The Art of Fantasía
For All Guitars and Lutes

A Modern Guide to
Counterpoint in the
16th Century Spanish Style

Based on the
Arte de Tañer Fantasía (1565)
of Fray Thomás de Sancta Maria

Volume II
(of III)

Musica Practica, Part I:
Fingerboard Harmony

Book Five:	Inflection
Book Six:	Consonances
Book Seven:	Cadences
Book Eight:	Counterpoint

By Jack Zelenka

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THE ART OF FANTASÍA, FOR ALL GUITARS AND LUTES
BY JACK ZELENKA

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The Art of Fantasía

Book Five
Inflection

"Accident is that which happens to be present and not be present to the same thing."

- Porphyry

"There are four genera of music in our time, to wit, the Diatonic, the Chromatic, the Enharmonic, and the Semi-Chromatic. This Semi-Chromatic genus is composed of the diatonic and the chromatic, and is that which we now play and sing in composition."

- Juan Bermudo

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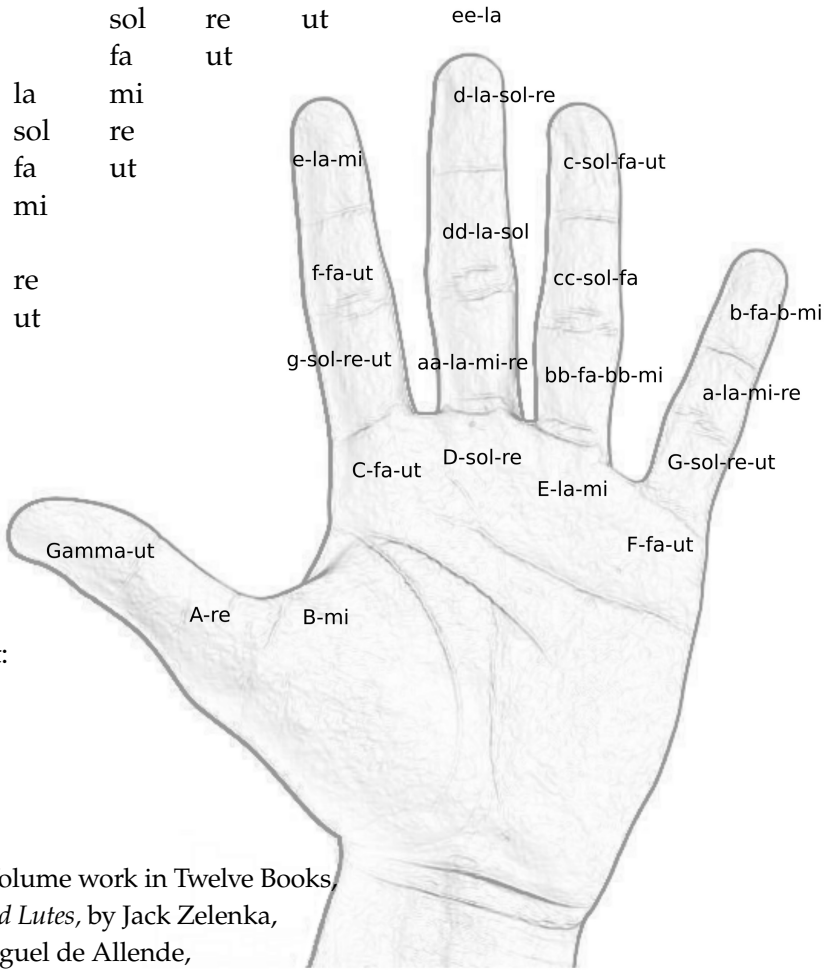
The note-names of the Guidonian Gamut:

Above the Gamut on TSM's keyboard:
A5
G5
F5

ee-la (=E5)						la
dd-la-sol					la	sol
cc-sol-fa					sol	fa
bb-mi						mi
𝄫-fa					fa	
aa-la-mi-re				la	mi	re
g-sol-re-ut				sol	re	ut
f-fa-ut				fa	ut	
e-la-mi			la	mi		
d-la-sol-re			la	sol	re	
c-sol-fa-ut			sol	fa	ut	
b-mi				mi		
♭-fa			fa			
a-la-mi-re		la	mi	re		
G-sol-re-ut		sol	re	ut		
F-fa-ut		fa	ut			
E-la-mi	la	mi				
D-sol-re	sol	re				
C-fa-ut	fa	ut				
B-mi	mi					
A-re	re					
Γ-ut	ut					



The "short octave" below the Gamut:
F2
E2
D2
C2

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Volume Two consists of four Books:
5. Inflection
6. Consonances
7. Cadences
8. Counterpoint

Book Five
Inflection

Chapter 5.01 Musica Ficta and Musica Recta

Musica recta refers to the twenty-two pitches of the Guidonian Gamut from G2 to E5, including two "black keys" on the keyboard, which are Bb3 and Bb4. All other pitches are *musica ficta.* There are two classes of *ficta:* (1) all accidental inflections other than the two Bb's, and (2) all notes higher and lower than the Gamut. The second class consists of only seven notes of TSM's keyboard — C2-F2 and F5-A5 — which present no issue because: (a) the principle of octave equivalence allows their treatment by the same rules as *recta* notes [1], (b) their presence on TSM's keyboard is a given, and (c) the four bass notes C2 - F2 are never inflected anyway [2], nor is A5. A choice must be made between B♮ or Bb within the Gamut, but Bb3 and Bb4 are both *recta* notes all the same, the choice being between *recta* and *recta*. The issues of inflection which confront us in this study of the music of TSM overlap with the Guidonian distinction between *musica recta* and *musica ficta,* but are not quite identical [3]. The issues that face us are specifically when to replace the pitch classes E, B, F, C and G with Eb, Bb, F#, C# and G#, since these were the only inflections possible in the standard keyboard tunings used by both TSM and Juan Bermudo.

These inflections of *musica ficta* are not "chromaticism" as it is defined by musicologists today, a move through at least two consecutive half-steps, e.g. C-C#-D. That type of melodic movement was not taught by TSM [4]. His changes of inflection occur in a context which remains essentially diatonic even when different inflections follow each other closely. [5]

In modern editions of "early music," it is common practice to place "editorial" sharps and flats in small characters above the staff to guide the naive reader. This is an alteration of the original text. By the convention of recent years, these editorial inflections are *incompletely marked,* applied only to the primary cadences of the mode, which are obvious and uncontroversial. On encountering such an edition, the naive reader will naturally think that all of the unmarked inflections have been identified by the editor, and will fail to apply any more thought to the matter. But, lacking even this much guidance, some naive You-tubers have made recordings of TSM's *fantasías* which baldly and risibly lack the most commonly required inflections, indicating clearly that these musicians did not read the text of the *Arte de Tañer Fantasía* before recording.

Thomás de Sancta Maria provides complete instructions not only for the inflections of cadences, but also describes other idiomatic inflection practices which are more subtle, which were also described by other Spanish theorists such as Ramos and Bermudo. The reader's optimal course is to read and understand TSM's instructions, and then to decide for himself or herself how to inflect any particular passage. Instead of providing "editorial" inflections (which I have done only in some specific instances), I repeat TSM's instruc-

1. *cf* Ornithoparcus, *Micrologus* (Dowland trans) p 10, 14, 16, 17.

2. As with unfretted extra bass strings on the lute, the notes C#2, Eb2 and F#2 were omitted from the "short octave" of TSM's keyboard.

3. Bent, *Counterpoint, Composition and Musica Ficta,* p 69.

4. TSM, ***Arte,*** Bk I, f.16.r.

5. The distinction is discussed by Margaret Bent in *Counterpoint, Composition and Musica Ficta,* Chapter Four, "Diatonic *Ficta,*" p 115 ff.

- Although Bent's distinction is valid for *modern* early-music theory, it is a distinction focused on late 15th century music and earlier; Juan Bermudo did consider the black keys of the keyboard to belong to the "chromatic genus," and so, Bent's distinction does not hold when reading Bermudo, who is guilty of the "keyboard orientation" of a later time.

tions, and hope that the musician who reads this book will understand and apply them. TSM's authorial inflections *are* "editorial," and sufficient for his time! The tablatures of the vihuelistas provide parallel examples which are specific as to inflection. I recommend that the reader study the tablatures, but the tablatures by specifying their inflections hide the necessary process of choice.

Chapter 5.02 Editorial Inflections

In proposing "editorial" inflections, there is the problem of knowing when to stop. The field of *musica ficta* studies is subject to changes in musicological fashion. Respected musicologists of the past, notably Hugo Reimann (1849-1919) [6] and Edward Lowinsky (1908-1985) [7], have offered theories which have been refined or displaced by those of more recent musicologists, among whom we may mention Margaret Bent [8] and Karol Berger [9], who disagree on some fine points. Reimann was criticized for an overenthusiastic application of accidental inflection — but I myself am in sympathy with his method, and am only restrained from following him by my historical awareness that (a) he was criticized and that (b) this inflection is a subjective process. My opinion is that the reader should be free and enabled to do that work for himself or herself.

6. Reimann, *History of Music Theory,* (ed. Haggh) p 329 ff. See note by editor Haggh, p 396 - 397.

7. Lowinsky, *Secret Chromatic Art in the Netherlands Motet* (Columbia Univ. Press 1946).

- A now-legendary work which is unavailable outside of conservatory libraries.

8. Bent, *Counterpoint, Composition and Musica Ficta* (Routledge 2002)

9. Berger, *Musica Ficta* (Cambridge University Press 1987)

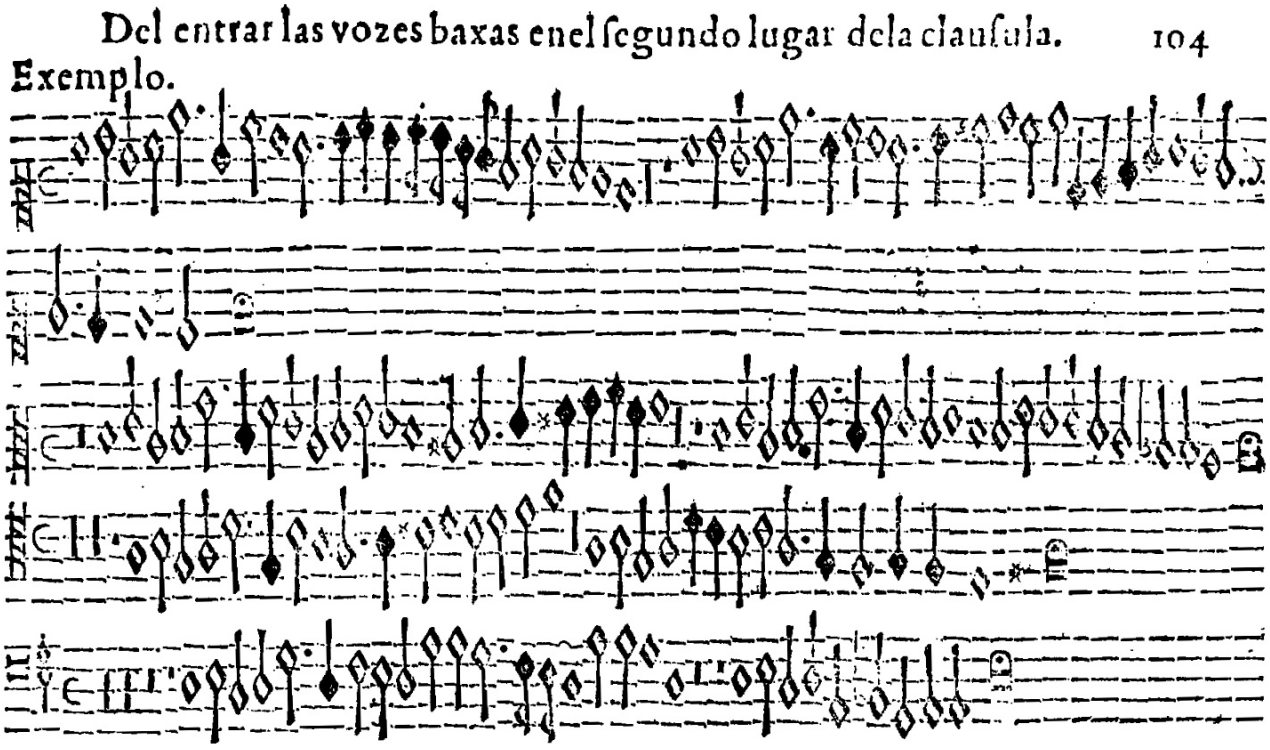
My expertise cannot compare with that of these knowledgable musicologists, but my musical taste is not contented by a conservative reading of the music of TSM. My approach is a tentative, and sometimes a radical, exploration of the *potential* of TSM's style of harmony, which ought not (in my opinion) to be reduced to absolute rule, but might better maintain a certain game-like attitude: how might I inflect this passage today? I cannot in good conscience present my own inflections to the reader as definitive, first because of their subjective nature, and secondly because I consider it impossible to defend them, and so, I only make suggestions. **Exes. 5.03** and **5.04** below, it should be quite clear, are given as extreme examples of what is not acceptable in a modern edition of early music. On the other hand, I consider the modern convention of notating *only* the most essential inflections to be unfairly misleading to the reader who is unfamiliar with 16th century notation.

In the following examples I show how the application of "editorial" inflections may be a slippery slope. TSM's fugue (facing page) is in Mode I, but to the modern ear presents a rather vague tonality without much definition. My two examples of "editorial fictions" are (1) absurd, because they go far beyond what any responsible editor would do, and (2) are mutually exclusive as solutions, because one is biased toward the sharp side and the other toward the flats. Each has its arguable merit in terms of musical results acceptable to the *modern* ear, while having no merit as an "authentic" period reading — if such a thing exists. Each reader will have to find the fine line to tread between the realization of an "authentic" period reading, and a reading which satisfies his or her ear — and this will change as one continues to study the material. If, as appears to have been TSM's plan, the reader should use redactions of TSM's material in the composition of original *fantasías,* then how

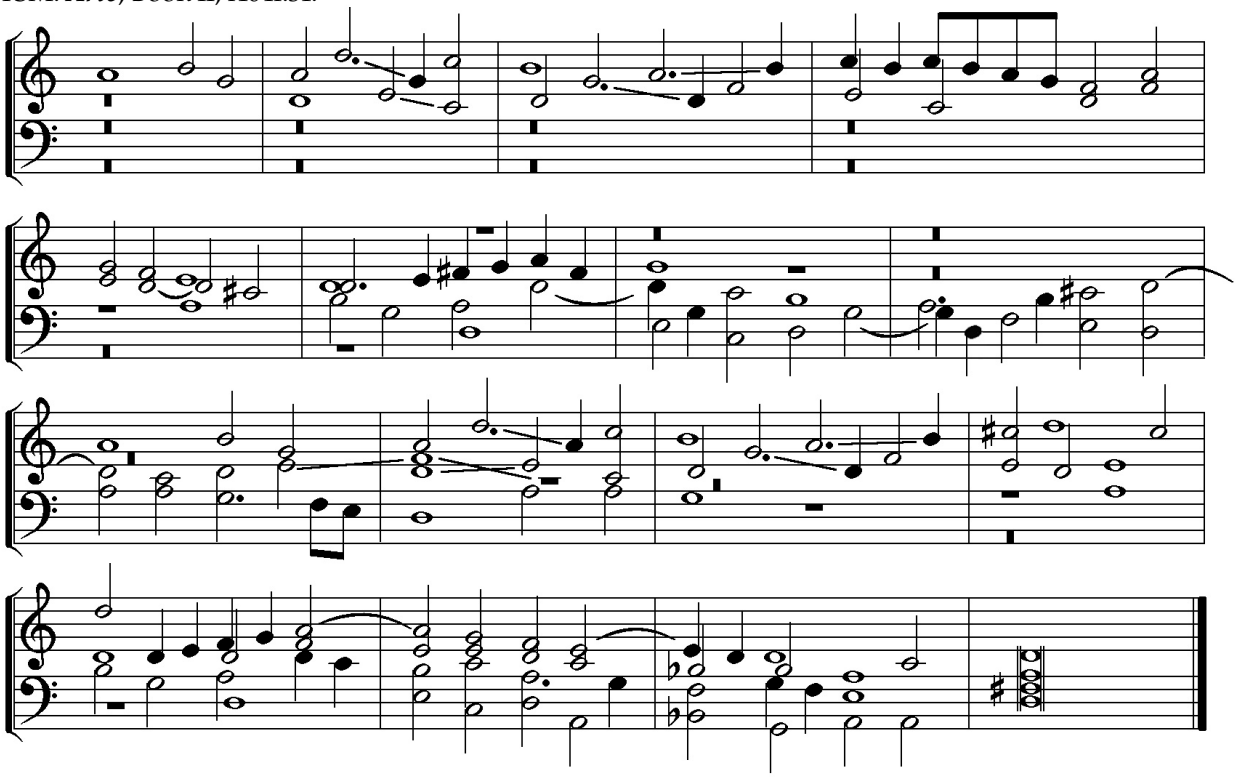
to walk this line may be an individual choice. It is my intention to point the reader toward making informed choices about inflection, without dictating those choices or carving them in stone. The fine points are matters of personal taste as they were for the vihuelistas. At the worst, one might convert all of TSM's harmony into 18th-century-style tonal harmony by a liberal application of inflections. It is unrealistic to think that anyone can compose new material in this style without some concessions to modern taste; this may be lamented as theoretically deplorable while admitting that it is unavoidable and may be useful. It is also unreasonable to think that anyone can even make choices in the inflection of TSM's examples without being influenced by modern taste; here the remedy, if a remedy is necessary, is to study the tablatures of the vihuelists and acquire a thorough knowledge of the style.

Some inflections are optional and others mandatory. Firm lines can be drawn only for the inflections of the primary cadences, but these are in fact obvious when unmarked, and it is unnecessary to pedantically mark them all with a pencil. For the rest, it appears better to encourage informed decisions than to try to carve every detail in stone according to my own opinions, because I maintain an experimental attitude. In the course of the several years during which I have studied the ***Arte,*** I have changed my mind about the inflection of many of TSM's fugues, in a gradual discovery process. In light of this, I consider it important to encourage the reader to make his or her own decisions, although I emphasize that these should not be hastily made, and ***marked, if at all, with a light pencil.*** (A "donkey's mark," as Johannes Tinctoris characterized the flat sign in the late 15th century.) Therefore, I have retained TSM's original *partial* notation of inflections, and have not added more without specific explanations. My only concession to ease of reading has been to vertically align the four voices on one staff system.

Ex. 5.01 A Fugue by TSM: to be subjected below to excessive editorial inflections
TSM: ***Arte,*** Book II, f104r.s1. Facsimile of original print.



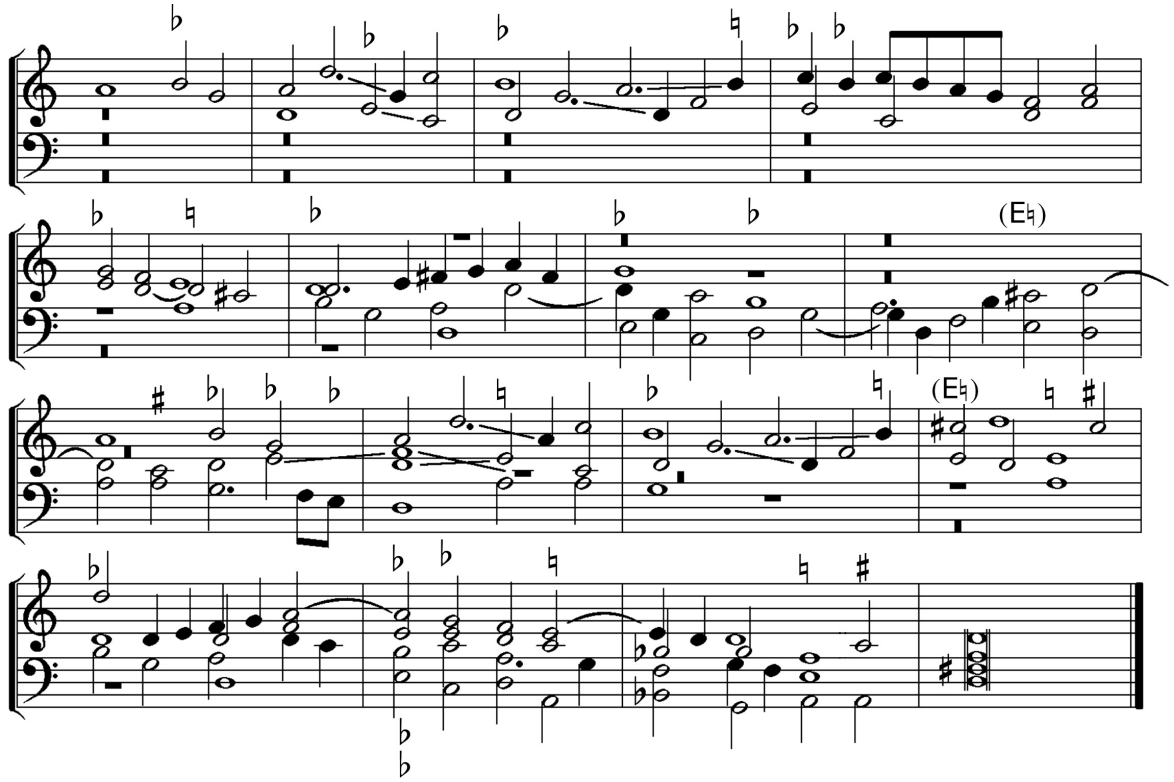
Ex. 5.02 The same fugue in modern transcription, retaining only the original marked inflections.
TSM: ***Arte***, Book II, f104r.s1.



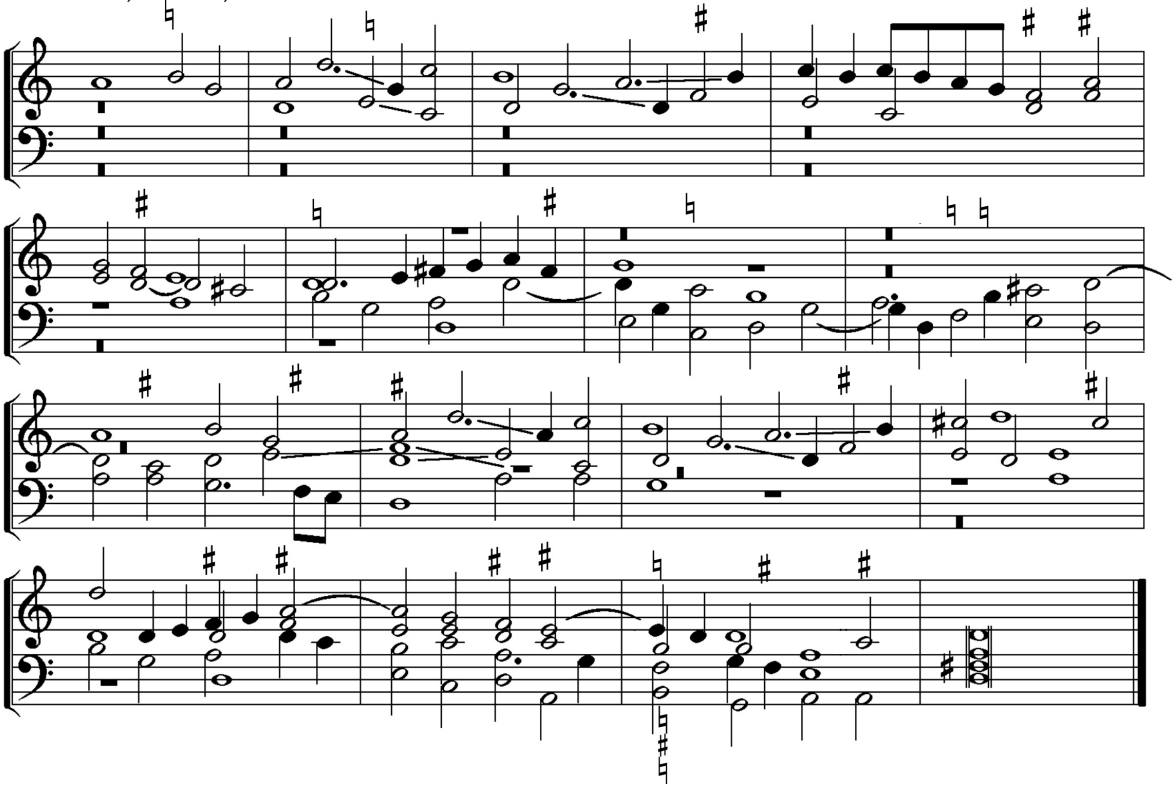
I don't wish to mislead the reader by claiming that the examples on the facing page should be emulated (they are absurd), although we might abandon the idea of being absolutely true to 16th century style, and compose music to please ourselves. O Heresy! Naturally I don't actually recommend this path, I merely point out that the entrance to it is wide open and not very well guarded, and that you can have a lot of fun with sharps and flats, if you want to. There are not too many musicians in the world who would be competent to argue the details of a creative *ficta* practice. While this may have little to do with "authentic" 16th century style, it is my own experience that changing the mode by biasing the inflections further sharp or further flat is a very interesting way to explore modal harmony, and might lead to creative results which could be valid and useful on their own terms even if begotten by this unorthodox procedure.

But the validity of the process of experimentation does not excuse misleading the reader: the reader should have the original text, and instead of excessive and intrusive markups I prefer to offer instruction. Whether an editor offers a few or many editorial accidentals, the effect on the reader is the same: the material has now been altered by the editor's opinions, and the reader is led to believe that those opinions are valid and sufficient. If the editor is sparing with the accidentals, many possibilities will be missed; if the editor is more zealous, the reader is potentially misled and certainly deprived of choice. In the music of TSM there are many examples without simple answers. Therefore, I have not marked up TSM's scores. Any note, except for those of the pitch classes D and A, is potentially inflectable.

Ex. 5.03
The same fugue, with added inflections biased towards flats.
TSM: ***Arte***, Book II, f104r.s1.



Ex. 5.04 The same fugue, with added inflections biased towards sharps
TSM: ***Arte***, Book II, f104r.s1.



Chapter 5.03 Musica Ficta in Plainchant

Our main concern is with inflections used in polyphonic music. Although this issue is more complicated than the issues of *musica ficta* in plainchant, the rules applied to plainchant are our beginning point.

In plainchant, augmented fourths and diminished fifths which occur melodically between the intervals of F♮ and B♮ should be softened by flatting the B. As a rule, the F# is not used for this correction. The principle is Aristoxenean: Aristoxenus stated that all of the notes of the scale in use should be a perfect fourth or fifth away from some other note [10]. Early medieval organum exploited this harmonic parallelism until parallel harmonies went out of style in favor of contrary motion, but the principle of "perfection" of imperfect fourths and fifths remained applicable to plainchant itself and also to polyphonic compositions, particularly as long as the Tenor remained the harmonic core of the composition, as it did until the end of the 15th century. The structure of the Guidonian Gamut with its acceptance of B♭ and B♮ as equally-possible choices makes it possible to sing chant phrases which are framed by perfect fourths or perfect fifths; it is bad practice to sing a phrase which begins on B♮ and ends on F♮ or vice versa [10a], unless the B is flatted, or unless the phrase turns back, or continues, as (e.g.) F-G-A-B♮, which should continue to C to frame the phrase with a perfect fifth, or else have its B flatted. The diminished fifth between Bb and E♮ may become prominent when the B is flatted; in the phrase (e.g.) B♭-A-G-F-E♮, the diminished fifth is mitigated by either turning the phrase end back to F, or flatting the E. It is also possible to construct a chain of flats as successive corrections, following a B♭ by correcting an E♮ to E♭ and subsequently an A♮ to A♭ **(Ex. 5.06).** None of these inflections are necessarily marked in the staff notation: they are a matter of interpretation by the singer. However, the use of the Ab was abandoned by Spanish instrumentalists of the sixteenth century, and in their music we no longer find these chains of flats, although it is probable that there were musicians who still adhered to the older practice, which has been true in all times.

In plainchant it is evident that to sing a diminished fifth or tritone was considered bad practice if it could be avoided. We can read between the lines when Ramos de Pareja writes, "to make a tritone is not a mortal sin as many believe." [11] Ramos being an unorthodox maverick compared to other musicians of his time, it appears probable that it *was* a sin to other singers [12]. Ramos immediately connects this comment with the use of the "intense" rising fifth F-G-A-B♮-C, in which "the ascent is sweeter than in this manner: F-G-A-B♭-C. Nevertheless, in the descent [it should be done] in the opposite way…" This rising fifth with an augmented fourth degree is also discussed by Thomás de Sancta Maria [13]. It is possible that this motive is a survival of the ancient rising overtone-series scale **9:8 / 10:9 / 11:10 / 12:11,** framed by the perfect fifth **12:8.** [14] We will discuss it further below.

