

1993

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Recommended Citation

Nevile, Jennifer (1993) "The Performance of Fifteenth Century Italian Balli: Evidence from the Pythagorean Ratios," *Performance Practice Review*. Vol. 6: No. 2, Article 4. DOI: 10.5642/perfpr.199306.02.04
Available at: <https://scholarship.claremont.edu/ppr/vol6/iss2/4>

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Renaissance Dance Tempos

The Performance of Fifteenth-Century Italian *Balli*: Evidence from the Pythagorean Ratios

Jennifer Nevile

The authors of 15th-century dance treatises, Domenico da Piacenza, Antonio Cornazano, and Guglielmo Ebreo da Pesaro¹ shared a philosophical viewpoint common among the educated elite of the 15th century, that is, a Pythagorean-Platonic worldview which saw numbers as representations of reality. In consequence, they founded the theoretical principles of their new art of dancing upon this worldview.² The theoretical

¹For more details on the lives of the 15th-century dance masters, see Ingrid Brainard, "The Role of the Dancing Master in 15th-Century Courtly Society," in *Fifteenth Century Studies*, vol. 2, ed. Guy R. Mermier and Edelgard E. DuBruck (Ann Arbor, 1979), 21-44; Timothy J. McGee, "Dancing Masters and the Medici Court in the 15th Century," in *Studi musicali*, 17 (1988), 201-224; Alessandra Veronese, "Una *societas* ebraico-cristiana in docendo tripudiare sonare ac cantare nella Firenze del quattrocento," in *Guglielmo Ebreo da Pesaro e la danza nelle corti italiane del XV secolo*, Proceedings of the Conference on Guglielmo Ebreo, Pesaro, July 1987 (Pisa; Editore Pacini, 1990), 51-57; and Jennifer Nevile, *The Courtly Dance Manuscripts from Fifteenth-Century Italy* (Ph. D. diss., Univ. of New South Wales, 1992).

²The earliest surviving choreographic records of western Europe came from these courts of 15th-century Italy. While dancing occurred at many courts in earlier centuries, no written choreographies have yet been found.

sections of their dance treatises, however, are more than just a series of abstract principles; they also provide invaluable information concerning the performance of this dance tradition, particularly in the passages where the dance masters discuss the proportioning of the music.

The Four *Misure*

For the dance masters the foundation of the art of dancing was the *misura*,³ that is, quickness and slowness according to the music.⁴ In other words, this musical *misura* referred to by Domenico, Guglielmo, and Cornazano was a rhythmic proportioning of the music in the same ratios that the medieval and Renaissance West believed represented virtue, the noble ideal of temperance and moderation. In keeping with the accepted beliefs of their day, the dance masters describe four *misure*, related to each other in the ratios of 1:2, 2:3, and 3:4. These ratios are the same as those of the octave (1:2), the fifth (2:3), and the fourth (3:4), which were also held to be beautiful and harmonious. Domenico called the *misura* from which all the others were derived *bassadanza misura*, while the three ratios based on *bassadanza misura* were called *piva misura*, *saltarello misura*, and *quaternaria misura* respectively.⁵ The dance masters explained, in both words and mensuration/proportion signs, the relationships between the speeds of these four *misure*, as well as the division of the breve and semibreve for each category, and it is this explanation which in particular has implications for the performance of the dances.

³For an explanation of the different ways this term is used in the dance treatises, see Nevile, *Courtly Dance Manuscripts*, ch. 7.

⁴See, for example, *Pd*, f. 1v. For the identification of the siglum used here and of those in subsequent notes see the Appendix, a listing of all the dance treatises dealt with in this article.

⁵The *misure* were not, however, regarded as purely technical categories. The 15th-century dancing masters were concerned to present dance as both an art (*musica practica*) and a science (*musica speculativa*), and as an honorable and virtuous discipline as well. Consequently, the four *misure* also embodied aesthetic qualities: the *piva misura*, for example, which was seen as having peasant origins, was regarded as the least graceful of the four *misure* (*V*, f. 5r and *Pd*, f. 4v), while *bassadanza misura* was seen as the queen of all the *misure* and the most difficult of all to perform, thereby requiring the greatest *virtù* in execution (*Pd*, f. 4v).

