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The Shawm and the Alta Ensemble during the “Slide Trumpet Years”

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Abstract

In the *alta* ensemble, the “slide trumpet years” refers to the decades between the rise of the *alta* ensemble in the early 15th century and the simultaneous development of “Low Contra” style and the arrival of the trombone. During this period, a core duo of schalmei and bombard, pitched a fifth apart, performed the functions of Cantus and Tenor voice, presumably performing composed polyphony in one of two pitches a fourth apart, and instrumentalists of the *alta* perceived links between their instrumental ranges, fingerings, solmization, and tuning. In considering the issue of the slide trumpet, imagining scenarios in which the instrument did or did not exist suggests that the presence of a slide trumpet during these years remains the most elegant and simple solution for performing the Contra voice and function. Existing evidence challenges assumptions about the musical literacy of instrumentalists of the *alta* as enjoying less refined skills in reading notated music and crafting counterpoint than other contemporary musicians. Moreover, positing that members of the *alta* would have been fluent in an equally crucial form of literacy – employing solmization in visualizing composed and extemporized counterpoint – this article presents examples of contemporary compositions and counterpoint indicating proposed vocables.

Introduction

One of the problems facing those recreating the performance practices of the fifteenth-century *alta* ensemble is the need to reconcile archival and iconographic evidence of performance ensembles with a lack of surviving contemporary instruments. As a result, we find ourselves studying the shawm family and its companion brass instruments by relying on surviving instruments and documentation from the two centuries that follow. Over the course of more than four decades, I have gradually

proceeded from playing a treble shawm pitched in C at $a' = 440$ Hz, to an instrument a step higher in D, to an instrument yet a half-step higher at $a' = 466$ Hz, each time based on newly understood evidence. Each instrument revealed new approaches to fingering, articulation, and tuning, resulting in a keener awareness of pitch relationships and voice functions among the instruments of the ensemble. Each step along the way has convinced me that the closer we get to putting pieces of the puzzle together, even when separated by as much as two centuries, the more they continue to make sense.¹

In this article, I will consider several issues concerning the instruments in the *alta* ensemble during the “slide trumpet years”. I will make observations about the functions and ranges of the instruments of the *alta* ensemble and argue that linking the fingerings of schalmei and bombard to fifteenth-century solmization and the Guidonian hand offer valuable practical information about tuning and technique.² By imagining the lack of existence of a fifteenth-century slide trumpet, I will argue that imagining the instrument did exist remains the simplest and most elegant solution to performing music from the first half of the fifteenth century. In considering the level of literacy of the instrumentalists, challenging how evidence of their lack of reading and contrapuntal skill is interpreted. Finally, I will argue for exploring the possibility that the instrumentalists of the *alta* had access to the rich resources of an especially rich form of literacy in the guise of contemporary solmization.

The “Slide Trumpet Years”

Modern performers commonly adopt several working hypotheses for recreating the music and performance practices of the fifteenth-century *alta* ensemble. First is the premise that the fifteenth-century *alta* was founded on a core duo of bombard and schalmei performing the respective contrapuntal functions of the Tenor and Cantus voices, as attested to by Tinctoris in his *De inventione et usu musicae*. Surviving instruments show a largely consistent relationship between bombard and schalmei pitched a fifth apart, which corresponds to the common pitch relationship between Cantus and Tenor voices in composed polyphony throughout the century. Tinctoris also notes that the trombone played the Contra voice. His description resonates with contemporary iconography and pay records, which provides evidence that in three-voice music, the Contra was played by a brass instrument, but that in four-voice music,

¹ This article grew out of an invitation to read the paper, “Voices and Vocabulary of the schalmei in the *alta* during the ‘Slide Trumpet Years’” during a study day at the Schola Cantorum Basiliensis (12 October 2018), where I was honored to meet the late Edward Tarr. I would like to thank Christelle Cazaux for encouraging me to write on this topic, Adam Bregman, Ross Duffin, and Keith Polk for making comments along the way, and Lorenz Welker for posing suggestions and thought-provoking questions. For more on my own journey “toward authenticity” see Gilbert 2020.

² Through this article, the term “shawm” refers to all members of the instrument family. The term “schalmei” refers specifically what is commonly referred to as “treble shawm” and “bombard” refers the instrument pitched a fifth lower and commonly referred to as “alto shawm”. The term “trombone” is synonymous with “sackbut”.

the Contratenor Altus voice was played by a second bombard.³

I adopt the phrase “slide trumpet years” to refer to the period roughly beginning in the early decades of the fifteenth century, when the *alta* appears to have crystallized into an ensemble consisting of a core duo of shawms performing the Tenor and Cantus function, with an accompanying brass instrument performing the Contra function in polyphonic performance. I mark the end of this period with the arrival of the trombone, an instrumental able to fulfil the range of the Low Contra voices that increasingly proceeded in thirds and fifths below the Tenor. In this sense, one might equally refer to the period in which the slide trumpet performed the Contra voice as “the High Contra years”.⁴

Ranges and Functions of the *Alta*

Although there is no single pitch standard, most surviving examples of schalmei and bombard are pitched in close proximity to *d* and *g* at a modern pitch standard of *a'* = 466 Hz. The consistent use of this basic pitch is especially important when considering that up until 1700, sackbuts were pitched in A, also at *a'* = 466 Hz.⁵ Because the ranges of the instruments are a step higher than surviving examples of other wind instruments like recorders, modern players of the *alta* typically perform music at one of three pitches: 1.) When playing with other instruments, they visualize playing “at pitch”. 2.) When playing music in which the lowest note of the Tenor voice descends no lower than *f*, and the Cantus voice seldom descends below *c'*, the ensemble will typically play “up a step” from modern pitch. 3.) When the Tenor voice descends to *c*, the Cantus typically goes no lower than a fifth above on *g*. Performers refer to this as “up a fifth” from modern pitch.

Fifteenth-century players, however, had no such need to refer to anachronistic modern pitch standards. The earliest fingering charts for the schalmei and bombard, and their surviving repertoires, show that the bombard functioned as a Tenor instrument, with a low note of *C*-faut, and that the schalmei visualized its lowest note as *g*-solreut. Thus, what is commonly referred to as “up a fifth” was almost certainly the standard pitch for the *alta* ensemble. Players of the *alta* also could easily transpose to perform music notated in higher ranges that modern players designate as “up a step”. This tendency to alternate or transpose between pitches a fourth apart is a common aspect of fifteenth-century notation and modal theory. In both cases, I believe that the player of the schalmei and bombard visualized their ranges in terms of solmization, with the bottom note of their instruments as “ut”, and that they had a keen perception of the relationships between solmization and qualities of all of the notes of

³ Baines 1950, 20–21.

⁴ The term “Low Contra” is commonly employed by musicologists to refer to these procedures. I adopt the term “High Contra” to refer to counterpoint in which the Contra typically proceeds above the Tenor voice, especially in cadential formulae.