10. Macran, *The Harmonics of Aristoxenus*, p 205:

"Whatever be the genus, from whatever note one starts, if the melody moves in continuous progression either upwards or downwards, the fourth note in order from any note must form with it the concord of the Fourth, or the fifth note in order from it the concord of the Fifth."

10a. This is "according to theory." For the reality, see **Ex. 12.137,** where TSM's soprano voice in ms. 12-13 sings a descending diminished fifth from F5 to end decisively with a whole note on B4 followed by a rest. There is no "perfection" possible.

11. Ramos, *Musica Practica,* Part 1, Tr. 2, ch. 8.

Fose, *Ramos,* p 148, 308.

12. Bermudo, *Declaración,* Bk II ch 7 f.xxii.r c2 line 29:

"The tritone and the diminished fifth are forbidden intervals in plainchant, and more so the tritone; for this reason the Greeks put a new string *[trite synemmenon]* in order to correct the tritone, but they did not put one [a new string] to avoid the diminished fifth."

Chapter 5.04 Ornithoparcus on Musica Ficta

The *Micrologus* (borrowing Guido of Arezzo's well-known title) of the German singer Andreas Vogelsang — "Andrew Birdsong" in English, latinized as "Ornithoparcus" — of 1517, in Latin, was immortalized in English by John Dowland's translation of 1609. The translation is a landmark of English music theory, along with Morley's *Plaine and Easie Introduction* of 1597, although it is less detailed and less up to date than Morley's work. Dowland had some special affection for this obsolete treatise, which his own composition practice had long left behind. Ornithoparcus's *Micrologus* gives us a snapshot of the accidental inflections applied to plainchant at the beginning of the 16th century, including the trope of "beauty and perfection." Here follows his chapter on *Musica Ficta* as translated by Dowland.

13. TSM, ***Arte,*** Bk I, f.17r.

14. Schlesinger, *The Greek Aulos,* p 311.

The Tenth Chapter

Of Musica Ficta.

Fained Musicke is that, which the Greekes call *Synemenon,* a Song made beyond the regular compasse of the Scales. Or it is a song, which is full of Conjunctions.

Of Conjunctions.

The Conjunct sounds were called by the ancients *Dijuncts* because it is *[sic]* added to songs besides their nature, either to make them more sweet, or to make the *Moodes* [= intervals] more perfect: for thus saith Saint *Bernard* [15]: In every kinde, where it is meet a flatter sound should be, let there be put a flat instead of a sharp; yet covertly, least the Song seeme to take upon it the likenesse of another *Tone* [= Mode]. Now a *Conjunct* is this, to sing a Voyce [= solfege syllable] in a *Key* [= note of the Gamut] which is not in it [i.e. the Voyce is not "in" the Key; the syllable is not associated with this note in *Musica Recta*]. Or it is the sodaine [= sudden] changing of a *Tone* [= whole step] into a *Semitone,* or a *semitone* into a *Tone.*

15. Saint Bernard of Clairvaux (1090-1153 CE)

Of the Division and number of Conjuncts.

Conjuncts are two-fold: that is, Tolerable ones, when a Voyce is sung in a *Key,* wherein it is not, yet is found in his eight [= octave], as to sing *Mi* in *A re, La* in *Dsolre.* Intolerable ones, when a Voyce is sung in a *Key* which is not in it, nor in his eight, as to sing *Fa* in *Elami, Mi* in *Ffaut.* Of these *Conjuncts* there be two signes, *viz.* ♭ round and ♮ [16]. The first sheweth that the *Conjunct* is in ♮ *dure* places; the second, that it is in ♭ *flat* places. *[sic]*

16. The sign used in Dowland's edition is a large square B with a right descender hanging below the line.

in ♮ *dure* places;

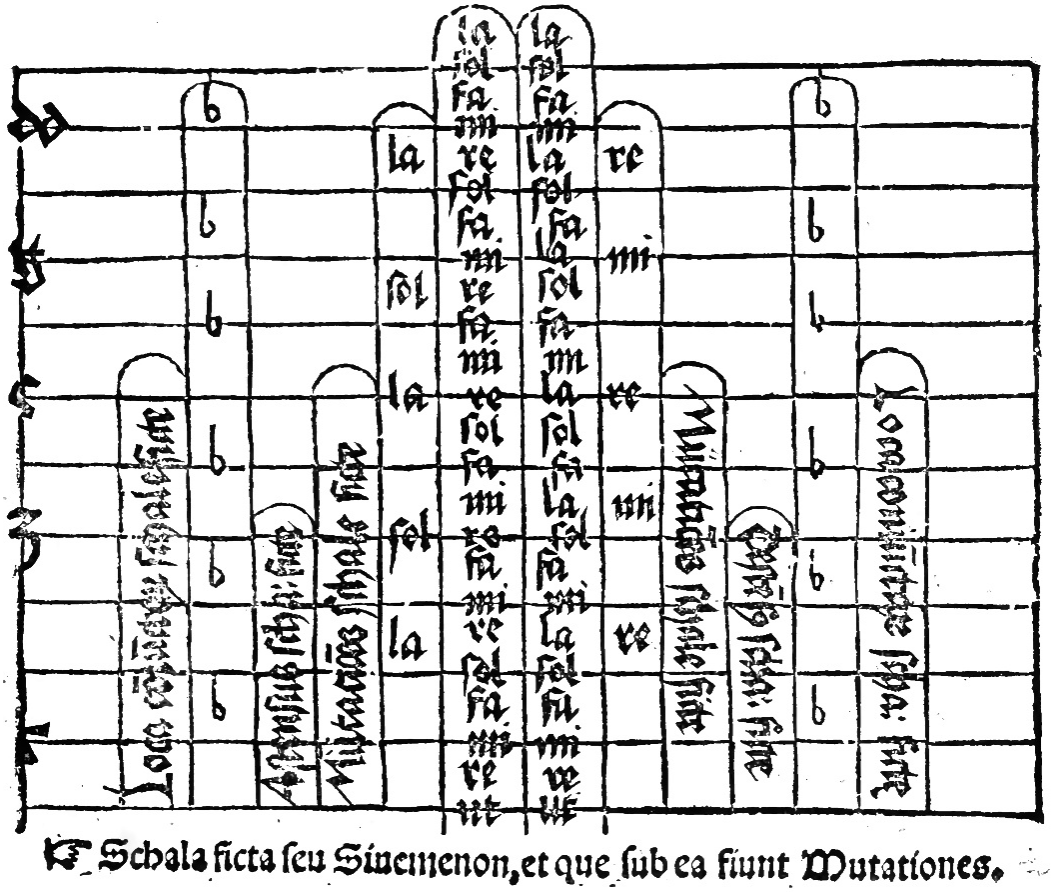
There be 8. *Conjuncts* most usuall: although there may be more. The first in a Base [= Ab2; evidently Bb2 is not mentioned here because its octave, Bb3, is *musica recta*], is marked with round ♭. The second in *E* finall, is marked with the same sign. The third is in *Ffaut,* and is marked with ♮. The fourth in a small [= *a-la-mi-re* or A3] is known by *b flat* [evidently meaning Ab3, and omitting to mention Bb3; Bb3 is *musica recta*]. The fifth in *c* affinall by ♮ *dure.* The sixt, in *e* by ♭ round. The seventh, in *f* by ♮. The eight in *aa* by ♭. There be examples enough to be found of these both in plaine and mensurall Songs.

Here follows the fayned Scale.

The fained Scale exceedes the others both in height and depth. For it addeth a *Ditone* under *Ut* base, because it sings *fa* in *A,* and it riseth above *eela* by two degrees, for in it sounds *fa.* Wher[e]fore for the expressing of it, there are necessarily required twelve lines, as appeareth in the figure following. [17]

17. Ornithoparcus, *Micrologus* (Dowland trans) p 24.

Ex. 5.05 Ornithoparcus's "Scale of ficts" [18]



The Scale of ficts or Synemenon, and how the Mutations are made.

Ornithoparcus continues:

Rules for Ficta Musicke.

First, It is better, and sweeter to sing by tolerable *Conjuncts,* than by the proper Voyces of *Keyes.*

2. The tolerable *Conjuncts* doe not spoyle the Song, but the intolerable ones.

3. Musicke may Fict in any Voyce and *Key,* for Consonance sake.

4. Marking *fa* in *b fa* ♮ *mi,* or in any other place, if the Song from that shall make an immediate rising to a Fourth, a Fift, or an Eight, even there *fa* must necessarily be marked, to eschew a *Tritone* [= augmented fourth], a *Semidiapente* [= diminished fifth], or a *Semidiapason* [= diminished octave], and inusuall [= unusual], and forbidden *Moodes* [= intervals]: as appeareth in the example under written. [19]

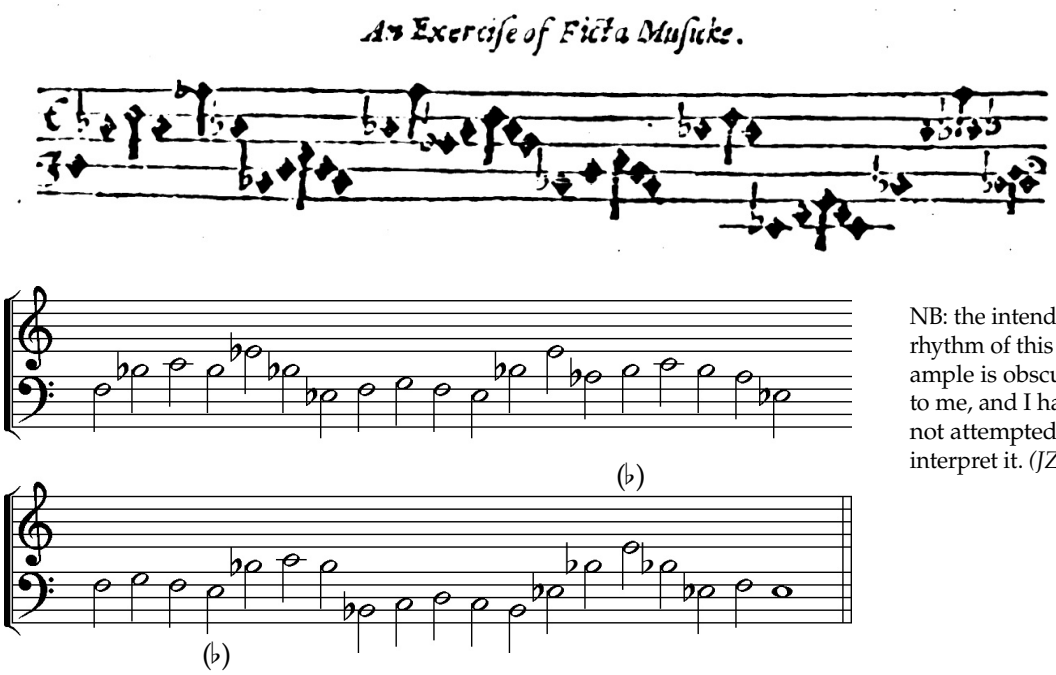
By "intolerable" *conjuncts* Ornithoparcus clearly does not mean "unusable," since the much-used Eb and F# are specifically mentioned as being of this class. The comment that these inflections "spoyle the Song" is difficult to interpret.

18. Ornithoparcus, *Micrologus* (Dowland trans) p 25.

This graphic was copied from a scanned copy of the Latin edition in the possession of the City of Boston Public Library (Massachusetts USA), because it is of better quality than the scan which I have obtained of the Dowland translation.

19. Ornithoparcus, *Micrologus* (Dowland trans) p 25.

Ex. 5.06 Ornithoparcus's Example of Musica Ficta [20]



NB: the intended rhythm of this example is obscure to me, and I have not attempted to interpret it. *(JZ)*

20. Ornithoparcus, *Micrologus* (Dowland trans) p 25.

The principle shown here by Ornithoparcus was applied to the Tenors of polyphonic compositions, and to notes of the other voices which were required to be in perfect consonances against the tenor. Later we will look at a polyphonic example from Josquin, both as inflected according to this practice, and (on the contrary) as inflected on the keyboard of Thomás de Sancta Maria and as implied by the fret diagrams of Juan Bermudo, which lacked an Ab in both cases, and on which this practice must have been modified so as to always use an A♮.

In the Spanish style of the middle 16th century, the old Aristoxenean dictum that scales must contain perfect consonances between fourths and/or fifths was beginning to break down, as we find increasing incidence of the melodic diminished fourth and augmented fifth **(Ex. 507),** and harmonic diminished fifth **(Ex. 5.08),** augmented fifth **(Ex. 7.75)** and augmented sixth **(Ex. 12.33).** Thus TSM finds it necessary to explain the exceptions to the old Aristoxenean rule, as follows.

The convoluted wording of the passage quoted below illustrates the failure of 16th century musicians to yet establish a practical nomenclature for the sharps and flats. Although TSM distinguishes clearly between "sostenido negro" (sharp black key) and "bemol negro" (flat black key), he does not apply the "letters of Gregory" to them, but describes their positions between those letters. The "keyboard orientation" is obvious but the nomenclature is that of Guidonian solfege and of the Guidonian Hand.

"This second opinion [TSM has been discussing the number of commas in singable and unsingable semitones], appears to us to be the most true and most provable and that to which one ought to hold, from which it follows that the tone cannot be divided or parted into two equal semitones, but instead necessarily one semitone must be major and the other minor, and so, wherever there is an interval or space of two equal and singable semitones, there is an unsingable intonation. This distance or space between two semitones which are [otherwise] equal and singable, is found from the black sharp key which is between C-fa-ut and D-sol-re, to the black flat key which is between D-sol-re and E-la-mi, and the same from the black sharp key which is between G-sol-re-ut and A-la-mi-re acute, to the black flat key of B-moll acute, that which is between A-la-mi-re [acute] and B-mi acute. The same may be understood of their octaves. In the same way, this unsingable intonation is found from each one of the other flat black keys to whichever black sharp key, and neither more nor less, from any sharp black key to any flat black key, and for this reason one may not ascend or descend stepwise, nor by skip, from a flat black key to a sharp black key, nor from a sharp black key to a flat black key; instead, when one wants to ascend or descend whether stepwise or by skip, from one black key to another, necessarily it must be from flat to flat, or from sharp to sharp, except when between the sharp black key and the flat black key there may be played one or more white keys, because with this condition, one may well ascend from a black sharp key to a black flat key, and descend from a flat black key to a sharp black key, as may be clearly seen in the following examples:" [21]

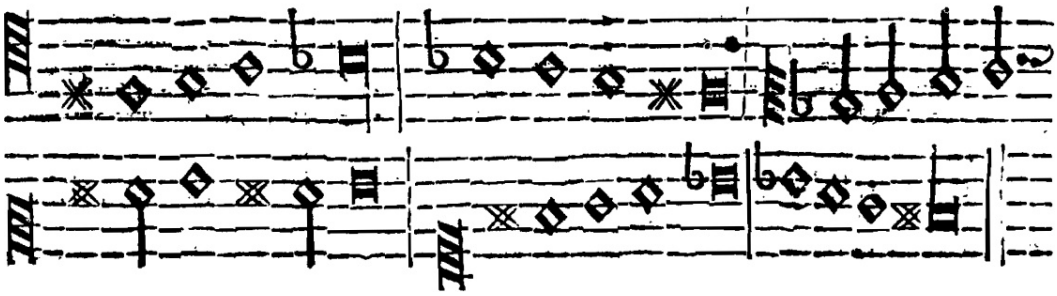
21. TSM, ***Arte,*** Book I, f23r.

22. *Ibid.*

Ex. 5.07 Melodic Diminished Fourths and Augmented Fifths

Exemplo desta excepcion. [22]

C-clef ->



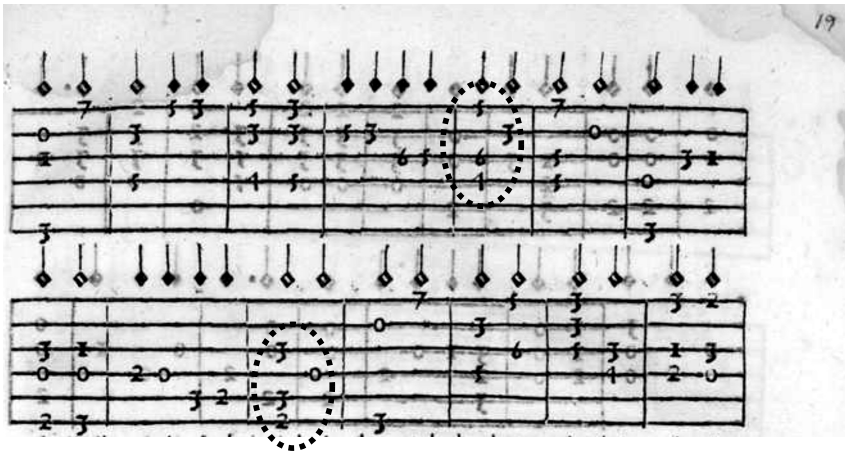
The last two examples, as TSM shows in other parts of the ***Arte,*** are solmized by TSM as *ut-re-mi-fa* and *fa-mi-re-ut,* instead of *mi-fa-mi-fa* and *fa-mi-fa-mi*, which would express the mutations. This Spanish use of solfege is confirmed by Juan Bermudo and by Ramos (see Chapter 5.12) and by example by Mudarra in his *Fantasía Sobre Fa-Mi-Ut-Re,* on the cantus firmus C-B-G#-A **(Ex. 5.33).**

Chapter 5.05 Flats Are For Perfection

Diminished fifths between the bass and any upper part are rare in 16th century music and are usually, ***not always,*** corrected to perfect fifths even when this might appear to violate the mode. There are exceptions to this rule: see **Ex. 5.08** below from Luis Milan, but see **Ex. 4.09,** his 3rd Pavan, m. 21, for a fifth corrected with Eb, which is very characteristic of this device, which may also be seen marked by TSM in the bass and alto parts of **Ex. 5.01.** The most common corrections are to play Bb in place of B♮

Ex. 5.08 Milan plays two diminished fifths in imitation: (Fantasía #7)

El Maestro, p 19, online copy of the Biblioteca Nacional de España



and Eb in place of E♮. Logically, this procedure might be extended to the use of F# over B as well, but Berger says this was rarely done [23]. The sharps are not derived from the Synemmenon tetrachord, whereas the flats are: the Synemmenon or *Conjunct* underlies the rationale for the perfection of fifths [24]. An oft-stated rule is that "flats are for perfection, sharps are for beauty." [25] The three sharps, F#, C# and G# are most commonly used for making major sixths preceding a cadential octave, and minor thirds preceding a cadential unison — that is, imperfect consonances, "for beauty." In **Exes. 5.02** to **5.04** above, the penultimate C# in the Soprano is a *mandatory* inflection which is often left unmarked in TSM's scores. The flats, however, are "for perfection," a different harmonic function.

The diminished triad or half-diminished seventh chord in root position is rare in the music of TSM, but it does occur in some cadences and also as the result of imitation — but TSM never marks the inflection even though the same sharp may be marked in the other voices. The diminished fifth *may* be perfected; in cadences on F this is usually necessary, and otherwise may be a judgement call, and there are some cadences where it cannot be perfected. When diminished triads occur in the music of TSM, they are usually (in modern terms) in first inversions, or as second inversions of half-diminished sevenths on the weak beats of cadences, with a passing quarter note figure in the tenor or alto. More rarely they may appear in root position as in Milan's example above, but always unmarked and only *implied* as the result of an imitation: this diminished fifth could be perfected according to the common rule, but sometimes this may sound odd or banal, and so it remains a judgement call.

23. Berger, *Musica Ficta,* p xv, 80-81.

- Ornithoparcus, *Micrologus* (Dowland trans) p 24: "… let there be put a flat instead of a sharpe; yet covertly, least the Song seeme to take upon it the likenesse of another *Tone.*"

24. Berger, *Musica Ficta*, p 48.

- Mongozzi, *The Renaissance Reform…*, p 94 ff.

- Ornithoparcus, *Micrologus* (Dowland trans) p 24.

- Bent, *Counterpoint, Composition and Musica Ficta*, p 68.

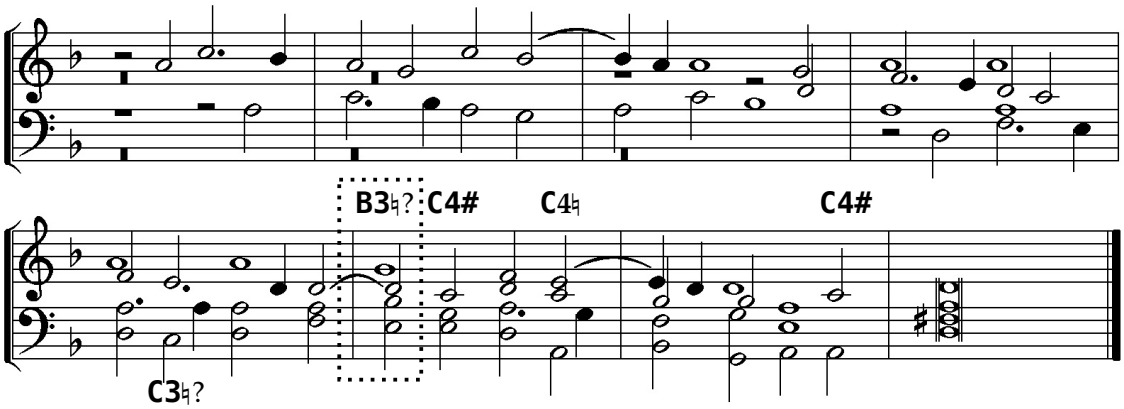
25. TSM, *Arte,* Bk I, f.16.v: "All of the black *Sostenidos,* which are accidental *Mis,* were invented for the grace and beauty of the natural *Solfa…* which is not the case for the black flats, which are accidental *Fas,* because they were invented for pure necessity, for the perfection and completion of the *Diapente, Diathesaron,* and *Diapason,* and because of the need to give completion and perfection to these three consonances."

- See also Bent, *Counterpoint, Composition and Musica Ficta,* p 66 ff.

In the correction of the diminished fifth where F♮3 appears in the Tenor over B♮2 in the Bass, the Bass should usually sing Bb2 as a matter of course, exactly what Milan does *not* do in **Ex. 5.08.** (TSM has marked the Bb in the approach to the final cadence of **Ex. 5.02** above, but his notation of the flat is not obligatory — it is a concession to beginners.) The opposite course, to inflect the Tenor to F#3, is a rarely used option; the tenor is typically not inflected in this way. Sometimes it may appear to be the logical option, and it cannot be ruled out entirely, but it is contrary to the general flatwards bias of "perfection" in Guidonian theory. In **Ex. 5.09** the Tenor's B♮ takes the place of this possible F#:

Ex. 5.09 The Possible Correction of a Diminished Fifth with B-Natural in the Tenor?

TSM: ***Arte,*** Book II, f73r.s1b-2.



This example is in Mode II with a cadence on the Final. However, it might also be in Mode IV with a transposition to one flat, with the secondary cadence of that mode. This kind of ambiguity is common with only one cadence. For Mode II, a second cadence on F would be definitive; for Mode IV transposed, we would expect a primary *remissa* cadence on A, but this is also the passing cadence in Mode II untransposed.

The chord on the first half-note of m. 6 might be inflected in three different ways: with Eb and Bb, with E♮ and Bb, or with E♮ and B♮. The option with Eb in the bass would be a violation of mode, no matter which mode we choose to consider, II or IV. The option with E♮ and B♮ is the most conservative: the fifth is perfected. But the Tenor gets two demerits for singing a B♮ there: (a) it violates the mode; and (b) it violates the common rhyming rule, *"Una nota super la semper est canendum fa,"* meaning that Bb *(fa)* should usually be sung as upper auxiliary to A *(la)* in preference to B♮. After the B♮, the Tenor must sing an awkward melodic tritone B-F descending; the Bb sounds more natural.

The option with E♮ and Bb results in a half-diminished chord in root position [26]. This is a very lush-sounding chord more typical of 18th-century style than of 16th, and it may be doubted whether this chord properly belongs to TSM's style. I *(JZ)* venture an opinion: to my ear it is the best-sounding option. But the issue is debatable and ambiguous. The reader may experiment and decide. It is a question of whose ear one is intending to please.

26. For two more examples of possible half-diminished chords in root position, see:

Ex. 12.011, m 11, fourth half-note.

Ex. 12.130, m 6, first half note.

The other presenting issue in this fugue is the inflection of the pitch class C. The "editorial" C-sharps marked above the staff in ms. 6-7 are both cadential [27] and mandatory. The C-natural (?) in the bass in m. 5 *may be* dictated by the imitation of the point, established by the G-naturals in m. 2 and by the rising fourth in the soprano and alto statements. However, the bass does not sing the rising fourth, and by another common rule the bass's C3 could be sharped because it is the lower auxiliary of the two D's before and after it. There is some possibility that the D3 on the 3rd half-note of m. 5 is a typographical error for F3: this would restore the rising fourth, prolong the exact imitation of the Alto by one note and would enrich the harmony of the Alto's cadence — and we are free to make that change, because this is an exercise in fugal composition and not a classical transcription. There is another possible interpretation: the Alto's C4 on the fourth half-note of m. 4 could also be sharped, with a skip of a diminished fourth following, and the bass's C# would then imitate the Alto. This may seem like much too radical a harmony to read into this staff notation. Yet once having opened the door to that harmony, it proves to have a subtle logic of its own, and I have observed that there are many opportunities to use it in the ***Arte.*** Now that I have studied TSM's harmony for a number of years, this is the solution which I prefer, but it is indefensible according to my own understanding of the usual rules: Caccini's use of the diminished fourth as a stylized expression of anguish is still forty years in the future. However, suppose the skip were filled in with a run? TSM has okayed that in **Ex. 5.07.**

27. The dotted half note with anticipation in the Alto in m. 5 of Ex. 5.09 is a signal that a cadence is in process. In Book 7 on cadences we will see many examples of this signal.

The initial statement of the point of imitation by the Soprano and Tenor has a quarter-note Bb which is answered by both Alto and Bass with a quarter-note E♮, an oblique tritone. We will examine this type of answer closely in the example of the Josquin-Fuenllana duo below. It could be argued that the Bb should be answered with an Eb, in order to duplicate the interval content of the subject in the answer. This is an appealing and logical rule — but it is invalid for this style according to my understanding [28], although it is a reasonable option to explore in composition, to see how and when it may be made to work. In the style of TSM and the vihuelistas, the structure of the mode determines the relationship of subject and answer, and the subject is often answered with a different pattern of whole-steps and half-steps which is determined by the structure of the mode. An exact imitation often violates the mode. All the same, there are some fugues where exact imitation is a genuine concern.

28. Bent, *Counterpoint, Composition and Musica Ficta,* p 19: "As for imitation... I wrote, 'The case at no point depends on the maintenance of intervallically identical sequence laps, but rather on the independent determination, at each moment in the music, of how the priorities of vertical perfection and cadential subsemitones may be balanced...' Cross and I are again in agreement that context often prevents imitations from being exact."

The peculiar nature of the medieval and Aristotelian concept of *accident*, meaning an attribute "both present and not present," (so very different from the modern meaning of "automobile wreck" that it should be considered a false cognate), allows 16th-century "accidentals" to exist in a certain grey zone. Within that zone of choice, I believe, inflections may have been judged by contemporary opinions of what constituted "good taste" which are unrecoverable today, which were more subtle than the rules of procedure which we can find in the theorists. One must try to develop a tasteful personal style while recognizing that modern taste will always be somewhat different from the ancient taste.

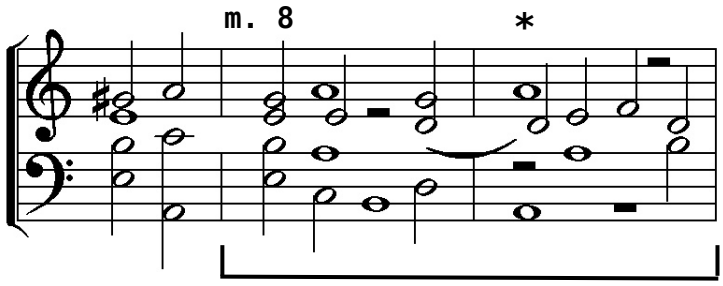
It isn't necessary that the reader understand all of this at first sight of one of TSM's examples — the beginner is forgiven for choosing the simplest diatonic solutions on the first reading. TSM's work does not render up its "secret chromatic art" immediately to the casual reader, and this may be one reason — another being one egregious and obvious error committed by TSM himself and no other — why TSM's text is not used today in academic counterpoint courses. The particular error in question may not be noticed by the casual reader, but it is quite noticeable to anyone who has studied Fux.

