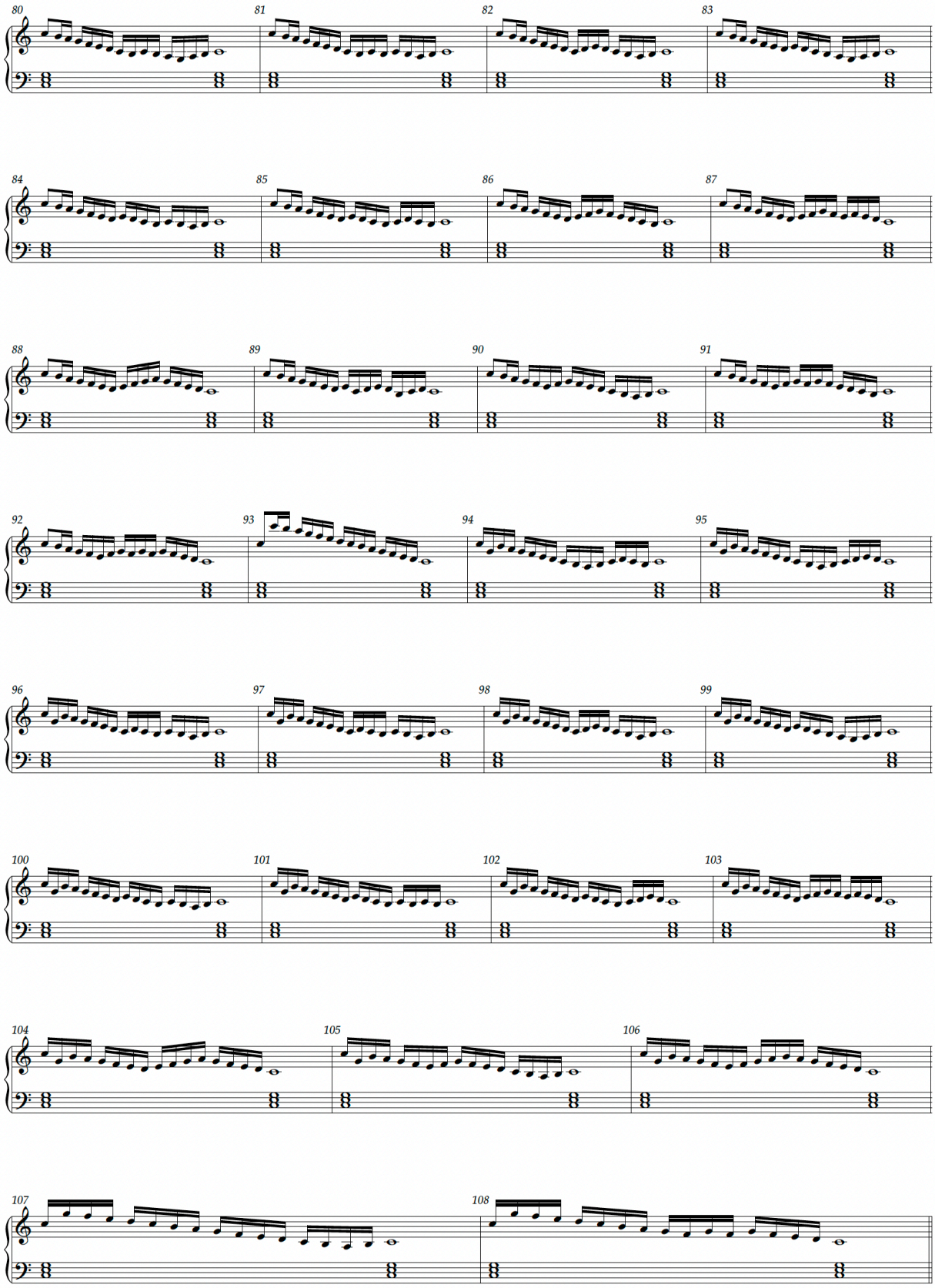
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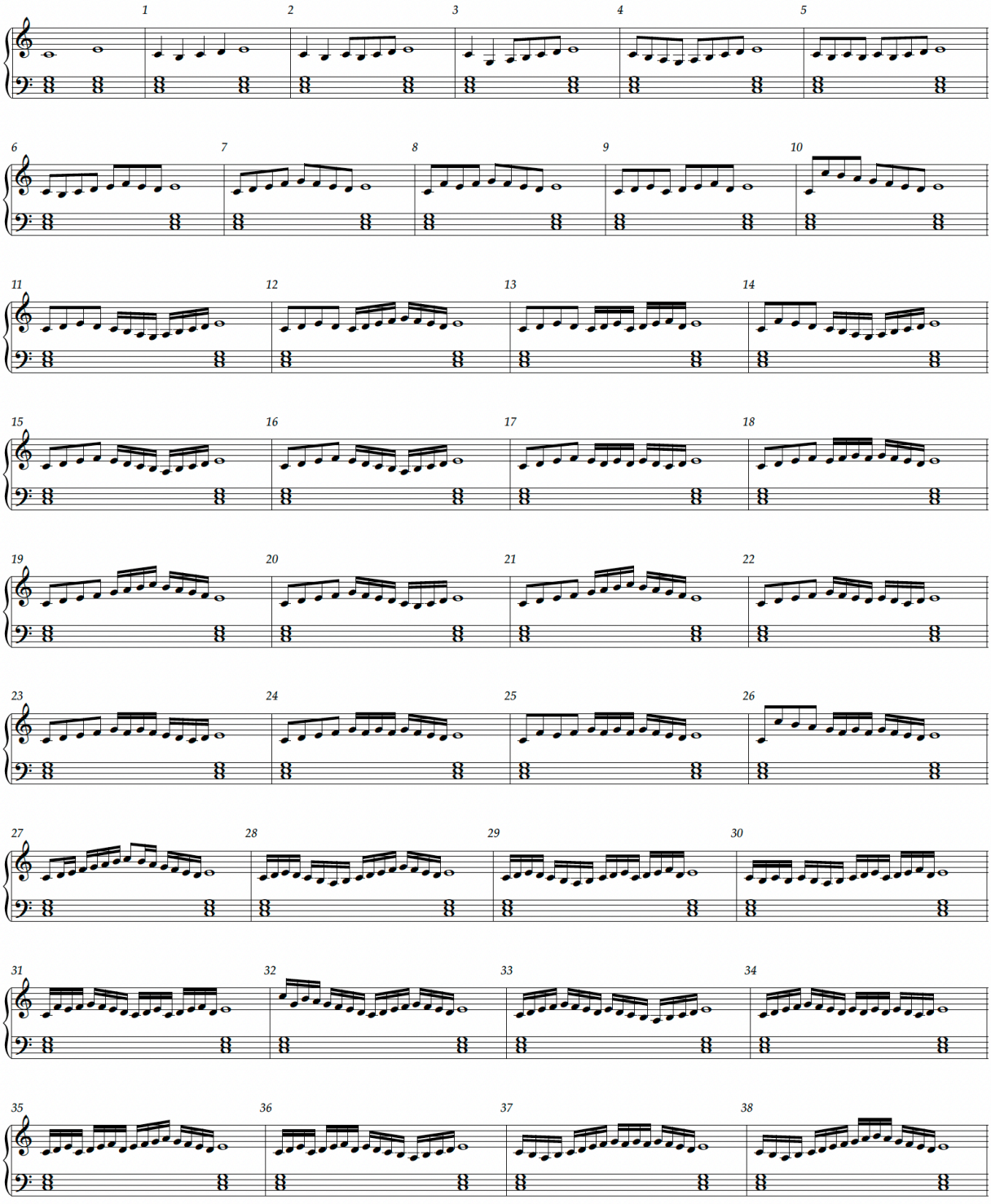
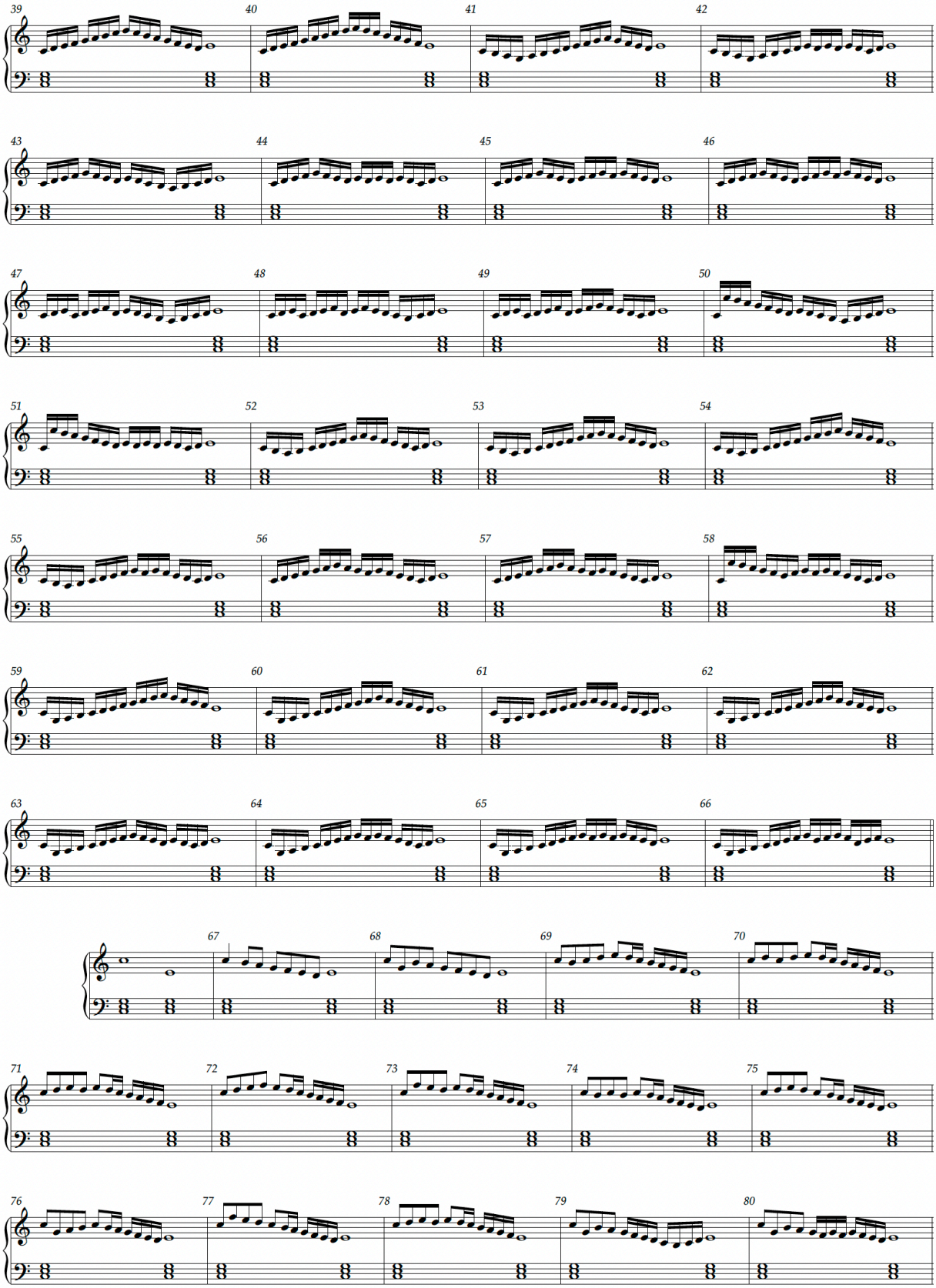
ii. I–I Embellishments: Tonic to Mediant

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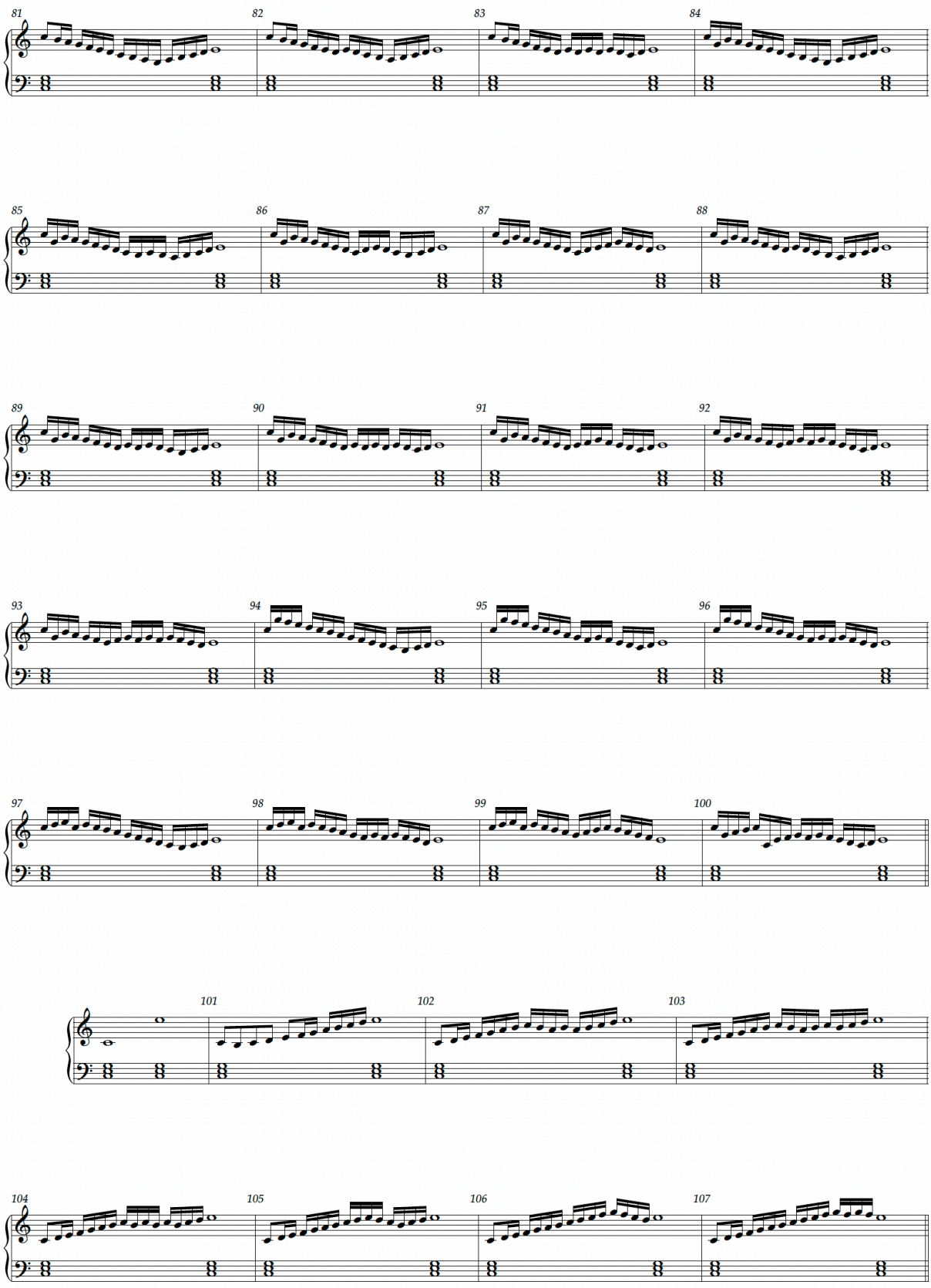
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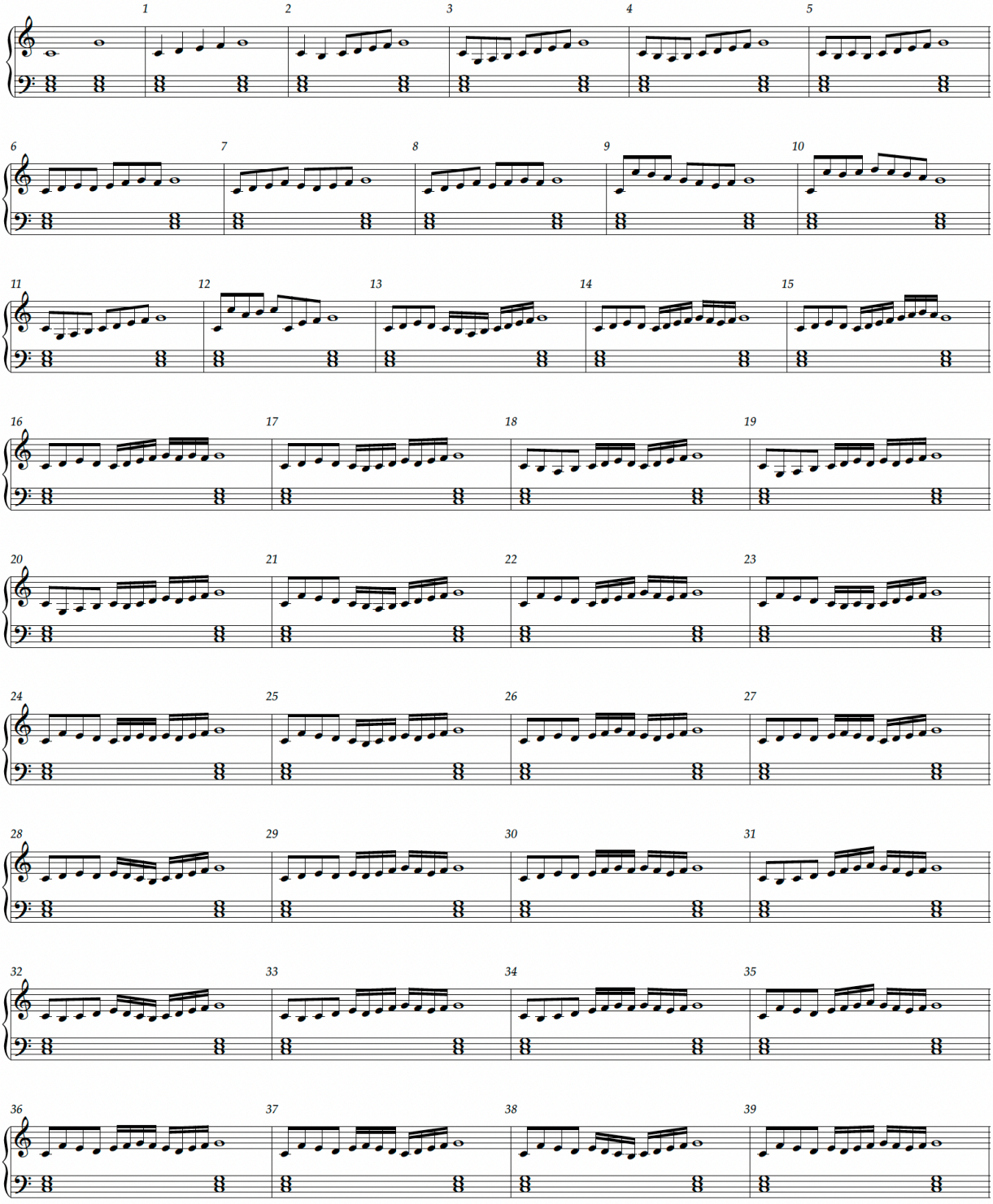
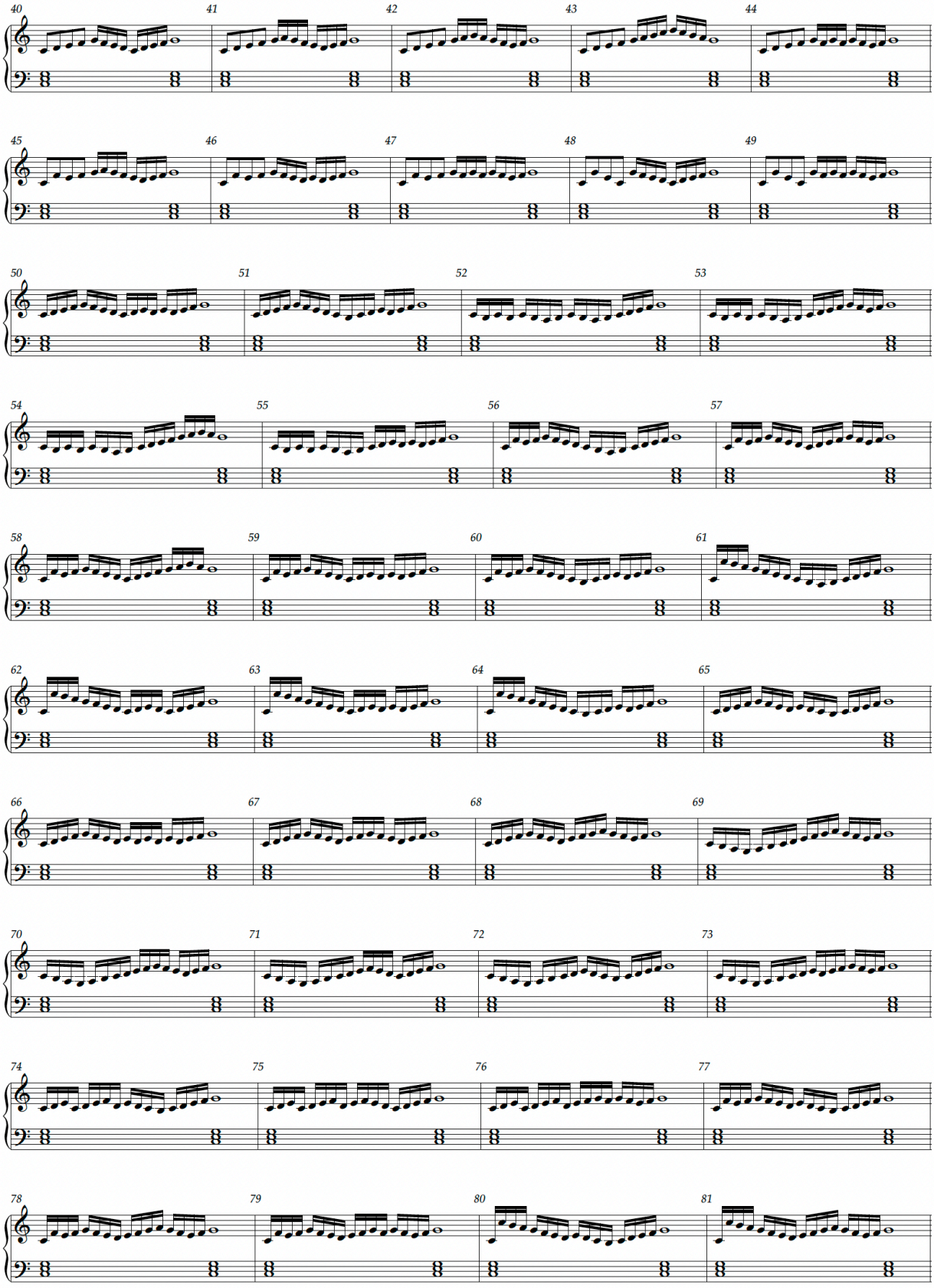
iii. I–I Embellishments: Tonic to Dominant