⁵ The instrument changed little over time, but players switched to thinking in B \flat by the end of the eighteenth century.

their range.⁶

When the bombard visualizes its fundamental as C-faut, and the lowest note of the schalmei is g-solreut, on a slide trumpet pitched in D at $a' = 466$ Hz the first position of its second harmonic would correspond to Gamma-ut. In this case, the ambitus of the *alta* corresponds precisely to that of the Guidonian musical hand: with the lowest regular first-position note of the trumpet matching the bottom of the musical hand and the highest note of the schalmei corresponding to e''-la at the top of the range. In order to avoid associations with anachronistic pitch standards, I refer this range as “Alta pitch” (Examples 1a, b, c) and to music pitched a fourth lower as “Bas pitch” (Examples 2a, b, c).⁷

Example 1a illustrates two common cadential formulae arriving on the bottom note of the bombard in Alta pitch. Example 1b illustrates the diatonic range of the slide trumpet visualized in this same pitch. Example 1c presents the opening measure of *Depuis le doloieux partir*, a chanson with a range which necessitates Alta pitch, along with diatonic and chromatic slide-trumpet positions indicated.⁸

Ex. 1a: Instrument ranges in Alta pitch

Ex. 1b: Slide trumpet pitches visualized in Alta pitch

⁶ For the earliest historical sources linking wind fingerings to solmization, see Agricola 1529, 9v–10r; Ganassi 1535, 3–6; Welker 1983, 127.

⁷ Adopting this terminology at the recommendation of Ross Duffin and Adam Bregman acknowledges the intimate relationship between the *alta* ensemble and its common high range. One may choose the more consistent Latin term “bassa” to refer to the lower pitch, but I use “bas” in reference to employing the fingerings associated with performing in “bas” ensembles.

⁸ Surviving documentary evidence suggests that slide instrumentalists were thinking in terms of diatonic positions into the nineteenth century. For a complete edition of *Depuis le doloieux partir*, see Southern 1981, 37–38.

Diatonic	2	2	1	2	3	2	1	2	b1	1	b1	2	1	#2	1	1	2
Chromatic	3	3	1	3	4	3	1	3	#2	1	#2	3	1	2	1	1	3

Ex. 1c: Anonymous, *Depuis le doloieux partir* (mm. 1–6)

In compositions in which the lowest notated pitch does not descend below *f*-faut, the Cantus almost always lies above *c'*-solfaut. **Example 2a** presents the same cadential formula from the previous example in this Bas pitch. In **Example 2b**, the slide-trumpet positions indicate an instrument visualizing its first position pitch as *c*-faut, a fourth below the bottom pitch of the bombard.⁹ **Examples 2c** and **2d** present passages from two chansons requiring Bas pitch, once again with diatonic and chromatic slide positions notated for the slide trumpet. The anonymous *J'atens le confort* closes with an arpeggiated passage in its Contra straight out of the playbook of Guillaume Dufay's *Se la face ay pale* and *Donnes l'assault*. The anonymous chanson *A cheval, tout homme, a cheval* enlists the sounds of trumpets in the service of its amorous text, breaching the boundary between love and war.¹⁰ The slide trumpet is not limited to parts with trumpet calls, however, and these chansons provide opportunities for exploring the boundaries between common counterpoint motives and those with mimetic associations to trumpets.

Ex. 2a: Instrument ranges in Bas pitch

⁹ Though modern studies typically refer to the slide trumpet as pitched in D, this “Bas” pitch resonates with how trumpeters have historically visualized their fundamental pitch as C.

¹⁰ For modern editions of *J'atens le confort* and *A cheval*, see Southern 1981, 1, 13.

Shawm Fingerings and Solmization

To pursue the hypothesis that the players of schalmei and bombard were visualizing solmization, one might link the notes of the instruments to their possible vocables. **Table 1** links common fingerings of the Schalmei to their letter names in Alta and Bas pitch, and their solmization.¹¹ **Table 2** links common fingerings of the Bombard to their letter names in Alta and Bas pitch, and their solmization. Fingering numbers indicate holes covered downward from the top hand, with strikethroughs indicating half or partially opened holes. Vocables are marked for the main notes of each propriety, including notes visualized “fa over la”. Italics indicate “extra manum” vocables (i.e., those outside of the hand). The parenthetical “ut” was probably seldom visualized because melodic patterns so often extended below that note.

F i n g e r s	1 2 3 — 4 5 6 7	1 2 3 — 4 5 6																				
Alta	G	A	B \flat	B	C	C \sharp	D	D \sharp	E	F	F \sharp	G	G \sharp	A	B \flat	B	C	C \sharp	D	D \sharp	E	F
Bas	C	D	E \flat	E	F	F \sharp	G	G \sharp	A	B \flat	B	C	C \sharp	D	E \flat	E	F	F \sharp	G	G \sharp	A	B \flat
Natural	ut	re		mi	fa		sol		la	fa		(ut)		re		mi	fa		sol		la	fa
Soft					ut		re		mi	fa		sol		la								
Hard							ut		re		mi	fa		sol		la	fa					
Extra			<i>fa</i>						<i>mi</i>										<i>mi</i>		<i>mi</i>	

Table 1: Schalmei Fingerings and Vocables

¹¹ There is no single standardized fingering system for surviving shawms, and fingerings for individual notes can vary on different instruments. The fingerings shown here work with remarkable consistency on schalmei and bombard copies made by Robert Collier, Robert Cronin and Rufus Acosta, Joel Robinson, and Paul Hailperin. A number of these instruments were based on or conform closely to measurements taken by Herbert Myers.

F i n g e r s	1 2 3 — 4 5 6 Key	4 2 3 — 4 5 6 Key	1 2 3 — 4 5 6 Key																			
Alta	C	D	E ^b	E	F	F [#]	G	G [#]	A	B ^b	B	C	C [#]	D	E ^b	E	F	F [#]	G	G [#]	A	B ^b
Bas	F	G	A ^b	A	B ^b	B	C	C [#]	D	E ^b	E	F	F [#]	G	A ^b	A	B ^b	B	C	C [#]	D	E ^b
Natural	ut	re	mi	fa		sol		la	fa		(ut)		re		mi	fa		sol		la	fa	
Soft				ut		re		mi	fa		sol		la	fa								
Hard						ut		re		mi	fa		sol		la	fa						
Hard “Bas”		ut		re		mi	fa		sol		la	fa										
Extra			fa			mi		mi					mi					mi		mi		

Table 2: Bombard Fingerings and Vocables

On both the schalmei and bombard, the tuning of each fingering corresponds closely to the vocables: Notes associated with “mi” or “la” tend to be pitched lower than equal temperament, while notes that are “fa” tend to be pitched higher than equal. The result is that each “mi” and “la” tends to create a pure third over an “ut” or “fa” respectively, and that each “fa” tends to create a pure minor third over “re” or “sol”. This correspondence between tuning, temperament and vocables is intimately related to tuning with pure intervals. Because difference tones are quite audible on shawms, anything other than a pure consonance creates a dissonant difference tone. For example, when two shawms sound a pure major third, for example on “ut” over “mi”, the residual tone echoes the bottom pitch “ut”. In the same manner, the minor third creates a residual difference tone a major third below the bottom pitch. When tuning any consonant interval, I listen not for the frequency of my pitch, but for the difference tone.¹²

It is common to think of forked fingers as a means to lower a pitch. In upper-hand notes on the schalmei and bombard, however, forked fingers can raise the pitch of a given fingering. On the schalmei fingering for *f' / b^b'* (1 3 / 5 6) and *g' / c'* (2 / 5 6), the two added fingers bring the note “up” to pitch, producing a nicely tuned “fa”. This is also true for the corresponding notes of the bombard.