Three Dancers Accompanied by a Harpist

Guglielmo Ebreo. *Trattato del ballo* (ca. 1470).
Paris, Bibliothèque Nationale, MS. italien 973,
miniature on fol. 21v. (Reproduced by permission
of the Bibliothèque Nationale.)



***Citizens of an Italian City-State Dance to the Music
of a Slide-Trumpet and Three Shawms***

Cassone Panel (Italian, early 15th c.), London, Victoria
and Albert Museum, Inv. no. 5804.1859. Courtesy of the
Board of Trustees of the V & A.



Florentine Wedding Guests Eating and Dancing to the Music of Lute, Harp, Pipe and Tabor, and an (unidentified) Wind Instrument

Detail. Apollonio di Giovanni and Marco del Buono Giamberti (workshop of), Italian (Florentine), 1415 or 1417-1465 & 1403-1489, *The Contenance of Scipio*, tempera on panel, c. 1455, 41.8 x 137.7 cm., Mr. and Mrs. Martin A. Ryerson Collection, 1933.1036 photograph © 1993.

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The music for the *balli*,⁶ then (as explained above), did not proceed at a constant speed throughout the whole piece. There were, in fact, four combinations of meters and speeds. In the first part of his treatise Domenico explains the mensurations as follows:

bassadanza misura = major imperfect
quaternaria misura = minor imperfect
saltarello misura = major perfect
piva misura = minor perfect

As the appellation perfect/imperfect was normally applied to the division of the breve and the term major/minor to the division of the semibreve, it seems that Domenico is saying this:

in *bassadanza misura* the breve = 2 semibreves, each semibreve 3 minima (our modern 6/8)
 in *quaternaria misura* the breve = 2 semibreves, each semibreve 2 minima (modern 2/4)
 in *saltarello misura* the breve = 3 semibreves, each semibreve 3 minima (modern 9/8)
 in *piva misura* the breve = 3 semibreves, each semibreve 2 minima (modern 3/4)

Domenico also states that *quaternaria misura* is faster than *bassadanza misura* by 1/6, *saltarello misura* is faster than *bassadanza misura* by 1/3 (faster than *quaternaria misura* by 1/6), and *piva misura* is twice as fast as *bassadanza misura* (and faster than *saltarello misura* by 1/6).⁷

During the Renaissance these divisions of the breve and semibreve were represented by four mensuration signs, as shown here:⁸

tempus perfectum prolatione majore	⊙
tempus perfectum prolatione minore	○

⁶The *ballo* was one of the two genres of dances recorded in the treatises.

⁷Guglielmo ignores this area in his treatise, except in the three manuscripts which have added information from Pd. Cornazano, while discussing the subject, does not do so at the same length as Domenico. Also he reverses the explanation, and has *piva misura* as the first step of the ladder, that is this is the *misura* from which the other three are derived.

⁸The term "tempus" was used to indicate the breve division, the term "prolatione" to indicate the semibreve division.

tempus imperfectum prolatione majore ㊤
tempus imperfectum prolatione minore C

Thus, according to the theoretical section of Domenico's treatise, *bassadanza misura* would be represented by the mensuration sign ㊤, *quaternaria misura* by the sign C, *saltarello misura* by the sign ㊤, and *piva misura* by the sign O.

Returning to the notated tunes, one finds, however, that the mensuration signs that are present in the music do not always agree with what has been stated in the theoretical section of the treatise; for example, *saltarello misura* is almost never found with the sign ㊤. This discrepancy has been explained away by various scholars as being due to a lack of knowledge on the part of the dance masters when dealing with written music.⁹ In my opinion, however, this cannot be justified. If one starts from the assumption that Domenico did know what he was writing about, then his explanation of the four *misure* can be found to make coherent sense, and to fit perfectly within the musical theoretical system of his day.