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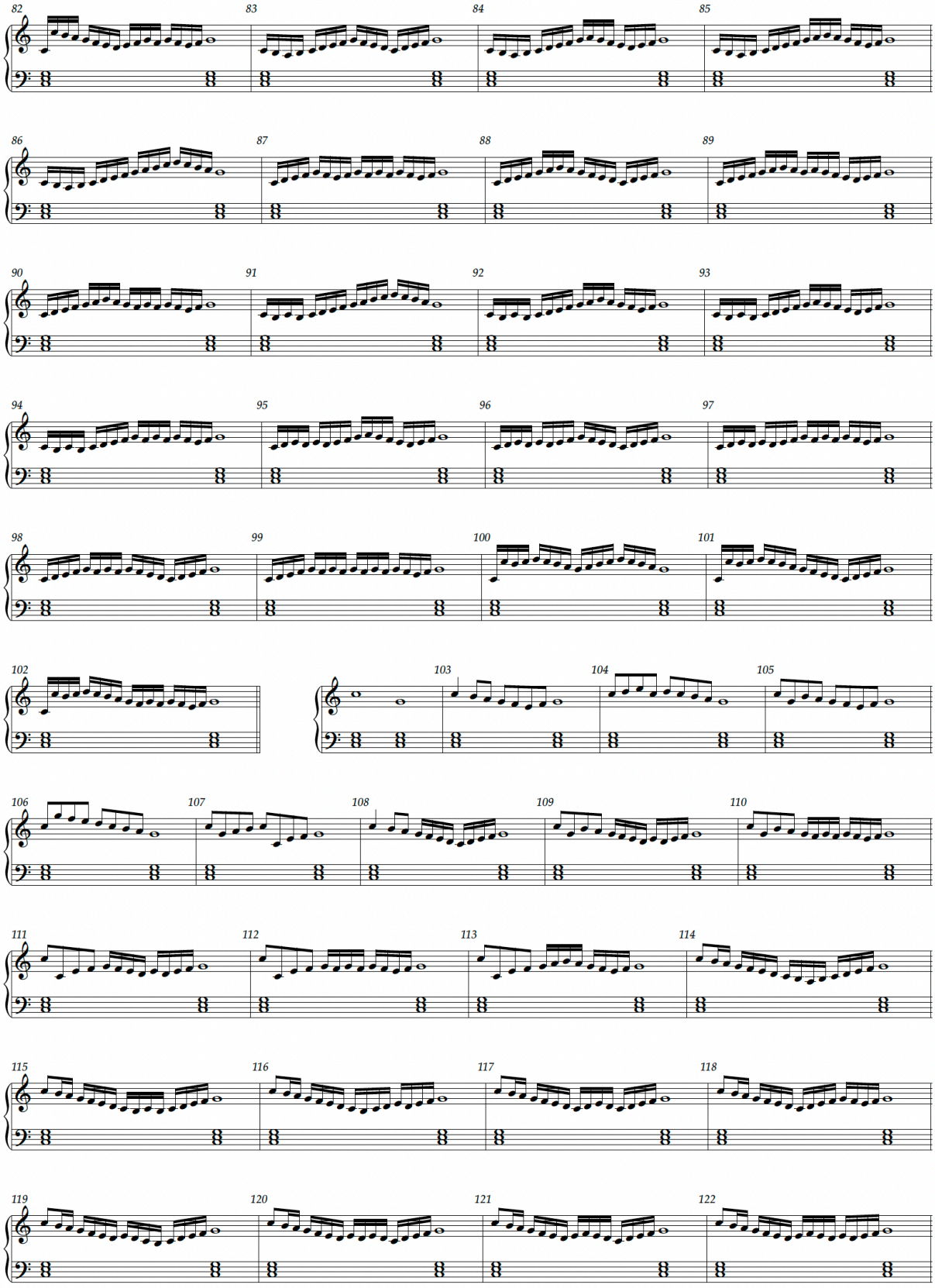
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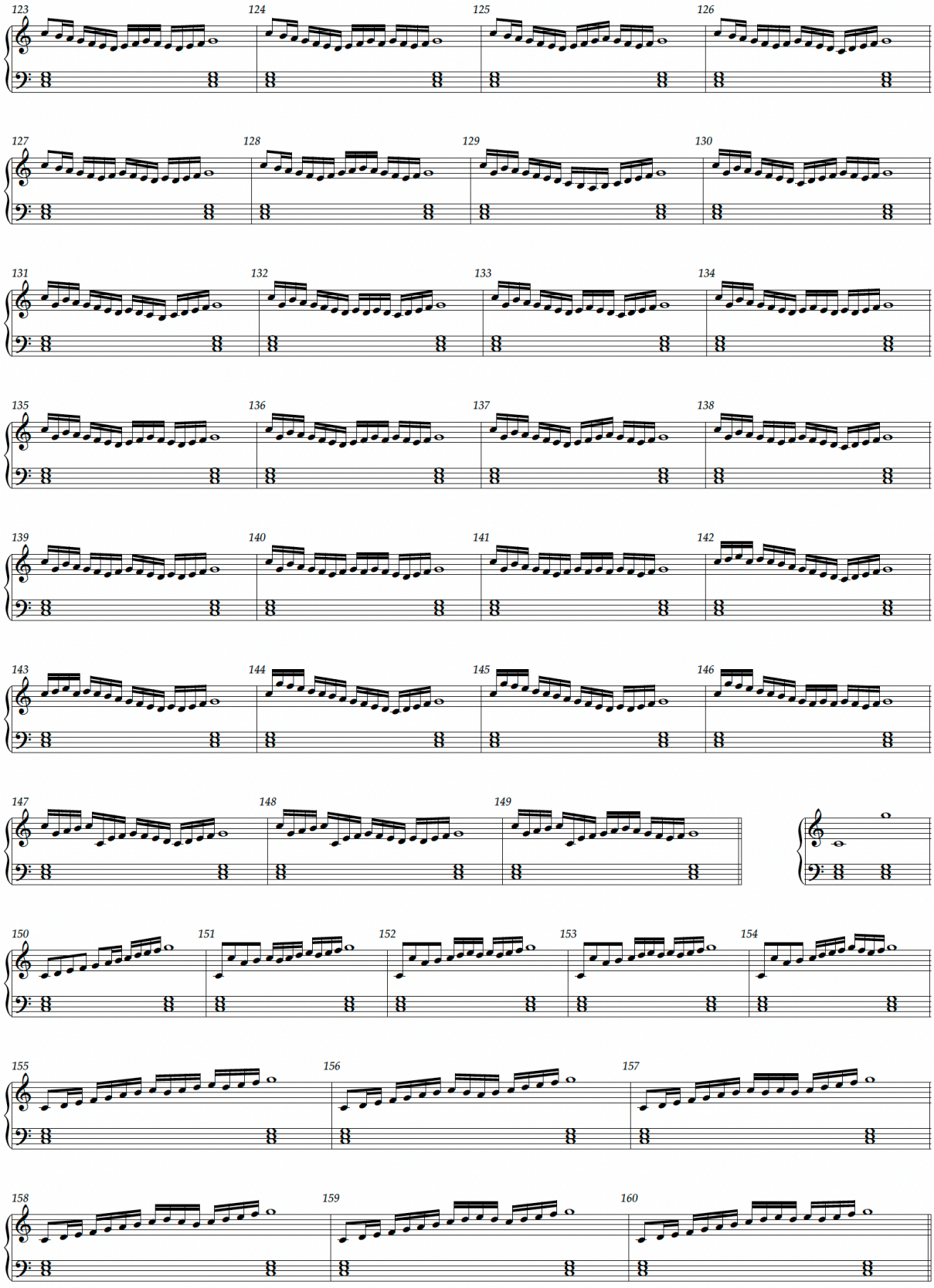
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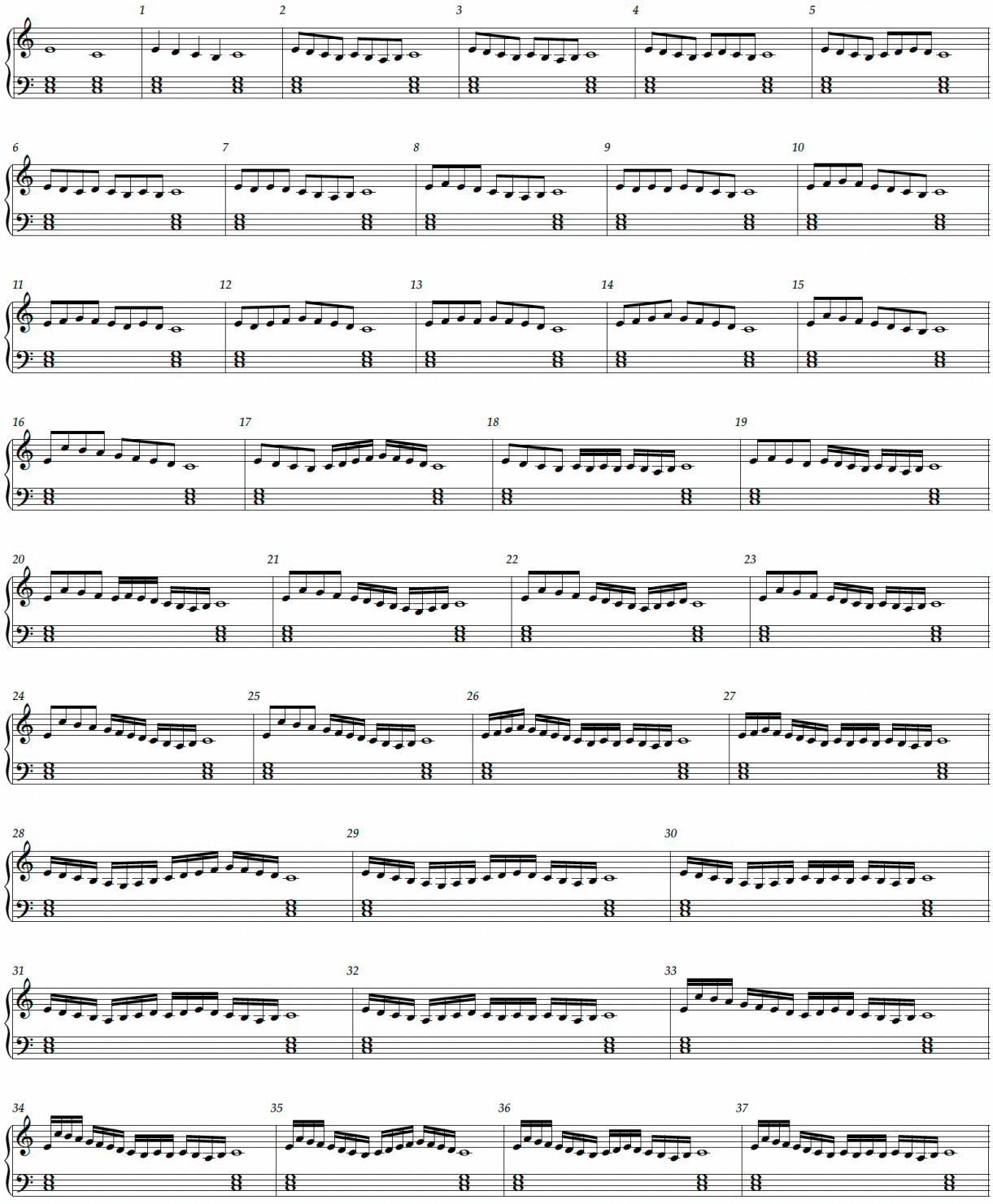
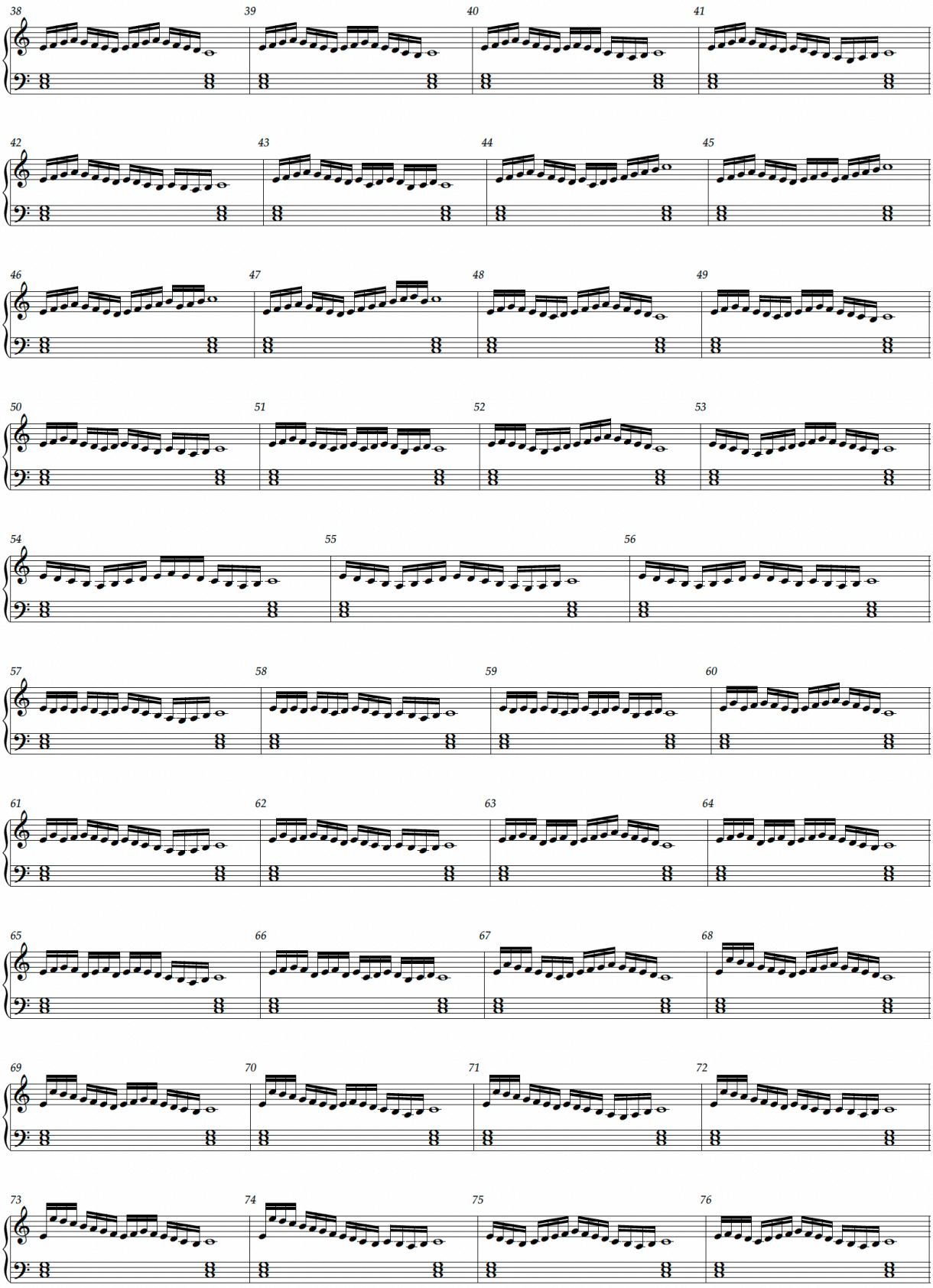
iv. I–I Embellishments: Mediant to Tonic

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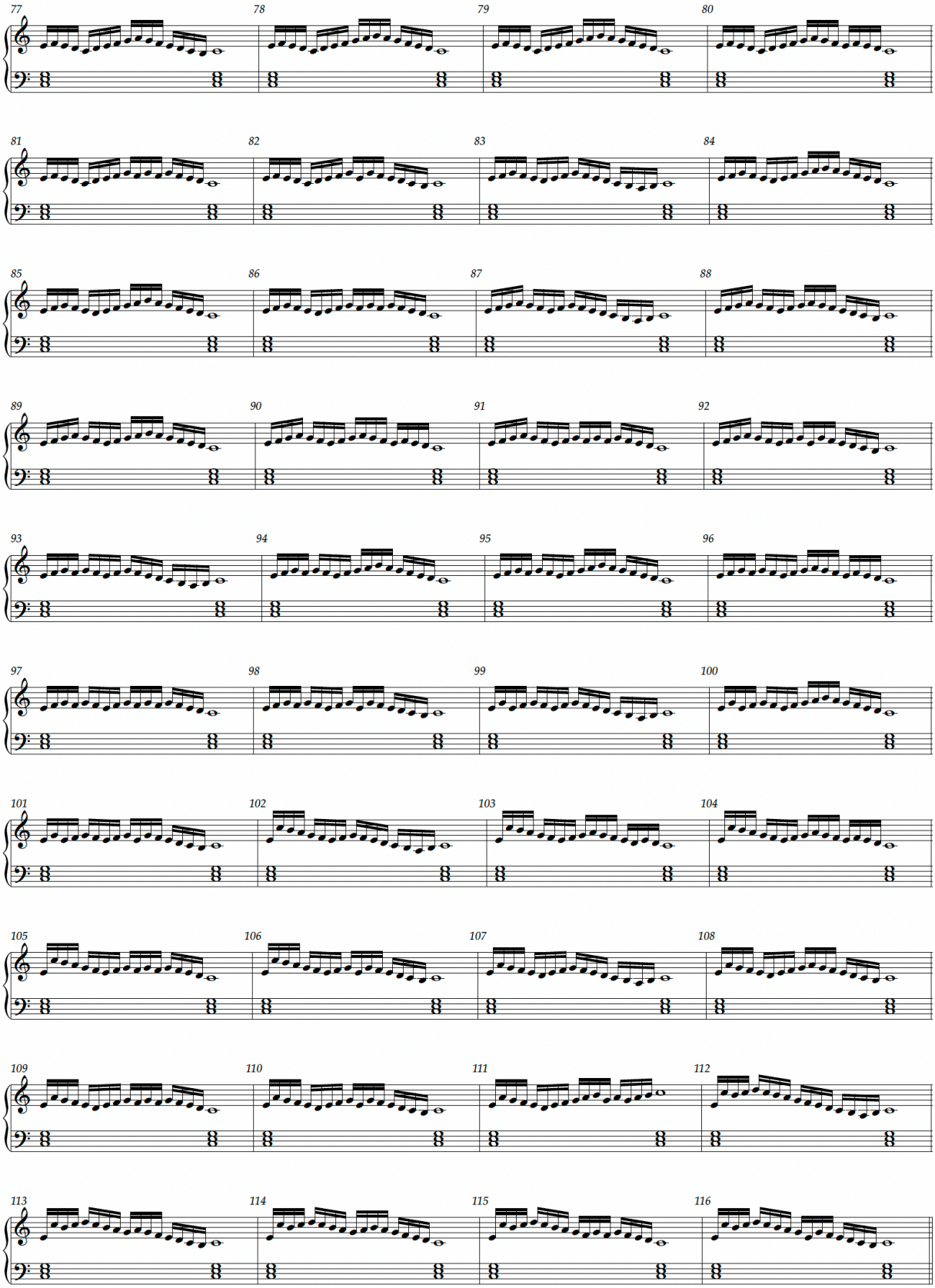
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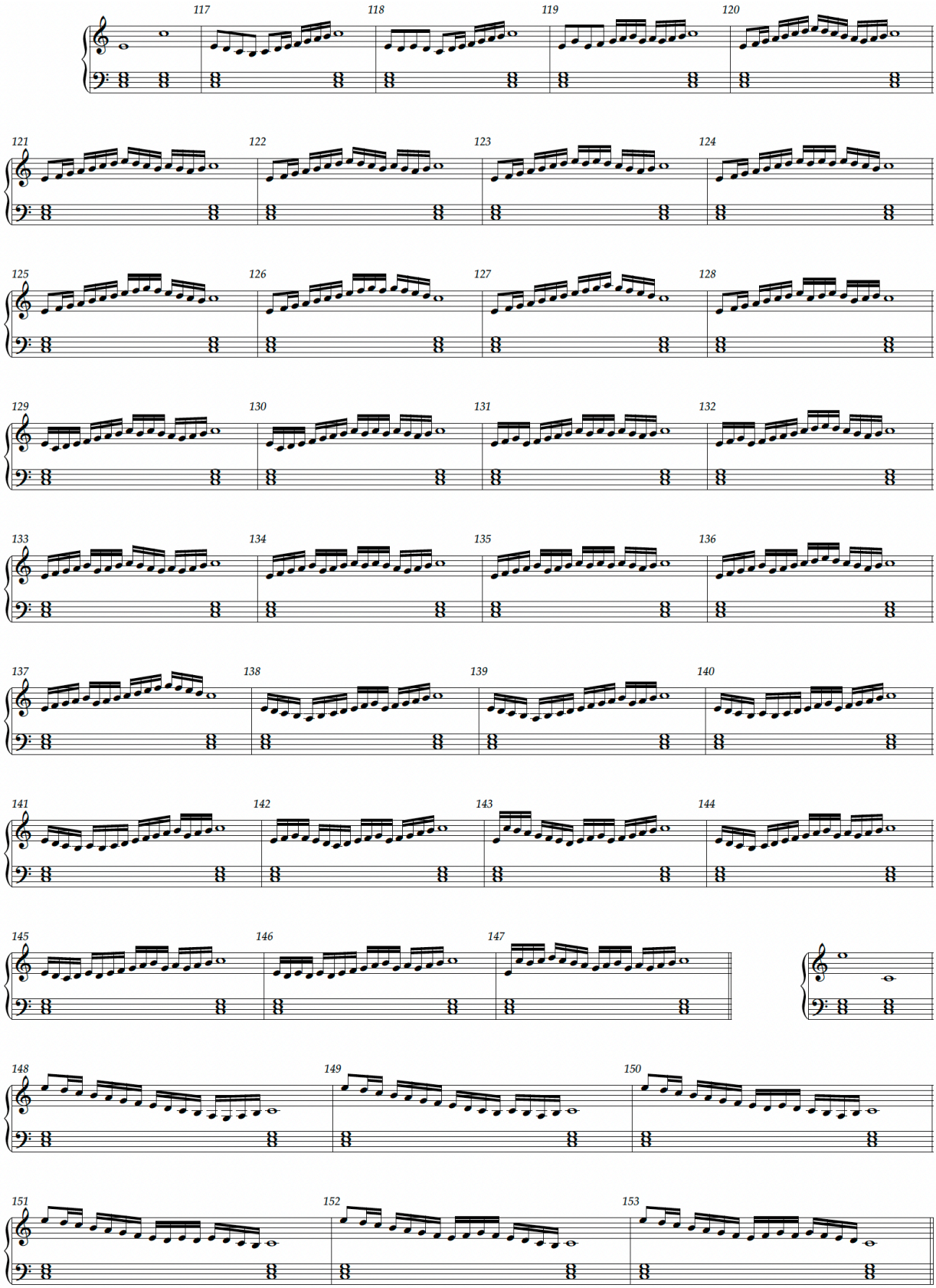
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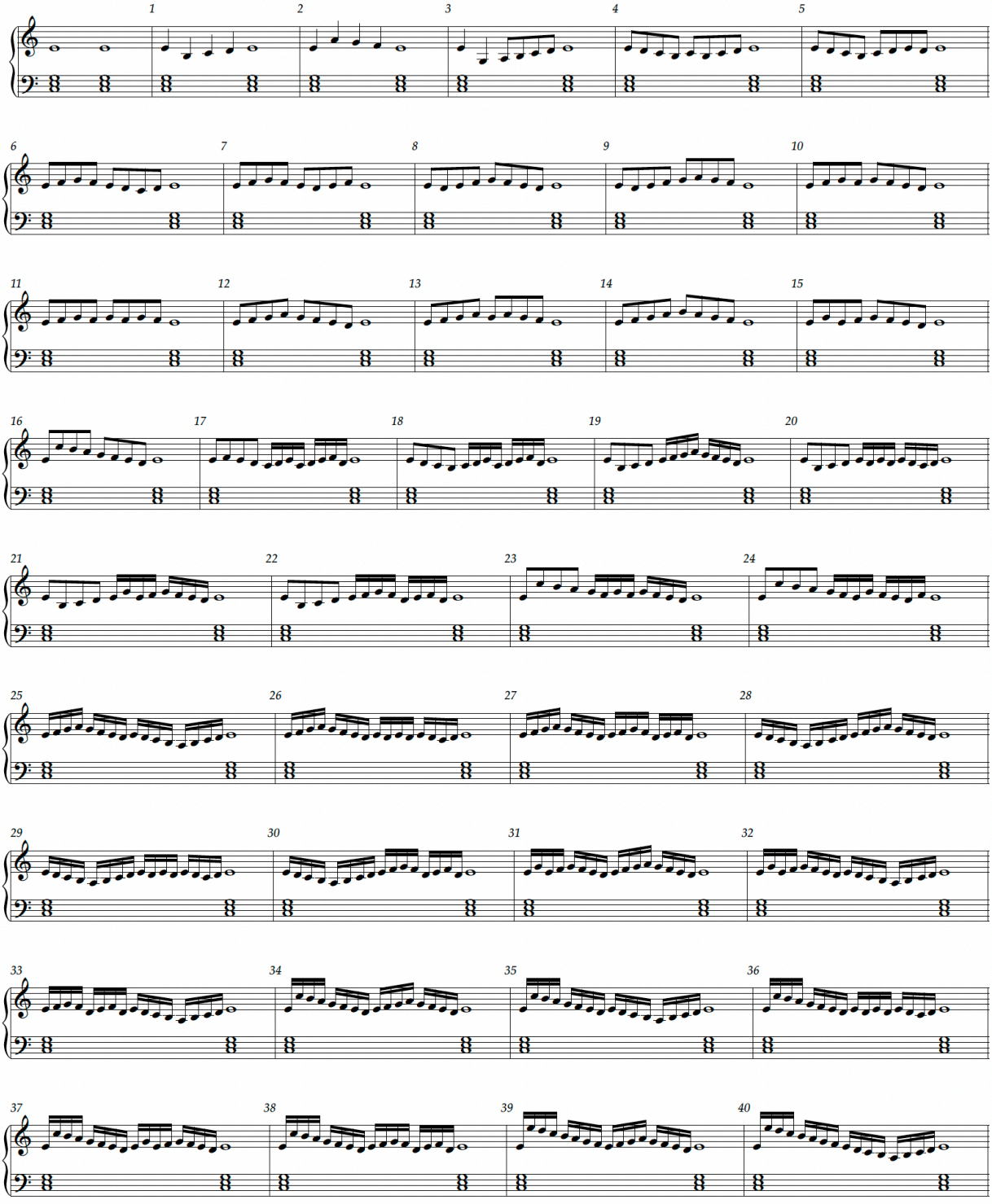
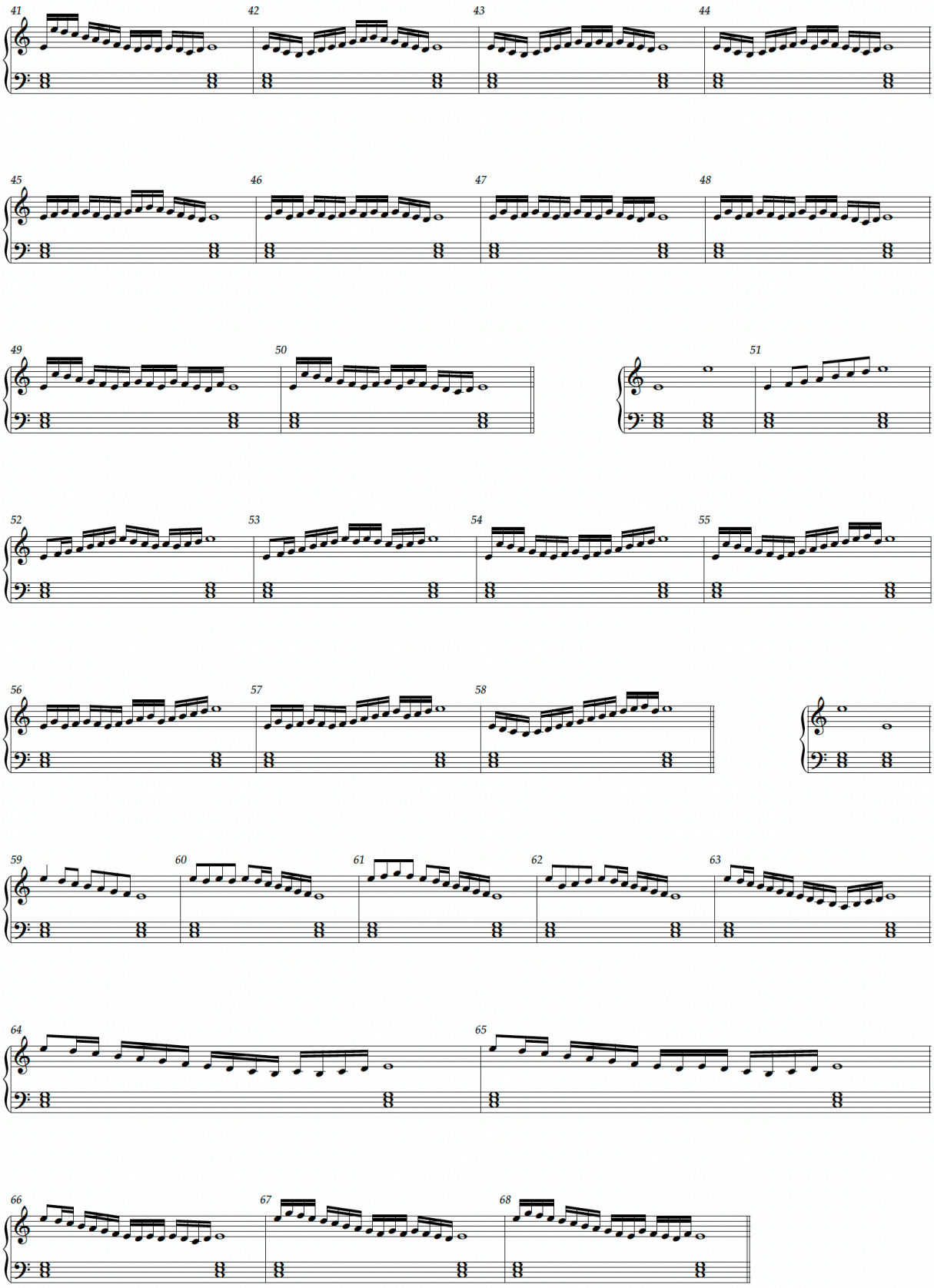
v. I–I Embellishments: Mediant to Mediant