There are some minor but crucial differences in the fingerings of the Cantus and Tenor instruments. While the fourth note “fa” of the schalmei (*c' / f'*) typically works

¹² Duffin 2008, 32–37, 163.

best with a fork fingering (1 2 3 / 4 6), the fourth note of the bombard (*F / B \flat*) works best with a single fourth finger (1 2 3 / 4).¹³ If one plays the single fingering in a relaxed manner, it works quite nicely as a “fa”, and allows for one of the special features of the bombard: If one plays the half step “mi” above (*F \sharp / B*) without the key, it should sound almost at the same pitch as the *F / B \flat* . Adding the key “pops” the note up to a very stable “mi” (this rule works so well that I use it to test the tuning and set-up of any bombard). Modern makers have often tended to view that note on the bombard as being too sharp, often adjusting the tuning to favour a more equal-tempered forked fingering.

The Slide Trumpet Problem

Since the 1950s, when Heinrich Bessler and Curt Sachs first proposed the existence of the slide trumpet as a member of the *alta* ensemble, scholars have struggled with contradictory evidence. They have enlisted pictorial and textual proof to argue both for and against the existence of a trumpet with a moveable slide, capable of playing diatonic melodies beyond the single overtone series available to the natural trumpet. In the 1980s, the debate settled on a majority consensus that a slide trumpet did exist, an assessment that has met renewed skepticism in recent scholarship. Barring the discovery of a surviving instrument or contemporary documentation, the current evidence promises to provoke ongoing debate.¹⁴ Rather than rehearse the evidence for both conclusions, well-argued elsewhere, I will briefly consider implications arising from imagining that a fifteenth-century slide trumpet did NOT exist. Each scenario invites further exploration in performance, and each raises inherent questions or problems. None is necessarily mutually exclusive: it is plausible that different playing traditions coexisted in the decades before the arrival of the trombone as a member of the *alta*.

1. Natural Trumpet with Overtone Series

In one scenario, the trumpeter performed only notes on the natural overtone series of the instrument.¹⁵ This might envision an ongoing tradition from the fourteenth century in which trumpets provided drones, perhaps with rhythmic impetus under a melody instrument, such as a shawm.¹⁶ Timothy McGee has argued that the Italian tradition

¹³ Myers 2020, 129, n. 4.

¹⁴ Studies arguing for and against the existence of a slide trumpet in the fifteenth century include Sachs 1940, 108; Sachs 1950; Downey 1984; Duffin 1989; Myers 1989; Polk 1989; Polk 1997; Polk 2018; Tröster 2004; Tröster 2007; McGowan 1996; Klaus 2013, 1–8; Neumeier 2015, 53–54; Welker 1983, 131–141; Welker 1990.

¹⁵ On the ranges and playable notes of the natural trumpet, see McGee 2009, 55–58; Polk 1992, 57; Welker 1983, 127.

¹⁶ The ensemble *Les haulz et les bas* has experimented with this in performance to good effect. It is plausible that a tradition of monophonic performance did overlap polyphonic performance practices. For the role of the ensemble of *trombadori* and *cenemella*, see McGee 1999, 96, 101–106 and McGee 2009.

of a shawm player accompanied by trumpets existed in Italy for a time alongside the new German *piffari*, inviting the conjecture that a tradition of melodic performance over single or multiple drone pitches did overlap polyphonic performance practices.¹⁷

A second scenario – that a natural trumpet played a Contra voice based solely on the natural overtone series – presents two problems. First, only one notated example of this practice survives, with Dufay’s *Gloria ad modum tubae*, in which the fugal voice limits itself to the overtones of the low and middle ranges of the instrument. Second, even “trombetta compositions” like Pierre Fontaine’s *J’ayme bien celui* and the anonymous *Tuba gallicalis* are not performable on a natural trumpet as notated. Of course, these compositions may have been intended as imitations of trumpets.¹⁸

In a related scenario, the trumpeter substituted unplayable Contra pitches with those in the natural overtone series, creating a hybrid between a composed voice and the limitations of the instrument.¹⁹ To explore this possibility, one might turn to compositions with apparent mimetic echoes of trumpets to explore where the boundaries lie between those notes that can or cannot be sounded. **Example 3** below presents a passage from the anonymous *J’atens le confort*; Contra notes marked with an X indicate those that are not inherent to the natural overtone series on C.²⁰ Substituting natural notes for those not playable on the trumpet would rely on treating essential contrapuntal pitches as dispensable. One problem with this scenario remains a lack of surviving notated repertory throughout the fifteenth century to indicate the existence of such a practice.

The image shows a musical score for three parts: C (Contra), T (Trumpet), and CT (Clarinato). The score is in G major and 4/4 time. The lyrics "En ce printemps que renouvelle" are written below the staves. The CT staff has 'X' marks under several notes, indicating they are not in the natural overtone series of C. The score is numbered 25 and 30.

Ex. 3: Anonymous, *J’atens le confort* (mm. 25–32)

2. Clarino Range

Peter Downey has proposed that the trumpeter could have played in the clarino range, providing a diatonic scale for the performance of melodic lines.²¹ From the vantage point of the *alta* ensemble, this conjecture presents two problems. First, based on the size of instrument depictions, the clarino range of the trumpet would likely encompass the second octave of the schalmei. Even with a schalmei capable of two octaves, the

¹⁷ McGee 1999, 101; McGee 2009, 55–62.

¹⁸ For a study of the *trombetta* repertory, see Wheat 1994; Bent 2007.

¹⁹ The ensemble *Les haulz et las bas* has illustrated this procedure in their arrangement of Dufay’s *Se la face ay pale*. See *Les haulz et les bas, Concilium zu Constanz, 1414–1418*, Ahalani ar 0059, 2018.

²⁰ This example is notated in “Bas” range.

²¹ For this argument and a response, see Downey 1984, 31; Duffin 1989, 400.

resulting Cantus and Contra voices would sound in the same range. Imaging the schalmei and trumpet playing voices in the same range also presents problems. In a composition like Pullois' Gloria, the canonic Cantus of which echoes the sound of trumpets, the upper two voices would – if played a step higher than the written pitch – fit the schalmei but extend below the clarino range of the trumpet.²² Played up an octave to accommodate the clarino range of the trumpet, the Cantus voice would stretch out of reach for the schalmei.

A second problem is the dearth of music from before the late fifteenth century imitating the clarino range of the trumpet: with rare exception, mimetic compositions echo the sounds of the middle (*principale*) range of the trumpet.²³ The anonymous motet *Clara dei genitrix* contains extensive mimetic patterns of trumpets that hint at both middle and clarino ranges, but it dates from the turn of sixteenth century.²⁴

One might imagine a trumpeter playing a Contra voice against the regular duo of schalmei and bombard, but transposed an octave higher than notated.²⁵ Even in this scenario, the clarino range of the trumpet would not accommodate the full range of most existing Contra voices. Moreover, when sounding an octave or more higher than notated, it would create dissonant fourths with the Tenor in certain places with the counterpoint inverted.

3. “Lipping Down” or other Manipulation

In another scenario, the trumpeter could have manipulated pitch, either through “lipping down” (as described by Cesare Bendinelli), or through some other manipulation of the natural trumpet.²⁶ Future experiments may explore the plausibility of Bendinelli's procedure, but I have yet to hear of anyone able to yield a complete Contra voice through such techniques.