The clue to the meaning of Domenico's explanation of the four *misure* lies in the juxtaposition of two phrases. Immediately after his statement as to the mensuration of a *misura* (i.e. major perfect, etc.) he speaks of the relative speed of that *misura* compared to the other three (i.e. *quaternaria* as one sixth faster than *bassadanza*, etc.). Therefore, one has to entertain the possibility that the two statements are linked, and that Domenico is talking about the same phenomenon (the relative speed of the *misure*), but is using two different terminologies: a written or verbal characterization and a

⁹For example, Barbara Sparti, in "Music and Choreography in the Reconstruction of 15th-Century *balli*: Another Look at Domenico's *Verçeppe*," *15th-Century Studies*, 10 (Detroit, 1984), p. 189, fn. 2, says the following, "There are several inconsistencies between Domenico's theoretical mensural indications and the signs he uses. This is probably because dance music as such was not written down in the 15th century...The *suonatori* performed without music and it is likely that the dancing masters had little or no experience in writing codified notation. Hence the following inconsistencies..." In another article by Sparti, "The 15th-Century *balli* Tunes: a New Look," in *Early Music*, 14 (1986), pp. 348 and 352, she claims, "Even in Domenico's treatise there are sections of *balli* where the music and choreography do not correspond because of vague or incomplete choreographic descriptions or as a result of unclear or incomplete musical notation. The dancing masters' knowledge of musical notation may not have been extensive...A possible explanation for the errors and inconsistencies in mensuration lies in the dancing masters' inexperience in dealing with written music... Domenico's system of four mensurations may possibly have been more of an abstract speculation than a reality."

symbolic description in which the mensuration signs are used as proportion signs.¹⁰

Domenico's use of the terms "major perfect," etc. and their corresponding symbols, therefore, denotes the speed ratios between the four *misure*, not the normal meaning indicating the division of the breve and semibreve. In other words, he is giving the proportions of the four *misure*, not their mensuration. To give only one example. When he says that *saltarello misura* is two sixths faster than *bassadanza misura*, he is conveying that the time taken to complete four breves worth (or measures) of *bassadanza misura* is the same as that taken by six breves worth (or measures) of *saltarello misura*. This produces a ratio between *saltarello* and *bassadanza misura* of 6:4 or 3:2, one of the common proportions which were represented by mensuration signs in the early to middle 15th century.

Domenico's statement that *saltarello misura* is major perfect now makes perfect sense, as the sign for major perfect, \odot , when used as a proportion sign after the mensuration of \textcircled{C} , produces the proportion *sesquialtera* or 3:2, assuming breve equivalence. This is shown here:

Figure 1, Relationship between *bassadanza* and *saltarello misura*.

<i>Bassadanza</i>	to	<i>Saltarello</i>
\textcircled{C}	\rightarrow	\odot
$\diamond \diamond$		$\diamond \diamond \diamond$
2		3
$\downarrow \downarrow \downarrow \downarrow \downarrow \downarrow$		$\downarrow \downarrow \downarrow \downarrow \downarrow \downarrow \downarrow \downarrow$
6	to	9

Thus, on both the semibreve and minima level, one has the *sesquialtera* proportion. The same logical steps can be applied to *quaternaria* and *piva misura*. When one does this, one finds that Domenico has assumed breve equivalence and that the ratios he is describing operate on the minima level.

¹⁰For a detailed explanation of how (and why) mensuration signs were used as proportion signs from the late 14th century onwards, one should look at the article by Anna Maria Busse Berger, "The Origin and Early History of Proportion Signs," *Journal of the American Musicological Society*, 41 (1988), 403-33.