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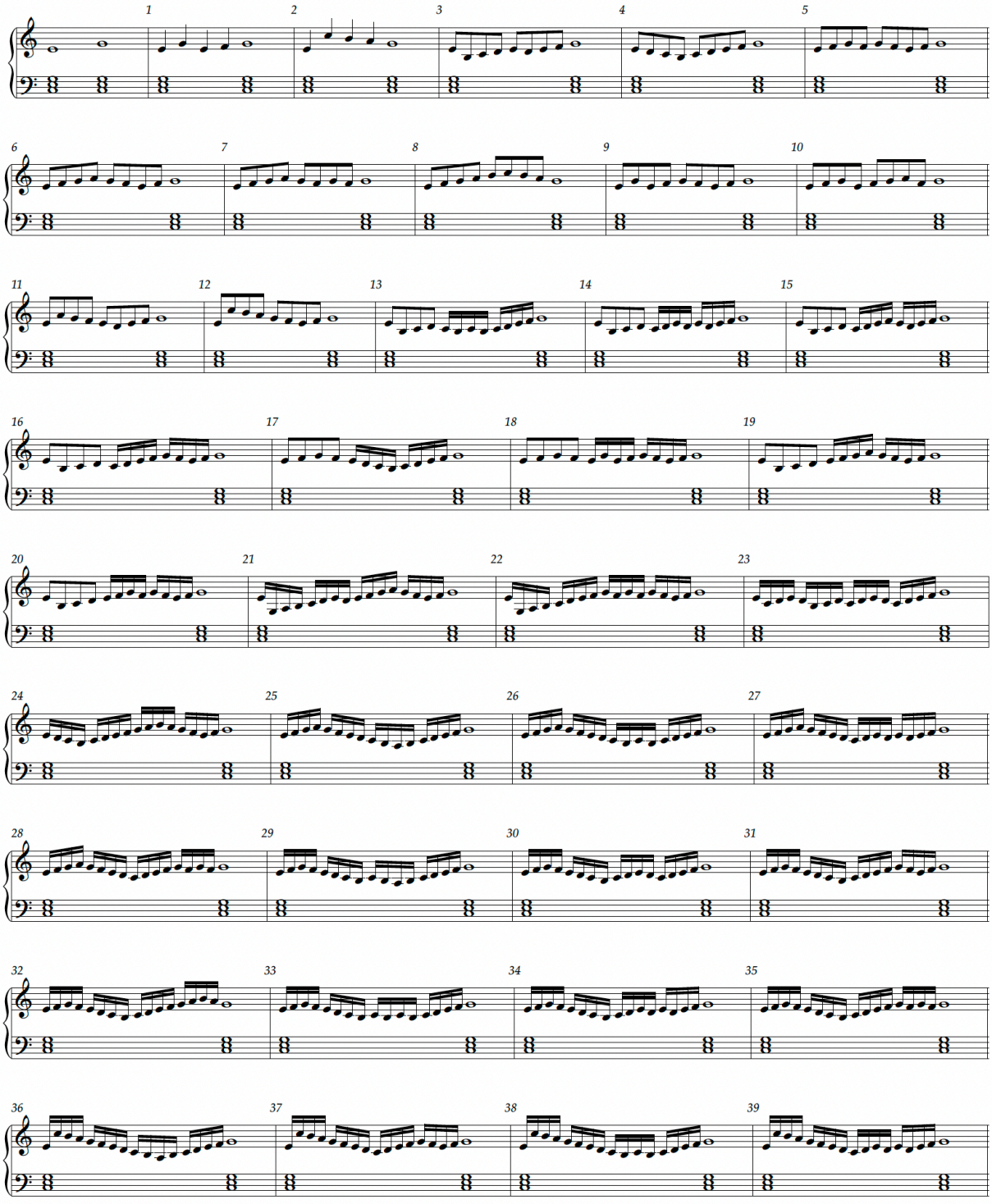
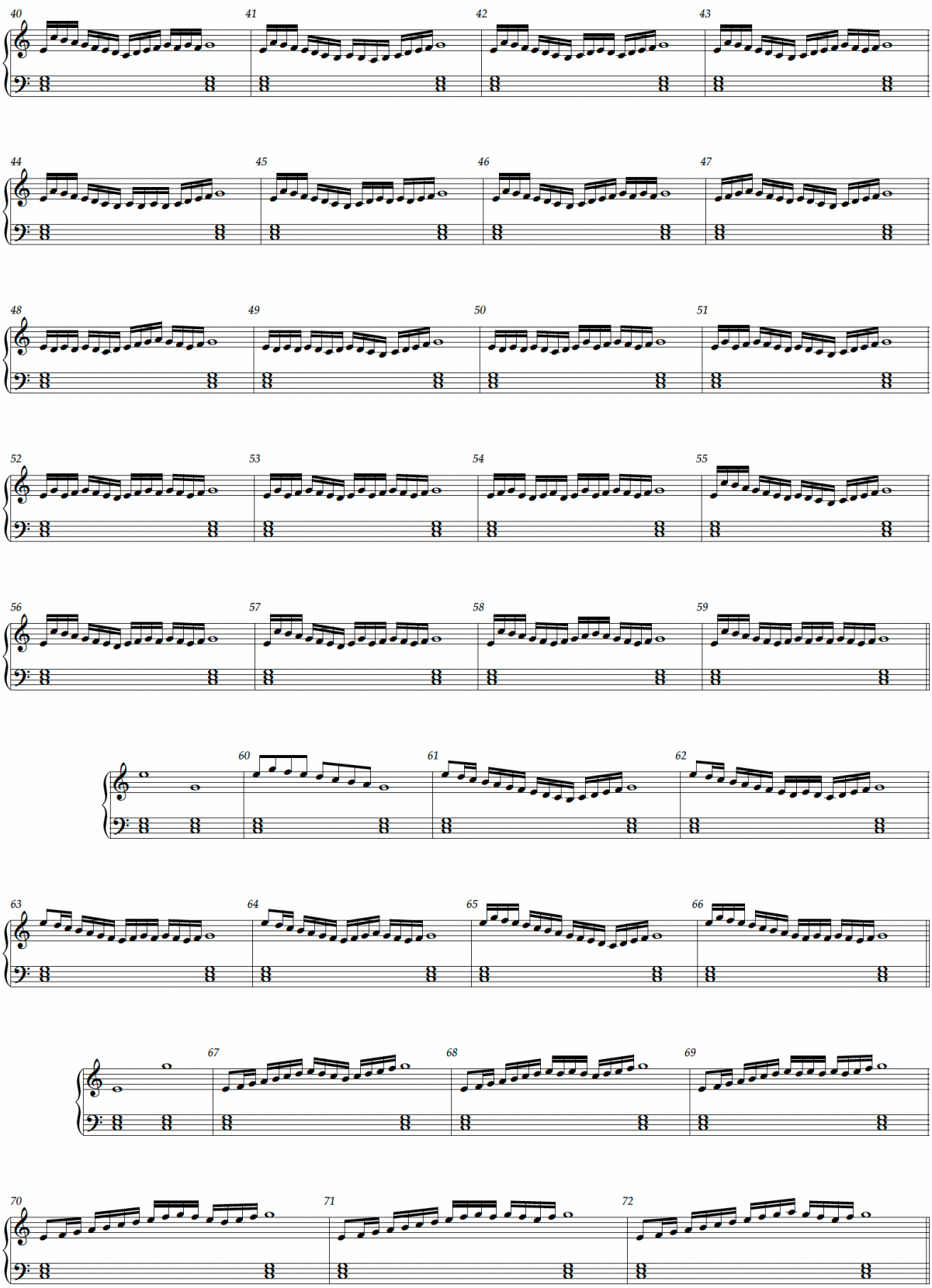
vi. I–I Embellishments: Mediant to Dominant

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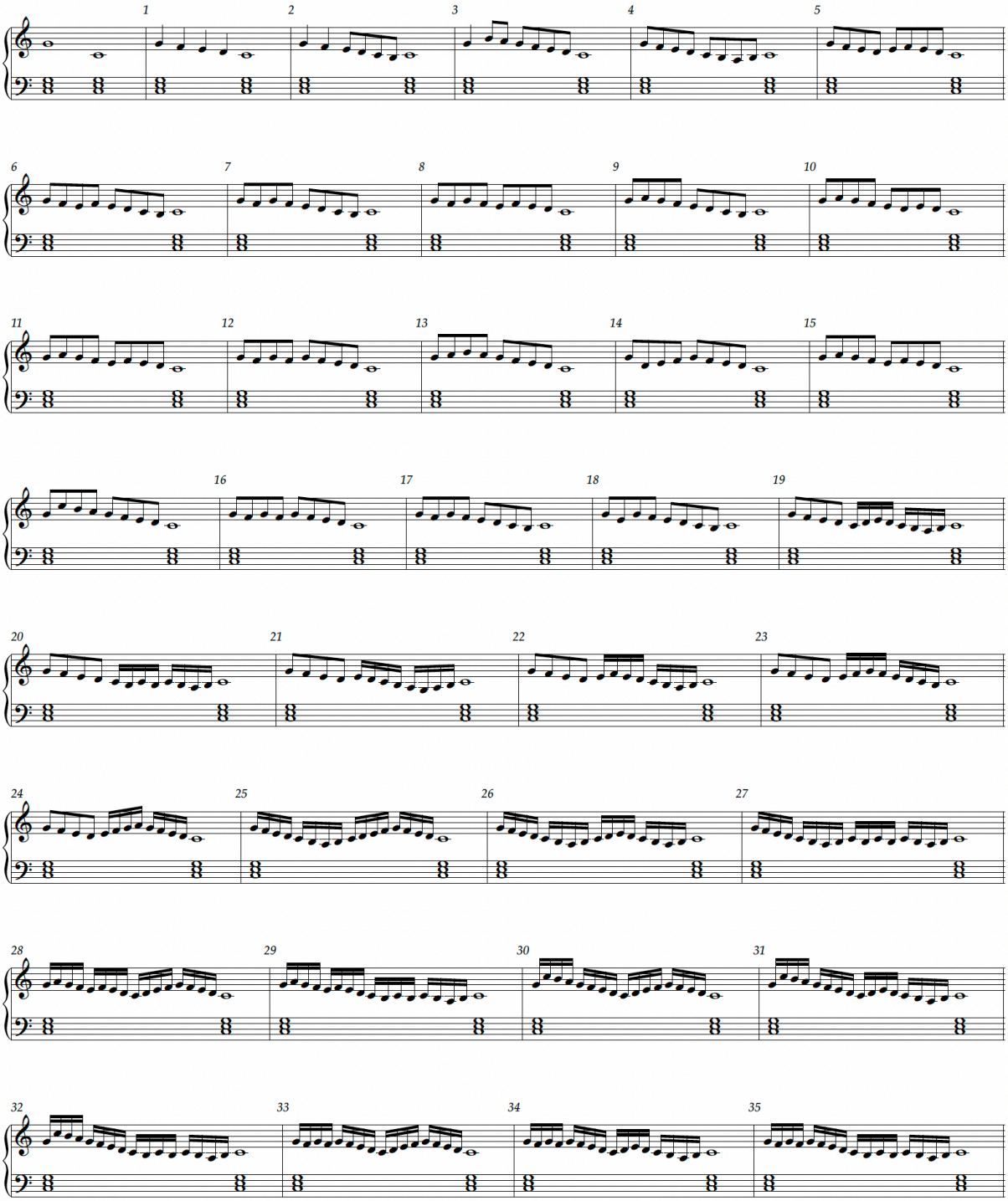
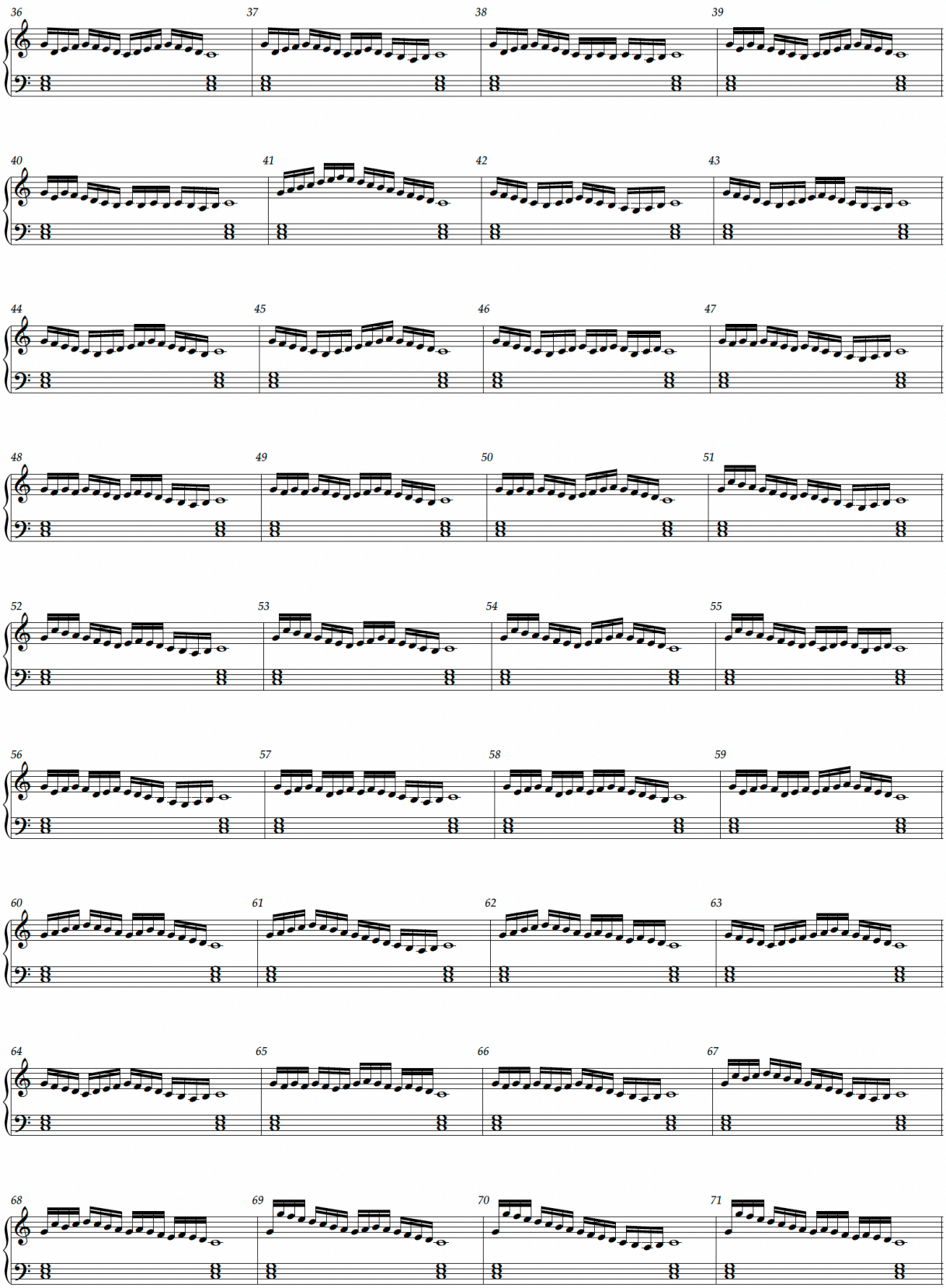
vii. I–I Embellishments: Dominant to Tonic

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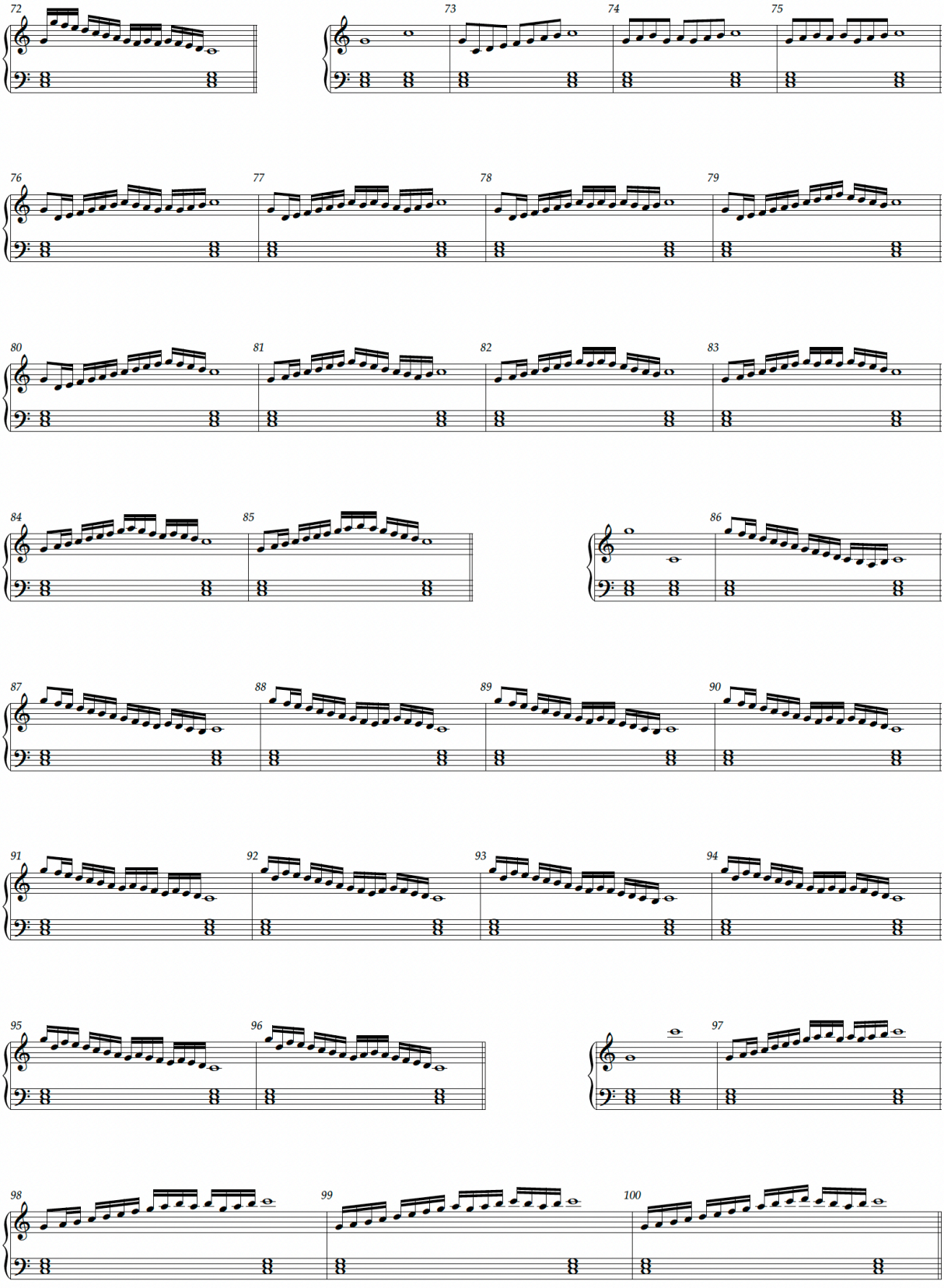
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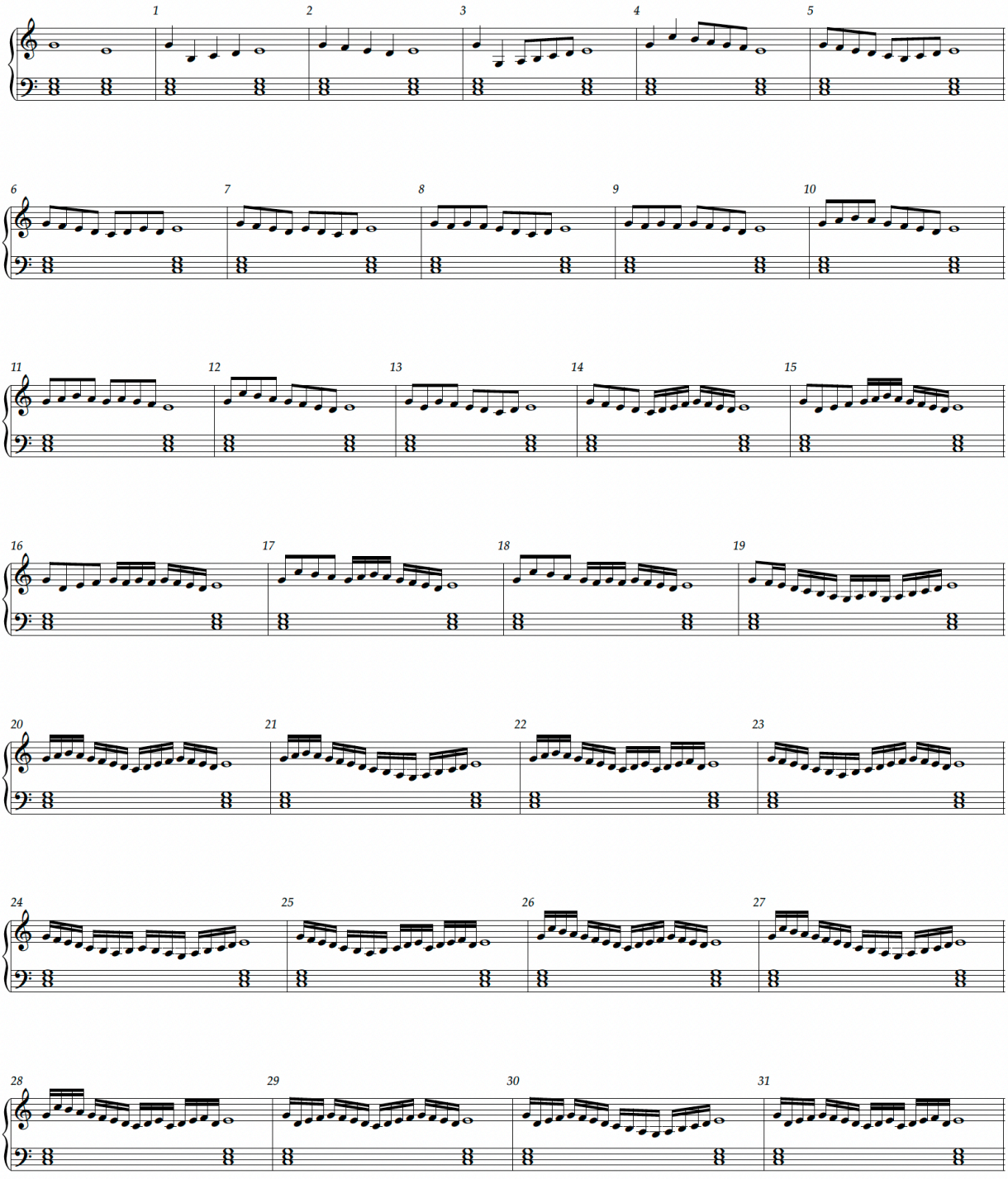
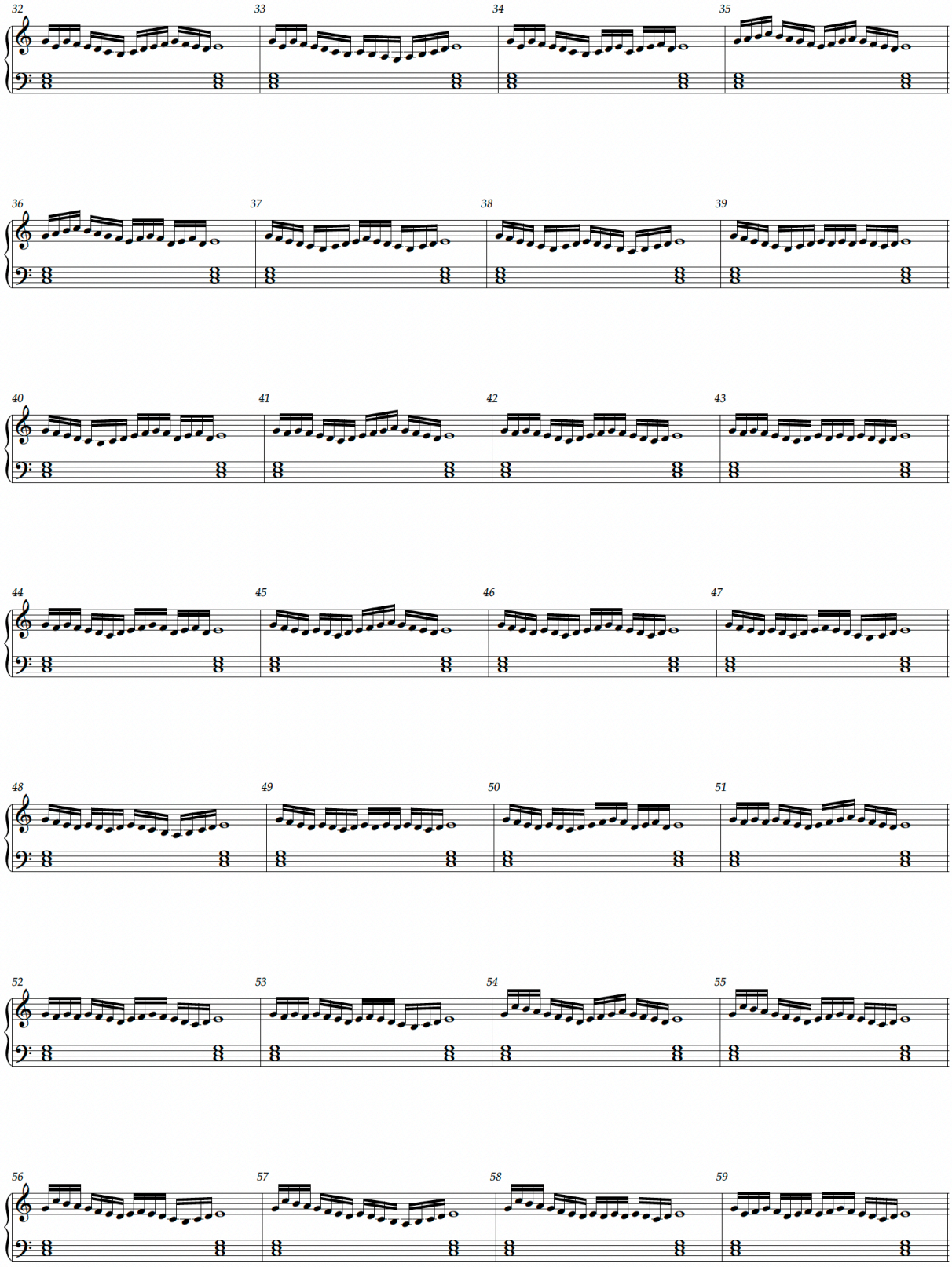
viii. I–I Embellishments: Dominant to Mediant