In the primary demonstration example of a Mode I fantasía in Book I of TSM's ***Arte,*** folio 67 verso — reproduced as **Ex. 9.01** in the present work and as **Ex. 5.10** immediately below — the Alto enters ungrammatically at m. 8, fourth half note (counting 4/2 measures.) The cadence is not properly constructed to facilitate the Alto's entrance (according to other authors) because the Alto enters with a suspension dissonance which does not properly resolve. The device is repeated in the transposed Mode I fantasía on folio 71 verso **(Ex. 9.04),** so evidently this device did not bother TSM, but to anyone who has studied the method of Fux, it appears to be an error. The Alto's entrance on D4 becomes a suspension dissonance when the Bass sings A2, which by rule should resolve downwards by step. In order for the Alto's entrance to be grammatical, the Bass must sing a consonance below the Alto on the first beat of m. 9, which can only be a D or an F. Putting the best twist on it, I propose that TSM left this error as a booby trap for non-serious readers who play the examples but don't read the text. I suspect that many a counterpoint instructor schooled in the method of Fux must have been stopped in dismay by this one example from using TSM's ***Arte*** as a teaching text, because to correct it requires a certain degree of contrapuntal skill, and taken at face value, it reflects poorly on TSM.

For my part, it took me five years of studying the ***Arte*** to discover the solution for this entrance: it involves re-writing the cadence. The solution is not difficult — once one knows what it is! — and there may be more than one. I leave it to the reader to discover. It is not the only puzzle to be solved in studying the ***Arte***.

Ex. 5.10 A Defective Entrance left by TSM as a booby trap for the unwary reader:

TSM Arte Book I, f.67v. ms. 7-9. See **Ex. 9.01.**

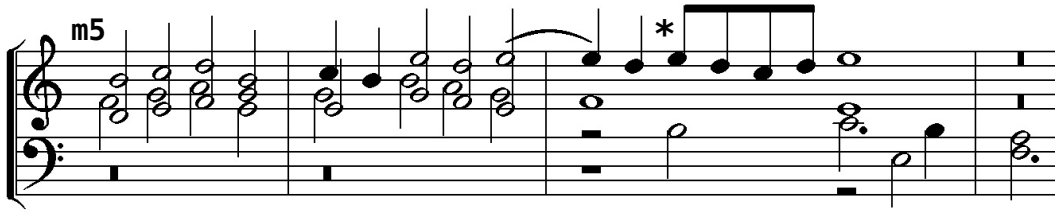


These two measures must be revised.

We return to the question of diminished fifths. The following cadence framing a fugal entry in Mode III features a horrendous dissonance which cannot be perfected. The Soprano and Alto make the principal cadence of Mode III while the Tenor enters a diminished fifth below the Alto. The diminished fifth is resolved correctly to a major third.

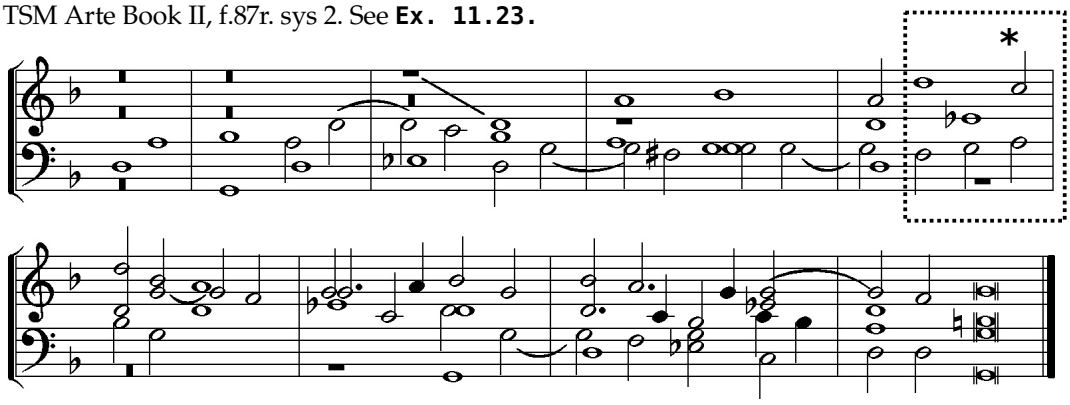
Ex. 5.11 An unperfectable diminished fifth:

TSM Arte Book II, f.77v. sys 2-3, ms. 5-8. See **Ex. 10.13.**



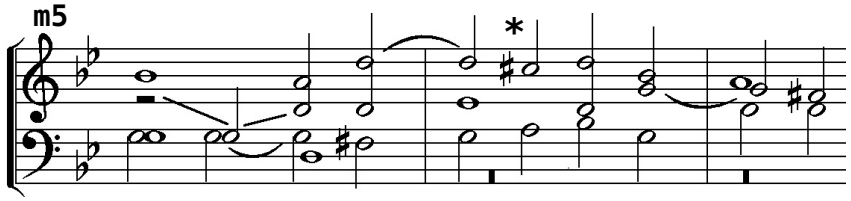
Ex. 5.12 A similar device with diminished triad:

TSM Arte Book II, f.87r. sys 2. See **Ex. 11.23.**



Ex. 5.13 The same device w/ augmented ("French") 6th chord:

TSM Arte Book II, f.98v sys 3. See **Ex. 12.33.**



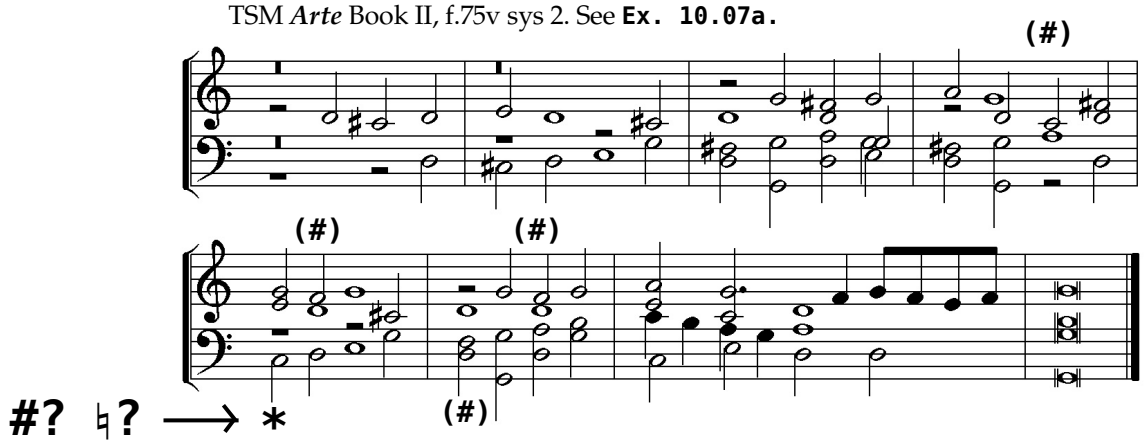
Here TSM actually notates the C#5, and the Alto's Eb4 is both in the key signature and demanded by the imitation. From this example we may return to **Ex. 5.12,** the previous, and take note that if the cadential C5 marked by the asterisk were sharped, then the same harmony would result in the same harmonic context, and that the imitation would be true to the F#3 of the bass in m. 4. There are a number of TSM's examples where this augmented sixth might be played, but is not marked in the score. The augmented sixth cannot be played when the same device occurs a whole step higher in **Ex. 5.11,** because there is no D# on TSM's keyboard.

In **Ex. 5.12** the (unmarked) augmented sixth chord — which I am hypothesizing — arises from the imitation of the leading tone cadence at the fifth above, which would give a much weaker effect, although arguably correct, with the C♮. Any such pursuit of an exact imitation is likely to result in a violation of mode to some degree: an imitation can only be exact (a) at the octave or (b) when subject and answer are neatly contained within adjacent hexachords. But in reading the individual lines (a very valuable practice) the imitative inflections are often melodically compelling, and so a harmonic tension results between the conflicting inflections a fourth or a fifth apart. It is clear that some mid-16th-century musicians were playing these radical inflections and it appears that TSM is hinting at opportunities to use them, but at the same time, any musician is free to avoid them and to make more conservative choices, and TSM's notation allows this freedom as well.

In the following two examples TSM similarly exploits the imitation of the leading tone. In each example (asterisks) there is a C3 in the Bass which, if sharped, would make a diminished fifth against the Soprano. TSM leaves these two notes each without a sharp sign, but sprinkles the rest of the page with sharp signs somewhat more liberally than usual. One way to interpret this might be that those notes cannot be sharped because they produce diminished fifths, and so, of course TSM has not marked them sharp. But it is impossible to resist at least testing them to see if they should be sharp too. It certainly improves the imitation. Now, there could be a correct answer to this. But this is not a classical transcription project: this is a composition project. The reader is free to choose. The Alto's unmarked C#4 in m. 4 of **Ex. 5.14** appears to be routine, and likewise the Soprano's unmarked F#4 in ms. 5 and 6. In the penultimate measure all Cs are natural.

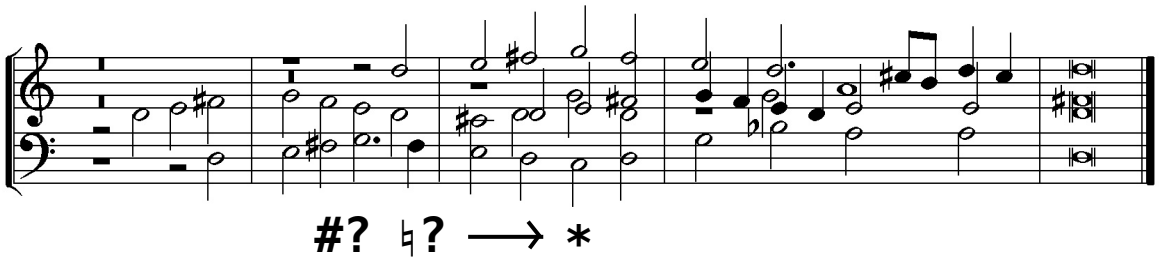
Ex. 5.14 Diminished fifth (twelfth): Yes or No?

TSM *Arte* Book II, f.75v sys 2. See **Ex. 10.07a.**



Ex. 5.15 Diminished fifth (nineteenth): Yes or No?

TSM *Arte* Book II, f.76r. See **Ex. 10.07c.**



By the way, the Bass's Bb3 in the penultimate measure of **Ex. 5.15** is almost certainly a typographical error and should be ignored, but I leave it in because it is in TSM's original, and to remind the reader that accidental signs are not carved in stone, and might sometimes be ignored on the grounds of taste or ***musical good sense.***

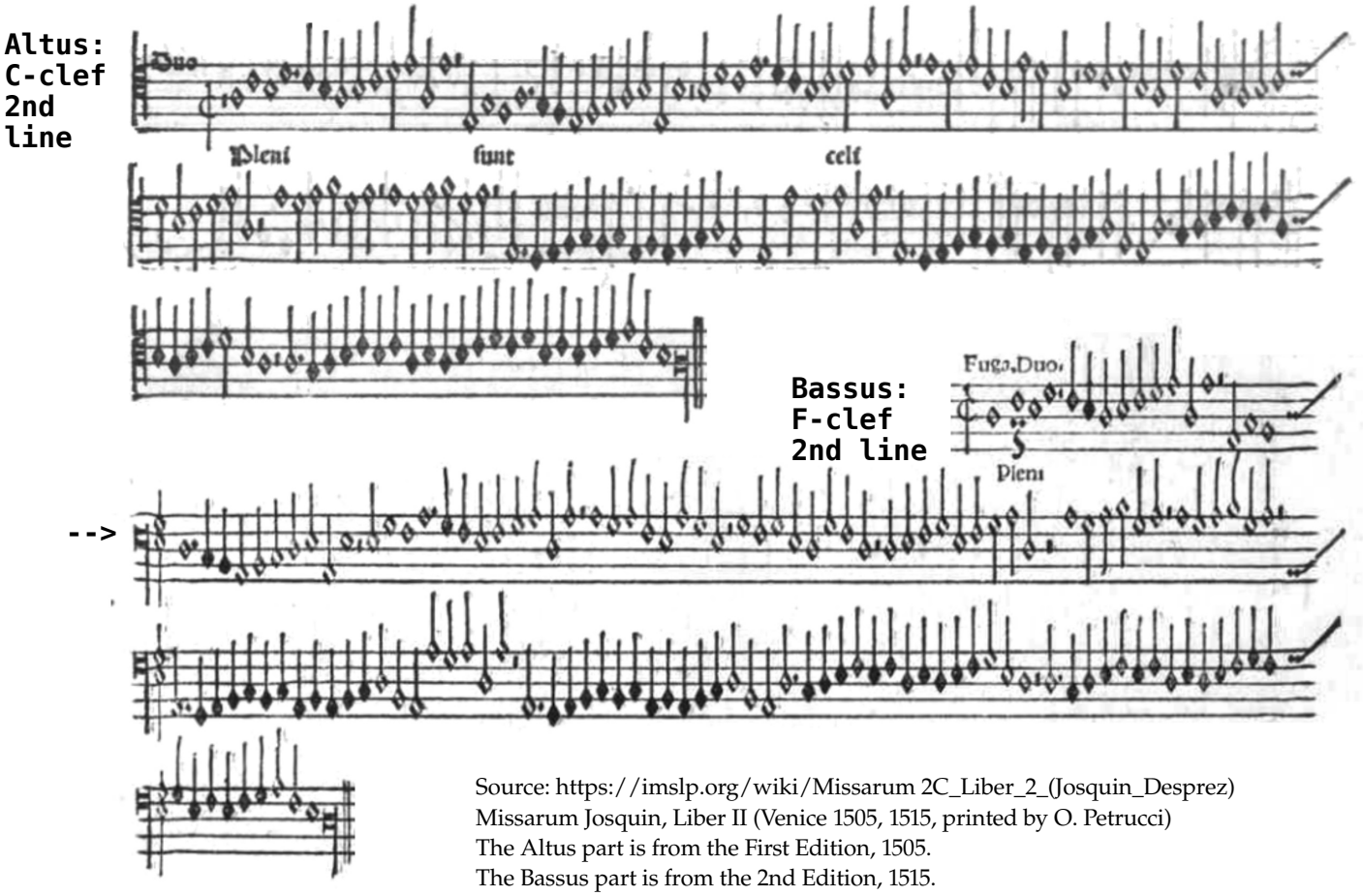
CHAPTER 5.06
HOW MIGUEL DE FUENLLANA INFLECTED A JOSQUIN DUO

Fuenllana's book *Orphenica Lyra* (1555) opens with the following duo from Josquin's *Missa Hercules.* Josquin's music was spread throughout Europe in prints made by the Venetian music printer Ottaviano dei Petrucci (1466 – 1539). I have reproduced the parts (alto and bass) from two surviving Petrucci part-books (not of the same edition) which I obtained online from www.imslp.org. Such part-books must have been known to Mudarra and Narvaez, both church musicians who made Josquin intabulations. Fuenllana and the organist Antonio Cabezon, both blind, must have learned the music of Josquin by ear and dictated their intabulations. As seen in the example, the Petrucci print has not one single marked inflection. Yet Fuenllana's tablature is highly inflected. The duo is a strict canon at the fifth, broken by Fuenllana in order to construct a final cadence which is not in Petrucci's edition and may be presumed to have been composed by Fuenllana himself. The canon has things to teach us about possible differences in inflection between the leading and following voices, as well as about the choices to be made in interpreting an uninflected score.

It seldom occasions mention that notational ambiguities exist in the spelling of modern English, except insofar as this must be explained point by point to those who learn English as a second language. We rely on our native knowledge of the language to distinguish between the different pronunciations and the meanings or tenses of the words, for example, *lead, read, live, address, entrance,* all of which have multiple pronunciations and meanings which are not notated in written English, and which are dependent on context in order for the reader to interpret them. The situation is not different with 16th-century staff notation. The harmonic context determines the inflection.

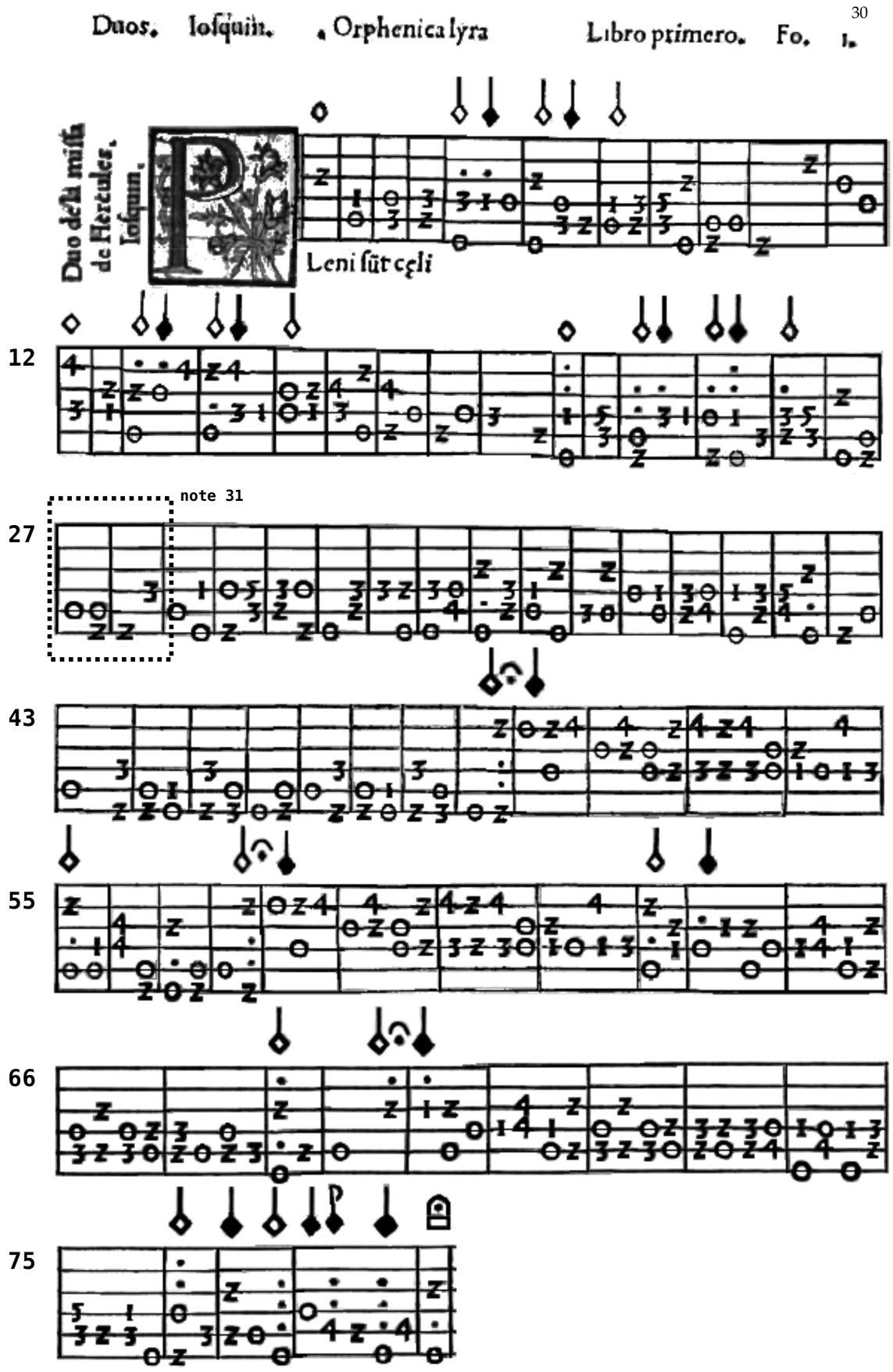
Ex. 5.17 Fuenllana's intabulation. (Facing Page) -------->

Ex. 5.16 The Josquin Duo in the notation used by the Venetian printer Petrucci.



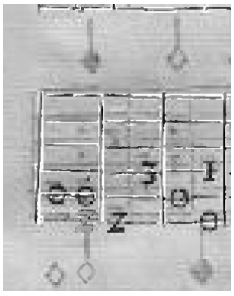
The Bass and Altus parts in the Petrucci prints of the Josquin Duo clearly begin on D3 and A3 respectively. If the Bass determines the mode in this case, then Hypodorian it must be, since the Bass ranges from A2 to A3 (with one G2), and begins and ends on D3. Since there is no Tenor part, the tenor cannot be the voice which determines the mode. The mode of the Altus part is a more difficult question, and apparently the music of Josquin is rife with such questions [29]. In this duo, the Altus appears in the staff notation as a strict transposition of the Bass part to the fifth above, but with no consideration of the issue of the tritone, which for perfect transposition would require that B be answered by F# (which Fuenllana does not do). Note that this is a different procedure, and results in a different tonal relationship, than that of Zarlino, in which the Bass and Alto would be in similar modes an octave apart (Zarlino demonstrates this configuration for the Tenor and Soprano repeatedly

29. The question of modal analysis in the music of Josquin has been addressed by D. C. C. Judd in her dissertation, *Aspects of Tonal Coherence in the Motets of Josquin*, and by M. Bent in *Counterpoint, Composition and Musica Ficta*, p 207 ff. Both discuss the modal analyses which were made of Josquin's music, following their different conceptions of the modal system, by the



16th-c. theorists Pietro Aron and Heinrich Glarean.

30. I have altered this tablature by removing the ink bleeds and artifacts with computer software. The condition of the original is shown in this excerpt showing ms. 27-29:



31. At ms. 27-28, the tablature is indistinct from age and ink bleed-through, and has errors. The "2" on the top string in m. 27 is very faint in the original. I have restored it with graphics software; it is not a bleed-through but appears to have been rubbed out by a reader. The "2" on the top string in m. 28 is misplaced. It did not seem appropriate to actually correct the tablature. See the grand staff transcription below for the correct resolution of this passage. Note that Fuenllana has divided initial whole notes into two half-notes in the points of imitation in the middle section; perhaps an extra syllable was sung here.

in his exemplary modal duos in LIH, Part IV [32]). Here, instead, the Bass and Alto are in similar modes a fifth apart.

32. Zarlino, *Le istitutione harmoniche,* Part IV, *On the Modes* (Cohen trans), p 56-88.

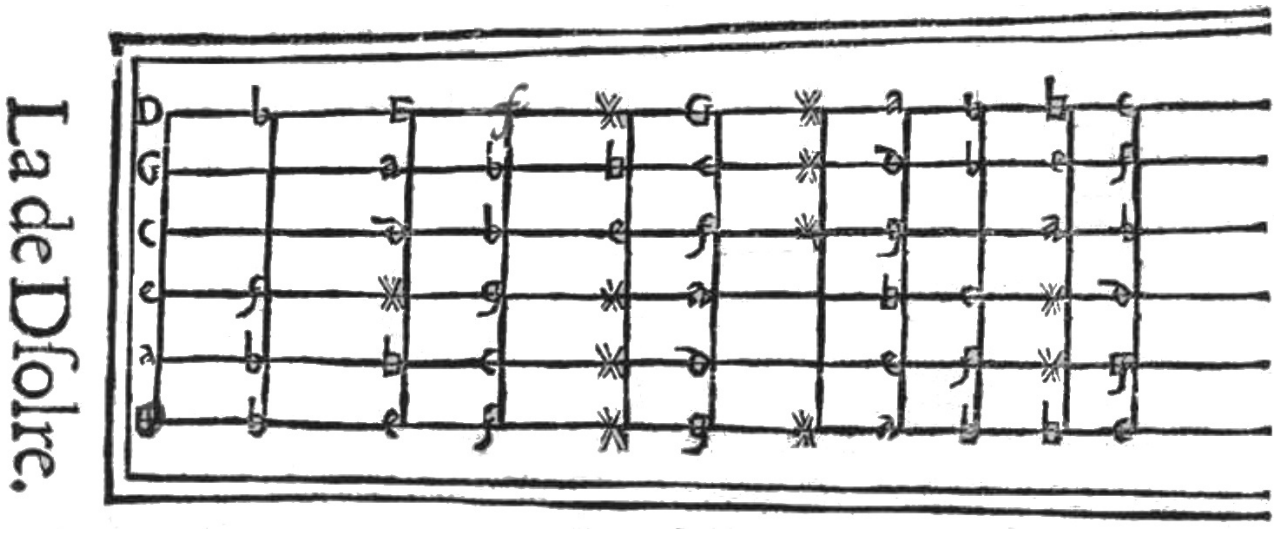
- Zarlino's exemplary modal duos are given in Book Nine, **Exes. 9.30 - 9.42.**

The Alto is not in the Dorian Authentic mode, because it has no tonal orientation toward the pitch class D: its tonal focus is on A and E. There is no adaptation of the melody of the Alto to make it conform to the tonal structure of the Authentic mode, as we might find in the 17th and 18th centuries, when it would be considered correct to answer an ascending skip of a fifth D-A in the subject with an ascending skip of a fourth A-D in the answer, or vice versa. In Petrucci's prints, the notation of the Alto's answer is not different from that of the Bass's subject in any way other than the replacement of the F-clef with a C-clef; in particular, no notated inflection determines how to treat notes of the pitch class F in the Alto which occur as B in the Bass. At ms. 12-13, we see that B♮ in the Bass is answered with F♮ in the Alto by Fuenllana. (This will appear as F# and C♮ in the transcription below.)

The Bass part has a mark for the entrance of the Alto at the fifth above on the second whole note, so that the Alto part can be read directly from the Bass part merely by imagining a change of clef. The Alto appears to be in the Dorian Plagal mode transposed to the fifth above, with a tendency to flat the 3rd below the final (precisely the preferred inflection of TSM). Glarean might well have called it "Aeolian Authentic," and from a modern "tonal" point of view this might be inarguable, but from a period point of view, it is anachronistic. This is not an issue which I will attempt to resolve. It does illuminate the question of why Glarean and Aron came up with different results in their respective modal analyses of the music of Josquin.

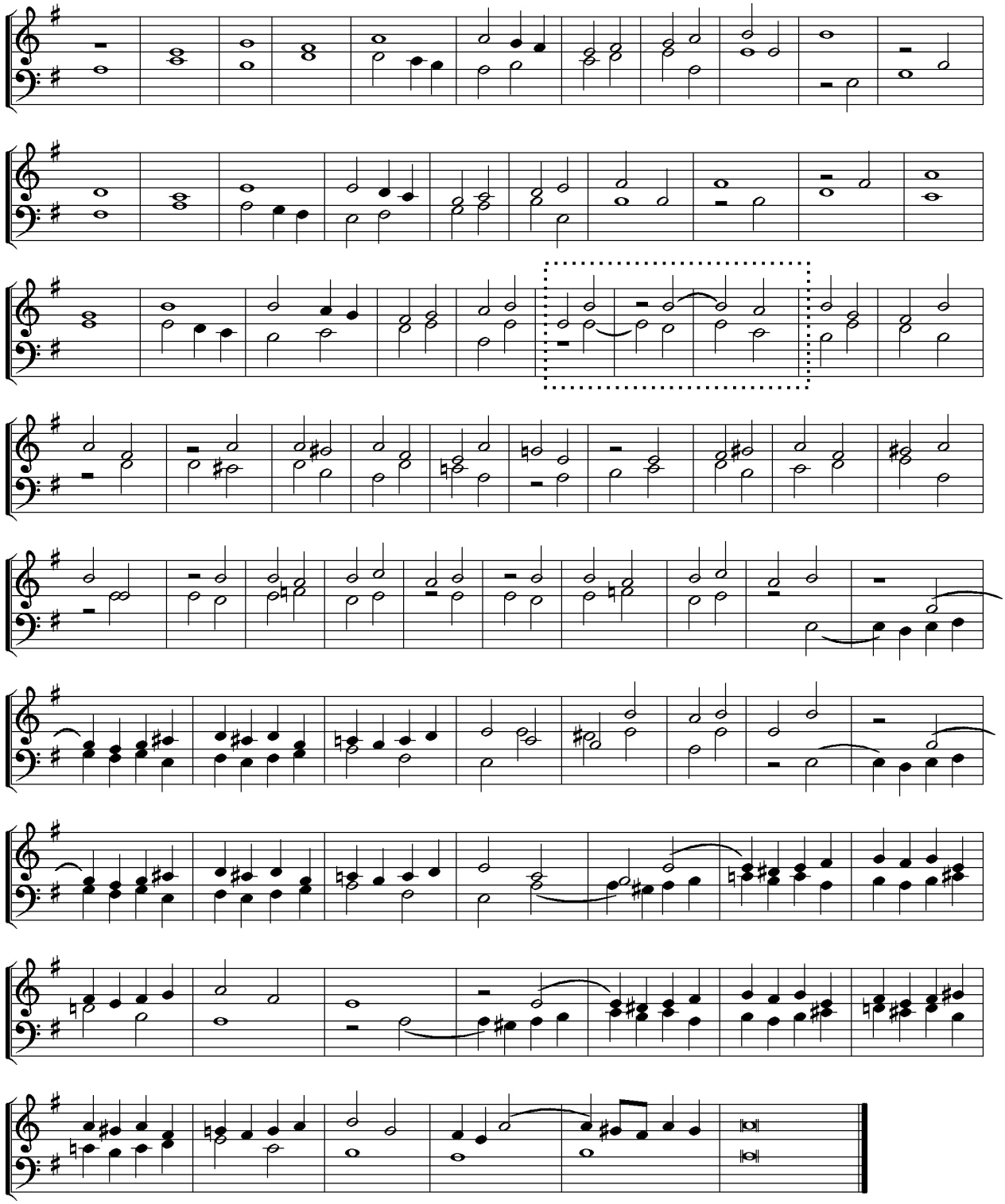
33. Bermudo, *Declaración…,* Bk IV, f.cvj.v.