The Implications for Musical Performance

One of the most controversial areas in reconstructing the performance of any historical dance lies in determining the speed of the steps. The 15th-century Italian dance masters left only a record of the relative speed of the *misura*, not of their absolute speed. If we accept that the 1/6, 2/6, 3/6 relationship which Domenico details in the theoretical part of his treatise does not conflict with the evidence of the notated music, and thus cannot be dismissed as incorrect, abstract speculation, or just muddleheadedness, it is easier to determine the absolute speed of the *misura*. If *piva misura* is indeed three-sixths faster (or twice as fast) as *bassadanza misura*, then there is a limit as to how fast *bassadanza misura* can be performed before *piva misura* becomes too fast to dance to.

Also, once we know that he has assumed breve equivalence, and that the proportion signs he has used refer to the minima level, then one is able to work out the relative speeds of the *misura* in metronome markings. For example, if a semibreve of *bassadanza misura* is conceived at a speed of semibreve (or dotted quarter-note) equals 56MM, then each minima will have a speed of 168 MM. One can then apply the proportion ratios to this figure of minima = 168 MM in order to find the speed of the minima in the other *misura*. The relative markings follow:

Figure 2, Metronome markings for the four *misura*.

<i>Bassadanza</i>		♩ = 56mm	♩	♩ = 168mm
<i>Quaternaria</i>	(6:8)	♩ = 56mm	$2 \times \frac{3}{4}$	♩ = 224mm
	(5:6)	♩ = 50mm	$2 \times \frac{3}{4}$	♩ = 201mm
<i>Saltarello</i>	(6:9)	♩ = 84mm	♩	♩ = 252mm
		♩ = 126mm	$\frac{3}{4}$	♩ = 252mm
<i>Piva</i>	(6:12)	♩ = 112mm	♩	♩ = 336mm
		♩ = 168mm	$\frac{2}{4}$	♩ = 336mm

This section of Domenico's treatise is important not only because of the information it gives as to the relative speed of the four *misura*, but also because of what it reveals of Domenico's attitude toward the music of the dances. Domenico explains the differences in speed between the four *misura* in terms of ratios that operate on the minima level. It is not unreasonable to assume, then, that it is this level of the music which was

important to Domenico, and which he felt had the most relevance for practitioners of the art. In practical terms, this would mean that Domenico did not mind if the breves of *saltarello misura* were divided into two or three semibreves, as long as each breve had six minima: a situation that is confirmed by the fact that the melodies in *saltarello misura* are equally divided between $3/4$ and $6/8$.

Now that the meaning is clear of the terms "major imperfect," "minor imperfect," "major perfect," and "minor perfect" as used in the theoretical section of Domenico and Cornazano's treatises, we must turn to the occurrences in the music of the four common mensuration signs and five other proportion signs. The signs that were used, the *misura* in which they were used, and their function, is shown here:¹¹

Figure 3: Use and function of the four common mensuration signs

Misura	⊙	○	Ⓒ	C	Other
Bassadanza	8†	2†	11		
Quaternaria		4†		11	$C_3 \times 1†$
Saltarello	2†	14	18		$C \times 1†$
Piva		1†	3‡	3	$\emptyset \times 1†$ $C_3 \times 2$ $3 \times 2†$
Not stated	4†	3†	22	16	

Just as in the theoretical section, we find three alternatives as regards these signs in the music for the *balli*: the signs were used solely as mensuration signs, solely as proportion signs, or as a mixture of both. While it is easier to decide when a sign is being used as a mensuration sign and when as a proportion sign in music in which more than one part has survived in a written form, it is not so easy to do this for the *ballo* tunes, as only one part was notated in the treatises. An added complication is that not every change of *misura* in the *ballo* tunes has a corresponding sign in the music. Thus, it is not easy to provide a definitive explanation of the reason for the placement and function of every sign in the *ballo* tunes. From an examination of the music which does exist, it is evident that sometimes the signs were used

¹¹The entries in this figure show the number of occurrences of each sign. Those marked † appear to function only as a proportion sign. Those marked ‡ actually appear as C in the manuscript, but due to the presence of dots of division must be assumed to be Ⓒ. In all other cases the sign functions as a mensuration sign.