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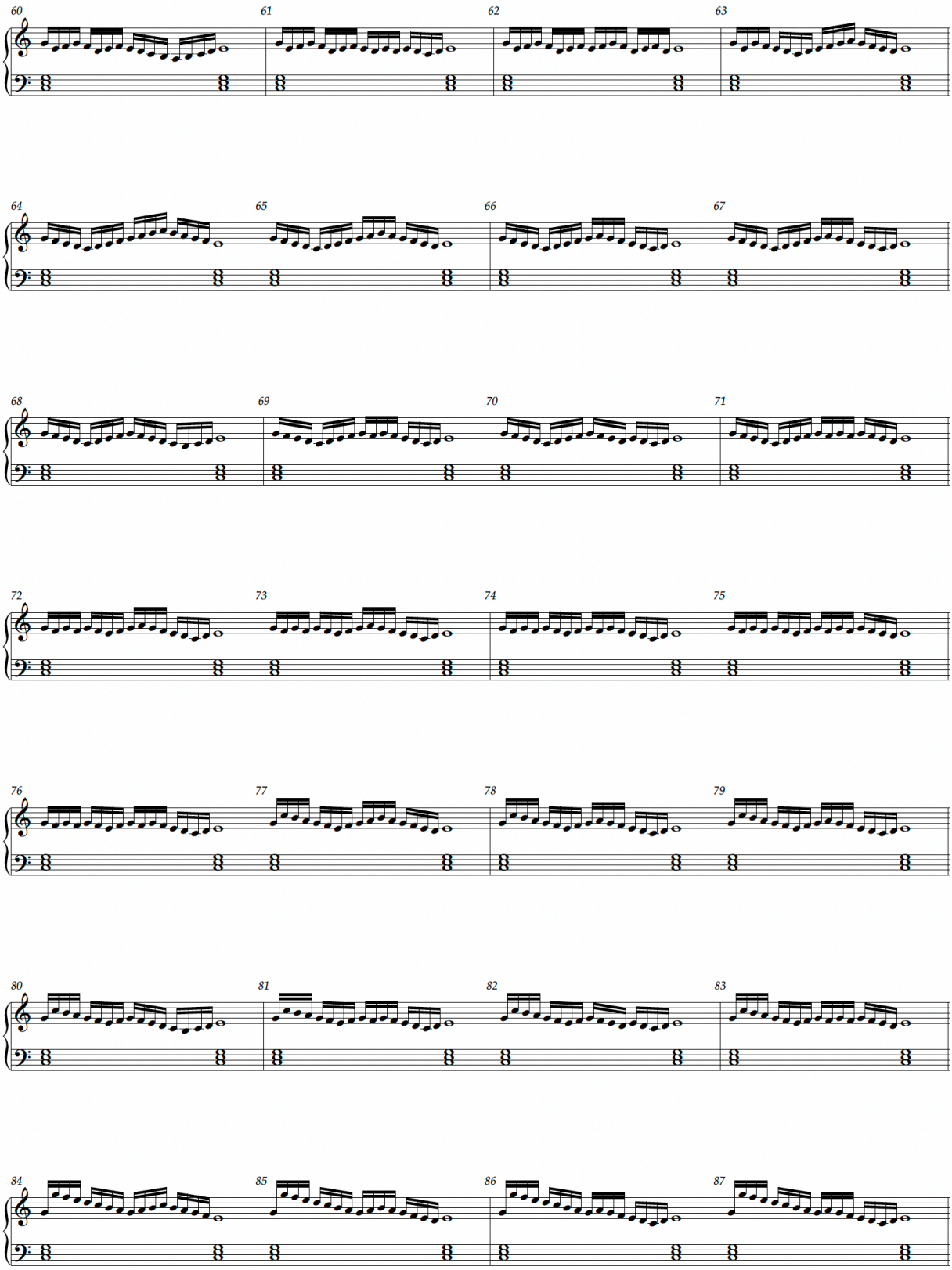
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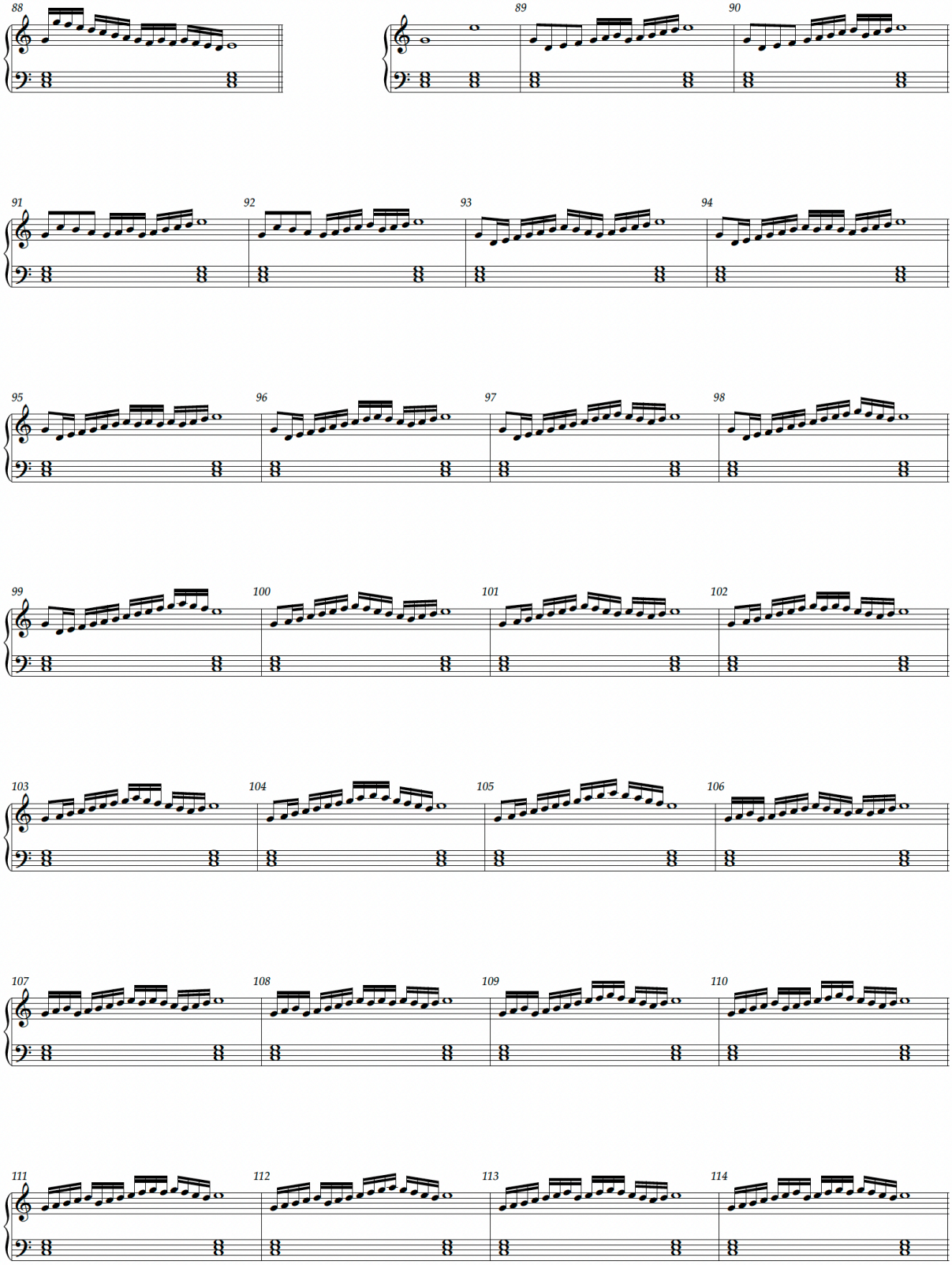
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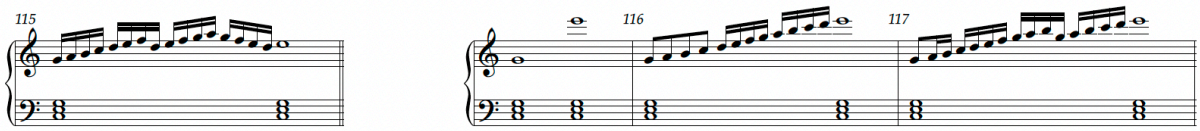
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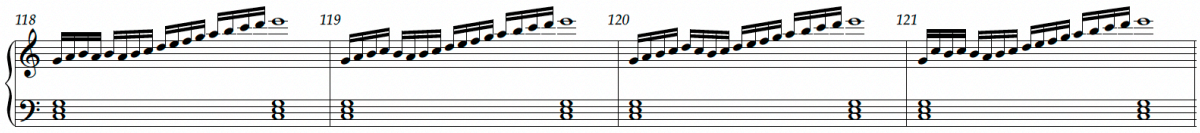
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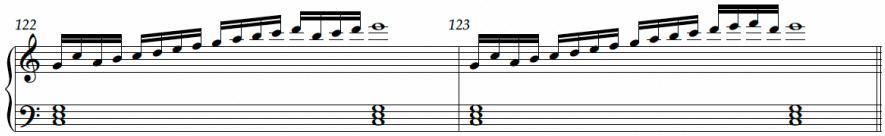
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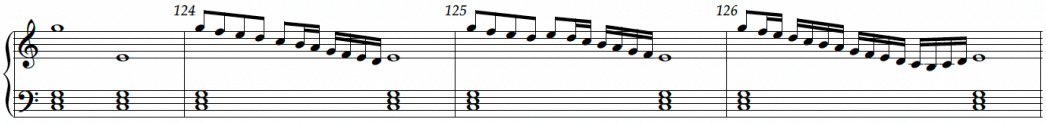
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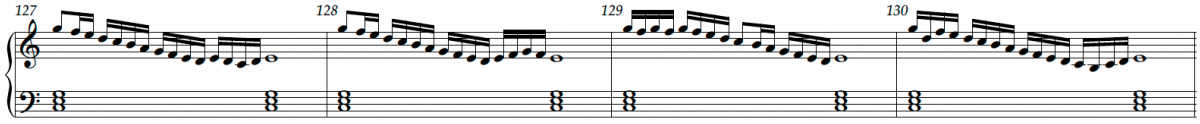
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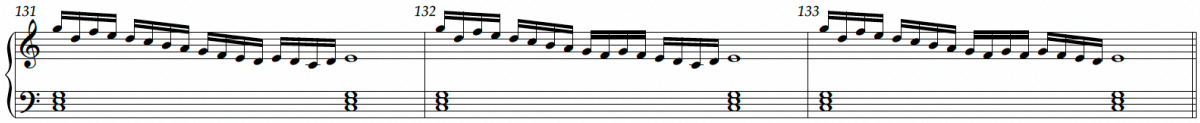
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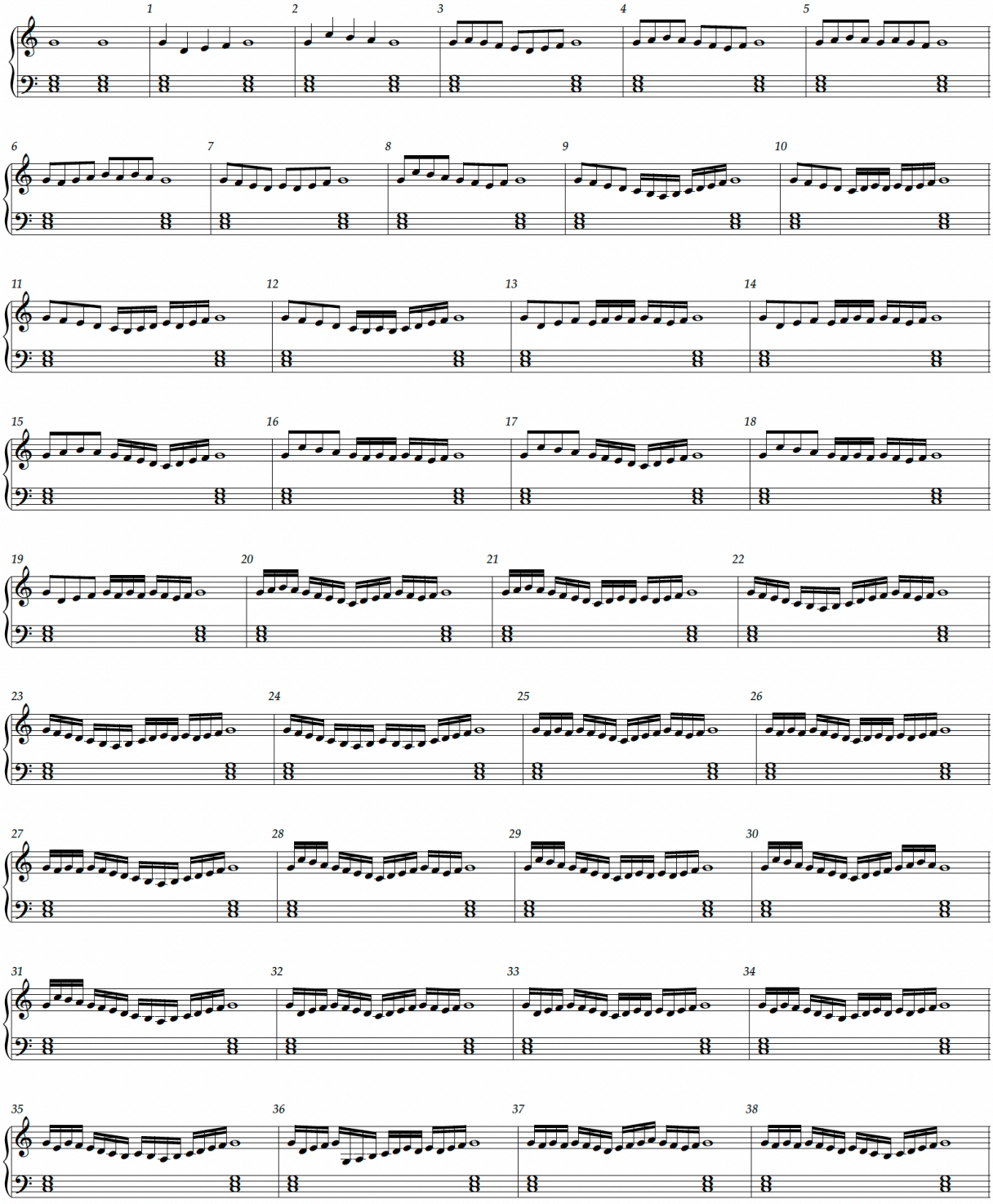
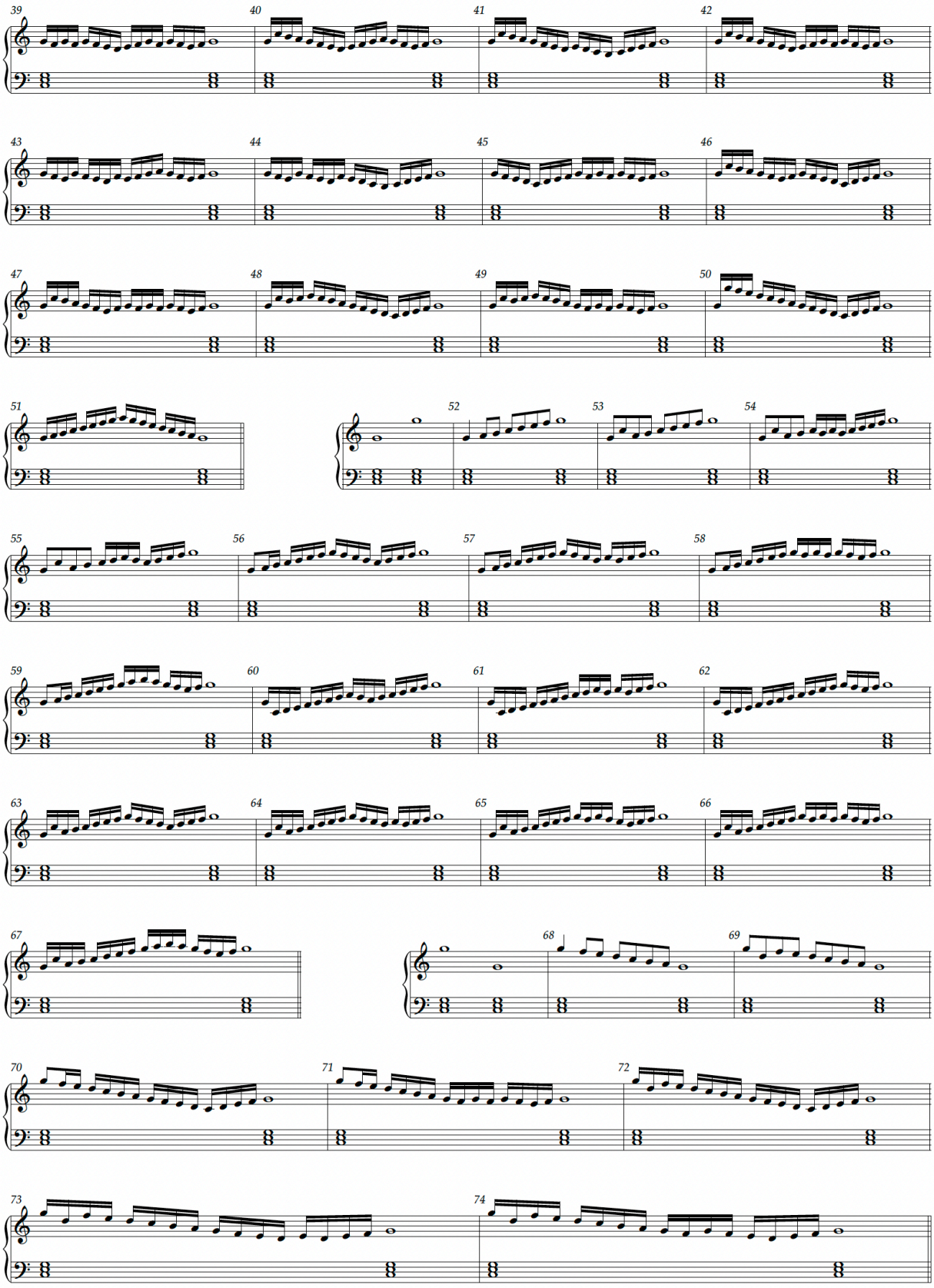
ix. I–I Embellishments: Dominant to Dominant

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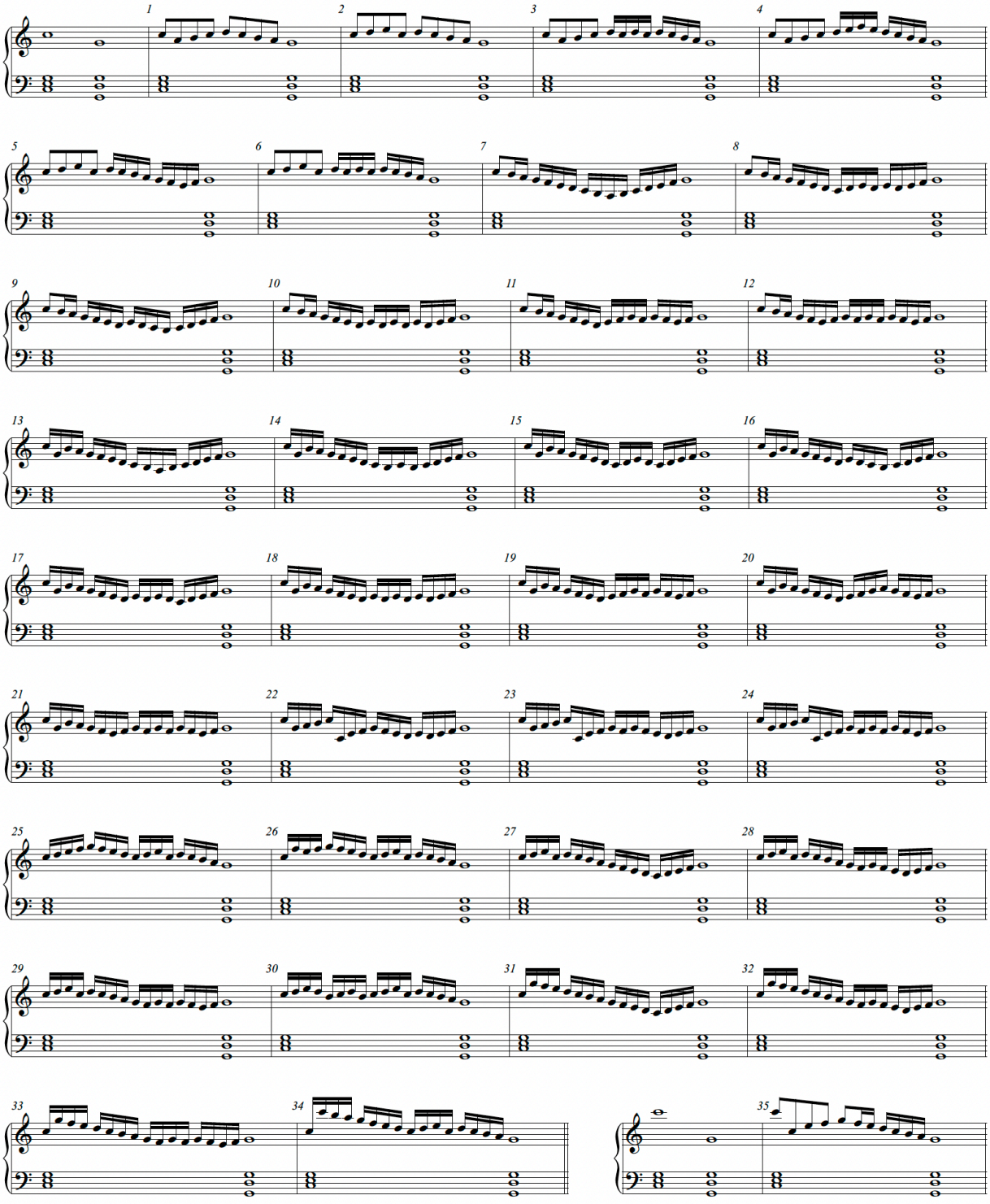
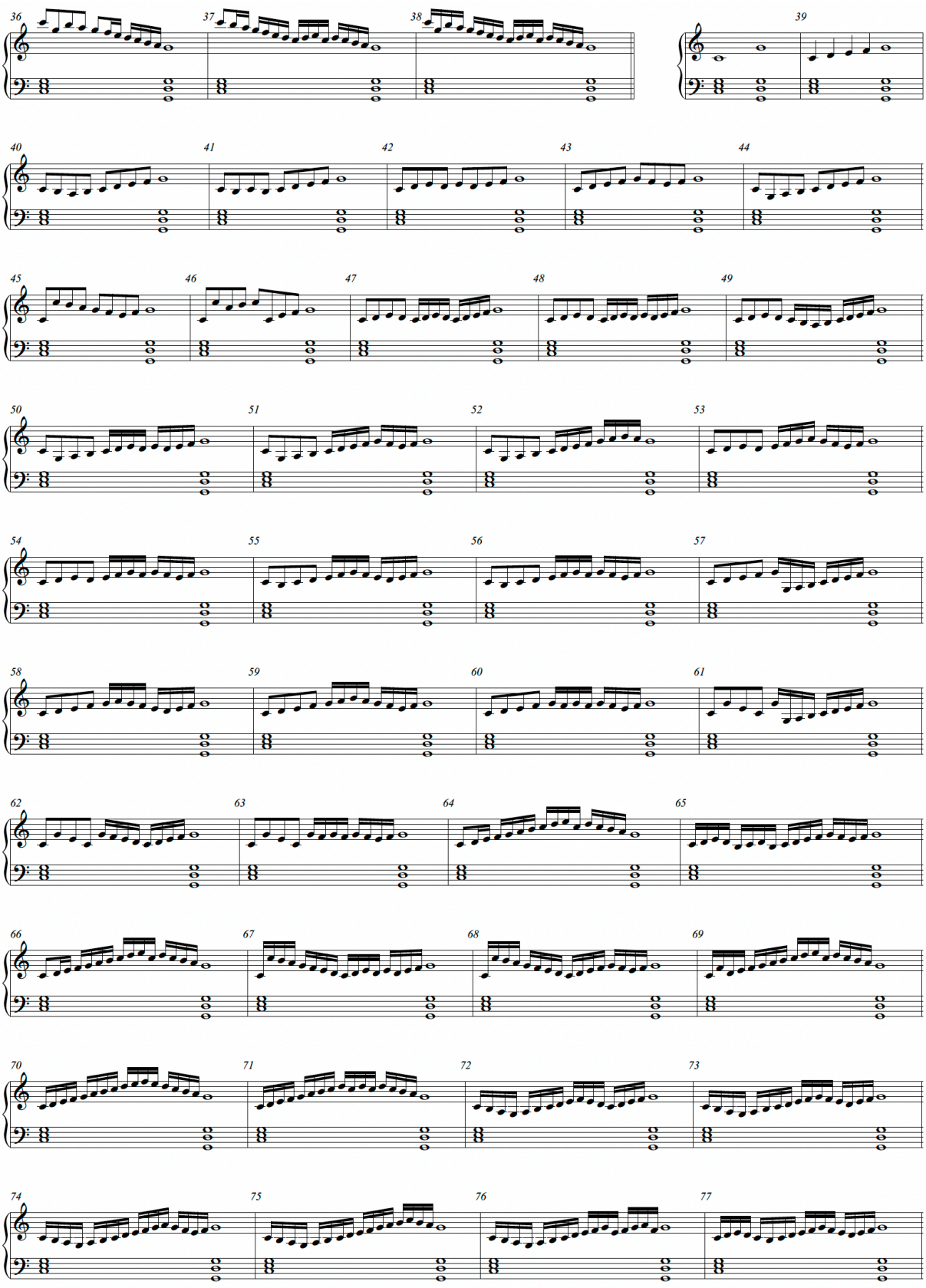
x. I–V Embellishments: Tonic to Tonic