4. Trombone

In a plausible scenario, the trombone simply existed earlier than is currently known.²⁷ However, the iconography to suggest this does not account for the ubiquitous presence of natural or single-slide trumpets with shawms in paintings and prints.²⁸ Moreover, because documentation of the trombone corresponds so closely to the development of the Low Contra voice in counterpoint, it seems likely that the trombone with its extended lower range originated at least partly in response to necessities

²² Gülke 1967, xv–xvi, 24–26.

²³ In addition to the aforementioned compositions by Dufay, the anonymous *Tuba gallicalis* and Pullois' Gloria, this repertory includes the anonymous *A cheval, tout homme, a cheval*, the anonymous compositions *Alla cazza*, *Alla battaglia*, *Alla caccia, su su*, and *Alla cacza*.

²⁴ Gerber, Finscher and Dömling 1975, 356–60, 366–368. The ensemble *Ciaramella* experimented with arranging *Alla cazza* for natural trumpet. While it functions, it sounds suspiciously like something for which we have little or no notated examples for before ca. 1600.

²⁵ On fifteenth-century trumpeters exploring the extended upper register, see Polk 1992, 98.

²⁶ With thanks to Lorenz Welker for this suggestion in personal communication.

²⁷ On ideographs by Zorzi Trombetta that raises the possibility of the trombone existing as early as the second half of the 1440s, see Myers 2020, 136.

²⁸ For discussions of trumpet iconography, see Tröster 2004 and Tröster 2007.

resulting from changing contrapuntal paradigms.

5. Second Bombard

Early fifteenth-century depictions do survive of the *alta* with a schalmei with two bombards. The range of the bombard would allow it to play many of the Contra voices of this period. This viable performing ensemble does not account, however, for the continuous presence of a trumpet in contemporary accounts and iconography of the *alta*, for Contra voices increasingly extending below the range of the bombard, or for the general lack of a consistently employed second bombard player until the advent of four-part music.²⁹

6. Unknown

In a final scenario, the *alta* ensemble was simply doing something completely different than is discernible based on surviving notated music. Distinct traditions could have existed simultaneously, and the *alta* performed something other than conventional polyphony. Barring further documentary evidence, however, such scenarios must rely on speculation.

All of the above scenarios invite ongoing research and experimentation in performance, but none allows for the complete performance of the Contra voice by the trumpeter as the third member of the *alta*. They therefore must rely on the premise that the trumpeter could not perform all of the notes of notated Contra voices or fulfil that function in conventional contrapuntal procedures.

Despite the lack of a surviving instrument, the single development of someone adding a longer tube and finding a second diatonic position on the trumpet removes any obstacles for playing a Contra voice in music from the years before the advent of the trombone and Low Contra voice. For this reason, adopting the existence of a slide trumpet as a working hypothesis remains the simplest and most elegant solution to the problem of playing a Contra voice in the fifteenth century.³⁰ Because this has become an increasingly common practice in the performance practice of *alta* ensembles since the 1980s, even skeptics of the existence of a slide trumpet in the fifteenth century may refer to the last decades until the present day as the “modern” slide-trumpet years.

The *Alta* and Musical Literacy

The extent to which members of the *alta* could or did read music remains open to question and contradiction. They performed chansons and motets, and at least one

²⁹ For a consideration for bombards of different sizes in early fifteenth-century music, see Myers 2020, 133–134. On the consistent appearance of two bombards in the *alta* during the late fifteenth century, see D’Accone 1997.

³⁰ Ross Duffin encouraged the Boston Shawm and Sackbut Ensemble to try this in the early 1980s. Since then ensembles like *Les haulz et les bas*, *Piffaro*, and *Ciaramella* have explored this as a standard configuration for the early *alta*.

manuscript of chansons was ordered for the *piffari* of Ferrara.³¹ Enough evidence exists to confirm the musical literacy of instrumentalists for Keith Polk to argue with confidence that “outstanding players were evidently able to read from such sources by at least c. 1480.”³² At the same time, the professional members of the *alta* are closely associated with an unwritten tradition of performing extemporized counterpoint by relying heavily on memory and not reading music in performance.³³

Polk addresses a perceived divide between reading and playing from memory or improvising, arguing that the lack of notated repertory associated with the *alta* should not be confused with a lack of literacy, nor should one err in assuming that improvisational traditions imply a lack of skill:

Music historians have known for a long time that little of the surviving repertory has a direct connection with professional instrumentalists of the time. This does not necessarily mean that these instrumentalists couldn't read music (although perhaps many couldn't), nor does it mean that they were unfamiliar with this written repertory. Furthermore, the lack of direct connection should not be taken as an indication that professional players were incapable of refined counterpoint. A modern attitude is to link literacy with intelligence and sophistication; such an attitude would be quite out of place in relation to instrumental music of the late Middle Ages. For this repertory literacy was simply not relevant; this fact must condition our approach.³⁴

Despite his nuanced assessment, there nonetheless remains a lingering perception that instrumentalists were lacking in both their ability to read music and to craft the kind of sophisticated counterpoint found in contemporary notated polyphony. This may be challenged by considering the case of Zorzi Trombetta.

The notebook of Zorzi Trombetta (Giorgio da Modon) [MS Cotton Titus A XXVI, 1–60], copied between c. 1444–49, offers an intriguing glimpse of one fifteenth-century instrumentalist interacting with polyphonic song, and it simultaneously informs modern perceptions of the ability of professional instrumentalists. In his landmark study of the *alta*, Lorenz Welker presents the Contratenor voices in their entirety, citing the close correspondence of the first contratenor to the version of *Puisque m'amour* found in EscA [Codex Escorial, MS V.III.24]. He recognizes that all the Contratenors are notated without ligatures or any note value larger than a semibreve, and the presence of “primitive” harmonies with parallel perfect intervals and an apparent lack of understanding of cadential formulae.³⁵

In their detailed study of the music in Zorzi's notebook, Daniel Leech-Wilkinson

³¹ Lewis Lockwood linked the Casanatense Chansonier to the *alta* ensemble of Ferrara, identifying works with ranges altered to fit the range limitations of the instruments. Although Joshua Rifkin has questioned his identification of this source, it remains a viable candidate as a source for music for court instrumentalists. Lockwood 1984, 225–226; Polk 1968, 15–18; Rifkin 2003, 314–323.

³² Polk 1992, 85. On the *alta* and improvised performance, see Welker 1983, 149–161.

³³ Polk 1992, 164.

³⁴ Ibid.

³⁵ Welker 1983, 159–161.

and Sergio Durante detail the contents of the manuscript, providing an index of incipits and critical commentary of its music, which they identify in three groups. In the first group, an apparently professional scribe notated several chansons in black mensural notation. The second scribe, cited for his messy and probably inexperienced hand, copied the Tenor and Contratenor of Dunstable's *Puisque m'amour* (6r), followed by a second variant Contratenor (6v). A third scribal hand, identified as Zorzi, copied for a second time the Tenor of *Puisque m'amour*, followed by three variant Contratenor voices along with commentaries on how well the voices function in combination with other voices.³⁶ Acknowledging the profound melodic corruptions in these voices, Leech-Wilkinson nonetheless cites the notebook as a source of rich information about music accessible to someone lacking skill in mensural notation, suggesting that such sources must have been more common than attested to by surviving collections of polyphony.³⁷

Rodolfo Baroncini acknowledges the crude style of Zorzi's examples.³⁸ He suggests that the manuscript could have served for preserving melodies "designed to be embellished polyphonically in performance." Noting that "the musical notation would seem to be acting as a means of testing and checking what formerly would have been elaborated extemporaneously," he argues that Zorzi's Contra voices could only be played on a slide trumpet, suggesting that both Tenor and Contra were intended for performance by two trumpeters.³⁹

Keith Polk and Victor Coelho agree that the awkward nature of Zorzi's Contra voices may reflect a certain level of trumpet playing and a performance practice that indulged in occasional raw dissonances and parallel writing not acceptable in more sophisticated counterpoint.⁴⁰

While a fuller consideration of Zorzi's Contra voices awaits more intensive consideration, several observations about Zorzi's apparently primitive notes warrant mention when considering the literacy of the members of the *alta*, some of which could impact approaches to historical performance practices.