Ex. 5.18
Bermudo's Fret Placement Diagram for the "D-mapping" of the Gamut to the fingerboard of the vihuela (bass on top): [33]



Ex. 5.19
Fuenllana's intabulation of Josquin's Duo, transcribed to Grand Staff as though in A-tuning.

There are a number of whole notes and dotted whole notes in the Petrucci print which Fuenllana divides into smaller values. Measure 28 is corrected to restore the canon.



We may analyze Fuenllana's transcription by looking to see where imperfect fifths occur between the parts at a temporal distance of one semibreve. We see that these occur at ms. 12-13, 14-15 last quarter, 15-16 second half, 38-39 second half (augmented 5th), 40-41, 53-54, 56-57, 61-62, 62-63, and 66-67. All of these represent points where a different decision has been made in inflecting the answer than was made in inflecting the subject. This, then, is the first lesson to be learned from this duo: even when the subject and answer appear in an unmarked score to be the same, they may be given different inflections from each other based on the "local" harmonic demands of the way that the two voices fit together in counterpoint. In the present example the two lines, with identical notation, are inflected quite differently in Fuellana's intabulation. Since there is no key signature, there is an inevitable ambiguity about the inflection of B♮ and F♮ when these occur in similar positions in the melodic line. Fuenllana has made a number of decisions which a modern reader would not be able to make in reading the Petrucci parts, for lack of information and instruction, or perhaps because Fuenllana's own decisions were somewhat arbitrary. Fuenllana's decisions *are* our information.

On the previous page **(Ex. 5.19)** I have rendered Fuenllana's tablature into Grand Staff as though it were in the "A-tuning" (whereas the pattern of inflection shows that he used the "D-tuning," as in Bermudo's fret diagram, **Ex. 5.18).** The A-tuning transcription shows the Duo as though the entire Gamut with its three sharps were transposed up a fifth. In the transcription, an F♮ in the Petrucci print is transposed to C♮, and a B♮ to F#. The D#s which appear in the last section of the Duo are artifacts of this transcription, rotated one step around the cycle of fifths, which would have been G#s if reading the Petrucci print. Further commentary on the following pages refers to this transcription.

If we take literally what Bermudo says about the methods of intabulation [34], then Fuenllana has done one of three things: either he has mapped the Gamut to the fingerboard so that the note D4 is on the open Chanterelle (conforming to Bermudo's diagram shown above), or he has transposed the Duo to the fourth in the G tuning, or he has transposed the duo to the fifth above in the A tuning. We cannot tell which, until we compare the three relevant fret diagrams given by Bermudo: see **Exes. 3.82** and **3.85** for the A and G diagrams, **Exes. 3.86** and **5.18** for the D diagram. The A and D diagrams differ only at the 6th fret, which is not used in this tablature. The G diagram has *sharps* on the first fret, and an unusable inflection to A# in place of what should be a Bb (F in the Petrucci score, Bb if this were the G-tuning, and C as I have transcribed it) on the first fret of the 3rd string in the 2nd measure, which there would have to be played instead on the 5th fret of the 4th string. The first fret cannot be sharpened by a comma, because in m. 75 it must be a perfect fifth below the 3rd fret of the 2nd string. Therefore, this tablature is *not* in the "G-tuning." The A-tuning has a lesser strike against it: the *playable but ungrammatical* D#4 on the fourth fret.

34. Berrmudo, *Declaración,* Book IV, chapters lxx - lxxiij, f.xcviij.r - f.cjr.

The Duo has not been transcribed here as D-Dorian in the staff notation be-

cause that would misrepresent the finger positions of Fuenllana's tablature to the modern guitarist — an arbitrary choice based on personal preference and a bias toward the A-tuning. If Fuenllana had wanted to play the Duo a fifth lower on the fingerboard, he could have done so. I encourage the reader to routinely transpose all of the examples in this book through the circle of fifths *in order to wean oneself from the notation,* and in order to understand fugal patterns on the fingerboard rather than as staff notation. I find it easier to transpose from staff notation than to transpose from tablature. With practice, TSM's fugues may be played in any key from the grand staff notation without writing out the transposition.

Fuenllana's intabulation of Josquin's Duo uses several different devices of inflection which may be usefully distinguished. In the following paragraphs we are referring to the transposed transcription given in **Ex. 5.19,** and to its particular inflections, which are all rotated one step sharpward from those which would appear if we had inflected the Petrucci print directly.

Juan Bermudo had two terms for sharps, the "sustained" [Sp. *sostenido* in TSM's ***Arte*** [35], or *sustentado* in Bermudo's *Declaración*], used particularly in cadential suspensions, and the "intense" *[intenso],* when the sharp was used to "perfect" a consonance [36], or, in another context, used in an inflected rising fourth, called by Bermudo the *diatessaron intenso* (e.g. D-E-F#-G in place of D-E-F♮-G) [37]. In the 14th century, according to the microtonal practice of Marchetto of Padua as given in his *Lucidarium* (c. 1310) [38] (and criticized by Prosdocimo [39] and Ramos [40]), these two types of sharps were given two different "sharp" signs and tuned differently, the "sustained" being sharper than the "intense". Marchetto's special vocal inflection for the sustained sharps — possibly tuning a very sharp major sixth of ratio **12:7 = 933c,** which is a very nice low-ratio harmonic attractor but not one used in mainstream European tunings [41] — was not possible on conventionally tuned 15th- and 16th-century keyboards and lutes, and so this distinction was abandoned, but the nomenclature remained: an interesting early example of the merging of two inflections which were once distinguished as a "diesis" apart. There are hints that some singers found Marchetto's two sharp inflections to be useful long after his time, which can be read between the lines of Prosdocimo's (c. 1410) and Ramos's (1482) criticisms. The use of two different "sharp" signs was continued by some musicians, eventually differentiating into modern sharp and natural signs, but asterisks and crosses of various shapes were also used for sharp signs in the 16th century.

At ms. 12-13 the Bass sings F# and the Alto sings C♮ in answer one whole note later. This oblique diminished fifth between voices was discouraged by Zarlino [42], but Zarlino's special tastes about such subtleties were not shared by all 16th-century musicians.

At ms. 33-34 we see both voices singing "sustained" sharps and then immediately releasing them in ms. 36-37. In ms. 38-40, the Bass sings C♮, but the Alto sings G# in ms. 39-41. This is an "intense" sharp.

35. TSM, ***Arte,*** Bk I, f.3.v.

36. Bermudo, *Declaración…,* f.xc.r [mislabeled xcj], col 1, line 25 ff.

37. *Ibid.,* f.lxvij.r, col 1, line 22 ff.

38. Marchetto, *Lucidarium* (c. 1317), cited by Fose, *Ramos,* p 109, and by Herlinger, *Prosdocimo, Brief Treatise on Ratios…,* p 119 ff.

39. Herlinger, *Prosdocimo, Brief Treatise on Ratios…,* p 4.

40. Ramos, *Musica Practica,* Part 1, Tr. 2, ch. 7.

- Fose, *Ramos,* p 111, 288.

41. This point has been much discussed by tuning theorists. Marchetto divided the whole tone into five "equal" parts, a "non-Pythagorean" division, but the *interval being tuned* was a cadential major sixth; the ratio **12:7 = 933c** is the most likely rational but non-Timaeic tuning for a very sharp major sixth. The five "equal" parts are, in this case, a singer's approximation.

42. Zarlino, *Art of Counterpoint (LIH Part III,* Marco/Palisca trans), p 65.

At m. 44 we find an F♮ which would have been a Bb if applied to the Petrucci print. This is an expression of the common rule *"una nota super la, semper est canendum fa"*, or "flatten the B when it occurs as upper auxiliary to A." [43] This move is obligatory in the Hypodorian mode, where Bb3 is the turn-around note at the top of the modal range A2-A3. In my transcription, the Bass's modal range is transposed to E3-E4, and the F4 is made natural.

43. See the discussion of this "unfortunate ditty" in Bent, *Counterpoint, Composition and Musica Ficta*, p 80, 91.

At ms. 52-53 and 60-61 the Alto sings an intense C# twice and then releases it. This release is an odd detail, because on the second half of both ms. 54 and 62, this results in a simultaneous diminished fifth F#3 - C♮4, against the usual rule. If Fuenllana did not mind this dissonance, most likely it was because it occurs on the weak half of the measure. It appears to be characteristic that this diminished fifth is not corrected by a C# in the Alto. Fuenllana could perhaps have played F♮ in the Bass, but the cross-relation with the upcoming D# at ms. 56 would have then required a D♮, in order to avoid E3-*mi* followed by E4-*fa.* The F# / C♮ combination is not a typographical error, because it occurs twice, at ms. 54 and 62.

At ms. 56, the Bass sings a "sustained" D# (a G# if applied to the Petrucci print), but the Alto cannot imitate this for two reasons: it must sing a perfect octave above the Bass, and the A# (which would be D# if applied to the Petrucci print) is outside of the range of acceptable inflections as defined by the Spanish theorists whom we are following. As may be seen in Bermudo's fret diagram for the "D-tuning" shown above, the first fret yields a flat, not a sharp.

In the last section of the Duo, from m. 52 to the end, we see that the three sharps C#, G# and D# (which correspond to untransposed F#, C# and G#) are sung as lower auxiliaries frequently, and that the two voices are quite independent in their uses of these sharps, except notably at m. 75, where the Alto abandons its "intense" G# in favor of a G♮ so as not to sing an augmented fifth against the bass on the second half of the measure. Why a perfect fifth here, and not at m. 54? This is unanswerable.

The last three measures are a cadence tacked on by Fuenllana, using the conventional *sostenida* (raised leading tone) cadence formula with a G#. Fuenllana has rewritten the Alto line, changing and extending its last two notes, and breaking the canon, so as to cadence on A instead of E (which would be D with C# instead of A with G#, in Petrucci's print). The Bass is also extended by two notes to make this cadence. In the original, the canon ends without a suspension cadence and without breaking the canon, but Fuenllana must have found that ending to be unsatisfying for an instrumental rendition outside of the liturgical context, perhaps in part because the mode remains ambiguous without a mode-defining cadence.

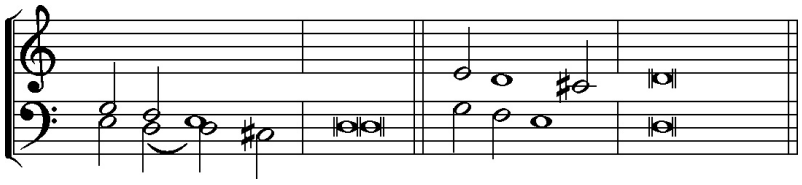
CHAPTER 5.07 SOSTENIDA AND REMISSA CADENCES

Each mode has its characteristic cadences. The cadence is a technical device whereby two voices, operating as a "structural duo", return to "unity" at either an octave or a unison, thus neutralizing the harmonic tensions generated by the two lines, and bringing to an end the fugal play of the two voices. This "return to unity" recalls the Carolingian parallel organum and shows "counterpoint" to be a departure from and return to the ancient principle of perfect consonance. According to the standard rules of inflection, the interval immediately preceding the octave or unison which is the cadential target must be a *major* sixth or *minor* third even when this appears to alter the mode. This interval is typically the resolution of a cadential suspension dissonance, and occurs in two "flavors", the *sostenida,* or sharp, and the *remissa,* or flat. The primary cadences for modes I, II, V, VI, VII and VIII are *sostenida,* while the primary cadences for modes III and IV are *remissa.* (The secondary cadences follow a different pattern.)

Ex. 5.20 Primary Cadences in Modes I & II "Sostenida" [44]

44. TSM, ***Arte,*** Bk I, f.75.r.s1.

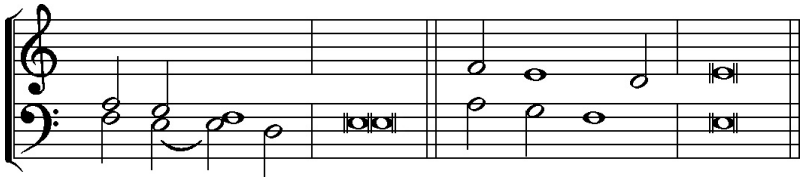
Cadence at unison w/ m3 **Cadence at octave w/ M6**



Ex. 5.21 Primary Cadences in Modes III & IV "Remissa" [45]

45. TSM, ***Arte,*** Bk I, f.76.r.s3.

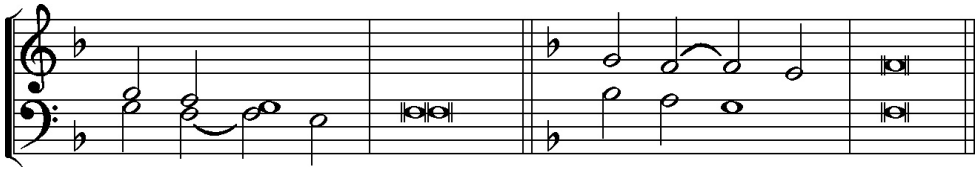
Cadence at unison w/ m3 **Cadence at octave w/ M6**



Ex. 5.22 Primary Cadences in Modes V & VI "Sostenida"

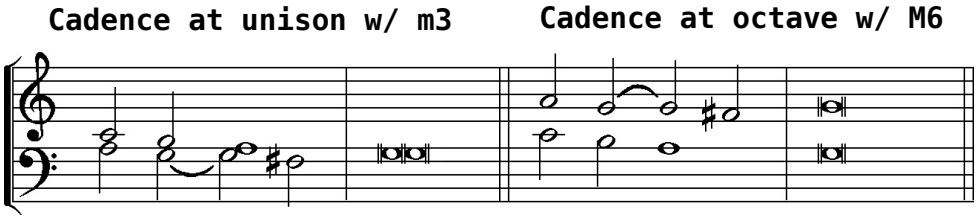
Example by JZ.

Cadence at unison w/ m3 **Cadence at octave w/ M6**



Ex. 5.23 Primary Cadences in Modes VII & VIII "Sostenida"

Example by JZ.



When the modes are transposed, these cadence patterns are transposed with them insofar as this is possible within the limits of TSM's keyboard tuning, or within the limits of a particular fret pattern. At the extreme limits of the tuning system, grammatical cadences cannot be made. For instance, if the Dorian mode is transposed to B, all three sharps F#, C# and G# will be required for the basic scale, with G♮ standing in for Bb untransposed, but there will be no *sostenida* cadence possible on B, because there is no A# in the tuning, and the *remissa* cadence with A♮ will have to be substituted. The apparent reason for possibly requiring such a transposition is that it was necessary at times, in accompanying choirs, for the organist to transpose in order to adapt to the vocal ranges of the singers. This difficult practice, which appears to have been severely complicated by the limitations of the tuning (a knot which I cannot untangle), is ignored in the present study, as are other aspects of 16th century liturgical practice.

The pure two-part cadence made by the structural duo — that is, the two voices which have just made a fugal statement and answer, which may be any pair at different times — is an ideal which is often distorted. In the second half of Book II of the ***Arte,*** which is devoted to fugue, TSM gives many different cadences for the purpose of introducing fugal subjects of various melodic shapes, and some of these are irregular. Sometimes the melodic cadence with its suspension dissonance occurs without its partner voice joining it at the unison or octave. Sometimes the melodic cadence dissolves into a deceptive cadence without a formal resolution. The cadence has the important function in the practice of TSM of framing the entrance of the next fugal subject at the conclusion of a given fugal passage. For this reason, in the quest for maximum variety, TSM has been extremely creative in the composition of cadences for the purpose of framing every possible melodic shape which might be used for the beginning of a fugal entrance. This is one of the great strengths of TSM's work. For instance, in the fugal teaching of Fux almost two centuries later, the construction of such cadences is given little attention, leaving beginners somewhat in the dark as to how to manage this technique — whereas TSM gives dozens of usable examples.

Chapter 5.08 Secondary Modal Cadences

Our 16th century sources are not in agreement about the secondary cadences of the modes. TSM's secondary cadence schedule is based on the "Psalm Tones," which are unique to each mode and follow an irregular pattern. In the course of the later 16th century and on into the 18th, under the influence of Zarlino, and with the distinction between plagal and authentic modes less and less emphasized, the secondary cadence schedule was changed to a more regular and more "tonal" pattern (used by Zarlino [46] and after him, a century and a half later, Fux [47]), in which secondary and tertiary cadences were made on the 5th and 3rd degrees of the modal pentachord. In the full tide of the major-minor system in the 18th century, a cadence could be made on any note of the hexachord, and this is one of the more obvious although unspoken points of Fux's teaching of species counterpoint in the six modes of the hexachord following Zarlino (with Zarlino's twelve modes reduced to six through the merging of the authentic and plagal modes): to make a cadence in any "mode" at any time, a concept which became "modulation."

46. Zarlino, *On The Modes, Part Four of Le Istitutioni Harmoniche,* 1558, (Cohen translation), p 55-88.

47. Mann, *The Study of Fugue,* p 84.

In Fux's system, it is evident that the Hexachord represents the six cadence points of the common Baroque modulation patterns. A composition in C Major may modulate to D Minor, F Major, G Major or A Minor. A modulation from C Major to B Minor, however, is rare. The cadence on E is a special case: Fux teaches the Phrygian cadence, but progressive 18th century composers of his time were using the modulation from C Major to E Minor, with D# and F# in the cadence.

In the practice of TSM, there are also tertiary cadences, which he calls "passing" cadences. The distinctive feature of these is that the melodic cadence in the Soprano finishes a tenth above the bass, and the Tenor and Alto do not necessarily provide the usual partnering voice. Only Modes II, III, and VI are assigned passing cadences by TSM [48]. TSM later mitigates this limit [49] by demonstrating that passing cadences may be made on every degree of an octave scale **(Ex. 5.24),** always finishing with the soprano a tenth above the bass except on the primary and secondary cadences, which one may finish with the octave. With regard to this issue of the appropriate placement of cadences, there must arise the question of how closely the reader wishes to adhere to TSM's particular practice. In the 16th century, other musicians — the theorists Zarlino and Bermudo, and by example, Luis Milan and the other vihuelistas — each had their own different ideas about cadence schedules.

48. TSM, ***Arte,*** Bk I, f.67.r.

- Only Modes II, III and VI are mentioned here. The passing cadence of Mode VII appears only in a special liturgical context which TSM mentions in Bk. I, f.64.r.

49. See **Ex. 5.18.**

50. TSM, ***Arte,*** Bk I, f.62.v.

Also treated by TSM and other theorists are the *differentiae* of the Psalm Tones, sung to the text *Seculorum Amen,* which offer a bewildering array of cadential irregularities for reasons which have only to do with medieval liturgical practice. TSM says, "The other way [to make cadences], following the *seculorum*, is only for playing psalms, hymns and chants in the church." [50] The study of the *differentiae* does not appear to be essential for playing fugue or *fantasía* on the guitar or lute, and is omitted here. The interested reader may find descriptions in the works of TSM, Juan Bermudo, Prosdocimo, and other Renaissance and medieval theorists. [51]

51. TSM, ***Arte,*** Bk I, f.64.r. ff.

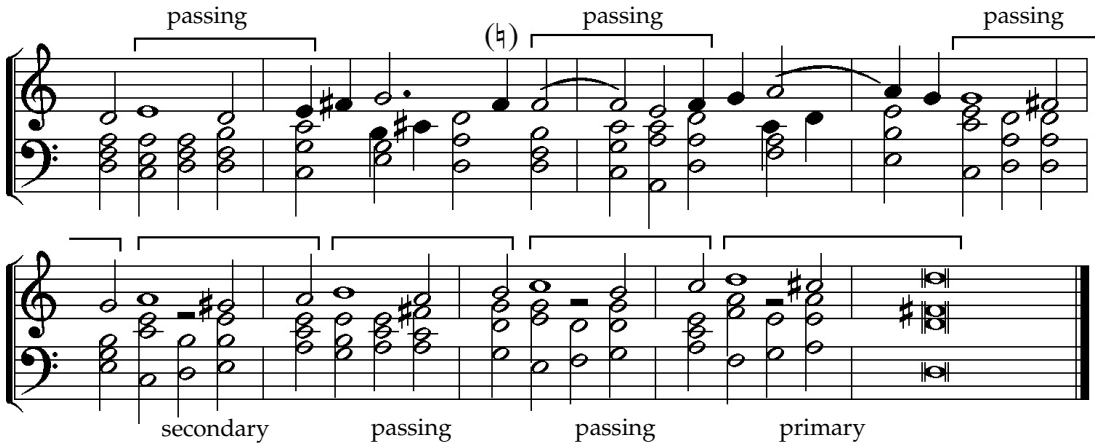
- Bermudo, *Declaración,* Bk I ch xv, f.xxiiii.r. ff., Bk V ch xiiij, f cxxvij.v. ff.

- Prosdocimo, *Musica Plana* 2:17.

- Herlinger (trans/ed), *Prosdocimo de' Beldomandi, Plana Musica & Musica Speculativa,* p 123 - 155.

52. TSM, *Arte*, Bk I, f.67.r.s2

Ex. 5.24 TSM: Passing cadences on every scale degree [52]



There are unmarked sharps: the Bass's C2, m. 1, and G3, m. 6, should be sharped. These sharps are required grammatical inflections, the *semitonus subintellectus* as it was called by Ramos de Pareja (Chapter 5.15 below).

53. TSM, *Arte*, Bk I, f.67.v-69.v.

TSM's Schedule of Modal Cadences [53]

Mode	Name	Final	Median	Passing
I	Dorian Auth	D Sostenida	A Sostenida	-
II	Dorian Plag	D Sostenida	F Sostenida	A Remissa
III	Phrygian Auth	E Remissa	C Sostenida	G Sostenida
IV	Phrygian Plag	E Remissa	A Sostenida	-
V	Lydian Auth	F Sostenida	C Sostenida	-
VI	Lydian Plag	F Sostenida	A Remissa	C Sostenida
VII	Mixolyd Auth	G Sostenida	D Sostenida	-
VIII	Mixolyd Plag	G Sostenida	C Sostenida	-

A cadence on B is not in TSM's schedule, and occurs only as a transposition of the cadence on E. Luis Milan, however, uses the *remissa* cadence on B in his Phrygian Pavan combining Modes III and IV, **Ex. 4.08** ms. 50-52, and does not use the cadence on C except deceptively at ms. 8-9, where the Soprano enters a tenth above the bass's C (as in TSM's formula for the passing cadence) over the cadence on E in the Alto (? — the voice leading is poor at this transition, due to Milan's habit of using chords as sonorous chunks instead of strict voice leading). This is an example of a specific difference in practice between two Spanish musicians who published only two decades apart.

The median (i.e. secondary) and passing cadences on C, D, E, F and G are inflected by TSM just as are the primary cadences, with the important exception of cadences on A. According to TSM, secondary and passing cadences on A may be inflected either *sostenida* or *remissa*, depending on the mode. In Modes I and IV, the cadence on A is made *sostenida*, with G# and B♮. In Modes II and VI, the cadence on A is made *remissa*, with G♮ and Bb. TSM's instructions in the ***Arte*** are detailed on this point.

It is odd, after having studied TSM's ***Arte*** for a period of time, to find that the concept of the specific inflections of secondary modal cadences has not been clarified by other authors. For instance, although Karol Berger in his very important and useful historical overview of *musica ficta* discusses extensively the issue of whether the cadence on A should be made with G# or with Bb, and its changing status toward favoring the G# in the course of the 15th and 16th centuries [54], he fails to extend the discussion to the question of whether it should be inflected differently as a primary or secondary cadence in different modes. Nor do Zarlino or Ornithoparcus discuss this point. While Bermudo addresses the subject, his instructions are broader [55]. TSM's cadence recommendations certainly apply to his own music, but the vihuelistas had a more eclectic practice, and perhaps TSM's cadence schedule is merely a didactic device intended to keep the student on the straight and narrow path for as long as possible.

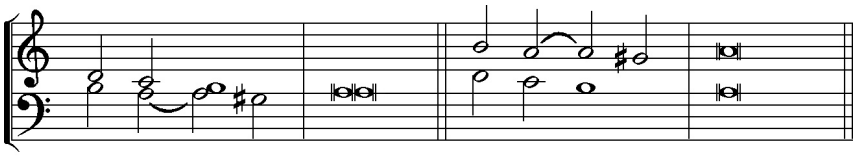
54. Berger, *Musica Ficta*, p 143-147.

55. Bermudo, *Declaración,* Bk V, ch vij, f cxxiiij:

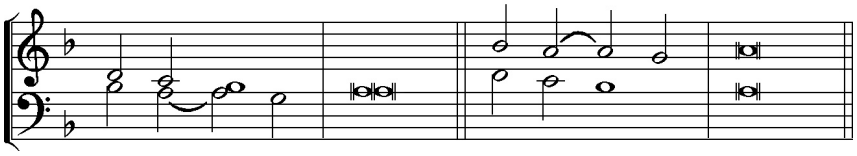
- In brief, Bermudo says that cadences may be made on the final (high or low in authentic modes), cofinal (5th above final), or 3rd or 4th above final. Modes I, II, VII and VIII may cadence on the step below the final. (These guidelines are much looser than those of TSM.)

Ex. 5.25
Cadences on A, Sostenida and Remissa (all secondary)

Sostenida Cadences on A, used only in Modes I and IV.



Remissa Cadences on A, used only in Modes II and VI.



Here is a list of all of the possible *sostenida* and *remissa* cadences which can be made in four parts within the limits of TSM's keyboard tuning, given in circle-of-fifths order:

Possible Cadences in TSM's tuning:

Sostenida	***Remissa***
A	**C# (possible although unused, whereas G# is not possible.)**
D	**F# (not used)**
G	**B (major third is missing.)**
C	**E**
F	**A**
Bb	**D**
Eb (problematical because of the lack of the pitch class Ab)	

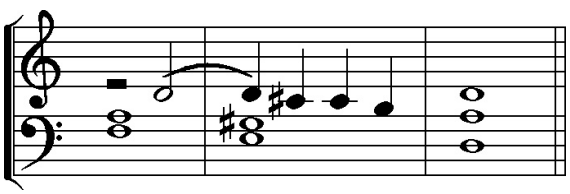
The *sostenida* cadences on C, F, Bb and Eb do not require any marked inflection of the leading tone, but they are still classified as *sostenida* cadences if the leading tone is a half-step below the cadential target. The *remissa* cadences on A and D require flat signs for the half-step which descends from above to the cadential target tone, that is, Bb and Eb, whereas *remissa* cadences on E and B require no accidental sign. (See **Ex. 4.08,** Milan's second Pavan, ms. 51-52, for the form of the *remissa* cadence on B which does not require an F#. TSM does not use this cadence.) When cadences on A and D are unmarked, they are ambiguous: the reader must decide if they are to be played *sostenida* or *remissa* based on the mode and key signature.