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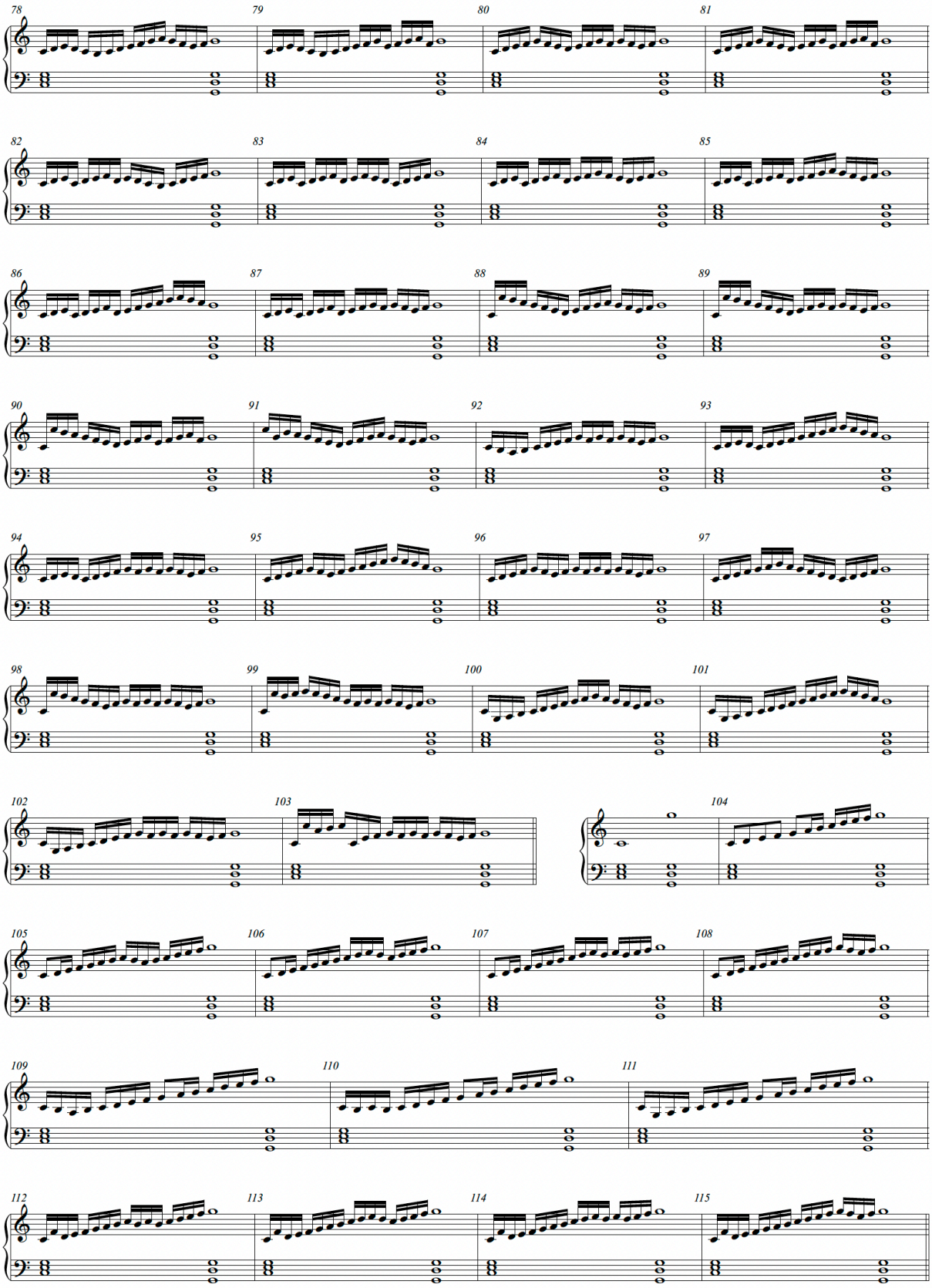
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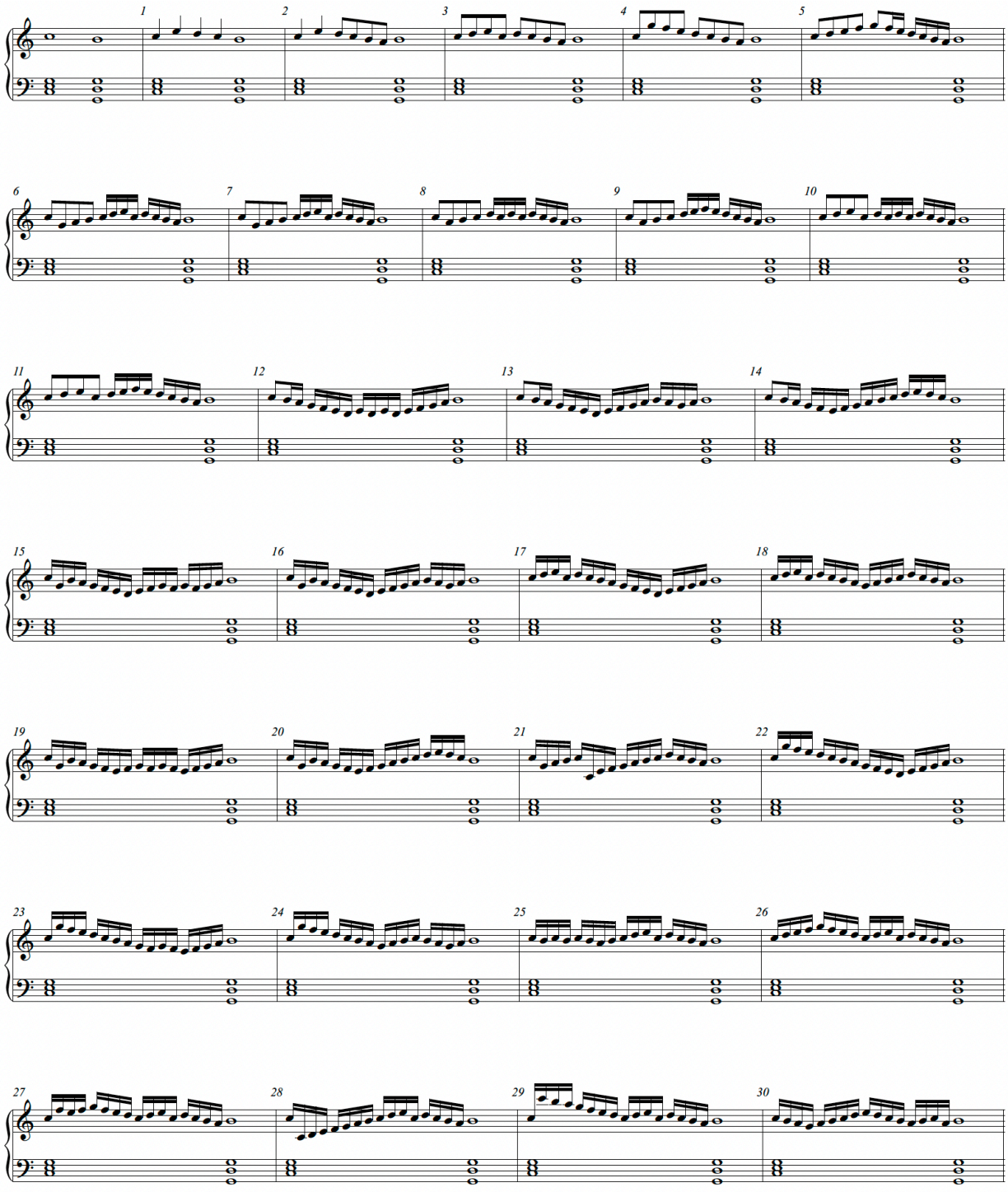
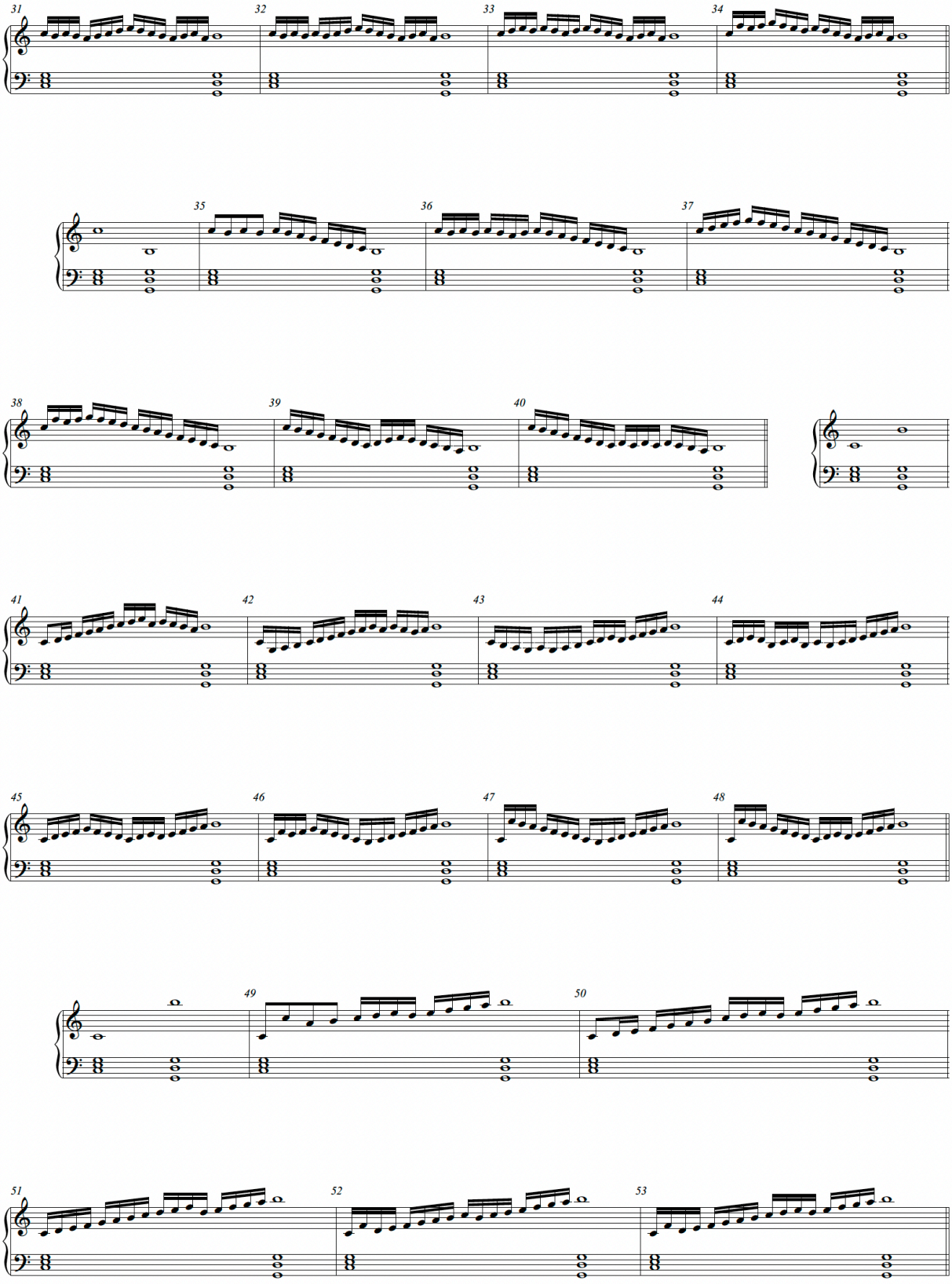
xi. I–V Embellishments: Tonic to Mediant

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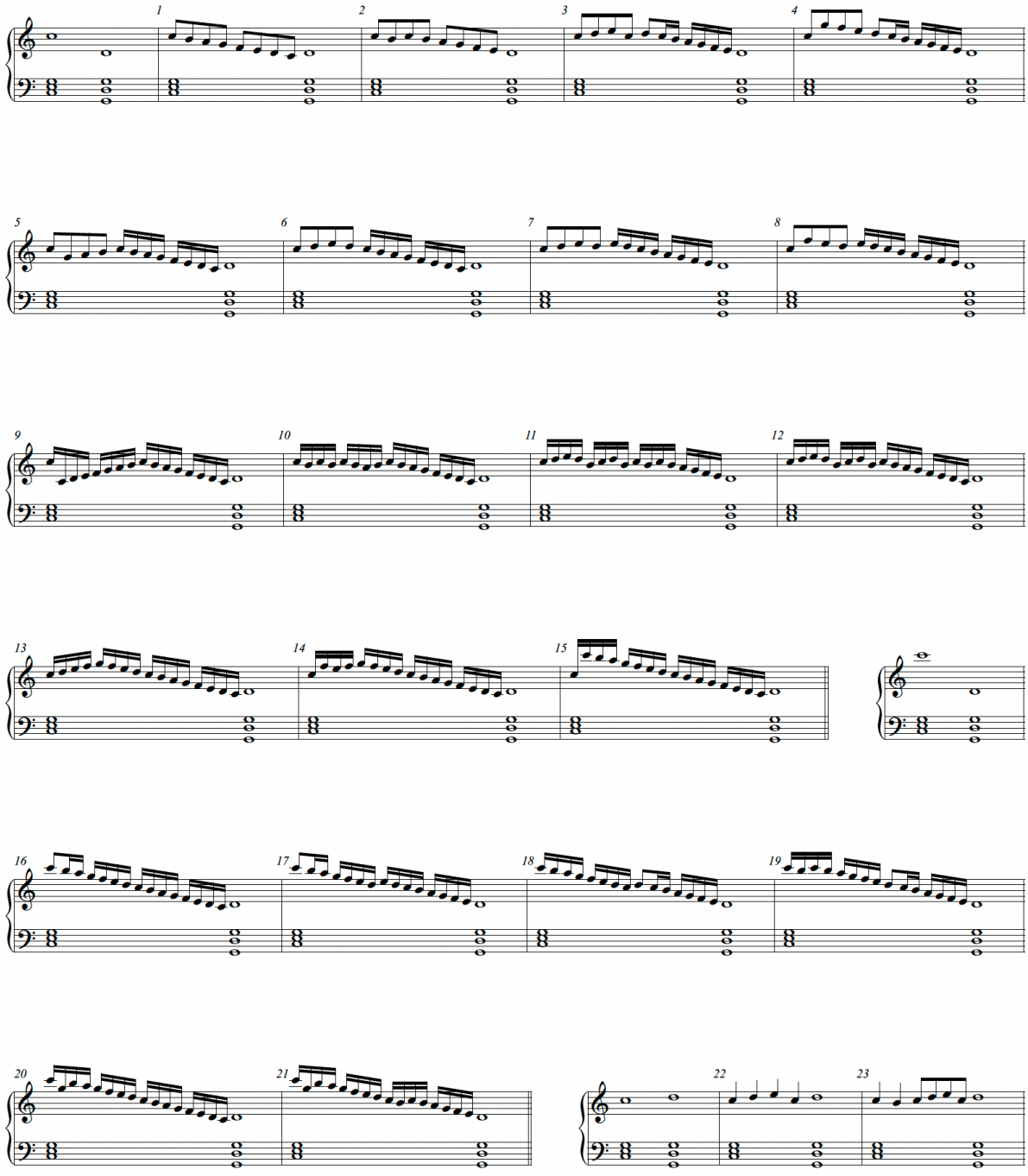
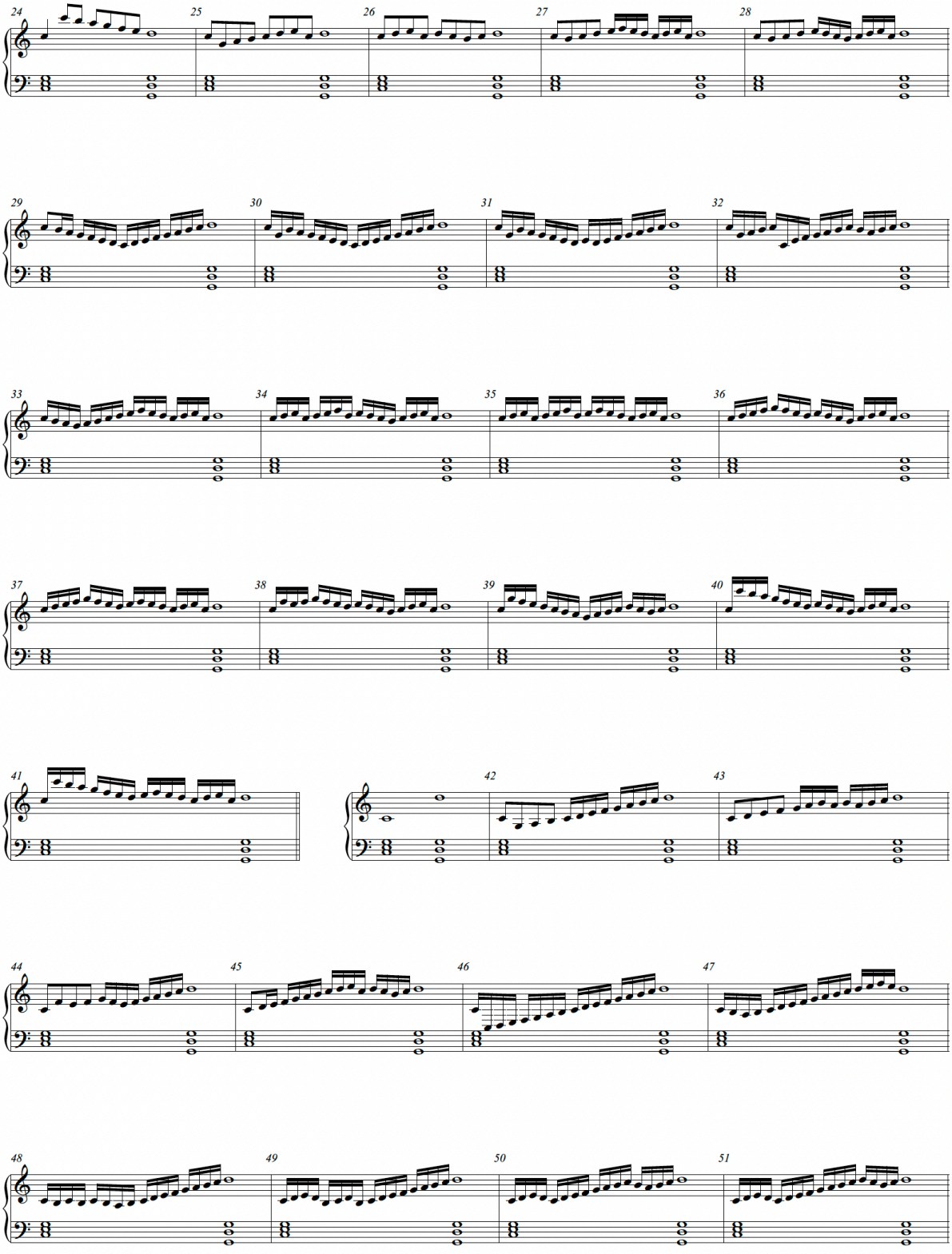
xii. I–V Embellishments: Tonic to Dominant

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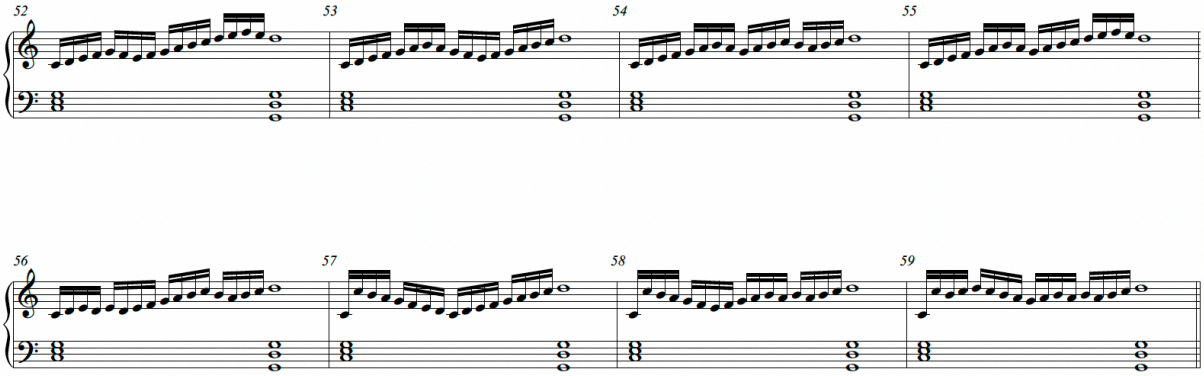
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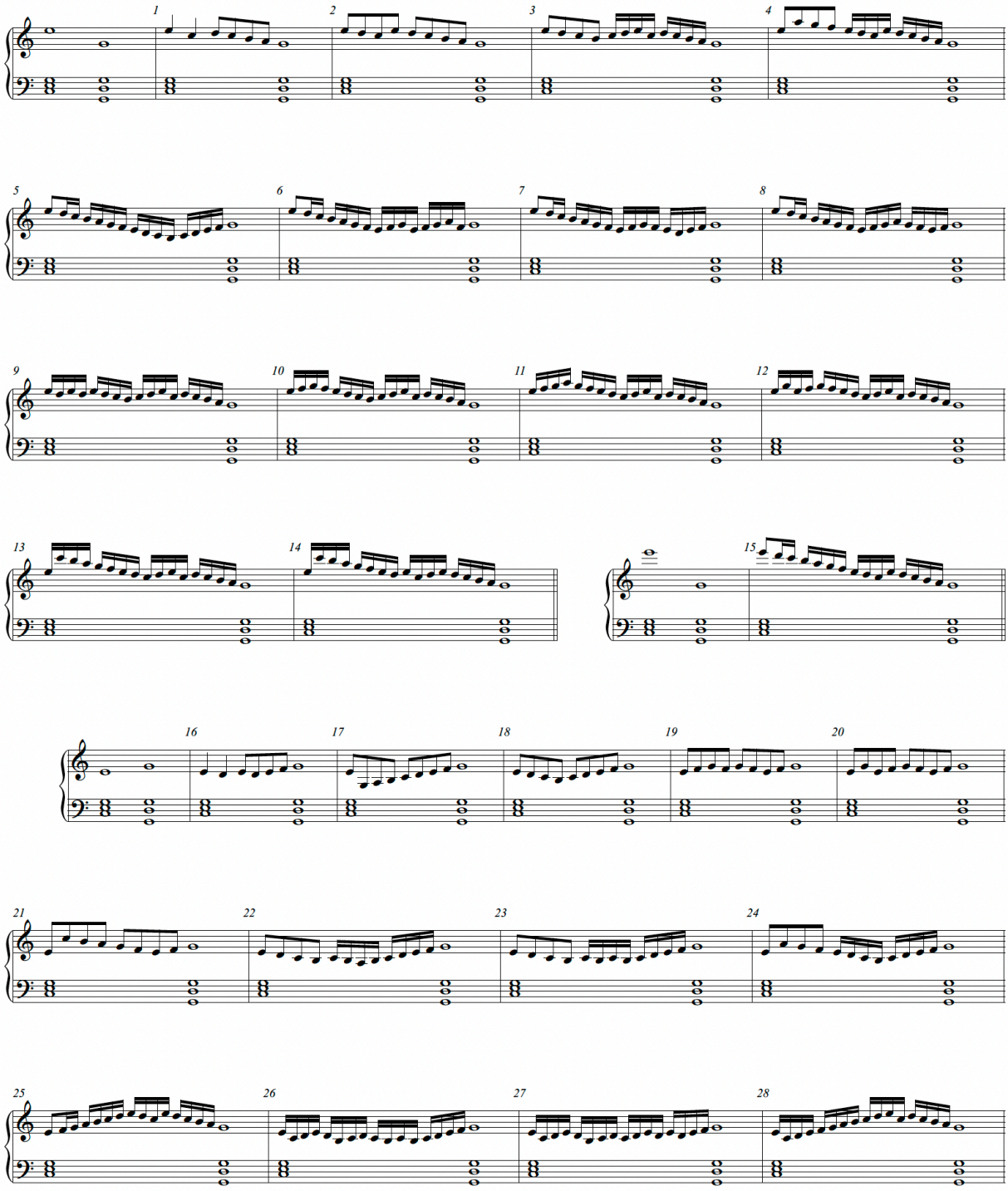
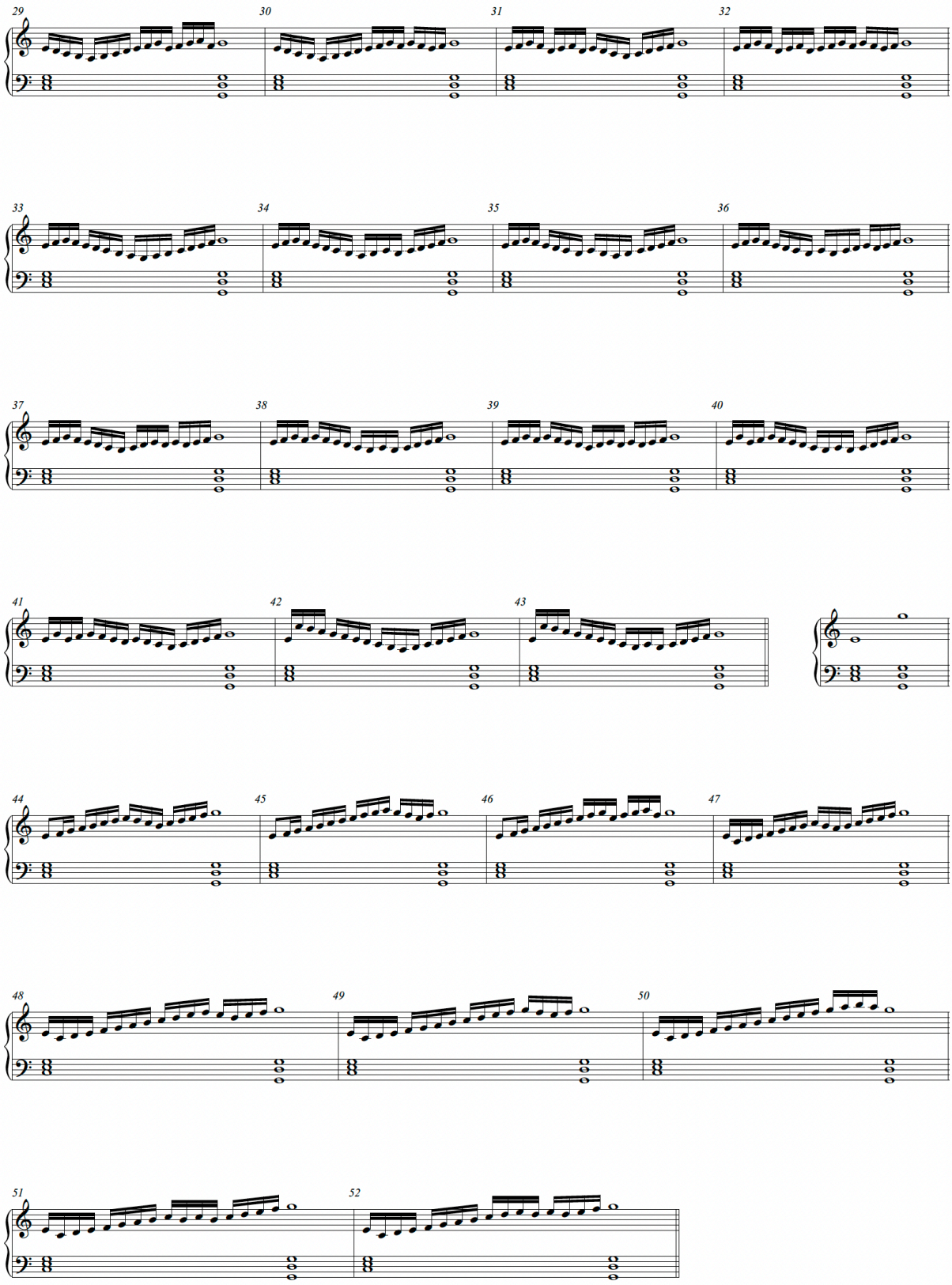
xiii. I–V Embellishments: Mediant to Tonic