First, Zorzi's five Contras reflect more than one manuscript tradition of Dunstable's *Puisque m'amour*. The first two Contras are notated on the same page as a copy of the Tenor. As Welker points out, Contratenor I, copied on fol. 6, "largely agrees" with the version in EscA. Both this voice and Contratenor II, copied on fol. 6v end with an octave-leap cadence. Contratenors III, IV, and V (copied on fol. 7v), those with scribal commentary, all correspond more closely to the version of the chanson as notated in Trent 88, 84v [Trent, Italy, Museo Provinciale d'Arte, Castello del Buonconsiglio, MS 1375 (88)], creating a cadence in which the Contra proceeds from a third to a fifth above the Tenor. The two groups of Contratenors are further distinguished by the fact that, unlike Zorzi's first Tenor (and the version in EscA) the

³⁶ Leech-Wilkinson and Durante 1981, 18, 25.

³⁷ *Ibid.*, 21–23, 30.

³⁸ Baroncini 2002, 59.

³⁹ *Ibid.*, 63.

⁴⁰ Coelho and Polk 2016, 67–69.

final three Contratenors are notated with a flat in the signature. Thus, the two folios correspond closely to the two distinct manuscript traditions of *Puisque m'amour* represented by EscA and Trent 88.⁴¹ In this light, Polk's observation about Zorzi's notebook that "there was much interaction between Italian and Northern musicians" seems especially apt.⁴²

Second, it is hard to escape the conclusion that Zorzi's Contra voices represent someone testing a Contra in relation to the Tenor with the Cantus voice conspicuously absent. This raises the possibility that Zorzi conceived his Contras not against Dunstable's original Cantus voice, but with awareness of an added florid contrapuntal voice.⁴³ This calls out for modern experimentation: By taking isolated tenors from existing songs, adding Contra voices in the style of Zorzi and his contemporaries, and testing them against the original Cantus / Tenor duo, performers may learn something about the choices facing practitioners of historical performance. Zorzi's own critical commentary may thus yield further insights into how one learned to create Contra voices.

The third feature that stands out about these voices is that every semibreve is notated separately. Rather than signaling a lack of notational skill, this arguably represents a viable method for visualizing all the consonances within a given tactus. So-called stroke notation, associated with *basse danse* melodies and other associated works, is typically marked with one note per breve.⁴⁴ For someone wishing to check the consequences of all parts of the tactus, marking each beat as a separate entity offers a more precise way to identify consonant and dissonant intervals. Something similar occurs in the anonymous *Chaminata*, one of the earliest surviving examples of the *passamezzo*.⁴⁵ After the first time through the complete song or dance, the entire composition is repeated with all minims marked as individual pitches. While this may reflect a specific performance indication, it also indicates the individual notes over which one might wish to add divisions. In short, rather than merely evidencing of primitive writing, Zorzi's Contra voices may represent vestiges of historical practice and contrapuntal pedagogy.

Finally, it is important to consider Zorzi as a trumpeter who, by the end of his long career, played trombone and experienced first-hand the change from High Contra to Low Contra style as a contrapuntal paradigm. This raises a subtle yet profound point that has yet to be fully explored in performance and scholarship: the earliest

⁴¹ Fallows 1999, 333.

⁴² Polk 1992, 158–159.

⁴³ On added voices to an existing contemporary song on Zorzi's notebook, see *Ibid.*, 150.

⁴⁴ See for example *Aux ce bon youre* and *Quene note* in GB-Ob Digby 167, 31v, and song Tenors like *Je suy si povere de liesce* in Montellier 1939, 180–181.

⁴⁵ Banks 2006, 136–137. A similar situation occurs in the *Division Flute* (1706) in which the bass progression of *Paul's Steeple* is presented largely in quarter notes. Marking these individual pictures in rhythm is an incredibly useful pedagogical tool for anyone practicing improvisation over grounds. In his teaching of teaching extemporized counterpoint, Ross Duffin also suggests that one improvising over a *bassadanza* Tenor should play three notes for each breve of the Tenor voice, thus echoing the notation of Zorzi's Contratenor voices.

trombonists were trumpeters who probably made little distinction between what are now considered two distinct brass instruments.

The *Alta* and Solmization

Whatever the extent to which they could or did read music, the instrumentalists of the *alta* learned and shared with their contemporary vocalists the concepts, terminology, conventions, and vocabulary of *musica practica*. As a prerequisite for making counterpoint, professional instrumentalists were versed in the conventions of tone (or mode) and the grammar of the musical hand: places, clefs, letter names, solmization, conjunctions, and mutation.⁴⁶ Moreover, the close correspondence between the ambitus of their ensemble and the limits of the musical hand would not have been lost on these players. An ensemble that transposed with ease between high and low ranges a fourth apart were doubtless aware of the interplay between the literal pitches (letters) and their intervallic relationships (vocables). Even positing a lack of literacy for reading notes on a page, the practical vocabulary of solmization suggests that the limitations facing an “illiterate” musician are more perceptual than substantial. A player unable to read the “letters” on a page of notes could nonetheless communicate with the *voces musicales*, the voiced language of musical pitch.

Recent studies have established the importance of solmization in Renaissance theory, and Anne Smith has done much to raise awareness of solmization as an element of sixteenth-century performance practice.⁴⁷ The role of solmization in fifteenth-century performance practice, particularly in the realm of counterpoint, invites further exploration. Modern discussions of improvised counterpoint typically identify the role of consonant intervals (unison, third, fifth, sixth, octave, etc.) over a Tenor with little or no reference to solmization.⁴⁸ The benefits for visualizing and communicating pitch with the vocables of the music hand, however, are illustrated by two treatises that communicate consonance and contrapuntal passages entirely in terms of solmization. One of numerous German treatises on counterpoint, the anonymous *luxta artem conficiendi* [D-Göttingen, Landes- und Universitätsbibliothek, Mus. IV 3000 Rara, suppl. MS, 26r–45r] stands out for preserving four examples of three-voice counterpoint notated entirely in solmization.⁴⁹ More than mere curiosities, these short musical passages illustrate that musicians could, and did, communicate rich information entirely through vocables, the “sung” pitches of music. Probably intended for personal use of their copyist, these notes suggest that someone was communicating counterpoint through vocables, and at some point sang them aloud.

⁴⁶ On the use and perception of tone and mode in practical music, see Wiering 2013; Smith 2011.

⁴⁷ Allaire 1972; Smith 2011; Urquhart 1988; Heinzlmann 2013. For a more skeptical view of solmization in historical performance, see Mengozzi 2010.