Chapter 5.09 The Secondary Leading Tone

In the 14th century, in the cadence pattern still most memorably known today as the "Landini cadence," [56] a secondary leading tone was sung by the Alto voice, leading to the fifth above the Tenor. By the 16th century, this cadence was out of style, but some theorists still said that the major third should lead to the fifth, as a principle of inflection, even though what we find in 16th century cadences is a minor third leading to the fifth. An associated element of this cadence is the "scoop" by which the soprano falls from its leading tone by a step before rising to the cadential target by a minor 3rd. This was still popular in the late 15th century, and may be found in the music of Luis Milan, but TSM does not use it often. On one occasion he uses it to evade parallel fifths in an inverted cadence [57]. He does use the scoop in deceptive cadences (see **Ex. 12.131**) — and uses it rather more freely than Fux does in a similar example which was criticized as inauthentic for 16th-century style by Jeppesen [58]. The following example is a shorthand reduction of the voice leading of the "Landini cadence" — in real examples the counterpoint would be more florid. [59]

The harmonic style of this cadence is quite medieval. Alto and Soprano sing a perfect fourth, two (presumably Pythagorean) sharps together in relation to the Tenor, a practice generally not found in the 16th century [60]. Ramos (1482), who did not use the G#, said that the fifth C#-G# was "useless." [61] In 16th century cadences, the G#3 shown below in the Alto was softened to G♮, leaving an augmented fourth between the upper voices, and a minor third leading to the fifth. Here the Alto displays the old 14th-century standard rule of voice leading, still parroted but no longer observed in the 16th century, that a major third should precede a structural perfect fifth.

Ex. 5.26 "Landini" cadence with doubled leading tone and melodic scoop:



56. The term "Landini cadence" is out of style in modern musicology, since other *trecento* composers also used that cadence model. But, like the similarly downgraded but colorful term "Picardy third" for the major 3rd of a final chord, it remains a distinctive and memorable sound byte which can only be replaced by forgettable circumlocutions.

57. TSM, ***Arte***, Bk II, Ch 39, 3rd Ex., f.85.v, system 1.

- See **Ex. 11.12.** The evaded progression is from a diminished fifth to a perfect fifth, and contains a fugal entrance.

58. Jeppesen, *Counterpoint*, p 148; *cf* p 153, 185.

59. *cf* Reese, *MMA*, p 368, Ex. 115.

60. Morley, *Plaine and Easie Introduction to Practical Music*, (Harman ed), p 175: Morley states his disapproval of doubling C#, G# or F# in a chord although B or E may be doubled. On a related issue, he disapproves of a rising skip from F# to B-natural. The passage seems to indicate that these devices are practiced by some other composers.

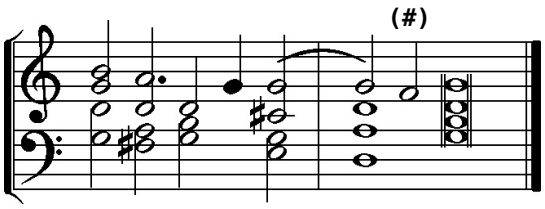
- In the music of TSM, there are

A different device with a sharped secondary leading tone is shown by TSM in some examples in the ***Arte,*** a device which is left unmarked when many similar cadences are used in the rest of the work — one of the several cases where we are left to make our own choices about the inflection of TSM's examples as to whether to use again, or not, an inflection which he has noted in some similar example previously. In this device, the secondary leading tone is no longer simultaneous with the principle leading tone as in the old Landini cadence, but precedes it by a whole note. The secondary leading tone makes its own secondary cadence just before the principal cadence, obeying the standard rule of voice leading which requires a major sixth before a structural octave. That this cadence may be a direct descendant of the Landini cadence is only an inference from the observation that they are structurally similar.

When cadences which include or allow this device are played on the guitar or lute, due to the "wrinkle" in the fingerboard patterns which results from the major third between the middle strings, in some keys and positions the inflection of the secondary leading tone is more comfortable, and in some keys it is awkward. A more subtle issue is that the sharpening of the secondary leading tone creates an augmented fourth against the tenor and a diminished fifth against the soprano, and while this chord form is common and necessary in the music of TSM and the vihuelistas, in some keys and registers this chord will have a pleasing effect, and in others, it will sound rather harsh (perhaps in part an artifact of equal temperament), and the judgement of the ear may indicate that the perfect intervals should be used instead, if the rest of the harmony permits.

some fugal examples which appear to be in Mode I, but which (in a Reimannian interpretation by the present author) might also be considered to be in, or, stated more radically, could be *played* in, the transposed Mode VII on D, playing all Fs and most Cs as sharps although most may be unmarked. If this interpretation is accepted, then there would occur chords containing two F-sharps. Aside from this use in transposed modes, it is ungrammatical in the system of the eight church modes as taught by TSM for two sharps to appear in the same chord, although they may appear in close succession in different voices.

Ex. 5.27
Cadence by TSM with primary and secondary leading tones
TSM, ***Arte***, II_35.04a_f.74.r.s3, m 5-6.



The reader is invited to try this example with the C#4 as marked, and also with C♮4, and to transpose both of these to all twelve keys. Don't forget to sharp the soprano's F4, as this is a *mandatory* inflection which is rarely marked in TSM's scores.

61. Ramos, *Musica Practica,* Part 3, Treatise 2, Chapter 4.

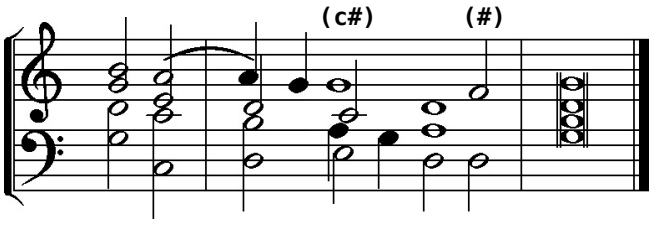
- Fose, *Ramos,* p 427.

TSM has not marked the soprano's leading tone F#4 in the principal cadence of **Ex. 5.27,** because he has already explained this detail to the reader and expects him or her to remember it, and for this same reason most of the *sostenido* leading tones are left unmarked throughout the entire ***Arte,*** a trap for the unwary reader who does not care to wade into TSM's repetitive classical Castillian prose deeply enough to understand his instructions. The sharpening of the leading tone of the principal cadences on G or D, or of the secondary cadence on A in Mode IV, is *not* optional: it is a required inflection whenever it is grammatically called for by the voice leading, and is absent only in *remissa* ca-

dences and in some deceptive and irregular cadences which TSM gives elsewhere in the ***Arte.*** The two sharps which *are* marked here, F#3 and C#4, are both included in melodic patterns which feature sharpable lower auxiliaries, and which would be solmized in Guidonian style as *fa - mi - fa.* TSM sometimes solmized C#, F# and G# as *ut, fa* and *sol,* corresponding to their uninflected positions in the common hexachords, and in defiance of Guidonian theory [62], but sometimes he used the Guidonian method for illustration of inflections [63]. The solfege syllables serve ambiguously as both fixed and movable pitch names. Here in **Ex. 5.27** the inflected notes F# and C# are the lower auxiliaries of the principal harmonic notes of the mode, which are G and D. This example is in Mode VIII, the Mixolydian Plagal: D is not the secondary cadence target note of this mode according to the cadence schedule based on the psalm tones, but D is one of the components of the perfect consonance required for the final cadence. A good rule of thumb is that whenever one of the three sharpable lower auxiliary notes appears, as D-C-D, G-F-G, or A-G-A, the lower note may be sharped [64], unless it offends the ear or creates a false octave with another voice, or is contrary to the mode because of emphasizing an octave which is not structural to the mode. This requires an experiment and a judgement call wherever these melodic particles are found.

In the same group of closely-related fugal examples as **Ex. 5.27,** TSM gives the following cadence without the marked C#4. In this case the C# could be played, and should be: at least, that is how I *(JZ)* understand TSM's teaching: he has given the example for the inflection and expects the reader to remember the instruction. Also, the standard rules of inflection call for Bass and Alto to sing a major sixth before they resolve to the modal octave D-D: it is, structurally, an auxiliary cadence, though without the suspension dissonance. There is a practical issue with this particular device, that on our fretted instruments the required fingerboard shape is not playable in all keys because of the lower auxiliary in the tenor. Note that this lower auxiliary of the tenor, although it conforms to the pattern A-G-A, cannot be inflected to G# in this case, because that would produce a false octave against the soprano.

Ex. 5.28
Cadence by TSM with secondary leading tone unmarked
Arte de Tañer Fantasía, II_35.04b_f.74.v.s1a, m 4-6.



On the modern guitar, it is convenient to omit the alto voice's D4 in the third chord and leave a half-note rest in the alto, in order to take advantage of the open B string. In this case, the C# will sound odd because its context as a lower auxiliary has been removed, and a C♮ should be played instead.

62. TSM, ***Arte,*** Bk I ch XXV, f. 74v:

"When a voice sings *re ut re,* or *sol fa sol,* or *la sol la,* usually the *ut,* the *fa* and the *sol* are sharped notes."

- TSM, ***Arte,*** Bk II ch XXIII, f.56v.

- Here TSM describes the phrase C# - D - E - F♮ and the diminished fourths from G# and from F# as *ut re mi fa.*

- cf Bermudo, *Declaración,* Bk III ch xxi, f.xlj.v.

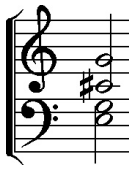
- Speaking of the primary cadence of Mode I, Bermudo says, "We sharpen such a note [C#], and even though we pronounce it *ut* with the voice, in the ear and by measurement it is *mi."*

63. TSM, ***Arte,*** Bk I ch 7, f.15-16r.

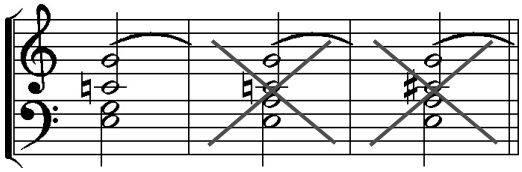
64. This rule is not controversial and may be applied to music from the early 14th century on into the 17th, when the full notation of accidentals became common.

See the discussion in Bent, *Counterpoint, Composition and Musica ficta,* p 77 ff.

Since in some keys and positions this chord form:



…does not sound very good, particularly in lower registers, and is also at times difficult to play in the version which uses the dissonant passing note in the tenor, one might at least consider replacing it with any of the following chord forms in the pursuit of an idiomatic style on the fingerboard, but although this may be idiomatic it results in a sound more characteristic of the 18th century. The two forms which are crossed out are **6:4:3** chords, found in Baroque figured bass practice but anachronistic for the 16th century. When the passing note in the tenor is included, as in TSM's cadence above, the dissonance of the **6:4:3** chord is only momentarily sounded. The form with the C-natural is better, and could be used for a better sonority if the diminished chord is found to be harsh sounding in some positions, but it violates the standard rule of voice leading which prescribes a major sixth before an octave.

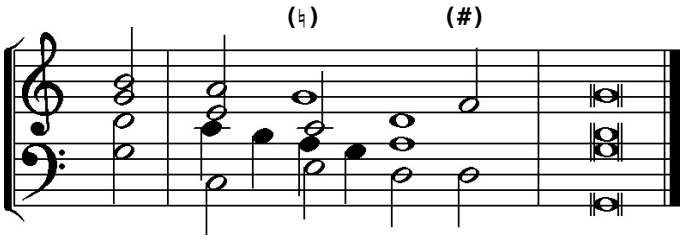


This first-inversion diminished triad which contains the secondary sharped leading tone places the alto a dissonant augmented fourth above the tenor. This clearly violates the old rule that all voices must be consonant with the tenor. Instead, in this chord, all three upper voices are consonant with the bass: the new rule of instrumental harmony. As will be discussed in detail below, the use of this tritone against the tenor is the key to releasing the harmonic tension which drove the chains of flats used in 15th-century style, and this intrusion of the tritone into a style of harmony which previously demanded the perfection of the tritone, as in the Landini cadence, is one of the marks of the gradual movement toward tonal harmony in the 16th century.

A technical curiosity is that the tritone within this first-inversion diminished triad has two possible tunings in Bermudo's A-tuning **(Ex. 3.85).** Here the interval from G3 to C#4 is a Pythagorean augmented fourth of ratio **729:512 = 612c.** However, a fourth lower on the next string set, the interval from the open D3 to G#3 is the Pythagorean diminished fifth, ratio **1024:729 = 588c.** This is because, as has been mentioned, that G# is tuned as a Pythagorean Ab, which was played by the vihuelistas as a Just-tuned G#.

Yet another cadence variant is given in the same group of fugal examples from which the previous two are taken. In this example, the C#4 cannot be played, because the false relation between the Bass's C3, the Tenor's C4, and the Alto's C#4 will offend the ear, and in this case the Alto should sing C♮. Also, in this case the requisite D-C-D shape of the Alto melody, which is the strongest signal for the inflection, is missing.

Ex. 5.29
Cadence by TSM with secondary leading tone not grammatical
Arte de Tañer Fantasía, II_35.04c_f.74.v.s1b, m 5-7.



To omit the passing tones in the Tenor results in more easily playable chord forms. Note that it is the *last* of the four quarter notes that is consonant, and that the middle two are dissonant. [65]

The inflection of the Soprano's penultimate F#4 is not marked by TSM, and is typically not marked in similar examples of *sostenida* cadences throughout the bulk of the Arte — and is nevertheless a mandatory inflection. Here, as a reminder to the reader, I have used a typical "editorial" sharp above the staff, which the reader should be aware, is of no more permanent use than training wheels on a bicycle, and will shortly be abandoned. This cadential sharp for the *sostenida* cadences on G, D and A will not be marked throughout the rest of the present work except in a few specific instances, and the reader is tasked with remembering this rule and with implementing it appropriately.

As this is one of the more obvious and simple applications of an inflection rule which every musician can readily understand as a matter of the conventional grammar of Western music, the editors of early music editions naturally seize on it with a certain gratitude that it is not considered controversial, and freely mark it, while leaving more dubious or obscure possible inflections unmarked, warned off by the posthumous censure received by Hugo Reimann for his enthusiasm in prescribing such alterations.

It is my position that to mark these easy accidentals for the reader will only serve to put his or her critical faculties to sleep. I think that it is preferable to encourage every reader to approach this issue with an open mind and a critical ear, and to look for personally satisfying solutions to all harmonic puzzles found in TSM's work. Two things may be born in mind: first, since TSM freely offered this material to be redacted by the reader, one has much more liberty to personalize and customize this material than with a so-called "transcription" of a "classical" work. The second: 16th-century prints are full of typographical errors, and the ***Arte*** is no exception. Some errors are obvious, and some are not; among the less obvious are misplaced accidental marks. The reader should be aware that sometimes the correct response *may* be to omit the accidental, "as though it were a badly-considered fingering mark," says Bent. [66]

65. This is an important point to observe: that of the four quarters, here the first and last are consonant while the 2nd and 3rd are dissonant. I point this out because the influential Knud Jeppesen, in his *Counterpoint,* states a rule that the first and 3rd quarters should be consonant, and while that rule is both reasonable and commonly accepted for the purpose of species counterpoint instruction, here and in other examples we may see that TSM did not consider it binding; it is also useful to note that the motive TSM has used is typical of many 16th century cadences.

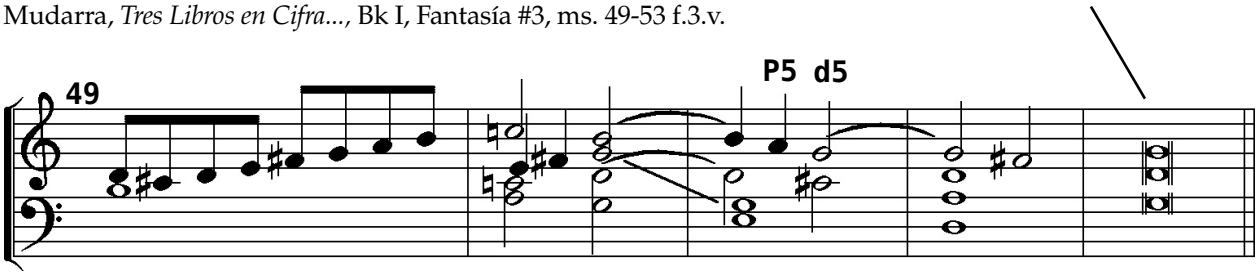
- *see* Jeppesen, *Counterpoint,* p 123 - 124.

66. Bent, *Counterpoint, Composition and Musica Ficta,* p 5, 6, 76, 87.

Mudarra frequently uses the cadence with the secondary leading tone a whole note before the principle cadence, and varies the voice leading. In this example, he shows that he has no problem with the progression from a perfect fifth to a diminished fifth (Soprano and Alto, third m. from end), which is a controversial point among theorists. The reverse voice leading from diminished fifth to perfect was to be specifically prohibited by Fux in 1725 [67], and that prohibition is considered canonical. Here, we again see an oblique cross-relation made by the C♮ in the Soprano and Alto against C# in the Alto, now removed by three half-notes.

67. Mann, *The Study of Counterpoint, from Johann Joseph Fux's Gradus Ad Parnassum,* p 87-88.

Ex. 5.30 Mudarra: Cadence with Secondary Leading Tone and Oblique Cross-Relation:
Mudarra, *Tres Libros en Cifra...,* Bk I, Fantasía #3, ms. 49-53 f.3.v.



The reader who is familiar with the tablatures, and aware of the modern convention of interpreting them across the board as being in the "G-tuning", may well ask how I made a decision about the mode in this case, because on the face of it, there is nothing to determine (since Mudarra did not specify the mode of this fantasía) whether this passage is in the Hypolydian mode (Mode VI — the range of the soprano here is plagal), in the "G-tuning," or the Hypomixolydian mode (Mode VIII) in the "A-tuning." The answer is obtained by reference to Juan Bermudo's fret diagrams, and the determining note is (once again) the C♮4 in the Tenor in m. 50, 1st fret, 3rd string. If this were in Mode VI, using Bermudo's G-tuning fret diagram, that C♮4 would be, on that fingerboard, an ungrammatical A#3. The passage is, therefore, in Mode VIII, and in the A-tuning. This modal determination conflicts with the mode of the opening point of imitation (not shown here), which is an ascending octave scale G4 - G5 outlining the authentic range. We may therefore make an adjusted determination, that Modes VII and VIII are combined. Mudarra complicates the determination of modal ranges, particularly in this early group of fantasías "to loosen the fingers," by his idiomatic device of breaking the counterpoint with scale passages which traverse the fingerboard and are not confined to any modal range.

The modern convention of a default G-tuning is a practical concession to the rise of the standard pitch over the last five centuries. A chanterelle tuned to A4 = 440hz is possible only on short-scale instruments, not more than 58 centimeters, and is problematical with gut strings, although nylon strings will support a thin-sounding A4 at 60 centimeters with a .022" diameter string. That any pitch standard existed in the 16th century may be argued, but we note the complete disappearance of the A-tuned 6-course vihuela by the end of the century, leav-

ing the five-course Baroque guitar in its place, the same instrument but lacking the frequently-broken A4 string. This might also be explained by a growing preference for longer string lengths. (The absurdity of making a hair-splitting distinction between the six-course "vihuela" and the five-course "guitar" is shown by the iconic evidence of five-course instruments all through the 15th century, with the 6th string only appearing in the late 15th century around 1480 [68]. Was the five-course guitar of the early 17th century a different instrument from the five-course vihuela of the late 15th?)

When staff notation transcriptions using the G-tuning convention show the music with three flats, this is absurd in terms of 16th century Spanish modality as played on the vihuela and keyboard instruments described by TSM and Bermudo. The pitch class Ab was not used on normally tuned instruments by TSM [69] or Bermudo [70], and the fret diagram for the G-tuning as given by Bermudo contains only one playable Ab, on the 3rd fret of the F-string — which Bermudo leaves unlabeled because he considers it ungrammatical — and otherwise contains only G-sharps [71]; so, we should dismiss transcriptions of Spanish tablatures showing three flats as an anachronistic error committed by musicians who have not studied Juan Bermudo's fret diagrams, or to whom the issue is irrelevant for whatever reason. That the Ab was used by composers in other parts of Europe is so: but it is not found in the work of TSM or Juan Bermudo.

This question could be further illuminated by a study of tablatures from other parts of Europe, to determine mode, tuning and fret patterns, a study which I have not yet done. Ramos [72] and Ornithoparcus [73] both used 12-note tunings which included Ab and rejected G#, but neither discussed patterns of lute fretting. Similarly, Juan Bermudo tells us that in his time the G# is preferred, but that Ab was preferred formerly [74]. He does not give us any fret diagram which includes a playable Ab, and when a playable Ab does appear in his diagrams, he does not label it as such, but puts no label. [75]

It would be interesting to know what fret pattern was used by the 15th-century blind (!) organist and lutenist Conrad Paumann (1410-1473) who is said to have invented the German lute tablature [76]. The diagrams which I have of the German tablature are those of Neusidler (1536) [77] and Agricola (1529) [78], which both show equal-tempered frets, without distinguishing major and minor half-steps — which on the whole seems unlikely, and these diagrams are from a century later than Paumann's formative years. The German tablature is specific to a five-course instrument, and the symbols for the 6th course are *ad hoc* additions made at a later date, when the 6th course was introduced. The odd layout of German tablature suggests that some visiting lutenist may have described tablature to the blind Paumann (if it were he, but it is probably a myth), who then re-invented it (having forgotten the exact details) for the dictation of tablatures to his students — having never read or written tablature himself. On the other hand, Agricola's "invented by a blind lutenist" may have been merely a sarcasm about the illogical layout of German tablature, and may then have had nothing to do with Conrad Paumann or any actual lutenist.

68. Van Edwards, *An Illustrated History of the Lute,* https://www.vanedwards.co.uk/history1.htm (accessed 10-13-2021).

69. TSM, ***Arte,*** Bk I f.13-16.

70. Bermudo, *Declaración,* Book IV, f.cvj.r - f.cvij.r, the seven fret diagrams.

71. *Ibid.,* f.cvj.r

72. Ramos, *Musica Practica,* Part 3, Tr. 2, ch 4.

- Fose, *Ramos,* p 67, 425, 429.

73. Ornithoparcus, *Micrologus* (Dowland trans), p 22, 25.

74. Bermudo, *Declaración,* Bk IV, ch lxxix, f.ciij.v, col 1 line 11 ff.

75. *Ibid.,* Bk IV, ch lxxx, f.cvj.r. See the 3rd fret of the F string in the diagram labeled "Vihuela de Gamaut," reproduced above as **Ex. 3.82.**

76. This assertion was made by Willi Apel in *The Notation of Polyphonic Music 900-1600*, p 75, citing Agricola, *Musica instrumentalis deudsch* (Wittenberg 1529). However, Holloway, in

The A-tuning, to use an Ab4, would require a fourth fret a comma flat in order for the Ab to be perfect; while this would make a nice Just tuning for the G#4 of the cadence on A4, it would also flatten the B3 on the fourth fret of the G string, which in Modes III and IV must be a perfect consonance. In Modes VII and VIII a flattened fourth fret might work, giving Just B3 and F#3, but these would dissonate with the perfect open B3 string. The G-tuning, to use Ab4, would use a minor first fret at 90 cents, just as does the A-tuning. In that case, the choice of Ab or G# would be between G-tuning and A-tuning, but not involving any change in the pitch of the instrument, merely a change in the way that the notes of the Gamut are "imagined" to lie on the fingerboard.

his dissertation on Agricola (U. N. TX 1972) points out (p 60 n2) that Agricola did not identify Paumann by name, but only as "a blind lutenist," so Apel's identification of that blind lutenist as Paumann is either unsubstantiated or from another source.

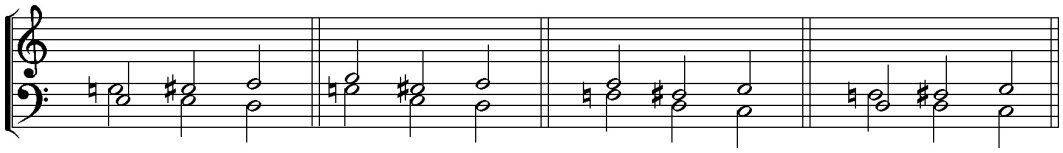
CHAPTER 5.10 CROSS RELATIONS

The cadence given in **Ex. 5.29,** which would yield undesirable cross-relations if the secondary leading tone were inflected to C#, invites us to consider the question of oblique cross relations in voice leading. Ramos de Pareja (1482) was quite free with these, and among a number of two-part voice leadings which appear more conventionally acceptable, he gave the following progressions which he considered to be good: [79]

77. Neusidler, *Ein Newgeordnet künstlich Lautenbuch,* (Nürnberg, 1536).

- Cited by Willi Apel, with reproduction of the fret diagram, *opus cit.* p 75.

Ex. 5.31 Ramos: Acceptable Cross Relations



78. Holloway, *Martin Agricola's Musica Instrumentalis Deudsch: A Translation*, p 126, 127.

All four of these progressions feature major 3rds preceding perfect fifths, a voice leading which was mostly obsolete in the 16th century.

These colorful inflections began to come into style in the 14th century, and the peak of the trend appears to have been marked by the use of the 17-note system on 15th century keyboards (although Ramos himself used only a 12-note system). The disappearance of the 17-note system and the reduction in the number of available accidentals on Spanish keyboards must represent a decline in harmonic variety in the 16th century, as opposed to the opposite trend in the Ferrara school which nurtured Vicentino and Gesualdo, practitioners of the revived enharmonic and chromatic *genera.*

79. Ramos, *Musica Practica,* Part 2, Tr. 1, ch 1.

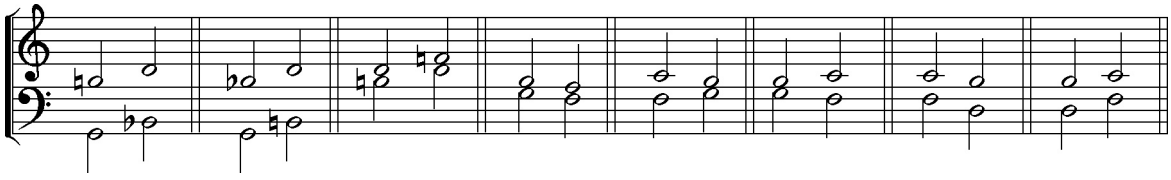
- Fose, *Ramos,* p 339 - 347, 472.

In 1558 Zarlino forbade his readers to use the following progressions containing oblique cross-relations [80]. There are two oblique false octaves, one oblique diminished fifth and four oblique augmented fourths.

80. Zarlino, *LIH,* Part III, ch. 30.

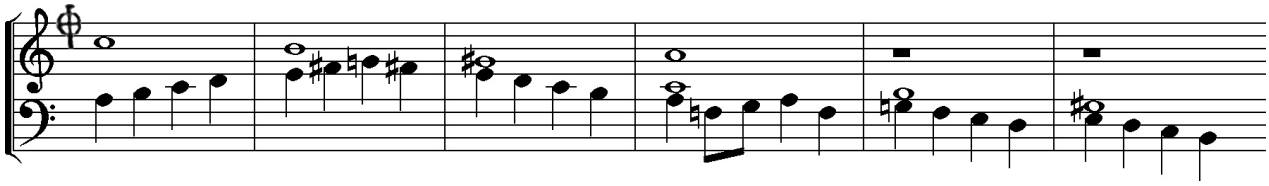
- Zarlino, *The Art of Counterpoint, Part III of Le Istitutioni harmoniche (1558),* (Marco / Palisca trans), p 65.

Ex. 5.32 Zarlino: Unacceptable Cross Relations



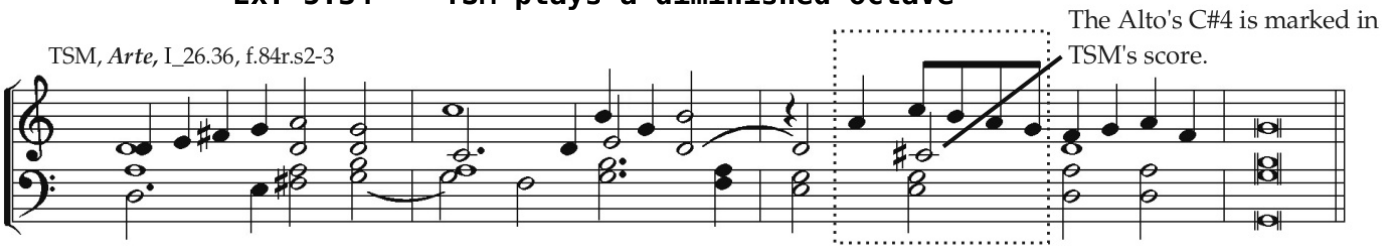
Mudarra's *Fantasía Sobre Fa Mi Ut Re* (*Tres Libros,* Bk II, f.vii.r), begins as follows, with oblique cross-relations almost every time that the subject appears.