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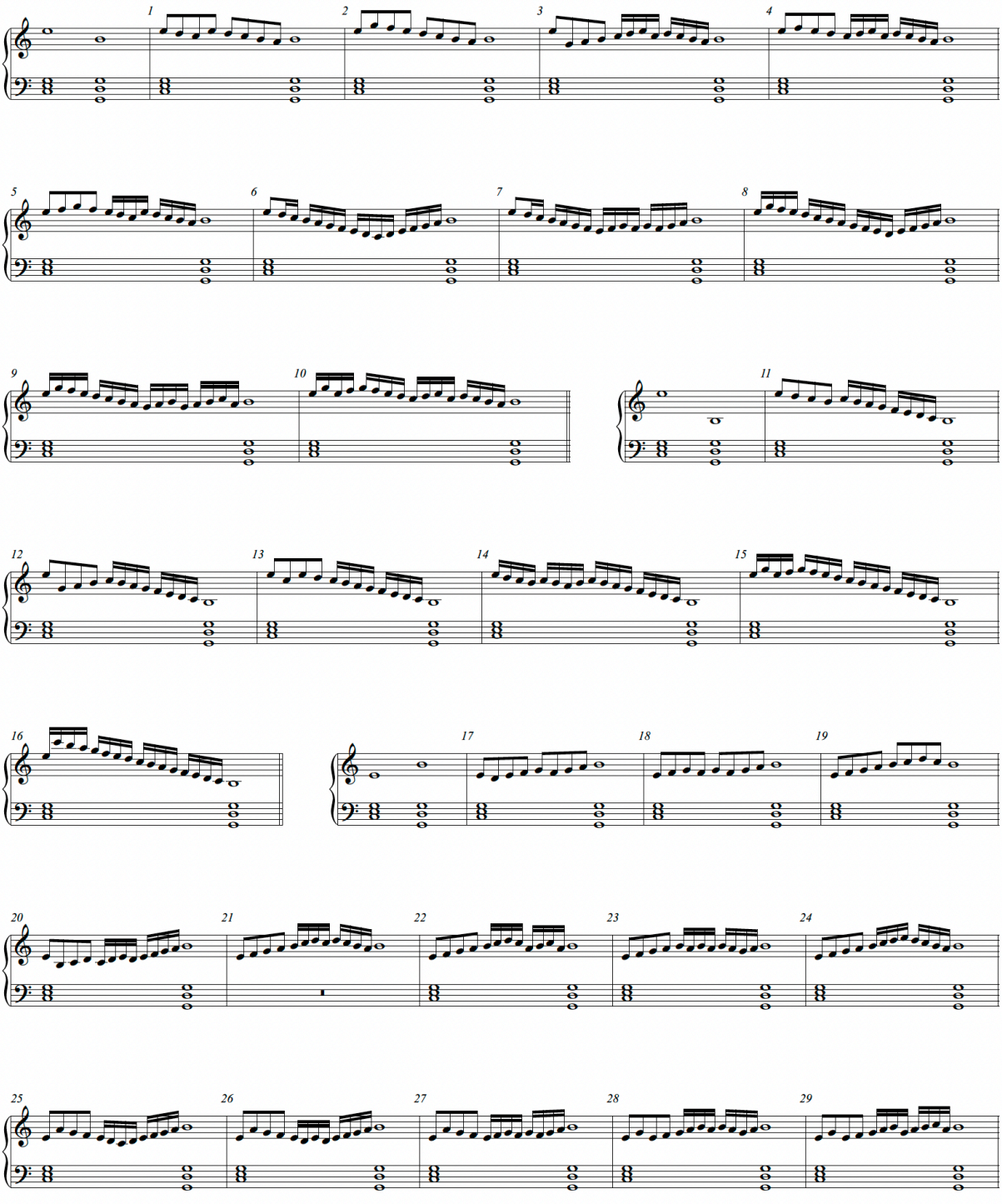
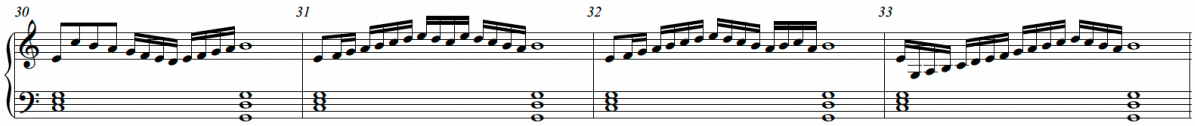
xiv. I–V Embellishments: Mediant to Mediant

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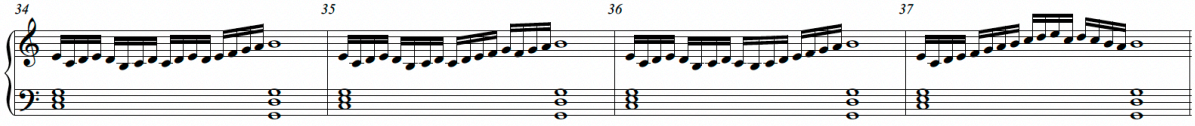
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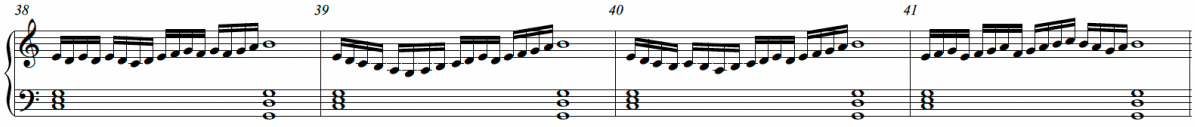
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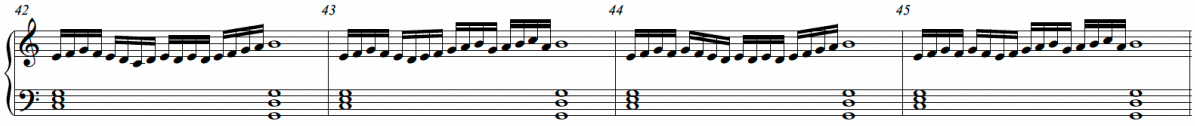
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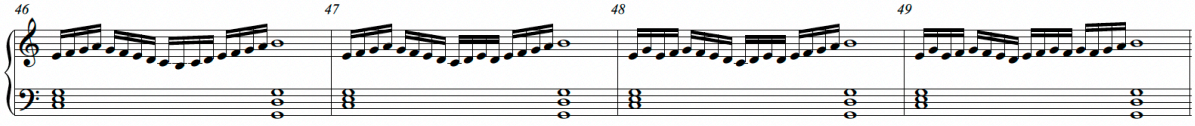
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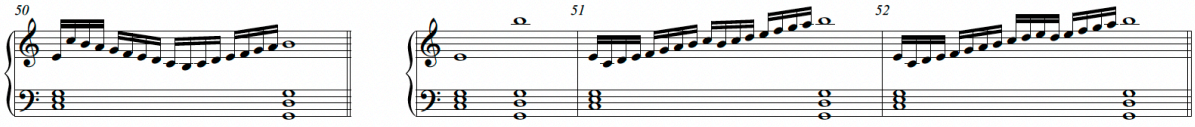
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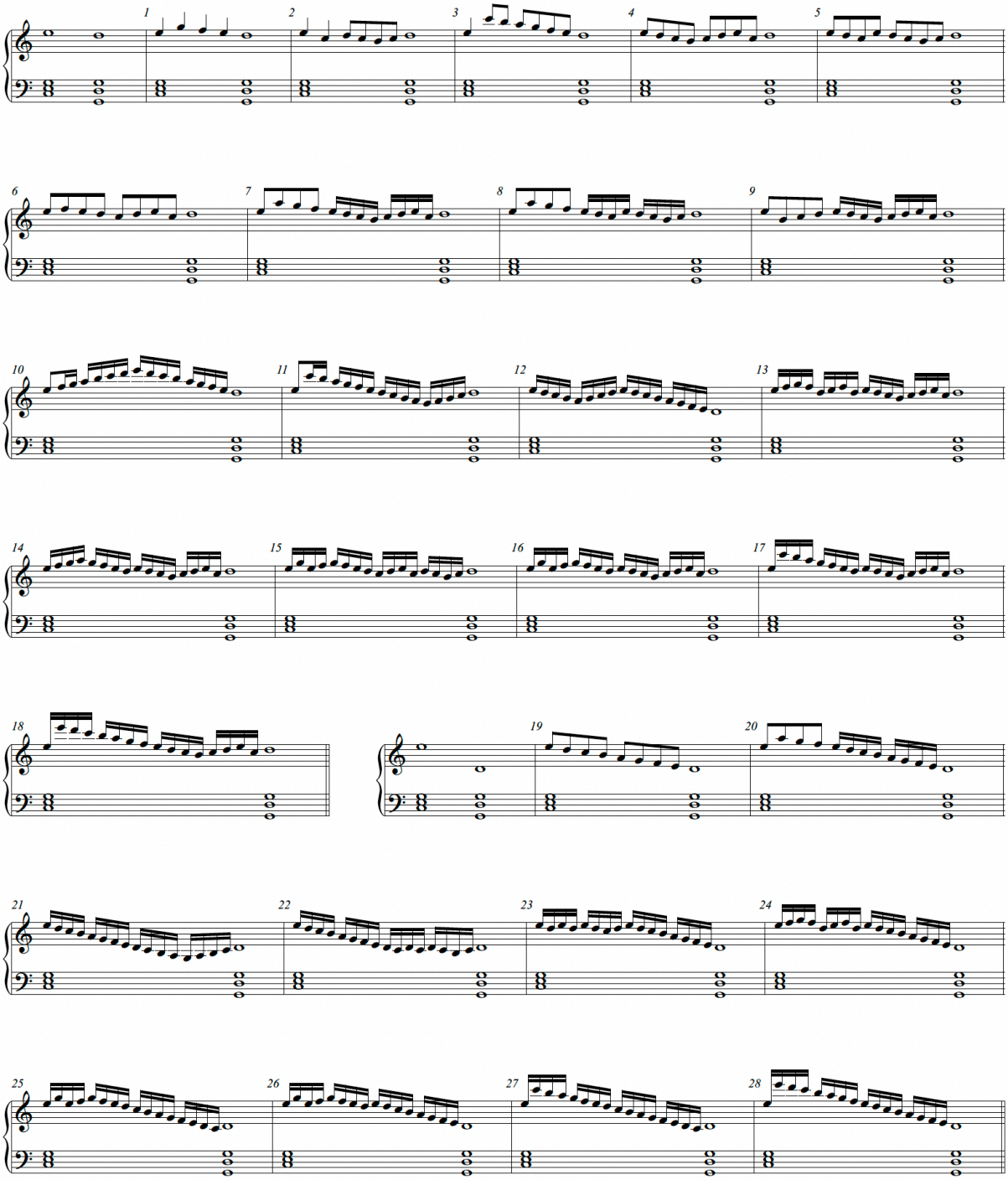
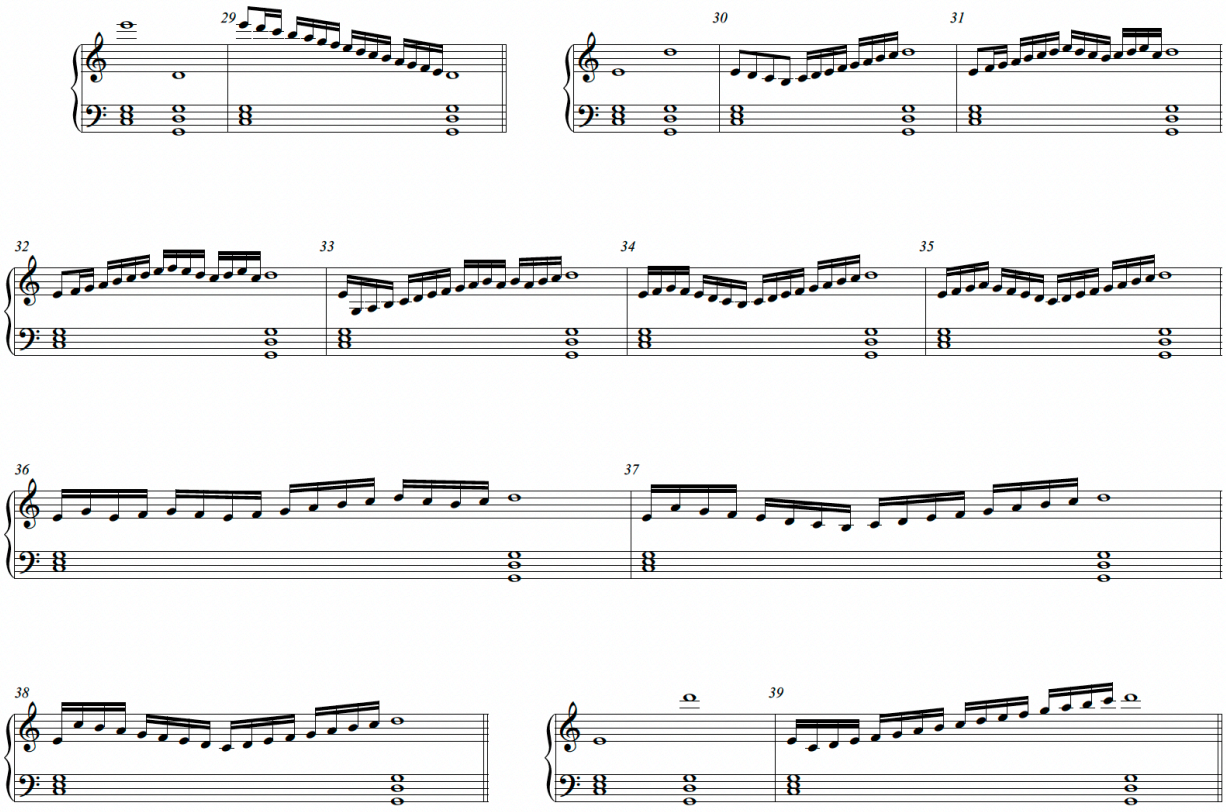
xv. I–V Embellishments: Mediant to Dominant

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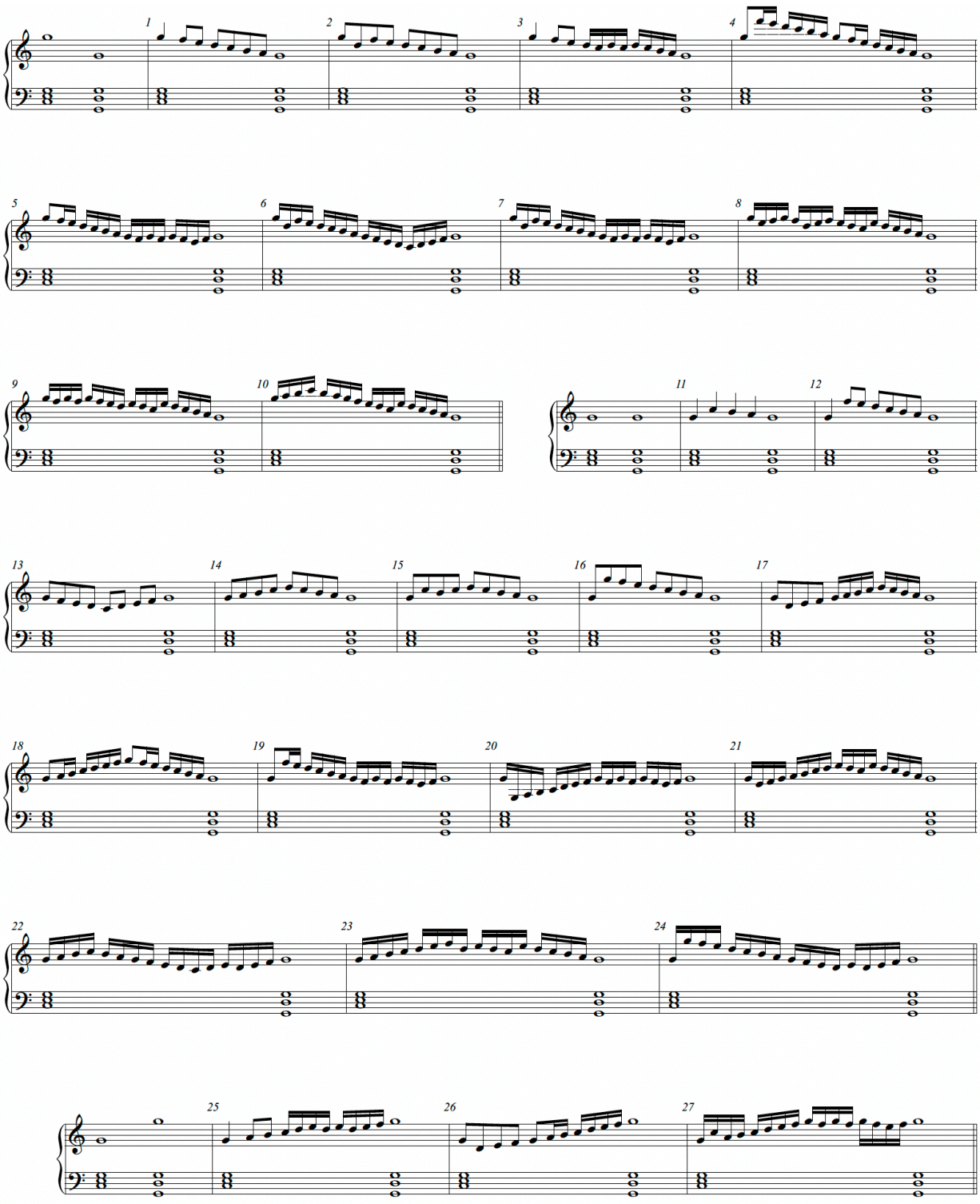
xvi. I–V Embellishments: Dominant to Tonic



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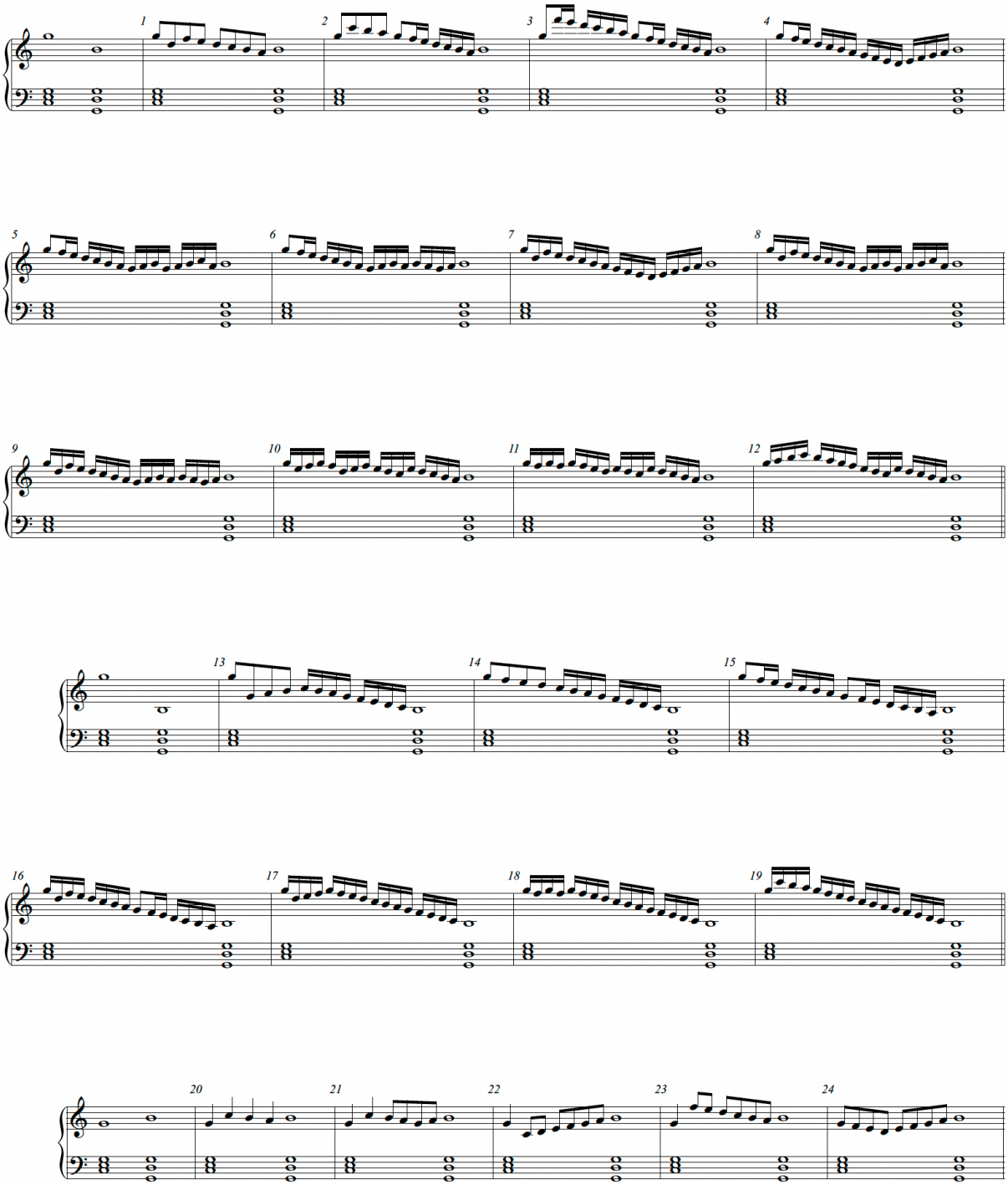

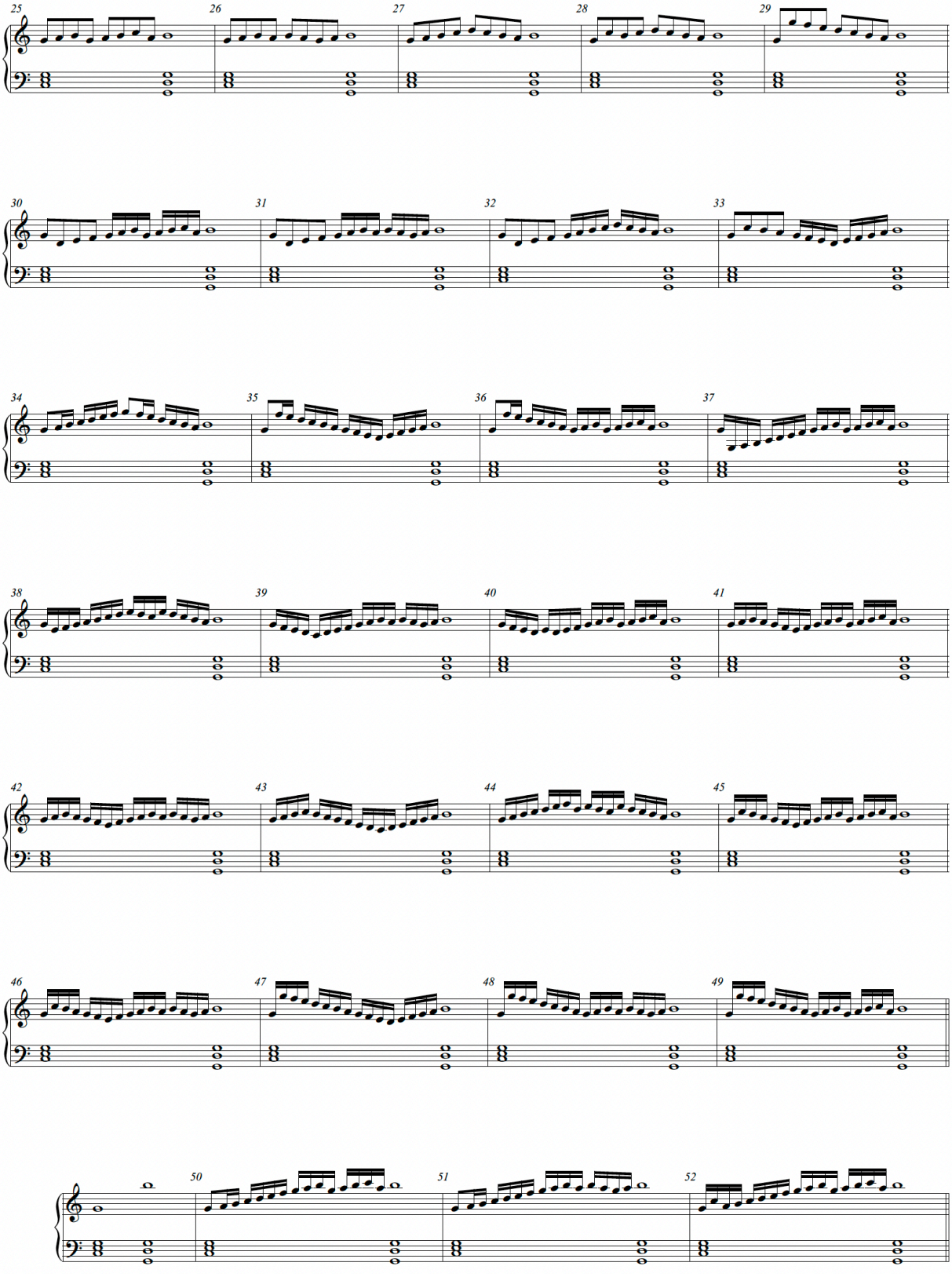
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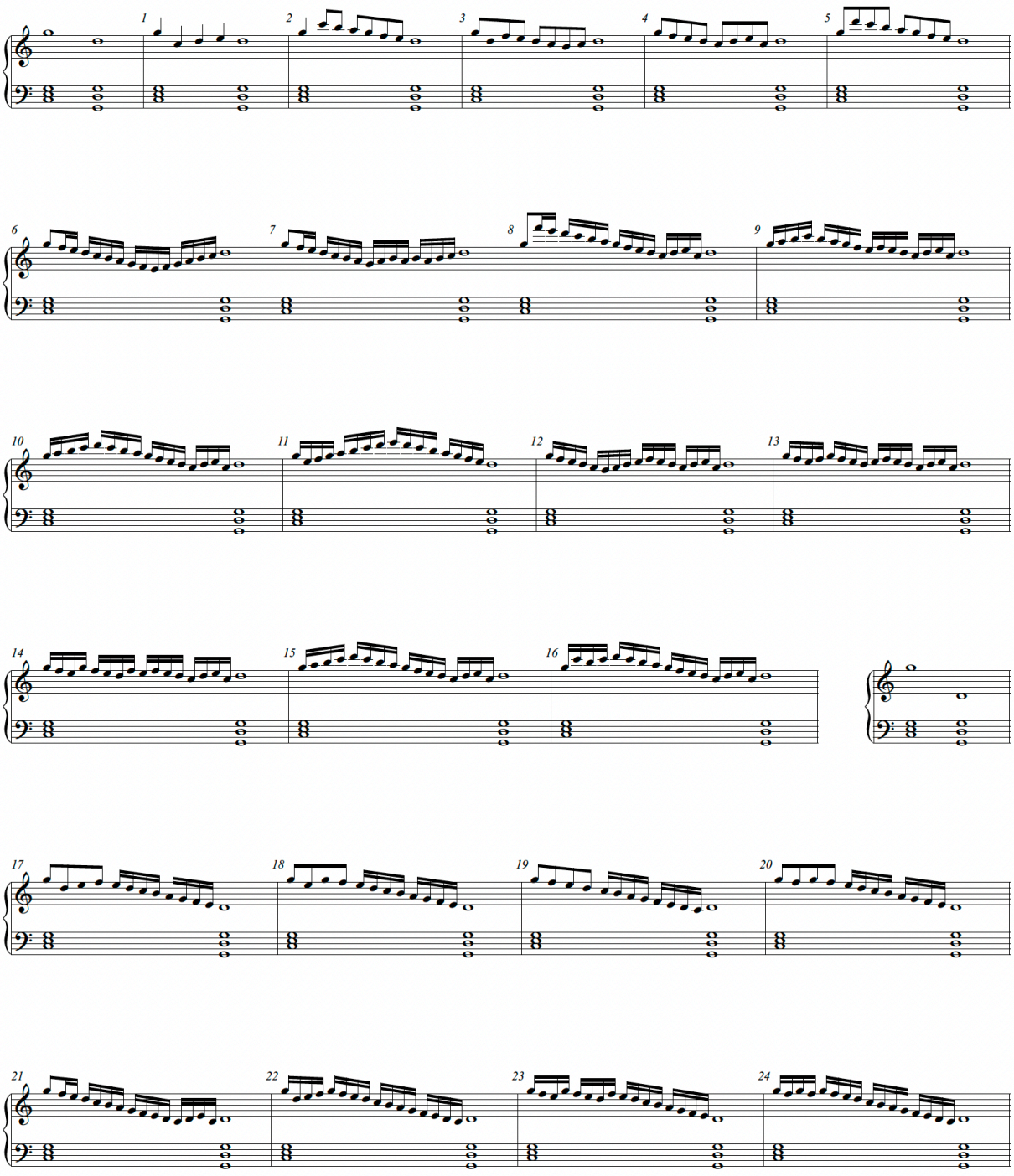
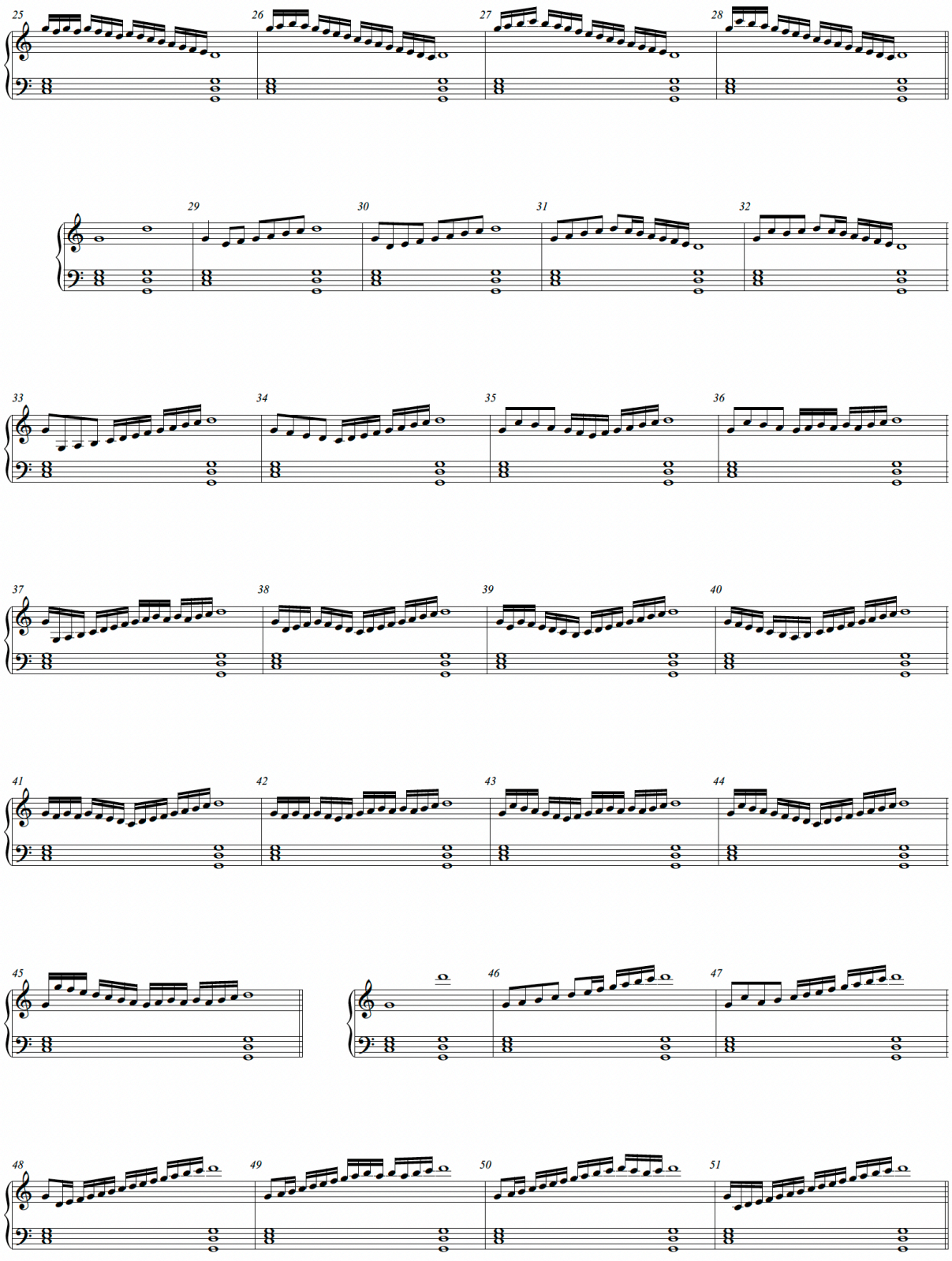
xviii. I–V Embellishments: Dominant to Dominant