⁴⁸ Duffin 2013, 198–199; Gilbert 2005, 112–120; Polk 1968; Polk 1992; Guido 2017; Gilbert 2013, 184; Berentsen 2016, 111–117. For brief mentions of solmization in recent studies of improvisation, see Fiorentino 2017, 82; Haymoz 2017, 94; Canguilhem 2015, 133–136.

⁴⁹ Meyer 1997, 98–100.

The most extensive passage exemplifies rules of melodic ascent and descent in florid counterpoint:

An example for the first rule is when one forms the tenor like this: ut re ut fa fa mi fa sol mi la sol fa sol sol, it can be joined by the discantus at the octave like this: fa mi fa sol sol la sol mi fa fa fa re mi mi, and the contratenor can join its voice with the tenor in unison: sol re sol fa [fa] sol fa re mi ut sol la re re, etc.⁵⁰

Beyond its original stated purpose, this passage also reveals the implied tone (mode) of the musical phrase, the three proprieties and implied key signatures among the three voices, and the two possible ranges of the passage within the ambitus of the musical hand, with the Tenor either beginning on C-faut, F-faut, or c'-solfaut. Both transpositions incidentally correspond to the "Alta" and "Bas" reading ranges of the *alta* ensemble, as notated in **Example 4**. Despite its relatively late date (from the early sixteenth century) and its Low Contra voice, this passage has profound implications for exploring how fifteenth-century musicians communicated and visualized counterpoint, both composed and improvised.⁵¹

Ex. 4: Example of a Rule for Florid Counterpoint, *Juxta artem conficiendi*

The anonymous *Regulae cantandi contrapunctum* [I-Venezia, Biblioteca Marciana, lat. Cl. VIII. 82 (= 3047), 63r–65r (V); D-Mbs, Clm 15632, 103v–104v (M)] lists consonant intervals not as numbered intervals over a letter name but – like the examples in *luxta artem conficiendi* – entirely in terms of vocables:

⁵⁰ Ibid., 9, 100.

⁵¹ For a detailed study of these passages, see Gilbert 2019, 39–43.

Note that over every ut, the unison is ut, the third mi, the fifth sol or ut, the sixth la or re, the octave fa or ut, the 10th la or re, the 12th sol or ut, the 13th la or re, and the 15th fa.

Note that over every re, the unison re, the third fa, the fifth la or re, the sixth mi, the octave sol or re, the 10th fa, the 12th la or re, the 13th mi, the 15th sol, etc.

Note that over every mi, the unison is mi, the third is sol or ut, the fifth mi, the sixth fa or ut, the octave la or mi, the 10th sol or ut, the 12th mi, the 13th fa, the 15th la.

Note that over every fa, the unison is fa, the third la or re, the fifth fa or ut, the sixth sol or re, the octave fa, the 10th la or re, the 12th fa, the 13th sol.

Note that over every sol the unison is sol or ut, the third mi, the fifth sol or re, the sixth la or mi, the octave sol or ut, the 10th mi, the 12th sol.

Note that over every la, the unison is la or re, the third fa or ut, the fifth la or mi, the sixth fa, the octave la or re, the 10th fa, the 12th la.

The rule stated above is general and should serve the entire hand.⁵²

This passage reveals that not all consonant intervals are created equal: In the interval of a third, for example, a “mi” over “ut” presents different implications than a “re” over “fa”, a “sol” over “mi”, or a “la” over “fa”. Moreover, visualizing intervals in this manner brings choices about when to sing “fa” over “la” or when to mutate into immediate relief in performance.

Both of these treatises originate in the years in which Low Contra voices were the norm. *Regulae cantandi* dates from the final quarter of the fifteenth century, and *luxta artem* dates from the first decades of the sixteenth century. Nonetheless, their vocabulary works equally well for the earlier conventions of counterpoint with a High Contra. Despite the lack of intervals below the Tenor in *Regulae cantandi*, its vocables function equally well for Cantus and Contra voices when performing or improvising two voices above and below a Tenor. This is true, in part, because when any voice extends below the Tenor, it essentially exchanges its contrapuntal function with that voice.

Example 5 illustrates simple *clausulae* (cadential formulae) modeled on the passages in *luxta artem conficiendi*, arriving on all six finals of the hexachord system.⁵³ The parallels in these passages illustrate the vocables that Cantus and Contra sound over each final of the Tenor. These correspond both to the intervals in *Regulae cantandi* and to the vocables of conventional solmization.⁵⁴ The first two *clausulae* on “ut” and “re” are shown in clefs associated with both “Alta” and “Bas” pitches. Although the melodic patterns are the same in a cadence on “ut”, for example, the Contra faces different choices of vocable, which could affect choices for visualizing the final note of a *clausula* as a “mi” or “fa”, for example. For players of the shawm, the differences represent more than theoretical abstractions: they correspond to specific notes and fingerings on the bombard and schalmei with palpable implications for tuning and

⁵² Meyer 1997, 50–51. See also Reaney 1977; Reaney 1998.

⁵³ Gilbert 2019, 43, 49–50.

⁵⁴ For a discussion of solmizing modal finals, octaves, and reciting tones, see *ibid.*, 32–33.

temperament.⁵⁵

The image displays a musical score for three voices: C (Cantus), CT (Cantus Tenor), and T (Tenor). The score is organized into three systems, each representing a different clausula with its own set of vocables. The first system is for 'UT' (Alta pitch) and 'Ut' (Bas pitch). The second system is for 'RE' (Alta pitch) and 'RE' (Bas pitch). The third system is for 'MI' (Alta pitch), 'FA' (Alta pitch), and 'SOL' (Alta or Bas pitch). Each system consists of three staves, with square notes on the top staff and diamond notes on the lower two staves. The Latin text is written below the notes, and various musical symbols like accidentals and clefs are present.

Ex. 5: Clausulae with vocables

Just as singing with vocables is more efficient than with letter names, vocables also prove more efficient in terms of visualizing and communicating melodic patterns. Referring to the consonant triadic pattern “ut mi sol” is more flexible than using its letter names, as the pattern can be employed in different transpositions: although similar in

⁵⁵ Fiorentino 2017, 82. With few exceptions, “fa” naturally falls on cross-fingerings on both schalmei and bombard, a fact which can affect pitch and “feel”. The relationship between evolving tuning systems and the intonation of individual notes on schalmei and bombard invites further exploration, and – barring more concrete evidence than provided by later surviving instruments – speculation.

outline, the triad “re fa la” implies different places and musical relations. **Example 6** illustrates motives with underlying triadic sonorities common to florid counterpoint. The vocables are easier and more flexible to sing than the letter names, and they provide rich information about place and relationships. Like contemporary singers and composers, the instrumentalists of the *alta* held in their hands a memory palace of such motives, most likely identified not only by letter names, but also by their singable vocables.⁵⁶

One may well ask if a player thought in the same terms as a singer and or be tempted to distinguish between instrumental and vocal styles. Of course, there is no way to know exactly how an instrumentalist from five centuries ago perceived their music. However, as one who plays and sings counterpoint – both composed and extemporized – I perceive no difference between playing and singing, and I increasingly visualize and identify melodic patterns almost entirely as a combination of vocables and letter names that tend to land on certain places of my instrument.