Ex. 5.33 Mudarra: Acceptable Cross Relations

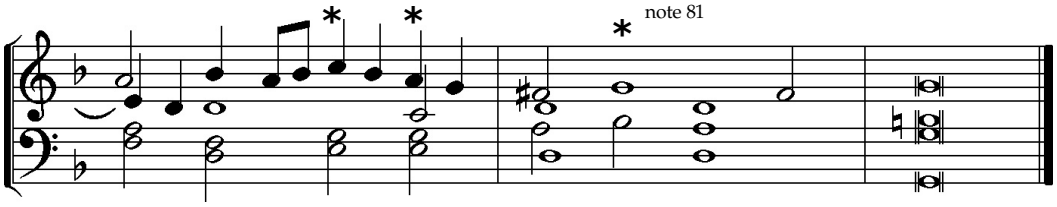


This piece of Mudarra's is a wonderful *cantus firmus* fantasía, a form not found in the ***Arte*** of TSM. It is also, like his *Fantasía #10* imitating Ludovico's harp, a showcase for Mudarra's quirky inflections. The time signature indicates "fast" according to Mudarra's explanatory text on page 6 of the front matter of the *Tres Libros.*

Ex. 5.34 TSM plays a diminished octave



Ex. 5.35
A similar voice leading:
Arte II_40.05a_f.87v.s2, ms 13-15 [f.87 is mislabeled as f.91]



Ex. 5.35 showcases the magnificent ambiguity of TSM's notation. The alto's secondary cadence on D could be *remissa,* with C♮4 supported by Eb3 in the bass, or it could be *sostenida,* with an oblique diminished octave C#4 - C♮5. How is one to decide? There is not one single Eb marked in the fugal example from which this is taken, but a solitary Eb is marked in the Bass's final cadence in the subsequent example, which uses the same fugal subject [82]. The false octave device was well known throughout Europe, and was disparaged by Thomas Morley, so it is not just a theoretical possibility [83]. A radical interpretation could make the cadence with an augmented 6th; there are at least three augmented sixths marked in the Arte [84] and a number of po-

81. The Soprano's G4 is a dissonant 11th above the bass, introduced without preparation and forming a **6:4** chord. This is never done except in this particular cadence formula, where it is known as the "consonant fourth." *Cf* Jeppesen, *Counterpoint,* p 193. The tenor's Bb softens the dissonance. Note that all three other voices are consonant with the tenor on the 2nd half note, and that the formal cadence is between soprano and tenor.

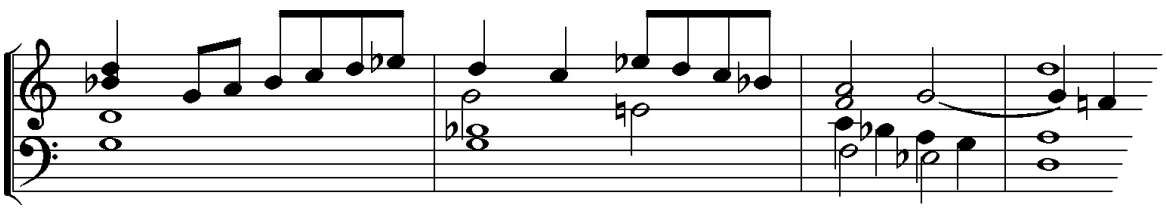
tential unmarked ones, as discussed above. A 15th century example of an apparent augmented 6th given by Bent indicates that the choice of *remissa* or *sostenida* cadence could be a matter of individual musicians' opinions, which might be over-ridden by some other musician interpreting the music at a later time; in that case, both inflections had been marked in the score at different times, but that does not mean that they were ever both sung simultaneously [85]. In my own current opinion, the Bass's right to an Eb following the rule *"una nota super la semper est canendum fa"* trumps the possible E♮ and rules out the false octave. As the reader will discover upon reading TSM's entire fugue **(Ex. 11.27),** the shape of the opening point suggests a possible unwritten Eb occurring throughout, alternating with "intense" E-naturals which must precede the several marked F-sharps. If this unwritten Eb is accepted, then the Mode is Hypodorian transposed to G, conforming to TSM's conception of the un-transposed Mode II with a default, and written, Bb. Then why did TSM not put both flats in the key signature for this transposition?

The probable answer is that the key signature would have had to be frequently over-ridden with a natural sign for the "intense" E-naturals which must occur in rising lines before the marked F-sharps. TSM did not use the modern natural sign, and could only have used the sharp sign for this purpose. This he did, rarely, on B, but never on E — and also, we almost never find the two sharps F# and G# marked consecutively (there are some examples), because one sharp on *mi* is enough to define a fictitious hexachord surrounding the inflection. So, the omission of the Eb from the key signature in this case is simply the most economical method of notation, and the reader is expected to distinguish between Eb and E♮ based on the harmonic context. The Bb key signature always implies an optional Eb. [86]

I would have misled the reader, I now believe, had I marked, in **Ex. 5.35,** an "editorial" secondary leading tone C# for the Alto in response to a perceived E♮ in the Bass. The decision hinges on having read and studied TSM's text, and having then applied TSM's theory of modality, which in the case of Mode II does not correspond to the usage of other theorists. However, I can make no guarantee of the correctness of my analysis, which is necessarily a personal interpretation of ambiguous data. In the vihuela tablatures, such ambiguity cannot exist except in the form of typographical errors, but 16th century vocal and keyboard music is full of such ambiguity.

Ex. 5.36 Mudarra plays a diminished octave

Mudarra, Book II f.III, Fantasía Mode I, ms. 58-61



82. TSm, ***Arte*** II_40.05b_ f.87v.s3

- [f.87 is mislabeled as f.91 in the original print.]

83. Morley, *A Plain and Easy Introduction...* (Harman ed) p 177, 259, 272 - 273.

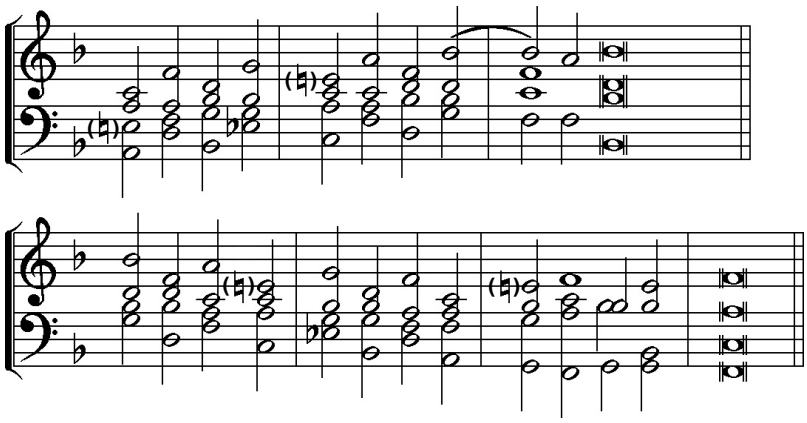
- Reese, *Music in the Renaissance,* p 297, 534, 693, 700 - 701.

- Reese's Ex. 172, p 752, by the Polish composer Gomólka from around 1580, in Mode II transposed to G, shows a C♮5 in the Soprano sustained over a C#4 in the Alto, with similar voice leading to that of **Ex. 5.34.**

84. TSM, ***Arte,*** II, f.96.v., m. 5 & m. 6 **(Ex. 12.19);** II, f.98v., sys 3, m. 6. **(Exes. 5.13, 12.33).**

85. Bent, *Counterpoint, Composition and Musica Ficta,* p 83, discusses an augmented sixth found in the (15th c.) Old Hall MS, in which the two dissonant and incompatible inflections reflect different musicians' inflection choices at different times, not intended to be sung simultaneously.

Ex. 5.37
TSM uses Oblique Augmented Octaves and Augmented Fourths:
Arte, II_25.01a-b_f.58.r.s2



86. Bent, *opus cit,* p 87 ff. One of Bent's proposals is that a Bb key signature transposes the entire system of three *recta* hexachords, so that the Eb becomes the optional inflection representative of the "soft" Property. With a two-flat signature, Ab would have this function. However, when TSM uses the two-flat signature, no Ab is possible.

87. Although **Ex. 5.37** shows TSM observing this rule rigorously, we find the parallel rule against skips of a diminished fifth broken by Juan Bermudo as shown below in **Ex. 5.50,** ms. 4, where the alto skips a diminished fifth.

In these two examples, all four voices have a single flat in the key signature. The Bass's single Eb is the only accidental marked in each example. The added natural signs are by JZ, none of which are in the original. Each voice maintains the integrity of its own voice leading, with alternate skips of *perfect* fourths and major or minor thirds. *No voice may skip by an augmented fourth,* a standard voice leading rule until the 17th century [87]. The Eb and the E♮ stand at opposite ends of the 8-note cycle of fifths being used: Eb - Bb - F - C - G - D - A - E♮.

This is an exercise in four-part harmony on the keyboard at the extreme flat end of TSM's tuning system. The oblique cross-relations are a logical result of the device being demonstrated. We could give this example more weight and importance if it showed a fugal device which demanded such a harmony. As it is, this example appears to be more a demonstration of how to play at the extreme flat end of the tuning system in strict patterns than a demonstration of practical harmony, because the cross-relations could be avoided merely by breaking the rigid pattern of voice leading. In many other examples in this same section of the ***Arte*** — which deals with pure four-part harmony without fugue — the characteristic patterns are indeed broken to avoid difficulties with some aspect or other of the tritone or cross-relation problem. Here, TSM demonstrates that the avoidance of *oblique* cross-relations is lower on his list of priorities than the carrying out of his patterned harmonic sequences, which are treated exhaustively in this section of the ***Arte,*** as part of his teaching of free counterpoint in four parts, one of his three principal devices of composition.

In the later style of figured bass realization in the 18th century, such sequences would include one augmented fourth or diminished fifth in a chain of perfect intervals, in order to confine the harmony to one diatonic scale. That concession marks one of the boundaries between modal and tonal harmonic styles.

Chapter 5.11 Chains of Flats

A controversy in the field of *musica ficta* unfolded in recent decades featuring *musica ficta* expert Margaret Bent versus her colleagues, in which Bent defended her interpretation of a famous duo by Zarlino's teacher Adrian Willaert (1490 - 1562), in which, by her refusal to admit either dissonant skips or cross-relations, a chain of flats is introduced which significantly changes the apparent mode, and finally even changes the operating pitch of the composition, while Bent's opponents in this debate would prefer to accept more irregular voice leadings in order to keep the tonality contained within what we today must perceive as the same "key zone." [88] A similar passage by Josquin is also discussed by Bent, and that argument is examined here in order to consider the question of how the passage might have been played on the keyboards and fingerboards of Spanish musicians, where the interpretation which Bent proposes — which is certainly possible with unaccompanied voices, and is not disputed here — is nevertheless not possible (at least according to theory) because of the limitations of the instrumental tunings.

88. Bent, *Counterpoint, Composition and Musica Ficta,* p 23-25, 107-109, 125-127.

- Berger, *Musica Ficta,* p 43-47.

- Wibberley, *Josquin's Ave Maria: Musica Ficta versus Mode,* ***MTO,*** Volume 2, #5, July 1996.

There are questions among the musicologists about how the concept of mode was understood and applied by composers of the Josquin generation, who were not composing theoretical tracts, but church music for practical use. It is certain that they did not know the Glarean-Zarlino 12-mode system, applied anachronistically by Glarean in his own later analysis of Josquin's music, but it is also uncertain just how they understood the 8-mode system. The teaching on the modes of TSM some decades later in Spain, with obviously narrow guidelines for beginners, may represent a different understanding than Josquin's, as the duo intabulated by Fuenllana shows. Bent, regarding her interpretation of a similar point concerning Josquin, mentions "…the irrelevance to Josquin's personal arsenal of the later testimony of Glarean, let alone Zarlino…," [89] and states that "…it is almost superfluous for me at this point to deny the relevance of Glarean's twelve-mode system (or for that matter Zarlino's counterpoint theory) to discussion of constraints and freedoms that might have applied in Josquin's mind and his expectations of performance." [90] In a footnote she asks, "Why should I have taken the advice of a theorist 100 years later whose theoretical world, including his use of terms like diatonic, is entirely different from Josquin's?" [91] While TSM's more conservative modal theory may be closer to Josquin's technically than Zarlino's, it is also contemporary with Zarlino and not with Josquin.

89. Bent, *Counterpoint, Composition and Musica Ficta,* p 210.

90. *Ibid.,* p 212

91. *Ibid.,* p 216, n 22.

The music of the Spanish school which included TSM and the vihuelistas was obviously influenced by Josquin, since all of the vihuelists between the first and last to publish, Luis Milan (1536) and Esteban Daza (1576), made Josquin intabulations (Milan and Daza did not, and you can bet that the average vihuelist on the street had some entirely different repertory). The revisionist theories of Zarlino and Glarean do not appear to have had much influence until late in the century in conservative Catholic Spain, whose orthodoxy was enforced by the Hapsburg successors of Fernando and Isabella. The 12-mode system may have carried a certain odor of Genevan Calvinism to those who knew it from Glarean, which may be why Zarlino did not credit him. Spanish musicians had both Protestant and Muslim musical devils to contend with, and the political filter through which the vihuela intabulations have come down to us is that their composers were mostly clerics and church musicians.

Fuenllana's intabulation of the Josquin duo tells us that the *uninflected* vanilla form in which Josquin's music was published was subject to creative realization of the inflections, which may or may not have been done in the same style as in Josquin's time. The time difference is the same as that between Ramos's and Zarlino's teachings on cross-relations. Josquin belongs to the time of the 17-note system and of Ramos.

In her discussions of issues of *musica ficta* in 15th century vocal music, Bent refers to two changes in musical thinking which occurred gradually around the turn of the 16th century. First was the rise in "keyboard-oriented" thinking [92], and as we have seen, in the music of TSM this meant a *reduction* in the number of available accidental inflections, the most significant being the loss of the Ab. Second was the erosion of the Guidonian solfege system [93], which may be clearly seen in the fact that TSM [94] and Mudarra [95] solmized F#, C# and G# as *ut*, and the progression C# - D - E - F as *ut - re - mi - fa.* In pure Guidonian solfege, this ungrammatical (or at least difficult to solmize) diminished fourth requires an irregular mutation in which there is no common note held by the two hexachords on which to mutate, and so the solfa must be *mi - fa - mi - fa.* This is counter-intuitive in terms of applying name-labels to particular notes of fixed pitch, an application which is a necessary corollary to the keyboard orientation and may be inferred for an orientation toward the vihuela and lute as well, given Mudarra's practical example **(Ex. 5.33)** — but is an undesirable limitation in the practice of pure *a capella* vocal music without accompaniment, which is Bent's benchmark for her interpretation of 15th century practice.

92. Bent, *Counterpoint, Composition and Musica Ficta,* p 121, 128, 144-145, 182, 204.

93. *Ibid.*, p 10, 80, 121.

94. TSM, ***Arte,*** Bk II, f.56.v.

95. Mudarra, *Tres Libros en Cifra,* Book II, f.vii.r, *Fantasía sobre Fa Mi Ut Re.*

It appears to be reasonable to conclude that mid-16th century Spanish musicians had to some degree abandoned the formal operations of Guidonian solfege which used strict mutation patterns for all accidentals which implied *ficta* hexachords, and were instead using the 18 syllables of the complete system of three interlocking *recta* hexachords as fixed note names, accepting the ambiguity of the double and triple names in the system of *recta* hexachords, but not bothering to solmize *ficta* notes according to their *ficta* hexachords. This means that the "mental" application of *musica ficta* concepts was receding further and further into the background and away from the conscious procedure of applying note names (and accidental marks) to fixed pitches. While a fictitious hexachord implied by an accidental inflection mark might be taken mental note of, this mentation no longer surfaced in the solfege in use.

Since Bent's focus is on 15th century *a capella* vocal practice, her identification of these two trends may be read as a negative judgement on the breakdown of Guidonian theory which occurred in a later era, following the period in which she is chiefly interested. However, from the point of view of players of the fretted plucked instruments, and with the objective of studying and understanding *fantasía* in the mid-16th-century Spanish style, we must reverse this position, and view pure Guidonian theory as obsolete. We are not performing *a capella* vocal music, we are playing fretted stringed instruments, and are studying the style of musicians who were not using pure Guidonian theory, but were committing such irregularities as solmizing their sharps as *ut* instead of *mi.*

From her arguments it appears that Bent would prefer to emancipate vocal music from the necessity as well as the limitations of accompaniment on stringed instruments, and deal with it as a pure *a capella* art. In fact there does not appear to have been any 15th century musical instrument which could follow and accompany a chain of flats through the cycle of fifths [95a]. The rules which Bent applies to the inflection of vocal music include a particular priority: that vertical perfect consonances between voices must be realized wherever possible, before other considerations [96]. On a 16th-century Spanish keyboard this practice has specific limits.

95a. John Hothby's 17-note keyboard and very complex solfege allow considerable flexibility of inflection and intonation but do not appear to permit modulation through the cycle of fifths.

The perfection of diminished fifths was applied in plainchant to horizontal phrases (not vertical chords) which traversed the tritone or diminished fifth between F and B, and as shown by Ornithoparcus [97], could result in some cases in a chain of flats extending through Bb, Eb and Ab. Bent, in one of the controversial applications of her theory, discusses the application of this rule to a passage from a composition by Josquin [98]. Following closely the kind of procedure shown by Ornithoparcus for the perfection of melodic fifths, but applied to vertical harmonic fifths, she leads us through a chain of flats Bb, Eb and Ab, following which a standard cadence on C resets all voices to their *recta* positions. The logic of Bent's procedure cannot be argued with, *if* one accepts her proposition that all fifths must be perfect between the soprano and tenor as well as between the bass and tenor.

96. Bent, *opus cit.*, p 130 ff.

- The difficulty of singing a diminished fifth makes the perfection of fifths a more urgent matter for unaccompanied harmonizing singers than for players of stringed instruments in general, or for accompanied singers, who may tune to the accompaniment. *(JZ)*

The difficulty is that Bent's realization of the Josquin passage cannot be played on TSM's keyboard, because it requires an Ab. The influence of Josquin is huge in TSM's work, and it is not an unreasonable guess that TSM and vihuelistas such as Mudarra and Narvaez might have been familiar with this very passage. How would they have interpreted it on the keyboard or vihuela? The quick and dirty solution is to transpose the entire passage down a fourth and play the Ab as Eb. However, this solution would be attractive only with Bent's inflection pattern already in mind. How would TSM or the vihuelistas have approached this problem in the context of their own instrumental practice?

97. Ornithoparcus, *Micrologus* (Dowland trans), p 25, example at bottom of page.

- Ornithoparcus's graphic is reproduced above as **Ex. 5.06.**

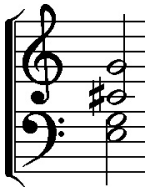
The key to the later instrumental procedure is to abandon the idea that all fifths between soprano, alto and tenor must be perfect. Instead, we must accept the 16th century change of emphasis from the tenor to the bass as the "root" of the harmony, and the rise of the instrumental concept of "playing in consonances." Whereas the old rule as stated by Tinctoris had been that all added voices must harmonize with the tenor, the new rule — never stated by the theorists, but observable as the empirical reality in the 16th century — is that all voices must harmonize with the bass. As may be seen in uncountable examples, by this rule, a chord containing a diminished fifth between soprano and alto, and an augmented fourth between tenor and alto, while all three upper voices have no conflict with the bass, is extremely common in vihuela music and in TSM's ***Arte.*** It is this chord which *releases* the harmonic tension which drives Bent's model to extreme flat inflections.

98. Bent, *opus cit.*, p 135 ff.

- The passage in question is from an *Ave Maria* by Josquin, edited in Josquin, *Werken,* ed. A. Smijers, Motets I.I.

- see Bent, *opus cit.*, p 157, note 45.

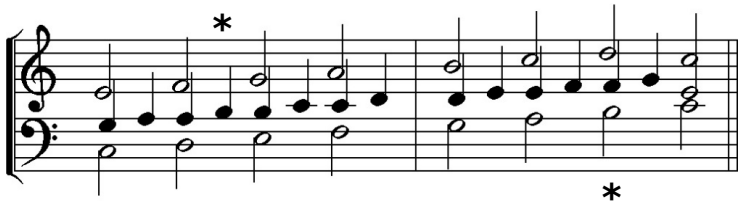
Ex. 5.38
Diminished triad in 1st inversion: very common in 16th c. Spanish music.



The device which Josquin used in the passage analyzed by Bent is one which persisted long after his time, and is a well-known figured bass exercise [99]. The Soprano and Bass move in parallel tenths. The Tenor moves between them, but in order not to make parallel fifths with one or the other, it is syncopated, alternating between fifths and sixths above the bass, and sixths and fifths below the soprano. In the simplest three-part realization of the pattern applied to an octave-scale, this device may be realized as follows. Once in each octave, the tenor must sing a diminished fifth (asterisks), instead of a perfect fifth, against each of the other two voices.

99. Poulin, *Precepts and Principles…*, p 18.

Ex. 5.39 Parallel Tenths with Syncopated Tenor

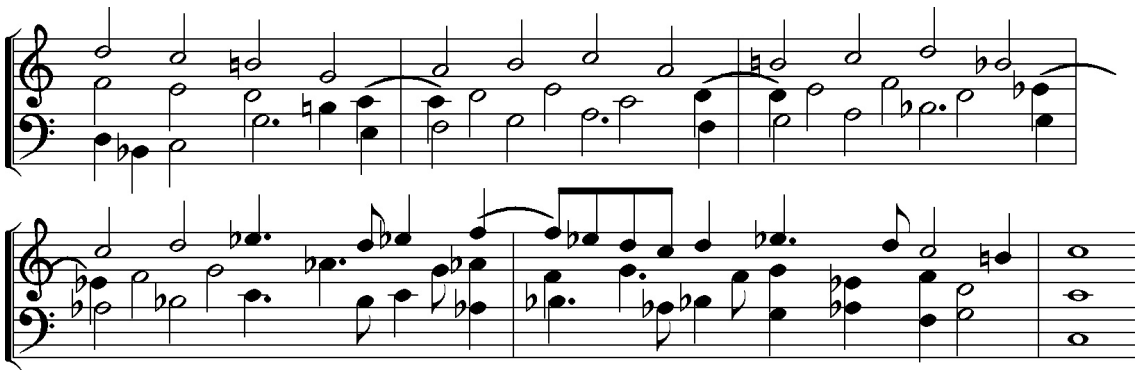


The Josquin passage may be read as two sets of parallels, in sixths and in tenths, with a syncopated offset of the Tenor against each of the two other voices involved in the device, the Soprano and the Bass. The Alto is a typical 15th-century later addition, which hop-scotches around taking advantage of available niches and avoiding parallel fifths, and may be put aside while examining the core device.

Here are Bent's inflections for the three-voiced device [100], omitting the Alto. There are no original inflections in this example. All flats are Bent's. The naturals were added by JZ. In Bent's original, the flats are above the staves in small characters.

100. Bent, *Counterpoint, Composition and Musica Ficta*, p 137.

Ex. 5.40 Bent's inflections for the Josquin passage



According to Bent, this is the way that 15th century *a capella* singers made their inflections. She is the expert in the field, and these inflections are not incompatible with the oblique cross-relations accepted by Ramos. TSM's music is in a later style; I have found no chains of flats in my study of the ***Arte***, and TSM's lack of an Ab rules out their use, despite the evidence of their use in Spanish plainchant, nor have I found such a progression among the tablatures of the vihuelistas, although I have found some interesting harmonic anomalies. There might be many examples that I have overlooked in my partial study of the music of the vihuelistas.

So, I will do my own analysis (without reference to the Petrucci print) using the method that I have developed in studying TSM. I will disregard Bent's accidental marks and assume that there are none, as in the Josquin *Pleni* intabulated by Fuenllana. First I look at the range of the Soprano and at the cadence. The soprano range here is from G4 to F5, and the cadence is on C. The cadence on C, if the mode is untransposed, determines the mode as either V or VIII, which have C as their median (secondary) cadences. The range of the Soprano indicates Mode V. (If neither of these appeared to be correct, I would consider the possibilities for tranposed Modes V, VI, VII or VIII.)

Next I observe that the flats in the Bass on the 2nd quarter note of m. 1 and on the 3rd half-note of m. 3 are indeed necessary in order to make perfect fifths below the Tenor. This throws the balance toward Modes V and VI, because Bb's are rare in Modes VII and VIII in the music of the ***Arte*** [101]. It furthermore makes the Bb more attractive, so that for the sake of "tonal coherence," [102] I may want to play Bb as a default inflection throughout. This I hazard simply because to my ear, the Soprano's B♮4 in the 1st measure, hard on the heels of the Bass's Bb2, already sounds like a oblique false octave, and I would prefer to soften it to Bb. There is no reason why this should not be done, and once established as a precedent, there is no reason to depart from the Bb in all voices until the cadence on C (necessarily *sostenida* by its structure above the Bass) demands once again a B♮ in the Soprano.

Next I examine the modal range of the Tenor. The range is from B3 to A4. This points to Mode VI, because it shows the modal tetrachord C4-F4 below the tonic, and extends no higher than A, the Median Cadence note of Mode VI. The Lydian Plagal is an acceptable accompaniment to Mode V, the Lydian Authentic.

The Bass range extends from Bb2 to C4. This also points toward Mode VI, the Lydian Plagal.

A definitive modal identification would be made easier if there were two cadences on different pitches. Josquin's music is known to be difficult to analyze in terms of "modal coherence," since we have the conflicting analyses of Aron and Glarean and much modern commentary. Certainly, the mode is certainly neither Dorian nor Phrygian. Since the ranges are two Plagal and one

101. Jeppesen, in his *Counterpoint: The Polyphonic Vocal Style of the 16th Century,* p 75, states that Palestrina uses Bb frequently in the Mixolydian Mode for a "striking" and "remarkable" modal mixture effect "hovering between major and minor…" This stylistic trait of Palestrina is not relevant to the music or to the instruction of TSM; it is a different line of development from a later era, in Italy.

102. "Tonal coherence" is a modern musicological term invented to dodge the difficulty of determining "modal coherence" in Josquin's music, as used in the title of D. C. C. Judd's dissertation on Josquin, *Aspects of Tonal Coherence in the Motets of Josquin* (King's College, London, 1993.)

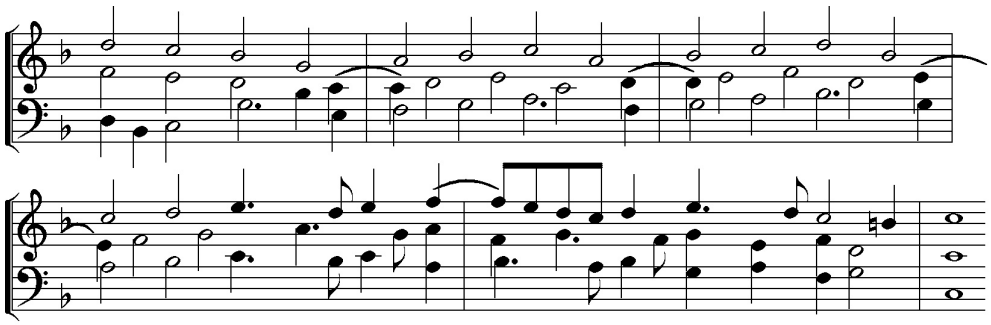
Bent evidently has some reservations about this term, as in her book *(opus cit.),* p 146, she puts it in quotes and discusses its pros and cons. Her example of inflections shown on the facing page could indeed be argued to lack "tonal coherence," and this may be the strongest argument, however subjective it may be, against her interpretation. However, her inflections are very colorful and interesting, and in principle I

am in favor of exploring them in sound and not just on paper. My arguments are strictly technical and concern the limitations imposed by TSM's tuning system.