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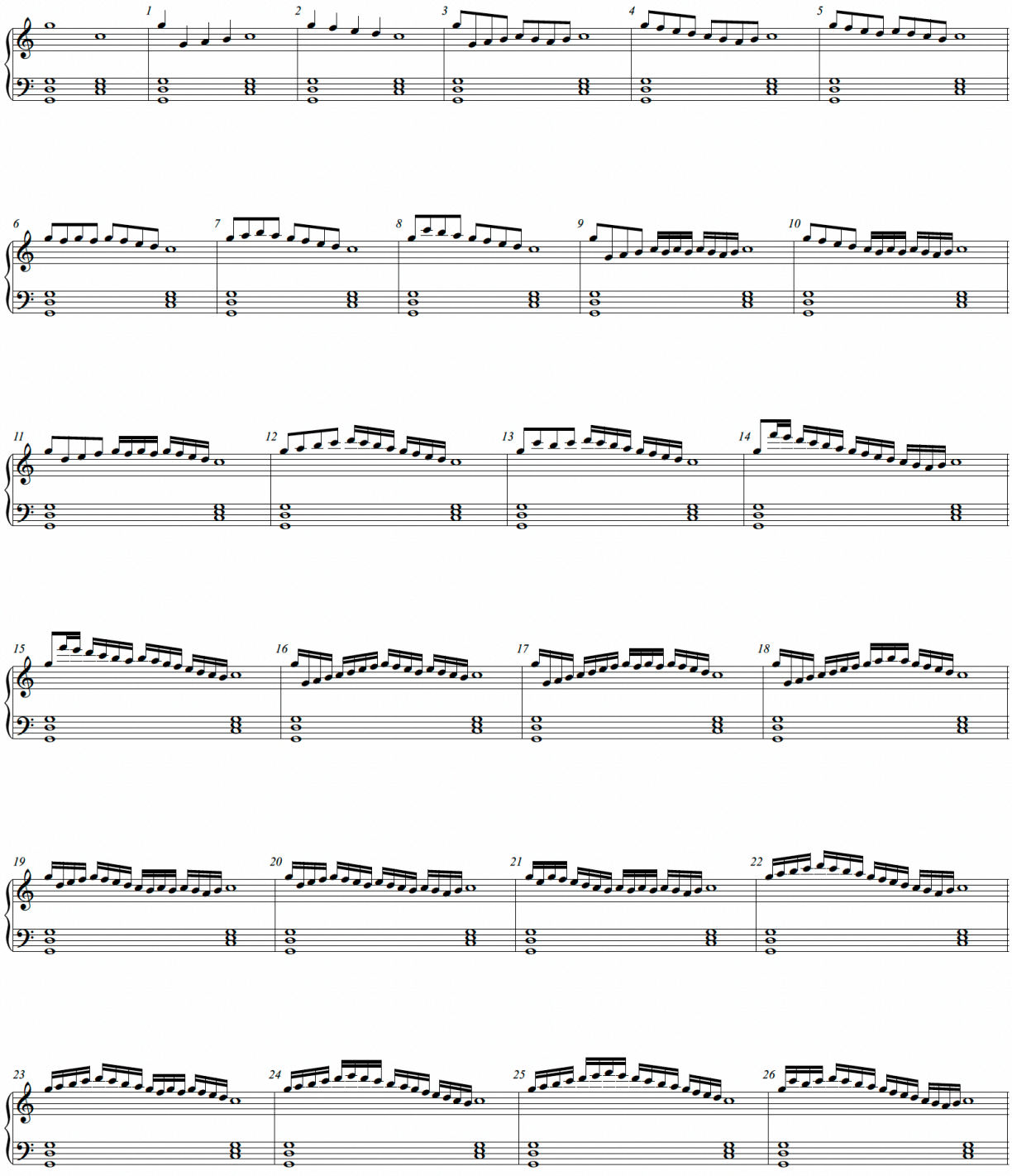
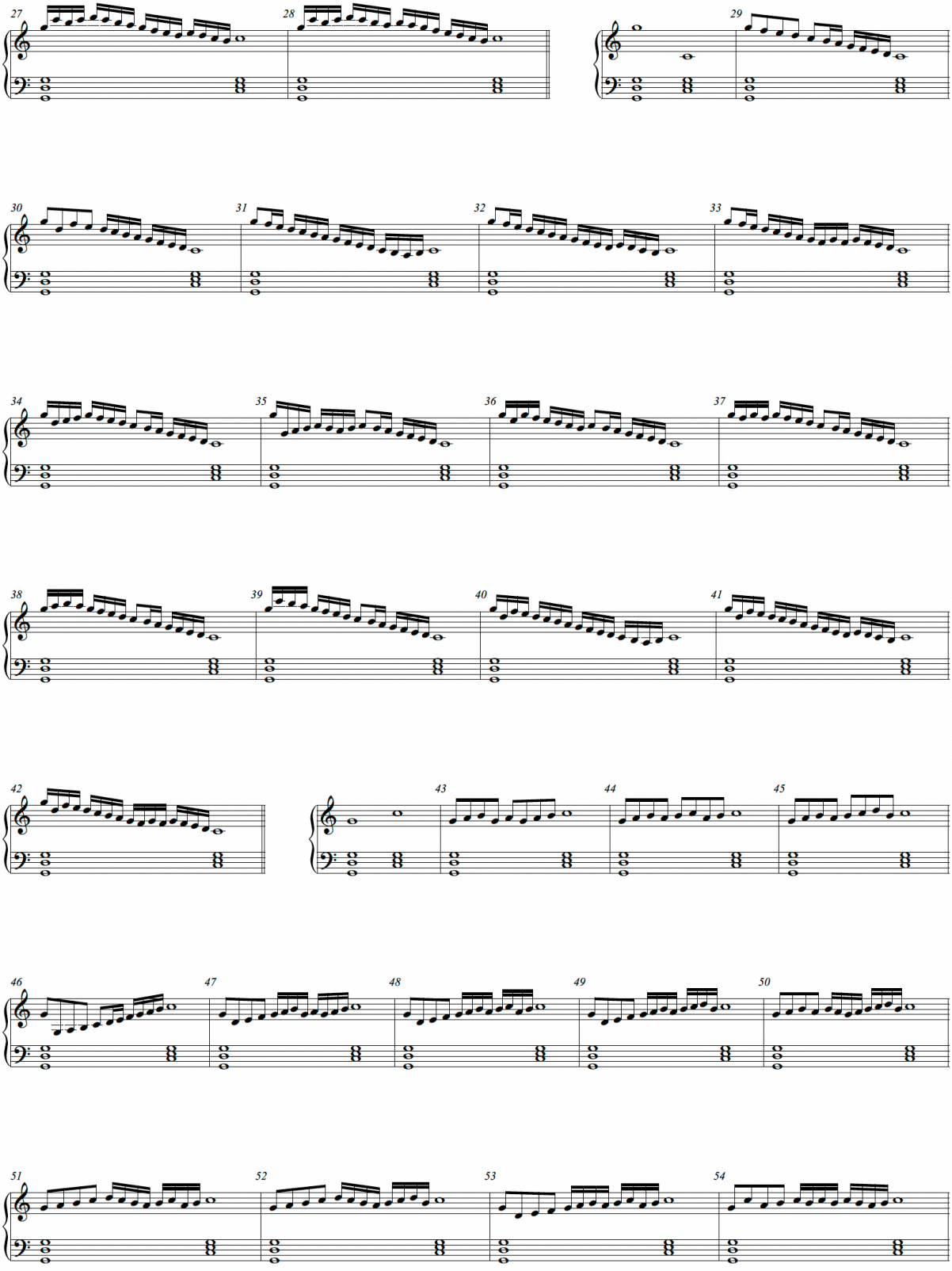
xix. V–I Embellishments: Tonic to Tonic

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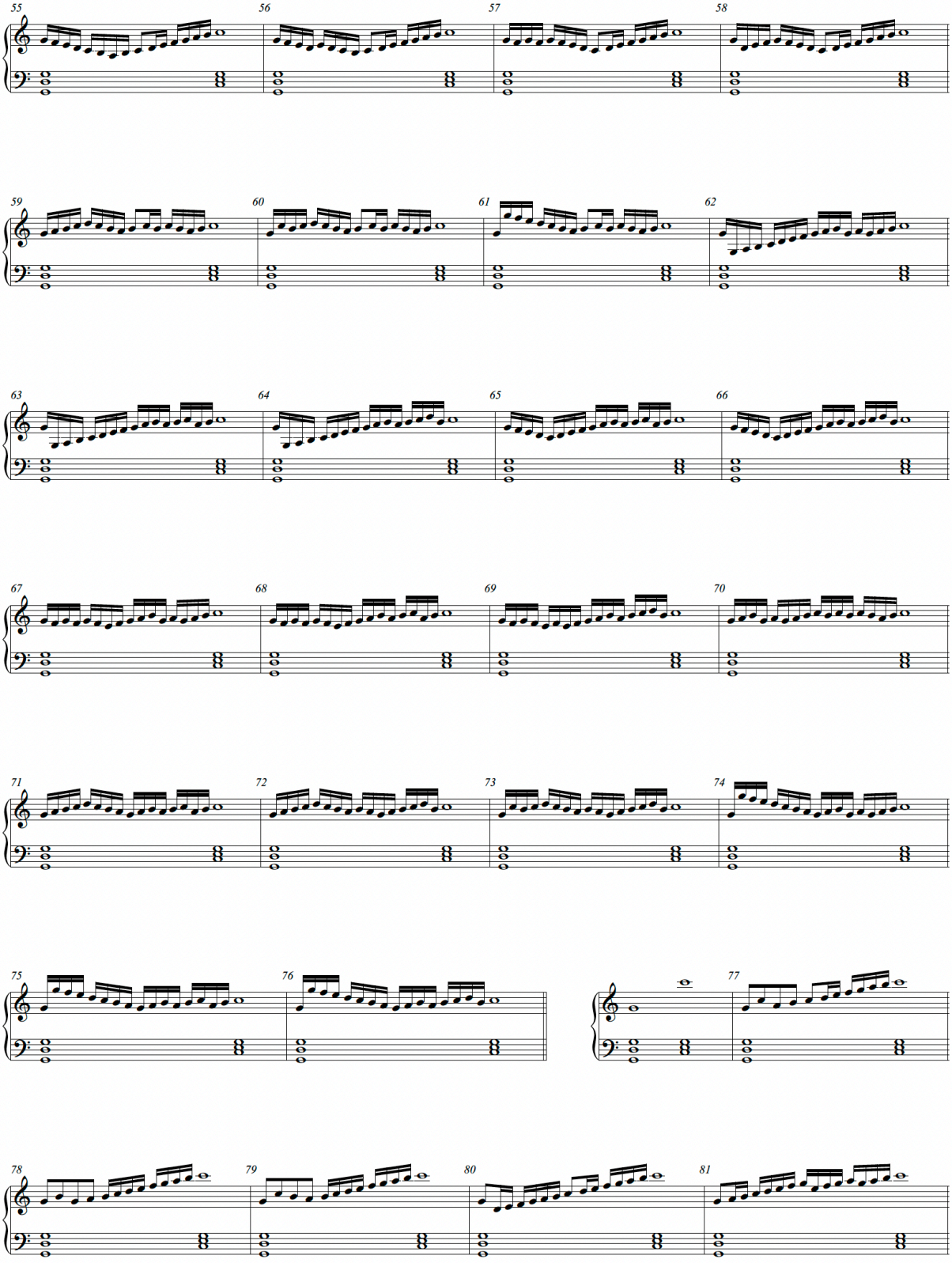
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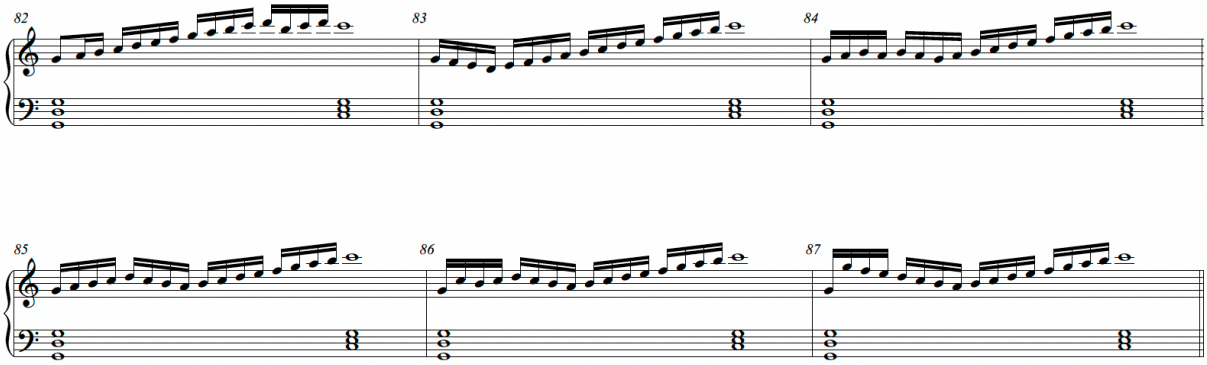
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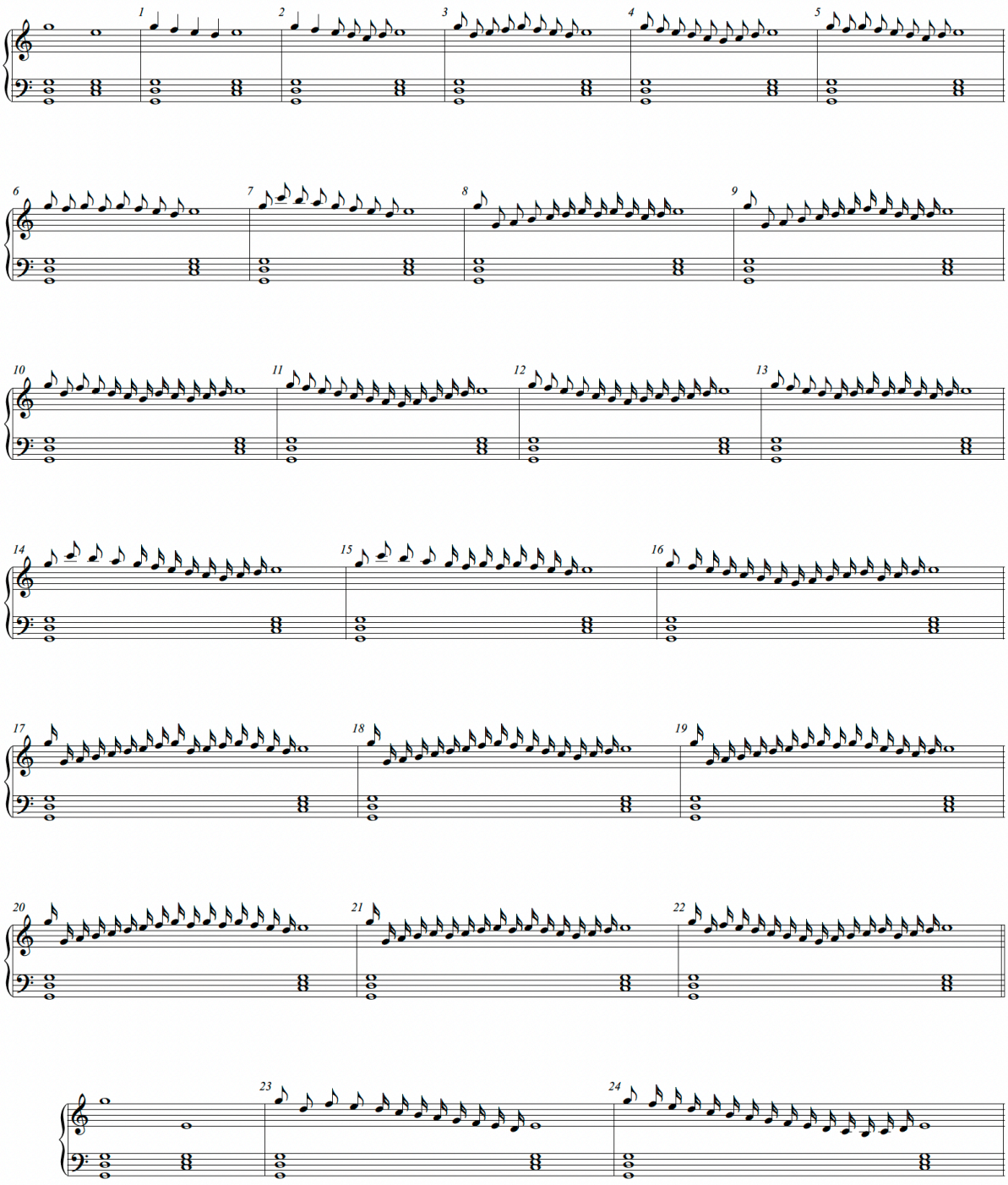
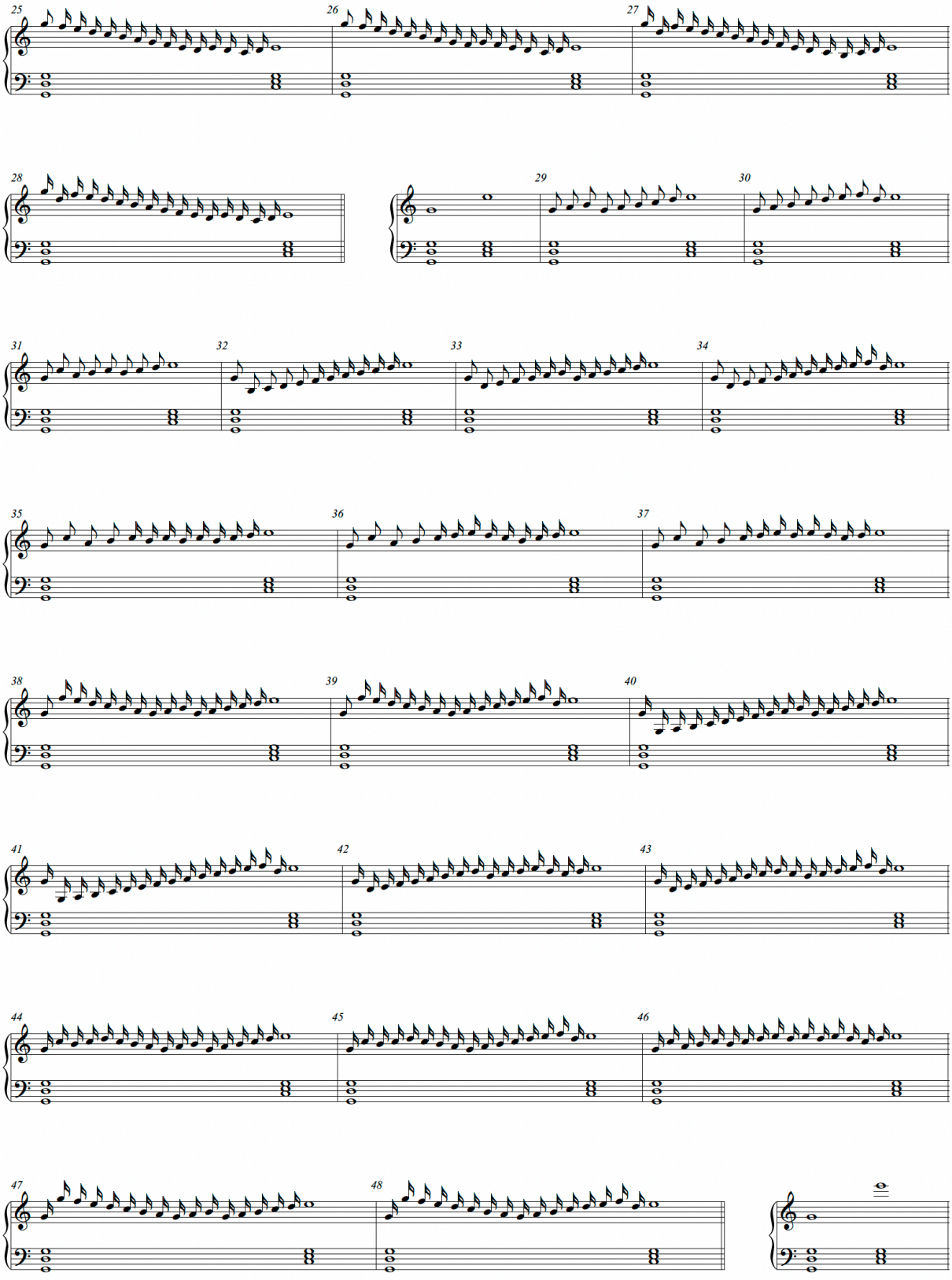
xx. V–I Embellishments: Tonic to Mediant