The image displays four systems of musical notation for a vocal duet. Each system consists of two staves: a soprano staff (C) and a tenor staff (T). The lyrics are written below the notes, and letter names (UT, RE, MI, FA, SOL, LA) are placed below the tenor staff to indicate the pitch of the notes. The first system has lyrics: "ut me fa sol re fa sol la mi sol la mi fa re mi fa ut mi fa sol re fa sol la". The second system has lyrics: "la fa mi la sol fa sol fa la sol fa mi fa la sol fa mi re mi sol fa la sol fa sol a la sol fa mi fa". The third system has lyrics: "sol mi sol fa mi re mi fa re fa mi re ut re la fa la sol fa mi re". The fourth system has lyrics: "sol mi sol fa mi re mi ut/sol mi sol fa mi re mi".

Ex. 6: Triadic Sonorities with Vocables

⁵⁶ Anyone wishing to test this assumption need only try to sing the letter names of such passages. The vocables are, simply put, easier to sing than the letter names.

Solmization and Composed *Alta* Repertory

While any music that fits the ranges of the three instruments of the early fifteenth-century *alta* would be fair game for performance, a group of three compositions have come to be associated with this ensemble: these are the anonymous *Du pist mein hort*, the anonymous *Auxce bon youre delabonestren*, and Tyling's *Tandernaken*.⁵⁷ These florid settings, found in Trent 87 [Trento, Italy, Museo Provinciale d'Arte, Castello del Buonconsiglio, MS 1374 (87)], have been cited for the kinds of dissonances that occur when both Cantus and Contra are consonant with the Tenor but dissonant with each other, leading Ross Duffin to suggest that such clashes could reflect what happens when two voices extemporize counterpoint around a Tenor.⁵⁸ Lorenz Welker rejects the notion that these songs represent something stylistic peculiar to the *alta*, however, correctly noting that these traits can be found in other cantus-firmus songs from around the turn of the fifteenth century.⁵⁹

Yet there remains something in the nature of their upper voices that sets them apart from other contemporary repertory. This includes their extended use of florid parallel motion, angular outlining of sonorities, awkward leaps, dissonances, and the fact that their Tenors have associations with traditions of florid reworkings and *basse-danse* repertory. Because they have become so closely associated with the music of the *alta*, they invite ongoing exploration of the boundaries between conventional composed polyphony and the possibly “less refined” contrapuntal features they share as a group.

Du pist mein hort has a particularly rich manuscript tradition.⁶⁰ Its Tenor is almost identical to the modified stroke notation of *Je suy si povere di liesce* and to the *basse danse* Tenor *Je sui povere de leesse*.⁶¹ **Example 7** provides solmization for mm. 1–19 of the Tenor (shown in capital letters). In the upper voices, solmization is provided only for the notes that are consonant with the Tenor. The vocables sometimes emphasize moments when the upper voices are dissonant with each other, as in the first sonority of m. 11, in which Cantus and Contra sound a simultaneous and dissonant “mi contra fa”.

57. Trent 87: Trent, Italy, Museo Provinciale d'Arte, Castello del Buonconsiglio, MS 1374 [87]: *Du pist mein hort* 109r; *Auxce bon youre delabonestren*, 117v–118r; Tyling, *Tandernaken*, 198v–199r.
58. Duffin 2013, 197–198.

59. [Munich, Bayerische Staatsbibliothek, Clm 14274 (St. Emmeram Codex)]. Welker 1994, 10–11.

60. Lorenz Welker has argued convincingly that its Latin-texted concordance, *Qui latuit*, is not the work of Dufay (Welker 1994, 10).

61. Montpellier 1939, 180; Crane 1968, 48, 79–80. I will argue in a later study that *Du pist mein hort* (*Je sui povere de leesse*) is most likely a florid setting or reworking of the Tenor voice of a chanson from the Burgundian circle of Pierre Fontaine.

Ex. 7: Anonymous, *Du pist mein hort / Qui latuit / Je suy si povere de liesce* (mm. 1–19)

Tyling’s *Tandernaken* is the earliest known setting of the famous Dutch song, and the only surviving setting with two voices above the Tenor.⁶² Because of its dissonances and florid style, it shares traits with more conventional polyphonic song. Its opening two phrases (**Example 8**) outline three different cadential arrivals, first on “ut” in the Tenor, then on “mi”, and finally in “re”. The outlines of the first and third cadences present the kind of florid fauxbourdon style with two voices proceeding above the Tenor. However, the differences may be more stylistic than fundamental, for the second cadence, arriving on “mi”, appears almost identical to the formula that opens Dufay’s *Le serviteur hault guerdonné* (mm. 1–3).⁶³

⁶² Jan Willem Bonda (Bonda 1994) has suggested that the Cantus was originally intended for singing the text, based in part on the grounds that the text does not work well with the Tenor as notated in Tyling’s setting. One might note, however, that Tyling’s simple version of the Tenor (the only setting in which the opening is not presented as a classic “mi fa mi re ut” cadential motive) arguably fits the opening of the Dutch song more closely than the later versions.

⁶³ Gilbert 2019, 36.

Ex. 8: Tiling, *Tandernaken* (mm. 1–8)

The anonymous *Aux ce bon youre delabonestren* (**Example 9**) has been linked to the repertory of the *basse danse* because its Tenor is preserved in stroke notation.⁶⁴ The opening of the Contra stands out for its consonant intervals that combine to outline the interval of a ninth and rhythmic repetitions at cadential bridges. This setting also warrants notice for passages in which the Cantus mutates to “mi” on *f*[#] (mm. 3 and 12).

Ex. 9: Anonymous, *Aux ce bon youre delabonestren* (mm. 1–12)

⁶⁴ GB-Ob MS Digby 167 (c. 1450–1475), 31v.

Extemporized Counterpoint and Solmization

The insights offered by solmization are perhaps nowhere more profound than in recreating counterpoint over a *basse danse* Tenor like *La Spagna*. Studies of fifteenth-century counterpoint have traditionally labelled consonant intervals in numeric terms.⁶⁵ If *Regulae cantandi* is a reliable witness, however, performers could visualize consonant motives in both the Tenor voice and added contrapuntal with the vocables of solmization. Adopting the procedure can serve as a valuable visual tool in making counterpoint over an existing voice, and it can reveal relationships between a given Tenor melody and added contrapuntal voices.

Example 10 presents the opening of M. Gulielmus' *Falla con misuras* [*La bassa castiglia*] with vocables indicated for both Tenor and Cantus.⁶⁶ The vocables of the Tenor (capitalized) acknowledge the common "la-re" mutation between the eleventh and twelfth note, resulting in a mutated repetition in notes 12–15 of the "re fa mi re" motive that first appears in notes 4–7. In Guliemus' setting, the opening four notes of the Cantus (m. 1) and later in m. 8, echo this same "re fa mi re" motive found in the Tenor. In addition, the "re fa sol la" motive in the Cantus (m. 5) echoes the same motive in notes 7–11 of the Tenor, in diminution. While the extent to which such motives reflect intentional imitation invites speculation, such passages make me increasingly suspicious of the term "free counterpoint" in analysing fifteenth-century music. The *La Spagna* Tenor contains other similar motivic turns that also appear throughout Guglielmus' florid counterpoint.

⁶⁵ Duffin 2013, 198–199; Gilbert 2005, 112–119. For examples using both number intervals and solmization, see Fiorentino 2017, 81–82.

⁶⁶ For the opening of Gulielmus' famous duo only indicating numerical intervals, see Gilbert 2005, 116–117. Among modern performers, Crawford Young stands out for his counterpoints over *La Spagna* and other contemporary Tenors.