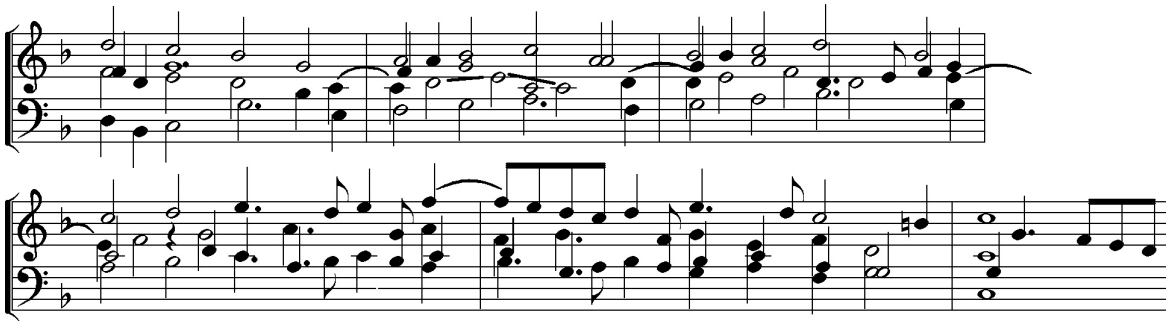
Authentic, and because the cadence is the Median cadence of the Authentic, my working vote is for a mixture of Mode V and Mode VI. The only reason that this matters is that it offers a good enough rational for using Bb as the default. Should there have been a Bb key signature? No: Johannes Tinctoris famously said, in Josquin's time, that the "bemol," meaning the flat sign, was "for donkeys." It is precisely because of the lack of notated inflections that we are engaged in this analysis. We have clefs notated which define where the diminished fifth occurs; we have a procedure for mitigating the diminished fifth by introducing a Bb, and the opportunity to use it.

The sticky point in Bent's version is that pesky Ab3 in the Bass in measure 4, first beat. We cannot play an A♮3 in the Bass against Eb4 in the Tenor — a fine point! Because if the Eb were to resolve downwards to D as a suspension dissonance, we might. But in this case, we can avoid the Eb. The reason for Bent's Tenor Eb4 on the last quarter note of m. 3 is to make a perfect fifth against the Soprano's Bb4, which is part of a chain of perfections triggered by the Tenor's F4 earlier in the measure. But this perfection is unnecessary, because all of the Tenor's notes of the pitch class E are supported from below by consonant bass notes, and that being the case, a diminished fifth between Tenor and Soprano is perfectly acceptable by the rules of harmony which TSM followed, since we find many examples of this in his music as well as in the tablatures of the vihuelistas. The resulting inflections are as follows.

Ex. 5.41
The passage from Josquin's Ave Maria: Bb key signature. No inflections are required except at the cadence. (Interpretation by JZ.)



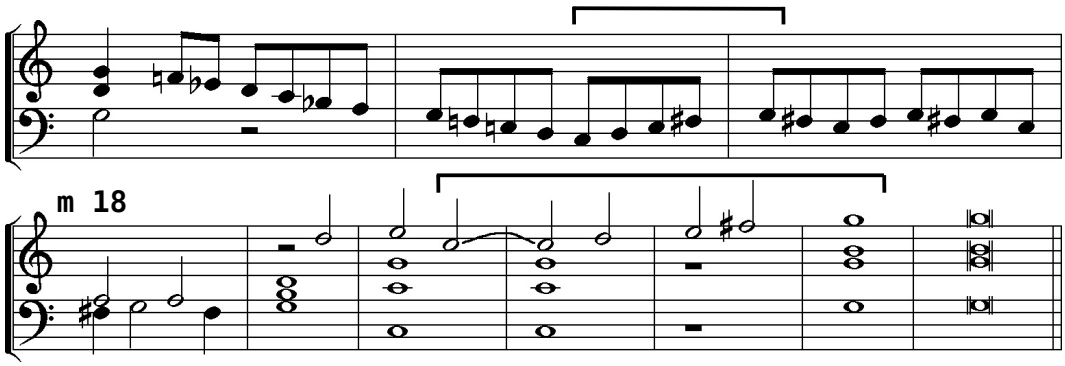
Ex. 5.42
The missing Alto part is shoe-horned back in. In this form, the passage is not playable on the lute or a single keyboard.



The Alto part was added (characteristically the last to be composed, a 15th-century practice which became obsolete in the 16th century) by Josquin for pure thickness of sonority — or perhaps just because he had an Alto who needed a part to sing. Because it crosses the other voices continually, from a unison with the Soprano to below the Bass, in a solo instrumental realization it obscures the contrapuntal device on which the passage is constructed.

A criticism which might be voiced against this interpretation is that the Soprano sings an "intense" lineal augmented fourth from the last half-note of m. 3 to the 3rd half-note of m. 4. My explanation of this is that the line does in fact continue up to F, corresponding to an "intense" lineal perfect fifth, although with a pause to emphasize the tension of the "intense" E5. I have tried playing Eb here, but it does not please my ear. In defense of this last point I offer the following "intense" rising line from Alonso Mudarra:

Ex. 5.43
Mudarra, Intense Rising Lines
Tres Libros, Bk II, f.1.r, Tiento Mode I ms. 15-24.



Here the "intense" rising fifth C-G is first played in eighth-notes approaching the cadence, and then repeated for emphasis in half-notes for the coda. In this cadence, the melodic device characteristic of the "consonant fourth" (seen in **Ex. 5.35** above) is used in m. 18, but without any support from the lower voices against which it might sing that fourth. Compared with the standard cadence forms in which a dissonance is introduced by one voice and resolved by the other, this form is irregular in that the dissonance is introduced and resolved by the same voice. It is found in many 16th century sources and is not unusual, but all the same it is an idiomatic irregularity, a shortened cadence form which requires only half the time of the more usual form.

There exist many Josquin intabulations for the vihuela by Mudarra, Narvaez, Fuenllana, Pisador and Valderrábano, offering opportunities to study how these musicians inflected Josquin's music in Spain two or three generations after it was composed. The vihuelist Ralph Maier wrote his dissertation on this subject. [103]

103. Maier, *Josquin's Mass Settings for Vihuela, with a Critical Edition of Diego Pisador's Intabulations of Faysant Regretz (1552)*, Ph.D. dissertation, Univ. of Calgary 2012.

This re-interpretation of Bent's inflections does not constitute a rebuttal of her opinions or findings, but a confirmation of the changes in practice which (she says) occurred between the late 15th century and the middle of the 16th. A related change in practice has been shown in the different treatment of oblique cross-relations between Ramos in 1482 and Zarlino in 1558, but we have also seen that Mudarra in this respect followed Ramos in the 15th century style. Zarlino's practice appears to reflect the trend toward reducing arbitrary accidentals and toward the more homogeneously diatonic style of "tonal harmony." This may be partly an illusion due to Zarlino's avoidance of a thorough discussion of accidental inflection, which is yet another aspect of the riddle of unmarked inflections [104]. When we look at Zarlino's modal duos in Book Nine, we will see that what appears on the staff as a bland and pure white-note modality is in fact often ungrammatical according to both Zarlino's own guidelines (**Ex. 5.32** above) and according to the logic of cadential inflections as given by TSM and other authors, and absolutely requires inflections which are not marked.

104. As I have by no means studied all of Zarlino's work, it is quite possible that he did address this topic in some work that I have not read, but I have found no reference to such a passage, either.

105. Ramos himself mentions the older *seven*-syllable set *tu - pro - de - nos - tri - te - ad,* "which signified the seats of the modes." (Fose, *Ramos,* p 235.) Mengozzi tells us that the *six* syllables *tri - pro - de - nos - te - ad* are found in "a handful of late-eleventh-century Italian sources…" (Mengozzi, *The Renaissance Reform…,* p 44 n1.) *Pro - de - tri - te* may be taken to be abbreviations for the *maneriae: protus, deuterus, tritus, tetrardus;* the others are obscure. The odd order is related to the *"affinities":* there is a conflation of the modal functions of finals and co-finals, since C represents *tritus* as well as F does in early modal theory.

Chapter 5.12 Sharps Are for Beauty

In the following quotes from Ramos, we may observe the difficulty of reconciling the movable nature of the Guidonian solfege syllables with the need for absolute note-names, an issue for which Ramos, in another part of his work, proposed a different solution with his own invented eight-syllable octave solfege *(Psa - li - tur Per Vo - ces Is - tas* — compare Hindu *Sa - Re - Ga - Ma - Pa - Dha - Ni - Sa),* which, however, he does not use in the following passage. (Inventing solfege syllables is not difficult, and various sets have been proposed and / or used in Europe and elsewhere [105].) It may be seen that this discussion prefigures TSM's and Mudarra's habit of calling the three sharps *ut*, abandoning the niceties of Guidonian solfege.

Ramos, *Musica Practica* (1482), Part 1, Treatise 2, Chapter Six (concluding paragraph) and beginning of Chapter Seven: [106]

> "However, now let us explain how there is not always a semitone between *mi* and *fa,* and we will discuss how mutations of the *coniunctae* are necessary, or how tonal notes will produce semitonal notes, and [how] ditonal notes [become] semiditonal [notes], and vice-versa. Immediately afterwards, let us examine that which should be properly understood — [the theories] which they [so] diligently follow." ["They" are the "followers of Guido."]
>
> **"Seventh Chapter:** Refuting the followers of Guido *[Guidonis sequaces]* and demonstrating in greater detail the truth of the matter:
>
> "Certainly with the difference of music having been examined and clearly perceived, there remains to be shown how the tonal notes produce semitonal notes and vice-versa. In addition it should be known — as Johannes of Villanova says — that the song prefers for the note to be made hard *[vult vocem fortificari]*

106. Ramos, *Musica Practica,* Part 1, Tr. 2, ch 6-7.

- Fose, *Ramos,* p 290 ff.

while ascending and to be made soft *[molle fieri]* while descending. Whence, he himself says that if a song is sung *a c d* and it does not return to *c,* although it should be called *re fa sol* — as the order demonstrates — nevertheless, it should be called *ut mi fa* on account of this: *a c* is not the interval of a semiditone but of a ditone; or if it is sung with these same notes — that is, *re fa* — let it be called a ***ditonus subintellectus*** [a "perceived ditone" [107]]. Likewise, if the song is made in this manner *g f g,* and it does not touch upon *f* again, it is a ***semitonus subintellectus*** ["perceived semitone" [108]] even though it may be called *sol fa sol* or *re ut re.*

"The same man [Johannes of Villanova] believes that the *synēmmenōn* should be performed when, after a note is placed on *b fa* ♭ *mi,* another [note] follows on mesē or, if you prefer, it will either arrive at it from the lower letters or it will touch upon it while descending from the higher [letters] — especially if it strikes the same place several times. The same will also [occur] if the song produces this progression: *d b c d c d d* and on its octaves, [for] *b c* is a tone [and] *c d* is a semitone that occurs twice; and thus either the tonal notes will include a ***semitonus subintellectus,*** or the mutation *mi* to *re* will be made [i.e. *b* will be sung *re,* making c# a *mi*], which is a note of the *coniunctae.*

"Furthermore, Johannes himself says that a semiditone is made from a ditone in this manner: "If the song proclaims *la fa sol sol,* not returning again to *fa,* either it will be a ***semiditonus subintellectus*** or the mutation *la* to *sol* is made, so that it is sung *la sol mi fa fa;* and in this manner the diligent reader will be able to judge [for himself] concerning the rest of them arranged in this way. And such notes should be marked with this sign — that is, ♮ — or with this [sign] # [109]. Therefore, for greater clarity, whoever wishes to compose a song should pay a lot of attention in respect to this [matter], which we will discuss in even greater detail in the second part. But [for] now, let these few [words] suffice in order to clarify the confusion that resulted from the syllables of Guido.

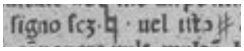
Certainly Brother Johannes Carthusiensis [110] himself spoke properly concerning these mutations: "I do not proclaim it a *mutation* when a note is changed into [another] note but rather, a *variation* from an interval [of one quality] to an interval [of another quality]. *[…sed ab ambage in ambagen variationem.* [111] *]* It is only important to notice the tones and semitones, and to sing according to the letters of Gregory." [112]

Ramos's statement of the rule governing the *semitonus subintellectus* is the same rule that governs the melodic semitone in *sostenida* cadences, [113] and has already been mentioned: the melodic motive G-F-G is to have a sharpened lower auxiliary (if no harmonic considerations disallow it). In the practice of TSM, this use is extended to the motive D-C-D (= *re ut re* or *sol fa sol*) and A-G-A (also = *re ut re*). Ramos did not use the G# in his 12-note tuning, and so, A-G#-A is not mentioned by Ramos.

107. *Fose, Ramos,* p 451 n 121.

108. *Ibid.,* p 451 n 122.

109. Ramos's original print features a modern-looking natural sign and a hand-drawn sharp sign:



Source: IMSLP113848-PMLP232420-ramos_de_pareja.PDF, page 33.

110. Johannes Gallicus, a Carthusian monk (fl. c. 1480 CE), was one of a long line of lesser-known medieval theorists who taught music using only the "letters of Gregory" and rejected Guidonian solfege.

- The relationship between the theories of Johannes Carthusiensis (Gallicus) and Ramos is discussed by Mengozzi in *The Renaissance Reform…,* p 13-14, 141-148.

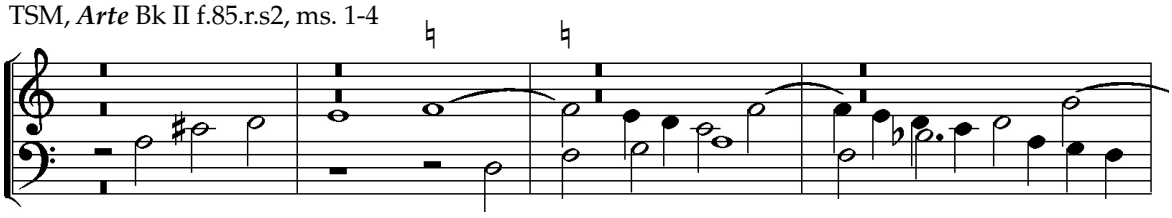
111. Fose's translation downplays the sense of *ambage,* from L. *ambīre* "to go around," which may be an aspersion in the sense of "irrelevant diversion". Perhaps Johannes is not being reported as clarifying the concept of mutation, but as dismissing it with a derogatory comment, "a variation [leading] from one ambiguity to the next."

Ramos's comment that "the song prefers for the note to be made hard while ascending and to be made soft while descending" is amply illustrated in the first Pavan of Luis Milan (**Ex. 4.07** above), and is one of the most characteristic elements of Milan's style.

I have not found the *ditonus subintellectus* to be mentioned by any other theorist. However, noting that Ramos specifically mentions the minor third A-C being inflected to A-C#, we may illustrate Ramos's point with the following example from Thomás de Sancta Maria:

Ex. 5.44 The "ditonus subintellectus" as used by TSM.

TSM, ***Arte*** Bk II f.85.r.s2, ms. 1-4



From Ramos's description it appears that the sharp sign on C4 should be optional, but if TSM had not marked it, the passage would not have come to my attention. The sharp cannot be imitated by the bass, which must sing F♮.

This example shows that the melodic minor scale was in use in the Hypodorian mode and that this device may be appropriate in other fugues by TSM in which the C# is not marked. This also corresponds to Bermudo's comment about the use of the melodic minor "mode" (Chapter 4.06 above).

Juan Bermudo discusses four types of inflection:

"…of the five black keys that are contained in the octave, three are of 'square B' [i.e. sharps] and two are of 'soft b' [i.e. flats]. The three of square B serve for the 'intense' *[intenso]* and 'sustained' *[sustentado]* notes; the two of soft b for the 'relaxed' *[remissa]* and 'fallen' *[caydo]* notes… One and the same note are the intense and sustained; and another are the *remissa* and *caydo.* When ascending one makes a [whole] tone of a semitone, this is called an 'intense' note, and when in descending one makes a semitone of the tone, it is called 'sustained' . If in ascending one makes a semitone of a tone, this is called 'relaxed' *[remissa],* and if in descending, one makes a tone of a semitone, this [note] is called 'fallen' *[caydo].*" [114]

Ramos says that an ascending tritone is in fact necessary:

"As Brother Johannes Carthusiensis says, 'To make a tritone is not a mortal sin as many believe.' On the contrary, it is necessary, for otherwise it would not be possible to make the third species of the *diapente* [fifth], because it would be manifestly false and contrary to the truth. Indeed, it seems necessary in its own place, so that if the song ascends in this manner, *f g a ♮ c,* the ascent is sweeter than [when the song ascends in] this manner *f g a b [=Bb] c.* Nevertheless, in the descent it should be done in the opposite way; but enough concerning these things." [115]

112. Fose, *Ramos,* p 290 ff.

113. TSM, ***Arte,*** Bk I f.74.v: "when some voice sings *re ut re,* or *sol fa sol,* or *la sol la,* for the most part the *ut, fa* and *sol* are *puntos sostenidos…* the reason is for the beauty of the melody, and also because they resemble cadences …"

114. Bermudo, *Declaración,* Bk IV, ch xlviij, f.lxxxviij.r, col 1, line 5 ff.

115. Fose, *Ramos,* p 308.

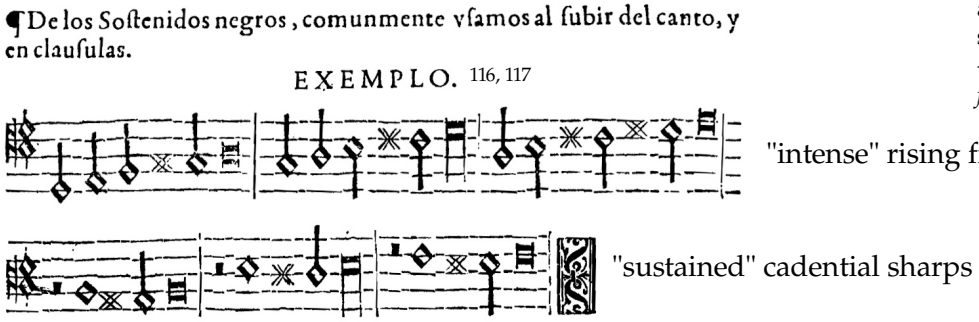
116. TSM, ***Arte,*** Bk I f.17.r

117. *cf* TSM, ***Arte,*** f.74r-v: "Although it is true that the rule to observe the solfa is a true and necessary one, in spite of that it has an exception, which is another rule principal and necessary in itself, which is this: to sing the solfa, and how the intonation is made with the voice, to play it that way on the monochord [keyboard]. The reason is that if the solfa ***is*** rigorously observed, one may often commit uglinesses *[desgracias]* and in order to ***avoid*** and excuse these uglinesses, the remedy is to sing the solfa, and to play it in the same way, because if the voice is indeed well intoned *[porque la voz si es bien intonada],*

While TSM does not place any special emphasis on this inflection pattern and does not use the term "intense,"his inflections here correspond to those described by Bermudo, extended to all of the available sharps, and the examples of rising lines and cadences correspond to Bermudo's description of "intense" and "sustained" sharps as well as to Ramos's use of the third species of *diapente.*

Ex. 5.45

"We commonly use the sharp black keys when the song ascends, and at cadences."



This symbol is an F-clef:

"intense" rising fifths

"sustained" cadential sharps

Juan Bermudo, however, criticizes the indiscriminate use of this motive of the rising third-species fifth, saying that it makes everything sound like Mode VI:

> "It appears to me to be necessary to argue against those practical musicians who play unnecessary intense and sustained sharp notes. We will see whether this is against Art or beyond Art *[contra arte, o allende de arte].* Take the first mode: its diatessaron is *re, mi, fa, sol.* Some players, when taking this diatessaron from *D-sol-re, a-la-mi,* or their octaves, ascend by the black key which is between *F-fa-ut* and *G-sol-re-ut* and by that which is between *c-sol-fa-ut* and *d-la-sol-re.* They thus ascend through this diatessaron in such a manner that first they make two tones and at the last a semitone. This interval they call the 'intense diatessaron.' [We may ask], if he who invented such a treatment of the intense and remissive intervals derived it from Boethius, [and we answer,] that Boethius did not intend such... Instead of saying *re, mi, fa, sol,* which is the natural diatessaron of the first mode, they say *ut, re, mi, fa,* thus making [the diatessaron of] the sixth [mode], as the musicians judge it. In making the diatessaron of the fourth mode, which is *mi, fa, sol, la,* some want to ascend by the black keys, again putting the semitone at the end, which makes the third species [of diatessaron]. So much used is this third species of diatessaron that it appears to be a sworn article among some players, who make all the modes into the sixth, because they play the diatessaron of the sixth mode..." [118]

The fourth variation of Narvaez's set of variations on the song *Guardame Las Vacas,* based on the *Romanesca* ground bass, features three consecutive rising "intense" perfect fifths. It is not to be explained by any necessary mutation of the hexachords. There are many scale passages in the tablatures which contain oblique false octaves created by a change of inflection in the single running voice, but this passage is striking for the regularity of the pattern of inflectional

one will never make mistakes *[desgracias].* In the end, the ruler and measurement of good intonation is the well-tuned voice. "Uglinesses *[Las desgracias]* in the solfa are mostly committed on the semitones ascending and descending, that is, *mi - fa* ascending, and *fa - mi* descending, although they are committed less often in descending. This may be clearly seen in ascending when one sings *mi - fa - sol* even though beginning from the *ut* or the *re,* because then one converts the semitone to a tone, making the *mi - fa* into *re - mi;* also when in ascending from the white key of *e-la-mi* to the white key of *g-sol-re-ut,* [in the] first [example] following, because then the solfa says *mi - fa* which is a semitone, and the voice entones *re - mi,* which is a tone. The result is that with the tongue we say a semitone, and with the voice we sing a tone."

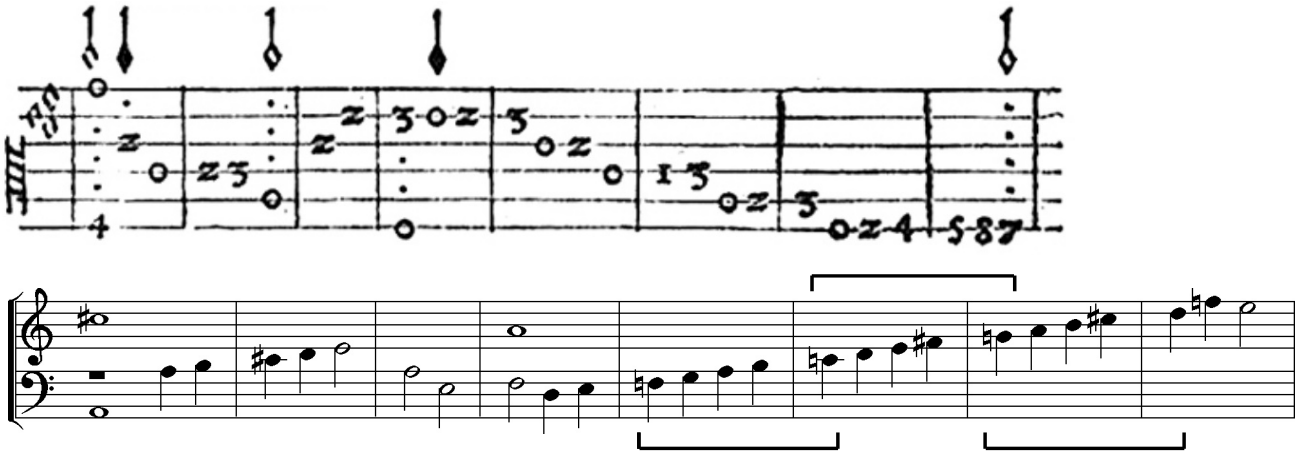
118. Juan Bermudo, *Declaración,* Bk IV ch xiiij, f.lxvij, *Against Some Barbarous Players*

change. It is also notable because it presents a historical anomaly. The other well-known historical example of this scale is found in the *Musica Enchiriadis*, the Benedictine treatise of the 10th century, where it is written in the "Dasien" notation, and apparently giving this scale as the normative one. There can be no reasonable explanation why this scale occurs in the 10th century and then again in the 16th, with no mention in between, except perhaps that this inflection pattern was used for several centuries as a performance-practice inflection which was not usually specified in staff notation.

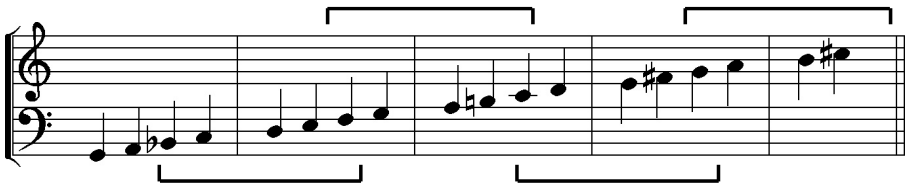
119. Schlesinger, *The Greek Aulos*, ch. IX, "Quest for the Harmonia as Survival or Rebirth in Folk Music."

Although the significance of this might be debated, the "intense" rising fifth is the Pythagorean-Timaeic temperament of the ratio series **9:8 / 10:9 / 11:10 / 12:11,** and if sung *a capella* might have been exactly that, a survival of overtone music in 15th and 16th century Europe. This is speculative (*cf* Schlesinger [119]).

Ex. 5.46
Narvaez, 4th Variation on Guardame Las Vacas, m. 10-17.



Ex. 5.47 The 10th-century *Musica Enchiriadis* scale [120]



120. Reese, *MMA*, p 254.

Comments by TSM and by Juan Bermudo indicate that (a) this special inflection may or even should be applied in any rising scale passage, and that (b) there were many musicians who did so, although Bermudo disapproves. However, I *(JZ)* find this to be sometimes a rather harsh effect for the modern ear, and it is clear that it usually violates the mode, as Bermudo complains. It is one of those salt-and-pepper effects that may be used judiciously to taste.

Chapter 5.13 Chromatic Voice Leading

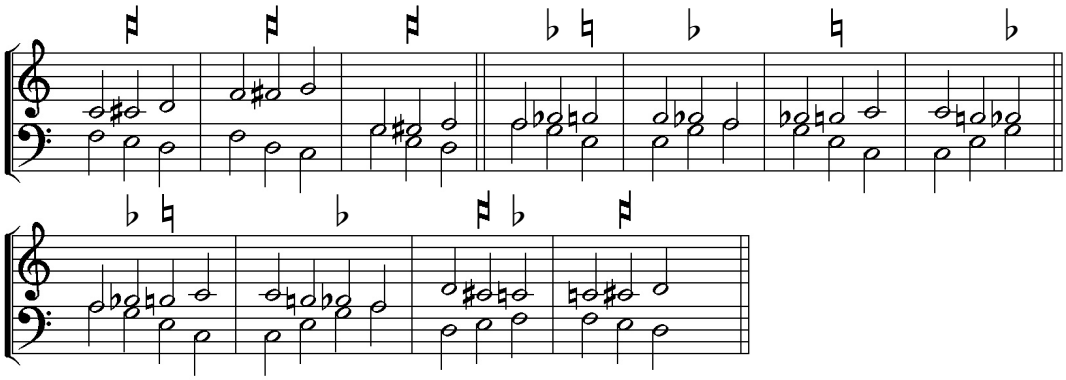
True chromaticism was explored (quite apart from the Spanish school) by the Ferrara school in Italy, where Vicentino and other composers pursued not only chromaticism but a new microtonalism which was ostensibly a revival of the enharmonic genus. Perhaps no true chromatic voice leading, that is, by consecutive half-steps, is to be found in the vihuela tablatures, but one passing chromatic ornament by Milan will be shown, an anomalous example. TSM merely puts the "unsingable" semitone off limits to his reader. Late in the century we have Dowland's chromatic cantus firmus fantasías, the *Forlorn Hope Fancy* and the *Farewell Fancy* [120a]. Although chromatic fugal subjects do not appear in the ***Arte,*** Juan Bermudo gives one example, from which we learn that the chromatic subject was at least recognized by him as a theoretical possibility.

120a. Poulton & Lam, *The Collected Lute Music of John Dowland,* p 13 - 19.

We have some examples given by Marchetto of Padua early in the 14th century. They are harmonically similar to Ramos's examples of oblique cross relations, but use the chromatic half-step in one voice instead of making a voice exchange. Evidently by Ramos's time direct chromatic movement had fallen out of fashion, but the same harmony was still made in two voices.

121. Berger, *Musica Ficta,* p 86 - 87.

Ex. 5.48 Chromatic Voice Leading by Marchetto [121]



The curious aspects of Marchetto's chromaticism, as previously mentioned, are (first) his division of the whole tone into five parts, and (as a necessary correlary) the use of two different "sharp" signs, as well as the flat sign, to distinguish between three different inflections of the semitone [122]. The three accidental symbols which he used are shown above the staff in **Ex. 5.48.** His symbol for B-natural is the same as the modern natural sign; his symbol for both C# and F# is the same sign reversed. The modern sharp sign merges these two symbols by using full ascenders and descenders on both sides. The use of the flat sign to mean C-natural in the penultimate measure of the 2nd stave is "for perfection."