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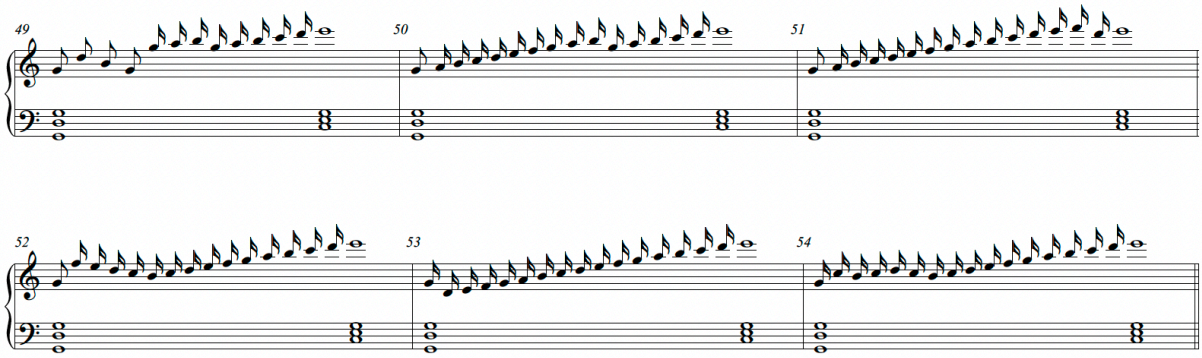
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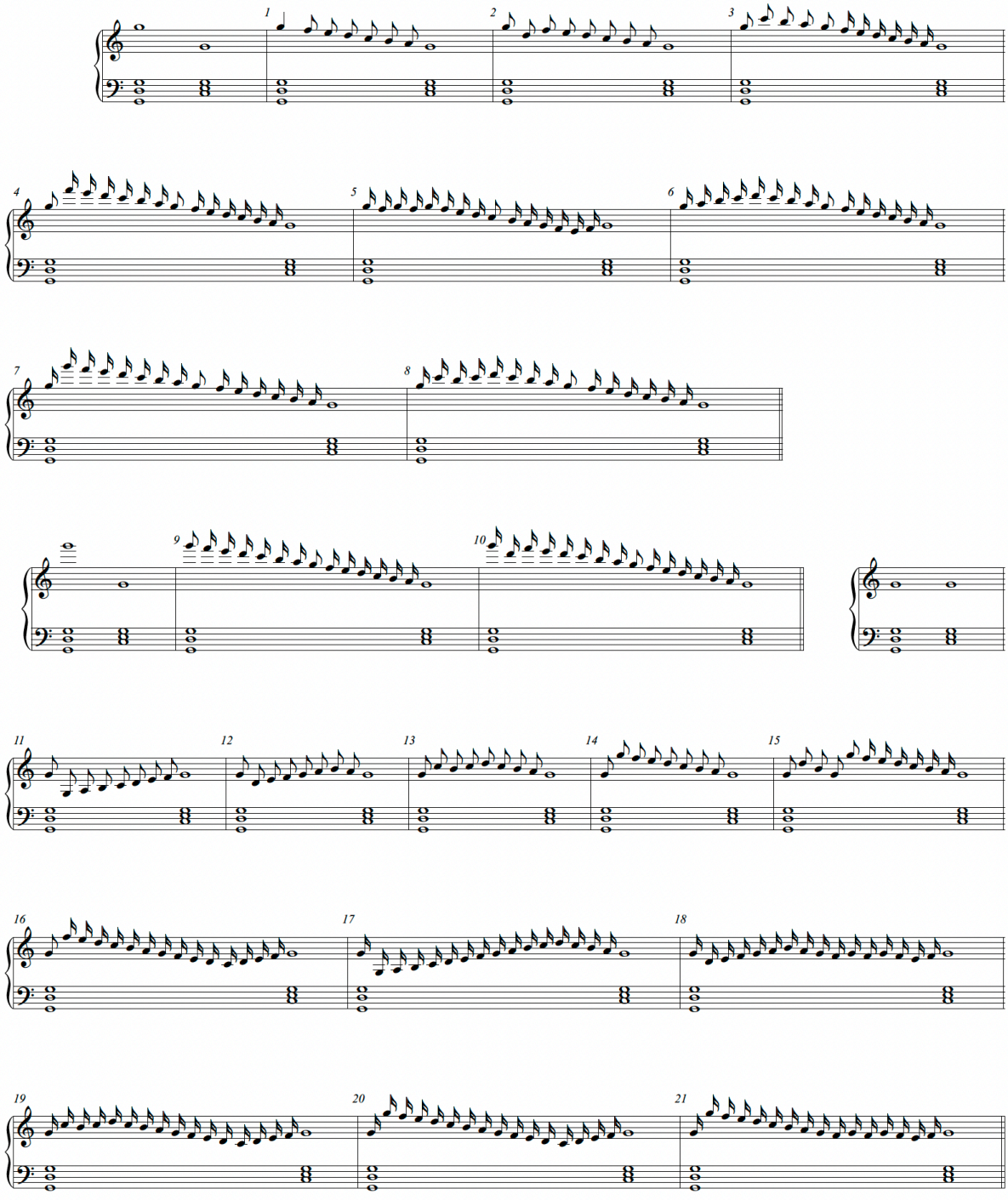
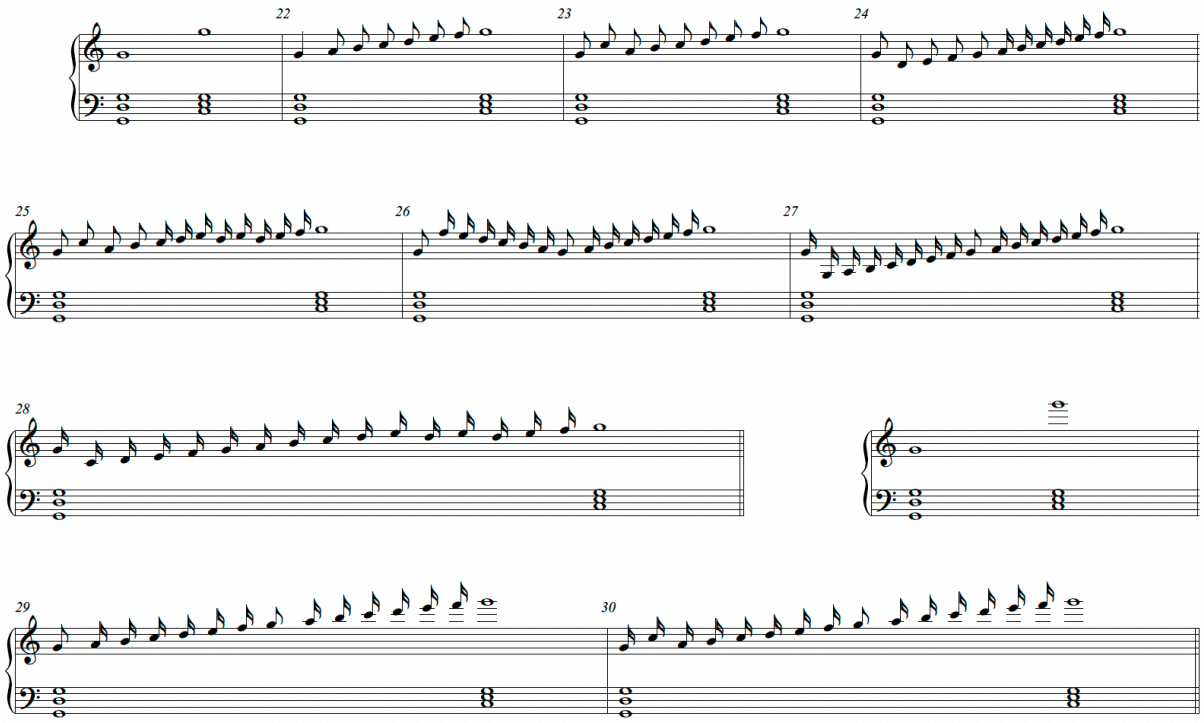
xxi. V–I Embellishments: Tonic to Dominant

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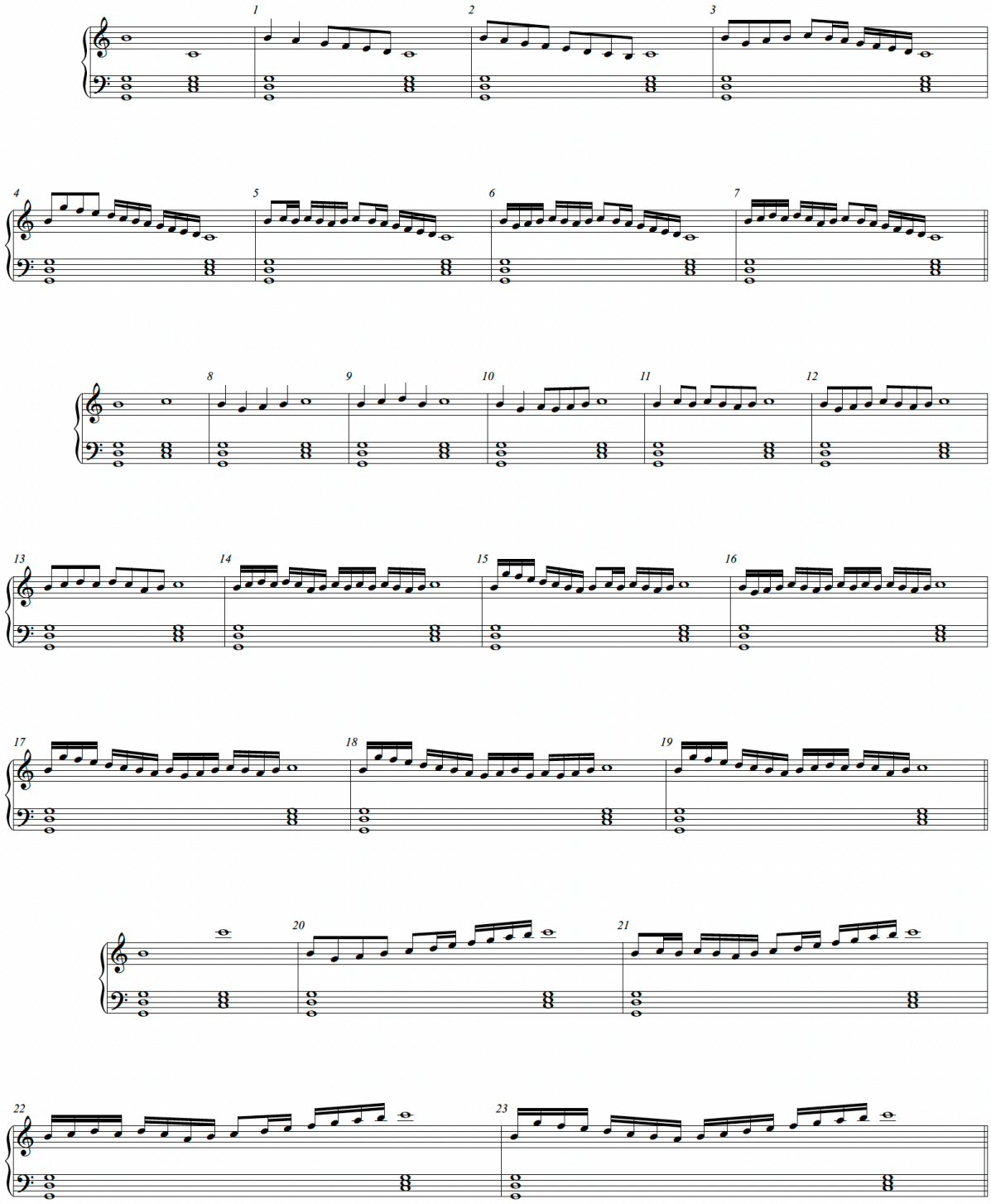
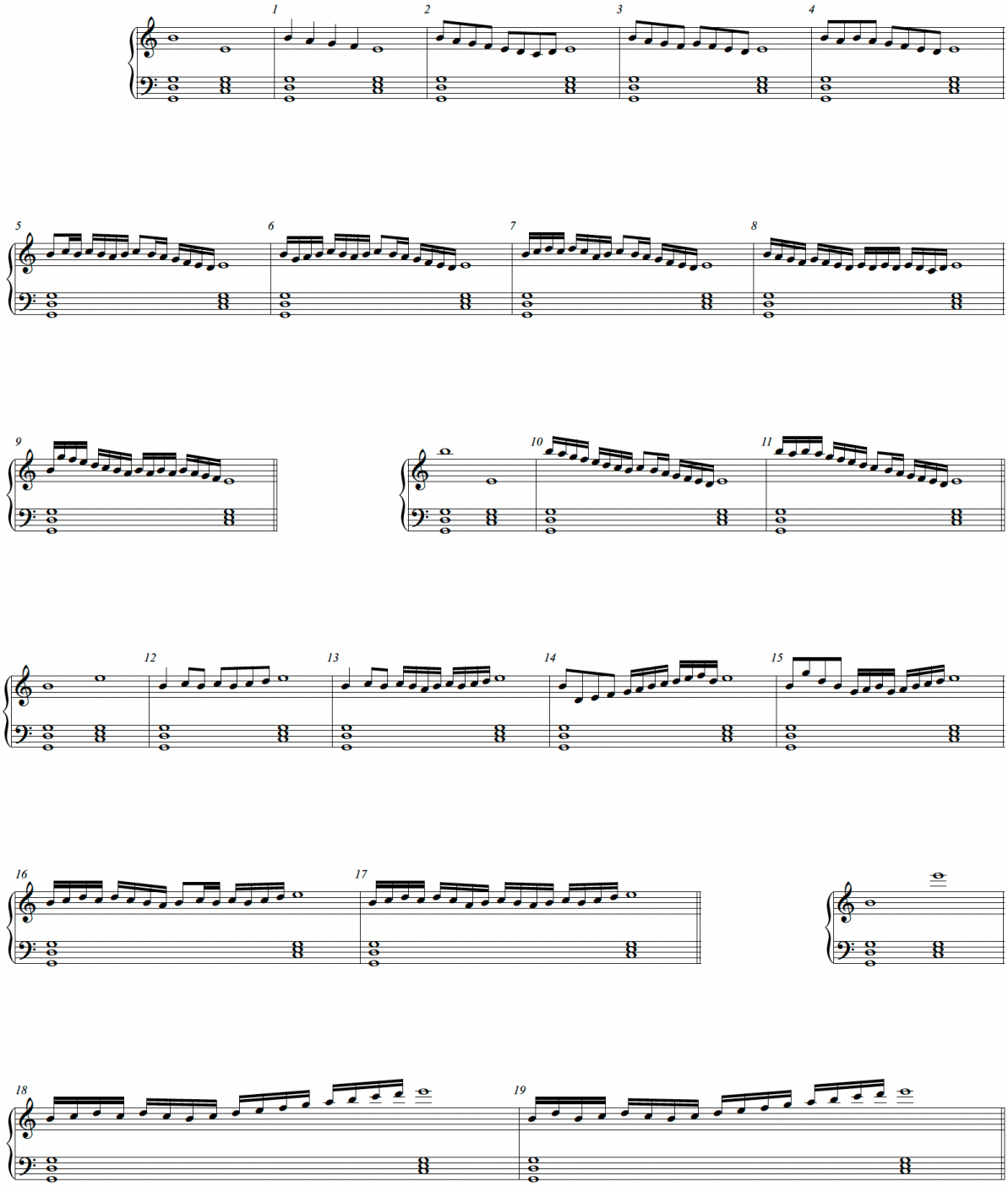
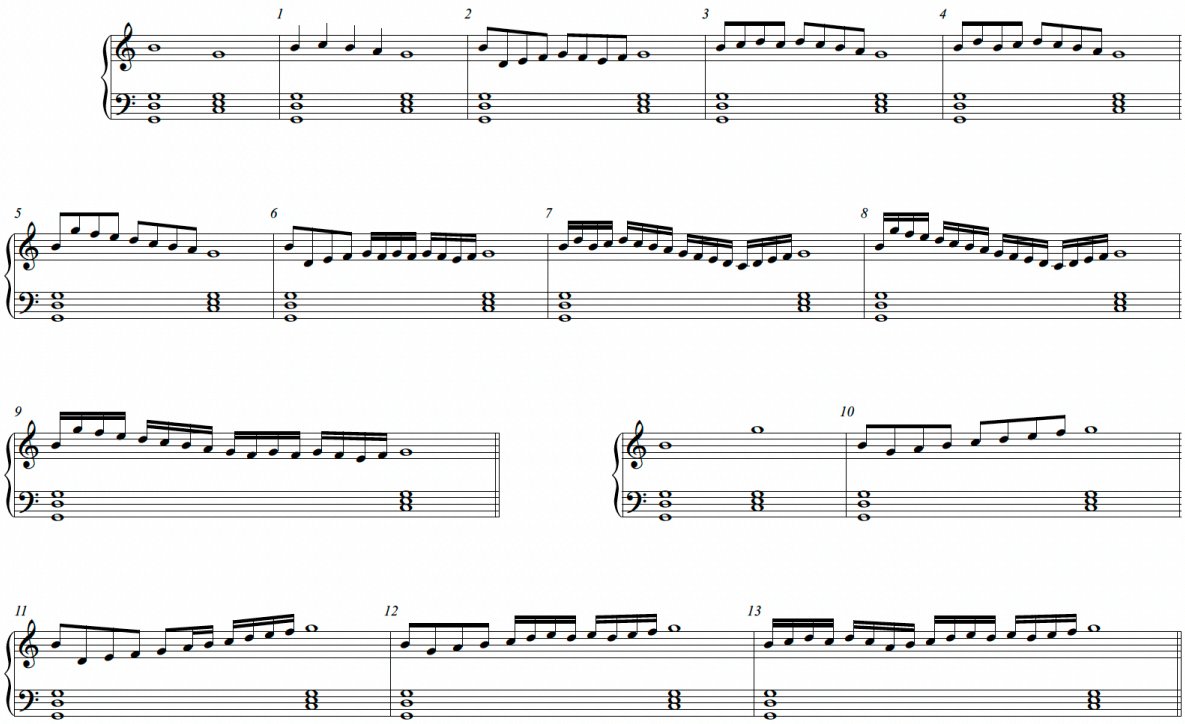
xxii. V–I Embellishments: Mediant to Tonic



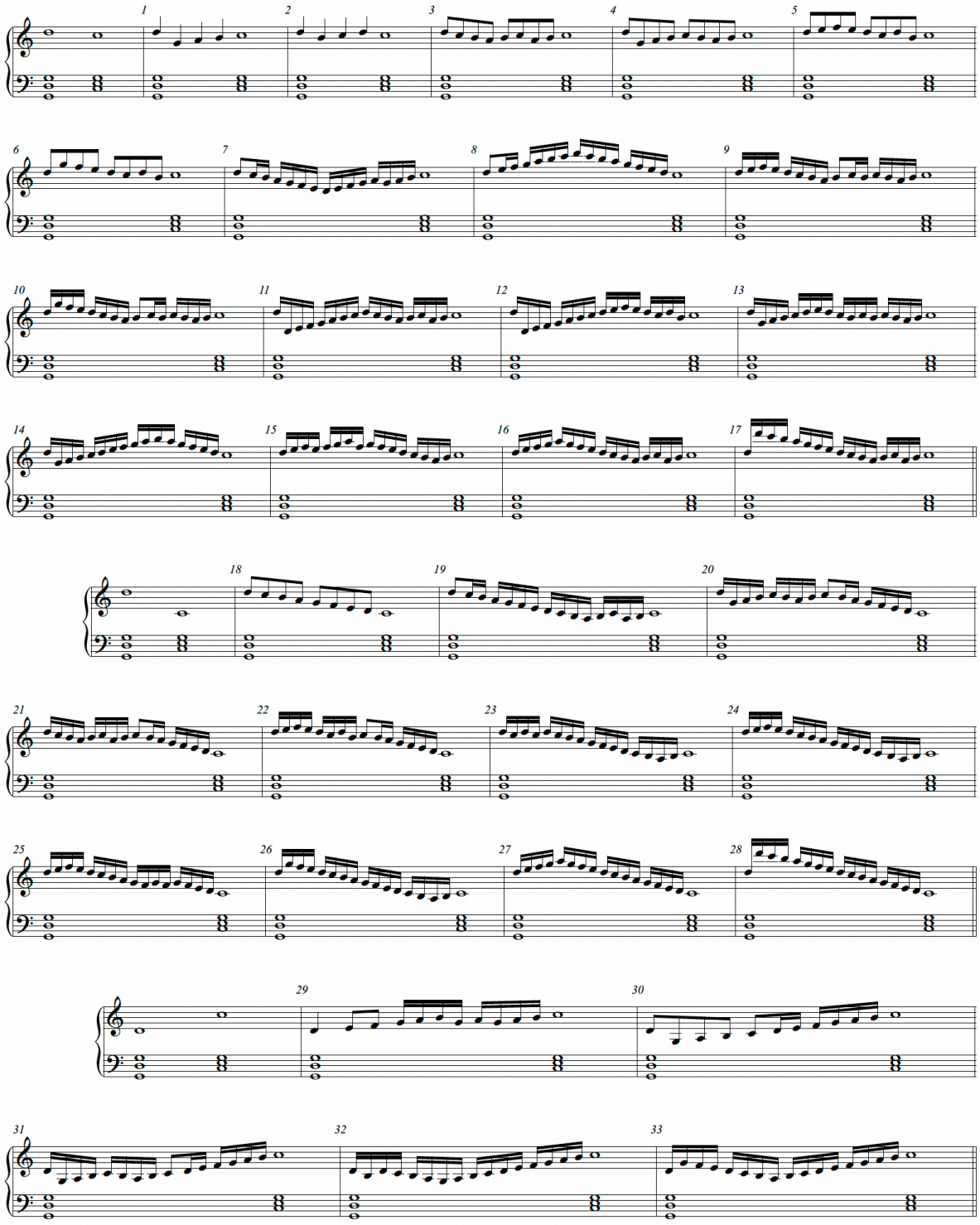
xxiii. V–I Embellishments: Mediant to Mediant



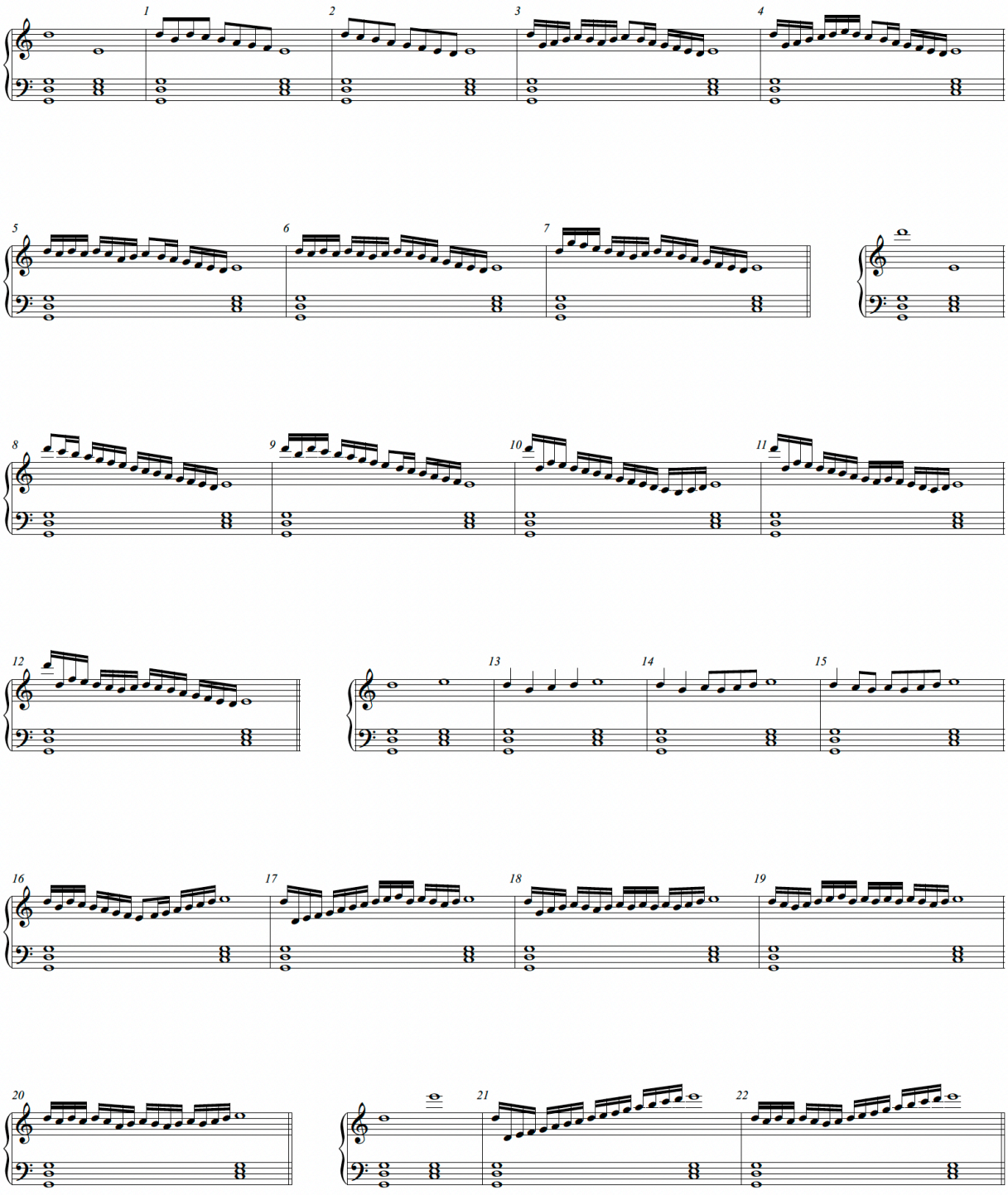
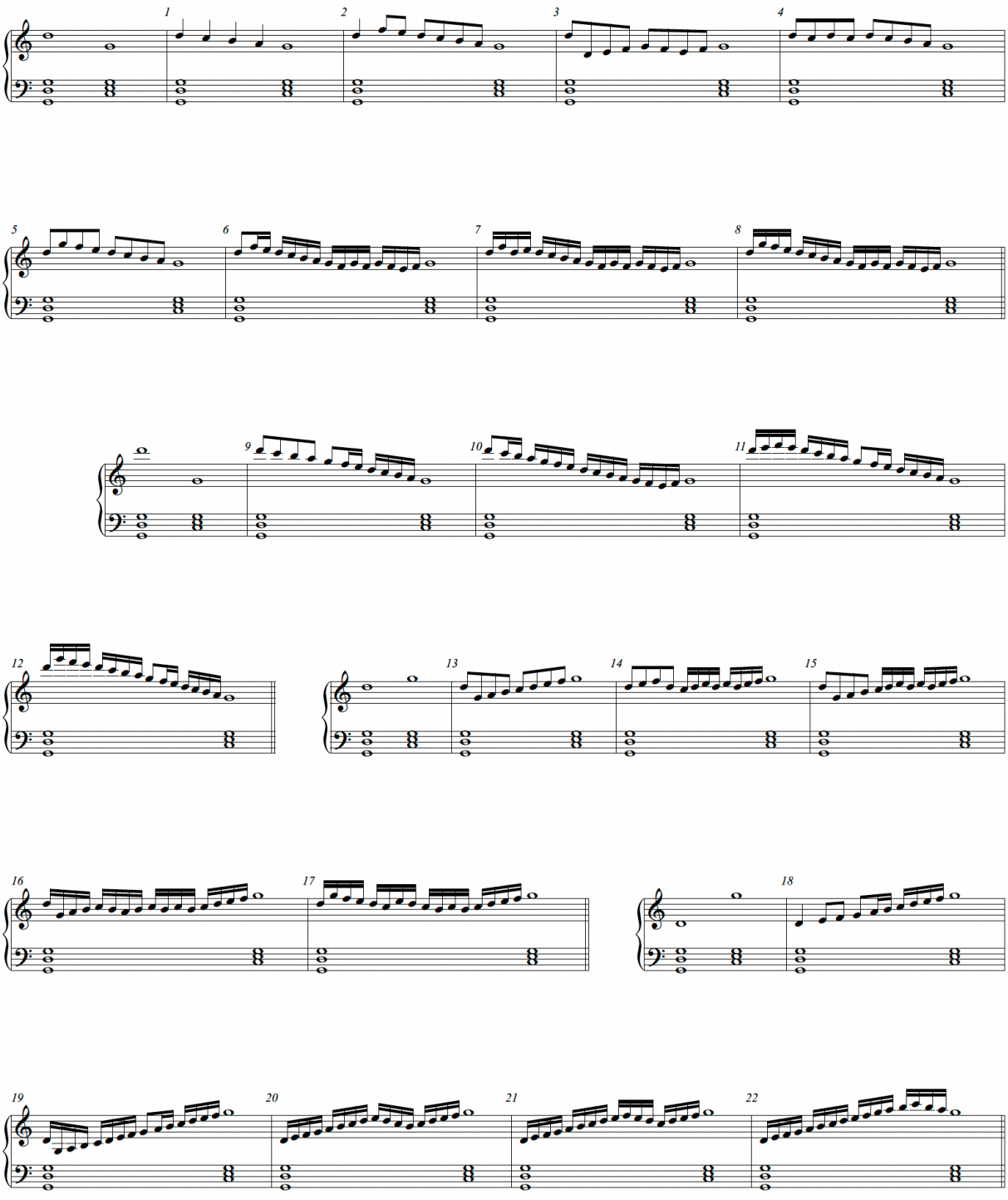
xxiv. V–I Embellishments: Mediant to Dominant



xxv. V–I Embellishments: Dominant to Tonic



xxvi. V–I Embellishments: Dominant to Mediant



xxvii. V–I Embellishments: Dominant to Dominant