C
re fa mi re la sol fa mi fa mi re ut re mi fa sol mi re ut

T
LA LA MI

re fa la sol fa sol re fa sol la fa sol mi fa sol fa fa la fa sol la

RE FA MI RE

re fa mi re fa mi re sol fa re mi la sol fa mi re mi fa sol la fa sol la fa sol

RE FA SOL LA

re mi fa mi la sol fa mi re mi mi fa sol la re sol fa mi re sol fa la sol fa mi re

RE FA MI RE

Ex. 10: M. Gulielmus, *Falla con misuras* [*La bassa castiglia*] (mm. 1–15)

Example 11 presents my own counterpoint modeled after Gulielmus, adopting the “re fa mi re” and the “re fa sol la” motives found in notes 7–11 of the *La Spagna* Tenor, one that occurs prominently in Johannes Ghiselin’s *La Spagna* and throughout Henricus Isaac’s *Missa La Spagna*. Although this consonant triad is found in many other compositions, Ghiselin and Isaac acknowledge the motivic affinity between their counterpoint and the Tenor melody. Moreover, because of the prominent role of mutation in their compositional process, identifying such motives by their vocables provides richer information rather than by letter names alone.⁶⁷

⁶⁷ Among other contemporaries, both Ockeghem and Isaac routinely repeat or elide motives at their point of mutation. See, for example, the Tenor of Ockeghem’s *Au travail suis* (mm. 7–9) and the *Pleni* of Isaac’s *Missa Quant j’ay au coeur* (mm. 79–86). See Gilbert 2003, 53.

C
re fa mi re/la sol fa mi re ut re mi fa mi la sol mi fa sol fa mi fa re mi fa sol la fa fa

T
LA LA MI RE

C
la fa la sol fa sol mi/la sol fa mi fa mi sol re fa sol la re fa sol la fa la

T
FA MI RE RE

C
sol fa sol la fa la sol fa mi la sol fa mi re mi fa sol la fa mi re

T
FA SOL LA

C
fa mi re ut fa mi la sol fa mi la sol mi fa sol mi la sol fa sol fa la la sol fa

T
RE FA MI RE

Ex. 11: Counterpoint over *La Spagna* (mm.1–15) after Gulielmus

Although no three-voice settings of the *La spagna* Tenor with a High Contra voice survive, adding two voices above the Tenor offers an opportunity to experiment with adding contrapuntal voices in the style of the compositions from Tr87. **Example 12** presents a three-voice counterpoint *La spagna*, with Cantus and High Contra, modeled loosely on *Auxce bon youre*, *Je sui povere de liesse*, and Tying’s *Tandernaken*. As in the duo setting above, both voices employ the “re fa sol la” motive from the Tenor, this time as a point of imitation.⁶⁸

⁶⁸Of course, this motive outlines a common consonant triad, one that is also prominent in florid compositions like Obrecht’s *Tandernaken*. See Polk 1992, 210.

C
la sol fa la sol la fa la fa sol la sol la fa mi

CT
la fa re re la fa re mi fa mi re mi sol fa

T
LA LA MI

C
sol sol re mi fa sol fa la fa sol la fa mi

CT
la re fa la fa re sol la mi sol fa

T
RE FA MI

C
sol mi re mi fa sol sol fa

CT
la fa la fa sol la fa

T
RE RE FA

C
la sol la fa sol sol fa mi re fa mi fa la

CT
mi mi la fa re fa sol la

T
SOL LA RE

Ex. 12: Three-Voice Counterpoint over *La Spagna* (mm. 1–15) after the Trent 87 dance pieces

Example 13 presents another counterpoint over *La Spagna* exploring imitative patterns in the added voices modeled after a slightly later style. This three-voice setting reflects a hybrid between common contrapuntal motives over *La Spagna* (outlining thirds, fifths, and sixths), with the High Contra voice associated with compositions from the mid-century. While there is no contrapuntal restriction against with blending these styles, I know of no surviving contemporary compositions that do

so.⁶⁹ This raises one of the paradoxes of recreating historical improvisation: the closer we come to recreating the sound of the *alta* ensemble in the years before the advent of the Low Contra voice, the more questions arise about precisely how they performed and visualized music, and even about the choices they made on the minutest level.

The image displays a musical score for three voices: Contratenor (C), Low Contratenor (CT), and Tenor (T). The score is organized into four systems, each with three staves. The lyrics are in Latin and are placed below the notes. The notes are diamond-shaped, and the lyrics are in a Gothic-style font. The score includes various musical notations such as clefs, accidentals (sharps, flats, and naturals), and bar lines. The lyrics are:
System 1: C: la sol la fa la sol mi fa mi ut fa la sol fa la fa mi; CT: la re fa re fa fa re mir fa la ut mi sol fa; T: LA LA MI
System 2: C: sol sol fa mi re sol fa fa mi re ut re mi/la sol fa mi fa mi; CT: la re la sol fa mi re ut mi sol fa; T: RE FA MI
System 3: C: sol re fa sol la fa la sol fa mi re la sol fa la sol fa; CT: la re fa sol la re fa sol la fa la re fa mi re; T: RE RE FA
System 4: C: mi la sol fa mi re re la sol la fa la ut fa; CT: sol ut mi sol mi la sol la fa la fa re/la re fa re mi fa; T: SOL LA RE

Ex. 13: Three-Voice Counterpoint over *La Spagna* (mm. 1–15) with Triadic Sonorities

⁶⁹ Later compositions with two voices above but in Low Contra style include Erasmus Lapidica's *Tandernaken* and Agricola's *Allez regrets*.

A more immediate issue facing those recreating historical improvisation is the fact that polyphonic sources of the *La Spagna* Tenor date from the final two decades of the century. Although these are problematic witnesses for dating compositions, even the 3-voice setting of *La Spagna* in the “earliest” conceptual style – Francisco de la Torre’s *Alta*, (**Example 14**) – can only be performed using trombone to play the Contra. This work must be performed at *Alta* pitch, as is made clear from its clefs, voice ranges, and cadential formulae. From its very first note, the Contra sustains the note “A re” for three breves, which is the ONLY note conspicuously missing from the the slide trumpet range. In this sense, de la Torre’s setting offers a fitting punctuation to the end of the “slide trumpet years.”

Example 14: Francisco de la Torre, *Alta* (mm. 1–8)

Conclusion

Although the foregoing pages have asserted a number of bold claims, they are supported by decades of research and experience by scholars and performers. Evidence of how closely instruments of the *alta* mirror the forces of contemporary composed polyphony informs conjectures about their repertory and contrapuntal roles. Despite precise measurements for fifteenth-century instrument pitches and tunings, their relative ranges and contrapuntal functions resonate well with what is known about later surviving instruments. In the absence of physical evidence of a slide trumpet, the fact that it fits like a glove for the Contra voice it presumably performed, and its disappearance coinciding with Low Contra style make its existence the Ockham’s razor for those recreating the music of the fifteenth-century *alta* ensemble before the arrival of the trombone.

Barring future documentary evidence, other assertions remain more elusive. The implications of imagining the earliest trombonists as thinking like trumpeters are difficult to measure. Likewise, the level of literacy of the instrumentalists and the extent to which they employed solmization in counterpoint must by necessity remain speculative. Yet these are precisely the questions that beckon the next generation researching the *alta* and its music, with instruments held high.

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