122. Herlinger, *Prosdocimo de' Beldomandi's Plana Music and Musica Speculativa,* p 238 - 243.

A number of variant sharp symbols were use in the 14th through 16th centuries. Bermudo used an asterisk, while TSM used an X-shape of four lines,

as though the modern sharp sign were turned 45 degrees. Nicolo Vicentino and others of the Ferrara school invented several more symbols to distinguish their microtonal inflections in staff notation. [123]

The one-fifth-of-a-whole-tone interval was called by Marchetto a *diesis.* In modern tuning theory we have the "small diesis" of ratio **128:125 = 41.1c,** and the "large diesis" of ratio **648:625 = 62.6c.** [124] Marchetto's diesis was somewhere in this range. The term *diesis* was used by Boethius for the two quarter-tones, **499:486 = 45.7c** and **512:499 = 44.5c** of the enharmonic genus according to his tuning [125], but also for the "singable" Pythagorean-Timaeic semitone **256:243 = 90c** — so, to him it was a non-specific small interval [126]. Aristoxenus defined one enharmonic *diesis* and three chromatic *dieses,* which in Ptolemy's rationalizations have the values **40:39 = 44c, 39:38 = 45c, 30:29 = 59c,** and **80:77 = 66c.** *Diesis* has never been a precise term, and has been applied to a number of different microtones. In Indian music theory, these are all *shrutis;* but according to some authors there are three sizes of *shruti:* of **22, 70** and **90c,** or of **24, 66** and **90c.** "[A]s far as the Indian opinion of ancient times is concerned, *śruti* is a generic name for any interval smaller than a semitone. No mathematical approach to the matter is found in India before the eighteenth century." [127]

Marchetto proposed three sizes of half-step, of two, three, and four *dieses* respectively [128], which he called the *enharmonic, diatonic* and *chromatic* semitones. This terminology (quite logical from one point of view) aroused the ire of Prosdocimo, who objected that the terms were mistakenly applied (because Marchetto did not follow Boethius's usage), and that only two sizes of semitone were possible, following strict Timaeic theory [129]. Prosdocimo did not take the time to analyze Marchetto's division objectively with the careful thinking of which he was capable, but rejected it reflexively and scornfully — which may be interpreted as the subliminal Timaeic-Christian program at work. Marchetto, to a sincere Boethian, would have been seen as a chromaticist and therefore as a corruptor of the young, a follower of Timothy the Milesian. Prosdocimo calculated the 17-note system to show what he considered to be the correct and only possible intervals according to Timaeic theory.

If we look back at Boethius's monochord **(Ex. 3.73),** we will not find any chromatic semitone of four *dieses.* In Boethius's enharmonic division, we see the two *dieses* of about **45c** from Letter B to Letter D, and from Letter D to Letter C; these divide Boethius's diatonic semitone of **90c** into neat quarter-tones. Then we see a chromatic semitone from Letter C to Letter F, of **110c** which we may take either as "three *dieses*" or "two *dieses*." Here we have Marchetto's enharmonic and diatonic semitones, with their names changed, reason enough for Prosdocimo to say that Marchetto had misapplied the terms (although Prosdocimo's complaint was also that these terms should only be applied to entire tetrachords, not to specific intervals). But there is no interval of four-fifths of a whole tone, somewhere, say, between **135c** and **170c,** to be found anywhere in Boethius's monochord, whereas his enharmonic compound semitone and diatonic semitone are the *same* at **90c,** and his chromatic semitone of **110c** is only three *dieses* at most, and could also be considered to consist of two large *dieses* of about **55c** each; in no way can it be four *dieses* of **27.5c** (a large comma).

123. Vicentino, *Ancient Music Adapted to Modern Practice* (Maniates ed.), p lix - lxii, e.g. 209 ff., *& passim.*

124. *NHDM,* ***Diesis,*** p 231.

125. Boethius, *DIM* I:xxi.

- Bower, *Boethius,* p 85.

126. Boethius, *De Musica,* Bk II, ch XXVIII.

- Bower, *Boethius,* p 161.

127. Bake, *The Music Of India, NOHM Vol I* (1957), p 206.

128. Herlinger, *Prosdocimo de' Beldomandi's Plana Music and Musica Speculativa,* p 238 - 241.

129. *Ibid.,* p 240 - 241.

If we look to Ptolemy's tunings, we find in his rationalization of Aristoxenus's Chromatic Hemiolion **(Ex. 2.27c),** the interval **40:37 = 135c,** which might be divided into four *dieses* of about **34c.** This is not a great fit, because the fifth *diesis* would then be about **69c;** an interval somewhat larger would fit the description better. Marchetto's division, it appears so far, was not taken from Boethius, Aristoxenus, or Ptolemy; but we are not done with the analysis in regard to Ptolemy.

When we turn to Zalzal's frets on the oud, we find the following:

(from Ex. 3.40 above)
Zalzal's *mujannab* = 59:54 = 168c.
168c ÷ 4 = 42c; 204c - 168c = 36c.

So there are our five *dieses,* with a 7-cent discrepancy, close enough for the purpose. Marchetto's chromatic semitone of four *dieses* corresponds roughly to Zalzal's *mujannab.*

This is not the end of the story, because Marchetto's chromatic semitone has a specific harmonic function as well as a melodic function. We find only the melodic function in Zalzal's *mujannab.* If we look for a harmonically functional interval of about that size, the interval **11:10 = 165c** fits the bill pretty well:

165c ÷ 4 = 41.25c; 204c - 165c = 39c.

This is nearly spot-on, with a discrepancy of only **2.25c,** a *schisma.* Let us continue. Berger tells us:

> "[Marchetto's] examples make it clear that the new division [i.e. the semitone of four *dieses*] was reserved for the cadential leading tones, [130] making them sharper than they were in the regular division. Since the cadential leading tone occurred always in the vertical interval of major sixth or major third [131], it may be that the new division corresponded to the experience of these intervals being very sharp in the Pythagorean tuning…
>
> "Marchetto did not claim expressly to have invented the new division of the whole tone or the new sign. Indeed, some of his remarks seem to indicate that he might have thought he was describing an already existing practice." [132]

This pair of quotes puts Marchetto's division into a more defined context and tentatively connects him with some older tradition. It has certainly not escaped comment among tuning theorists and musicians alike that the Pythagorean (Timaeic) major sixth **27:16 = 906c** is a rather harsh-sounding interval as opposed to the Just major sixth **5:3 = 884c.** So, what in the world might be gained by making it sharper yet? Well: referring back to **Ex. 1.39,** there is a low-ratio sharp major 6th which belongs to the 12-division of the

130. In Bermudo's terminology, the cadential sharp is the "sustained," which, as we see here, was sharper in Marchetto's practice than the "intense" sharp.

131. Although what Berger says here is understandable, it should be qualifed: it is the major 6th *and* its inverted reciprocal, the *minor* 3rd, which are significant in cadences at the octave or unison, as we will see in Book Seven. Berger's "always" does not include the minor 3rd approaching the unison, an oversight.

The major 3rd is used in those 14th- and 15th-c. cadences which approach the fifth with a leading tone, a cadence type which was obsolete in the 16th c. The major 3rd is not significant in the cadence made by the structural duo in the style of TSM, although it was present in the Landini cadence in the middle voice.

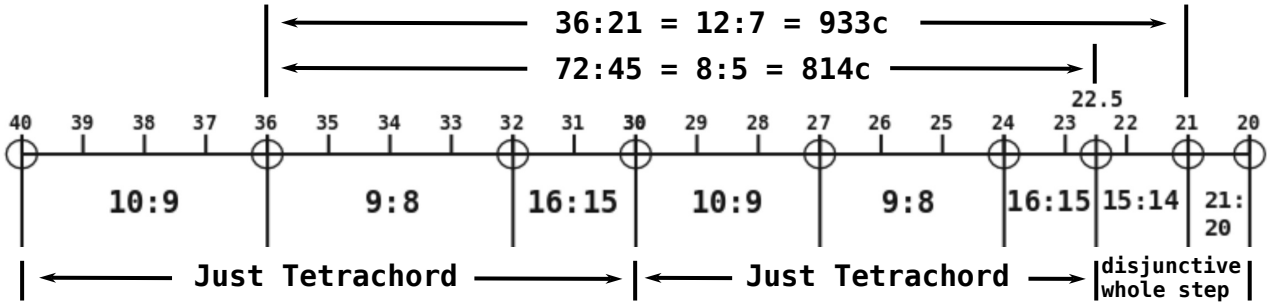
132. Berger, *Musica Ficta,* p 22 - 23.

string: **12:7 = 933c.** It is not to be found in Boethius, but on the fingerboard this is a very weak (12th order) natural harmonic found exactly halfway between the 7th and 12th frets, the chime of which is obscured by the two more obvious harmonics at **5:3 = 884c** and **7:4 = 969c.** This same harmonic node also yields a very sharp major third: **9:7 = 435c.** This interval **9:7** is found in five out of seven of Schlesinger's ancient pre-Pythagorean *harmoniae.* It is also found in all of Ptolemy's tunings which begin with the large *diesis* **28:27 = 63c** as the initial interval, because **498c - 63c = 435c,** and because **(9:8 = 204c) + (8:7 = 231c) = (9:7 = 435c).** Among the tunings of Ptolemy as given by Barbour, there are one enharmonic tuning, that of Archytas, two chromatic tunings, that of Archytas plus Ptolemy's own Chromatic Malakon, and one diatonic tuning, duplicated by Ptolemy as that of Archytas and as Ptolemy's own Diatonic Toniaion, that is, four different tunings and one duplicate which begin with this diesis, about 20% of the total of Ptolemy's generic tunings, and which therefore also contain this major third of **435c (498c - 63c = 435c).** Thus, if this interpretation is correct, Marchetto could have claimed (anticipating Zarlino's similar claim) a derivation from Ptolemy's *Harmonics,* had he read Ptolemy, which appears unlikely. But interestingly we find a much more immediate precedent for this major sixth **12:7** in the common **40**-division as **36:21,** with a very sharp leading tone to the octave, given by Quṭb al-Dīn al-Shirāzī (1236–1311) in his tuning of the very common maqam *'iraq* **(Ex. 3.52)** not more than a decade or three before Marchetto (fl. 1305 – 1319). The interval **21:20** which here represents the fifth diesis is **85c,** about twice the size of the fifth of a whole tone that we went looking for, so this is not as elegant a solution as it might be. It is merely a likely story. But Marchetto's non-Timaeic division of the whole tone does suggest some non-Christian source.

John Hothby also proposed an extra sharp leading tone, with a slightly different tuning. These older inflections, not possible in a 12-tone tuning, may be the origin of the augmented sixth chord.

133. Wright, *Modes,* p 109.

Ex. 5.49 (*cf* Ex. 3.52) [133]
The 40-division tuning of the maqam 'iraq



The terminology of two different sharp inflections, the "intense" and the "sustained," persists in Juan Bermudo's theory, but Bermudo did not continue to distinguish two different tunings, and tuned both as the Timaeic chromatic half step of **2187:2048 = 114c** above the uninflected pitch. Along with examples of how other unusual intervals such as the augmented 2nd and diminished 5th may be used in contrapuntal practice, he gives an example of a chromatic fugal subject which appears to be patterned after Marchetto's example given above. It is clear that he is treating this as one of the possible irregularities used by progressive composers, which were only marginally acceptable in Bermudo's time and are not treated at all by TSM. Bermudo has some interesting comments on chromaticism:

"The first genus of music to be invented was the diatonic. When Tubal found the musical proportions in the sound of the hammers of his brother Tubalcayn, [134] the formal intervals of the chromatic and enharmonic genres were not among the sounds. He found there the octave, fifth, fourth and whole step; and in the first three consonances, the minor semitone. Singing this genus by fourths, each one [i.e. each fourth] had three intervals, one of a semitone, and the other two of a whole-step each. In the primitive music *[la primativa Musica],* they did not have the minor third, or *sesquitono,* constructed of three semitones. Ptolemy found this consonance much later. From this I infer that Pythagoras did not find the proportions first, but Tubal. Because in the time of Pythagoras they [already] had this consonance, and it was used in the chromatic genus. They were preceded by Timothy the Milesian by whom it was invented, whom Pythagoras reprehended; he also reproved the genus which [Timothy] had invented. Men of delicate voices and sensitive ears began, in singing and playing, to divide the intervals, and with a [whole-] tone which they should have ascended in one movement, they ascended in two, and they used to [even] sing a semitone in two steps, dividing it with another movement in the middle. I know a cantor who has such a delicate voice that if he wishes to ascend a whole tone in three steps, he can do it easily. I heard a little girl sing, the daughter of a cantor of Granada, and she descended a whole step and then ascended in two movements. This she did with such smoothness, giving so much contentment to the many [listeners with] good ears who were present, that it appeared to be something required for good music. If those who have such voices could follow their way, music would have in them yet another luster." [135]

134. Tubal was a grandson of Noah, mentioned in *Genesis 10:2,* and his name here is an error: the name should be "Jubal." Tubal-Cain (= "Tu-Volcan"), here named as Tubal's brother, was the antediluvian son of Lamech and is identified in *Genesis 4:22* as "the forger of all implements in bronze or iron," and there his half-brother Jubal (not Tubal), is called, in *Genesis 4.21,* "the father of all those who play the harp and lyre."

The myth of Tubal/Jubal as the Biblical discoverer of the consonances in his brother's blacksmith shop is certainly related to the Nicomachean myth of Pythagoras and the "Harmonious Blacksmith," and is probably a medieval gloss on Nicomachus.

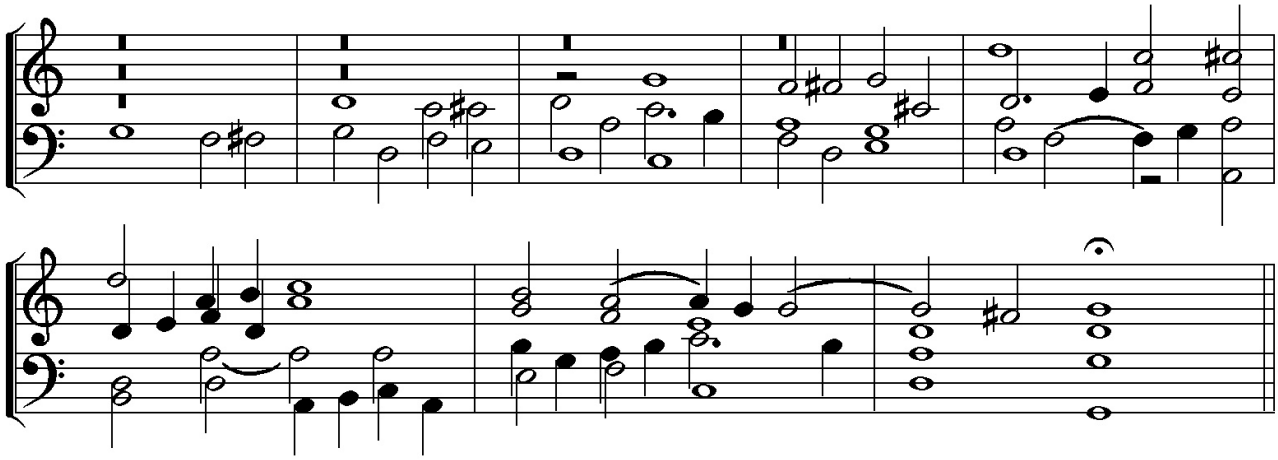
Bermudo, jumping from ancient history to the Granada of his own time, only sixty years after the completion of the *reconquista* by the Catholic Kings, is reporting that musicians in Granada were singing consecutive half-steps and thirds of tones. In reporting such singing, it is obviously difficult to define the intervals by ratio, and arguably impossible to sing such intervals according to ratio: one must make geometrically aural approximations such as one-third and one-quarter tones, just as Aristoxenus had done. Marchetto's division into fifths of a tone so as to distinguish between intervals of 2/5, 3/5 and 4/5 of a tone would have required a degree of ear training rivalling that of Aristoxenus, and far advanced beyond Guido's bare-bones monochord for children with its 16 or 20 notes. The voice would require a stringed instrument to measure the intervals against by ear: there must be an acoustical benchmark, or the exercise is meaningless. In our modern system, it is relatively easy for any well-trained musician to sing consecutive half-steps, because we can conceptualize and name them, but to sing intervals smaller than a half step, or to distinguish in singing between large and small half-steps, would require a fresh study of the monochord, training the ear to hear, and the voice to sing, the microtones. On the modern violin, good players play larger and smaller half-steps, but they have to be taught that art, which, among other virtues, helps to distinguish them from beer fiddlers.

135. Bermudo, *Declaración,* Bk I, ch xiii, f.xii.r col 1.

In Bermudo's time, Vicentino and the other microtonalist composers of the Ferrara school were attempting to revive the enharmonic genus, also singing microtones. This was a radical innovation in European music, but was one which did not last in common practice, and was abandoned rather quickly after Vicentino's time. Vicentino's elegant theory met practical difficulties because the ears of his singers were not up to the task of singing microtones in tune. Although Vicentino based his *theory* on Ptolemy and Boethius, just as did Zarlino, we find the *practical* precedent for the singing of microtones to be existent in his time in Granada, just as we find the more immediate practical precedent for Zarlino's Just Intonation in the scales of the Persian Systematist school, a theory which must certainly have been at least *known* in Granada, although as to whether it was commonly used there we can only guess. The difference, of course, is in the Christian use of polyphony. We don't know anything about polyphony in Muslim Granada — except that there were a lot of vihuela players there.

Ex. 5.50 Bermudo's Chromatic Fugue

Bermudo, *Declaración*, Bk V, ch xxxij, f.cxxxviij.v



This fugue appears to have been constructed directly from Marchetto's own examples. The similarity is too close to be coincidental, since Bermudo has incorporated two of Marchetto's separate examples into one fugue. Bermudo does not mention Marchetto in the text. He defends the use of the "unsingable" chromatic semitone by saying that it is only "unsingable" in the *diatonic* genus. "Nowadays," he says, "in composition one plays and sings a mixture of the diatonic and chromatic *genera,* and there is a place for the chromatic semitone." This latitude is not permitted by Thomás de Sancta Maria, who gives no examples of consecutive half-steps.

136. Watkins, *Gesualdo, The Man and His Music,* p 37 ff.

This example is foreign to the Spanish style as reflected in TSM and the vihuelistas, and possibly reflects a hypothetical Italian tradition which leads from Marchetto in the 14th century to the Este court in Ferrara (with which the chromaticist Carlo Gesualdo, himself of the nobility, was associated as well [136]) in the later 16th century. The Estes ruled Ferrara from the 13th century through the 16th; they were widely traveled, internationally connected, and participated in many wars, including the Crusades [137]. They appear to have

been the special patrons of those Italian musicians of the mid-sixteenth century who composed in the revived chromatic and enharmonic *genera.* Nicola Vicentino's immediate patron was Ipollito II, Cardinal d'Este (1520-1572), a diplomat as well as a cleric, and three-time candidate for the papacy [138].

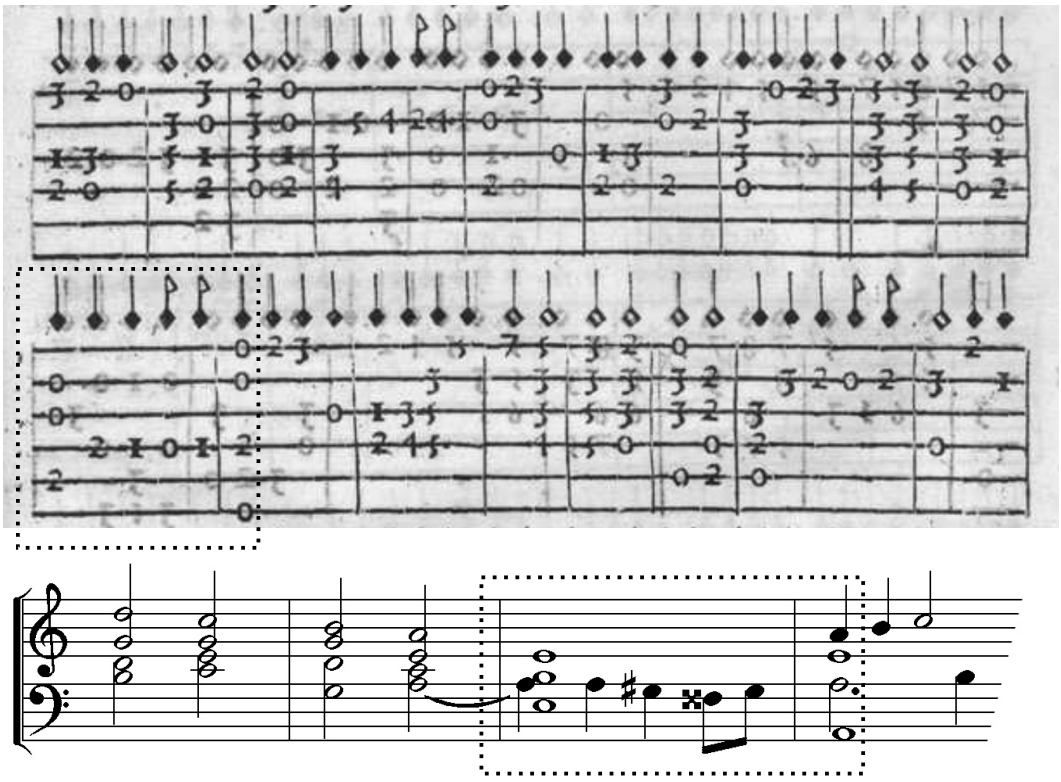
137. *New Col. Ency.*, ***Este,*** p 893 - 894.

138. Vicentino, *Ancient Music Adapted to Modern Practice,* (Maniates ed.), Introduction, p xxxi ff.

In the same section of the *Declaración* in which the chromatic fugue is found, Bermudo gives similar examples of fugal subjects containing the augmented fourth, diminished third, and diminished fifth (not reproduced here).

Ex. 5.51 Milan's chromatic cadential ornament

El Maestro, Fantasía in Mode VII, m. 15-31, copy of the Biblioteca Nacional de España, p 149



The chromatic idiom here speaks for itself. Milan must have been pleased with this lick. It is not a typographical error, because it is repeated exactly at measure 87 of the same fantasía. The voice leading of this cadence is not grammatical, and is one of Milan's typical coloristic instrumentalisms arising from what appears to be *his* concept of "playing in consonances", that is, playing a chord of the correct harmonic quality without concern for voice leading.

The fantasía in which this cadence occurs is in the seventh mode, and should (by TSM's account) not have a cadence on A anyway. TSM's cadence schedule is more restrictive than what is found in the tablatures.

This cadence also highlights that common irregularity which runs counter to the orthodox Pythagorean-Timaeic account of intonation and fret place-

ment as given by Juan Bermudo, which occurs in the music of all of the vihuelistas and appears to be unavoidable. This fantasía is in the "A-tuning" and the first fret is unquestionably in its minor position at **256:243 = 90c** above the nut. The notes on this fret, according to theory, are Bb2, Eb3, Ab3, C4, F4 and Bb4. Yet, a sostenido cadence on A with a G#3 is being played, a G# which is tuned as a Timaeic Ab but functions as a Just G#.

The use by Luis Milan (and all of the other vihuelistas) of this G# tuned as an Ab may perhaps be explained as follows. Remember that "sharps are for beauty, flats are for perfection." In Milan's 3rd Pavan, measure 20, we find an Eb3 on the first fret. Because this Eb is used "for perfection," it must be a perfect fifth below the Bb3 which occurs simultaneously on the 3rd fret of the 4th string. Therefore, the fret must be in its minor position.

However, "sharps are for beauty." Even Juan Bermudo admits, somewhat *sotto voce,* that the Pythagorean major third of ratio **81:64** "makes great difficulties." [139] This particular G#3 is tuned as a near-Just major third above E3, at **384c** to be precise, instead of at **408c.** The first fret must be in its minor position in order that the notes Bb2, Eb3, C4, F4 and Bb3 all be at perfect fifths and octaves from notes on other frets.

139. Bermudo, *Declaración,* Bk IV, ch 84, f.cviij.r, col 2, lines 18-19.

In 16th century practice, sharps are rarely doubled: it is rare to find two sharped notes in the same chord [140]. (One cannot say "never" with respect to the doubling of sharps, because the ambiguity of TSM's notation allows at least the possibility in some of his examples.) The absence of the doubling of sharps is a change from 14th-century practice, where the "Landini cadence" featured exactly that: two different sharped leading tones in the same chord. Insofar as sharps are used as thirds of chords, which often occur as cadential leading tones, there is no essential need for them to be tuned as perfect fifths or octaves, and one good reason that they are not doubled (that is, why a chord should not contain two F-sharps) is to allow a cadential trill, but another good reason for not doubling them would be if their doublets should happen to be out of tune — for example, in Bermudo's A-tuning, the comma discrepancy between G#3 on the first fret and G#4 on the fourth fret. (Vincenzo Galilei criticizes this defect and its occurrences in the G-tuning as part of his advocacy of his "rule of 18" equal-tempered fret pattern [141].) F# occurs as the fifth above B only in modes transposed toward the sharp side; the fifth C# above F# is very rare, if it is to be found at all; the note G# is absolutely never found as the fifth of a chord. Ramos had referred to the fifth C# - G# as "useless," that is, opining that it should never occur and never be necessary [142] — but of course this means that someone else may have had another opinion. The bottom line is that to tune this G#3 as a near-Just third will not offend anyone's ear, ever, whereas on the other hand, if it occurred as a fifth or octave in relation to another note on another fret, and were tuned sharp or flat by a comma, it would be unacceptable.

140. Morley, *A Plain and Easy Introduction to practical Music,* (Harman ed.), p 175.

- Morley warns against doubling F#, C# or G#.

141. Galilei, *Fronimo* (MacClintock ed.), p 156-159.

142. Ramos de Pareja, *Musica Practica,* Part III, Treatise 2, ch 4.

- Fose, *Ramos,* p 427 - 428.

The open G♮ / Fx of the ornament has no place in any 16th-century theory.

5.14 SUMMARY

The least authentic approach to the questions of inflection in the ***Arte*** of TSM is to not add any inflections, and to play the fugues as "modal pablum." This has been done by various naive musicians on You-Tube, and it is embarassing to listen to. "Modal pablum" has its place: in Jeppesen's species counterpoint exercises, to be precise. In the ***Arte*** of TSM, a more sophisticated practice of inflection is demanded. Vincenzo Galilei admonishes his reader:

> "And let it not come into your mind to try to defend yourself with the silly excuse of some who say they did not feel called upon to do more than that which they found written or printed, because if they try to observe that principle they would not have to put the Semitone in those cadences where only rarely, not to say never, is it indicated." [143]

143. Galilei, *Fronimo* (MacClintock ed.), p 83.

To add the correct inflections, where these are mandatory, is the equivalent of pronouncing the words of a foreign language with the correct accent. Although there is no proving this, it appears likely to the present author that the same standard inflections were already in use, although not notated, as early as the late 13th-century *Cantigas de Santa Maria* from the court of Alfonso X "El Sabio" (1221–1284). If sung without inflection, the *Cantigas* display the same characteristic quality of "modal pablum" as do the fugues of TSM and the duos of Zarlino when treated similarly; that this was the historical reality may be questioned.

Although the orthodox guidelines for inflection are reasonably clear, there are many irregularities that appear in the tablatures, and many puzzles of inflection in the staff notation of TSM. From the point of view of the naive beginner, a set of firm guidelines on inflection might appear to be desirable; the most concrete way for an editor to provide such guidelines would be by adding "editorial" inflection marks above the staff, which of course (as explained previously) I have not done, because I consider it to be a distortion of the original notation, making it more specfic than it was intended to be, and closing the door on alternate interpretations. The purpose of this approach is not to legislate, but to encourage experimentation by ear. To remain true to 16th century practice, this experimentation should, theoretically, be done within the limits of TSM's tonal system — and on Pythagorean frets. But most modern guitar and lute players will use ET anyway, and the musician who studies this practice of fugue must inevitably be drawn to consider the contrasting styles of the later Baroque practice of fugue, and to place TSM's practice in perspective against the longer historical view and against other theories of fugue. To the degree that the reader wishes to study TSM's own practice of inflection and to re-create the style of mid-16th century Spain precisely and authentically, then it is appropriate to consider the information given in this chapter carefully, and to study the inflections of the vihuelistas. To the degree that the reader desires to create a personal style of fugue with a more eclectic style base including Baroque or modern harmonic elements, the sky is the limit on harmonic experimentation.