solely as mensuration signs, and sometimes the signs were used solely as proportion signs, and sometimes the signs were used for both purposes. As Anna Maria Busse Berger has pointed out, this was a widespread practice in both the theoretical and practical compositions of the 15th century:

In addition to fractions, composers and theorist of the period used mensuration signs, coloration, and Italian note shapes to indicate proportions, often combining these devices to avoid ambiguity . . . The practice of indicating proportions through mensuration signs . . . still awaits scholarly attention.¹²

Having decided that the signs as they appear in the music of the *balli* are used as a mixture of mensuration and proportion signs, one has to ask to which *misura* the signs relate; that is, do the ratios between the *misure* as represented by proportion signs (or mensuration signs used as proportion signs), always relate to *bassadanza misura*, always relate to the *misura* in which the dance begins, or, always relate to the preceding *misura*?

The first possibility, of always stating the relationship of one *misura* with regard to *bassadanza misura*, can be eliminated by the presence of the sign Φ in the *ballo*, "Voltati in ça Rosina," from *Pa*. This sign appears at the beginning of section two of the music, which is in *piva misura*. The previous section is in *quaternaria misura*, so therefore Φ could either represent the ratio of *piva* to *bassadanza* (2:1), or *piva* to *quaternaria* (3:2).

Eunice Schroeder discusses the meaning of this symbol in some detail, noting that:

Tinctoris says Φ and Φ indicate an *acceleratio mensurae*—a speeding up of the measuring.¹³

Schroeder's conclusion is that Φ indicates an approximate *sesquialtera*, or, in other words, the measuring unit goes "exactly or approximately a third again as fast" for Tinctoris and other writers from the 1470s to 1538.¹⁴

The works of Tinctoris that discuss this issue were written ca. 1473-74 and 1477.¹⁵ The only dance treatise in which "Voltati in ça Rosina" appears is

¹²Berger, "History of Proportion Signs," 406.

¹³Eunice Schroeder, "The Stroke Comes Full Circle: Φ and Φ in the Writings on Music, ca. 1450-1540," *Musica disciplina*, 36 (1982), 133.

¹⁴*Ibid.*, 137.

Guglielmo's version in **Pa**. This manuscript was written sometime after 1474, as that is the date of the latest occurrence mentioned by Guglielmo in his autobiography. Thus, on the assumption that Guglielmo was not ignorant of the music theory of his time, we can infer that his usage of Φ would have had to follow that of his contemporary Tinctoris. If we accept this assumption, then, we must accept that the sign Φ indicates an increase in the measuring unit of a third: that is, the ratio between *quaternaria* and *piva misura*, not *bassadanza* and *piva misura*. Thus, if we assume that the manner of employing these signs is consistent throughout the dance treatises, we can eliminate the first of the three possibilities mentioned above, that the ratio of a new *misura* is always stated with regard to *bassadanza misura*.

While it is easy to eliminate the first possibility, it is not so easy to arrive at a firm conclusion regarding the other two possibilities. But from an examination of those phrases of the *ballo* tunes in which the sign is being used as a proportion sign, I have concluded that the ratio represented by the sign relates to the preceding *misura*, not to the opening one, for example sections two and three, and eight and nine from the *ballo* "Verçeppe."

The question of why only certain sections of a *ballo* tune, or in some instances every phrase, were not provided with a sign is a puzzling one. The answer may well relate to the function of each manuscript, to why it was created in the first place. At the moment one can only hypothesize as to why only some of the changes of *misura* were indicated by signs. For example, the choice may be a response to the local situation in which the dance master found himself. Alternatively, one could surmise that the dance tunes which have very few signs were the popular ones quite well known to musicians. Certainly there were *balli* that were mentioned repeatedly in the literature of the 15th and 16th centuries, for instance "Gioioso," "Leonçello," "Anello," "Belreguardo," and "Gelosia." On the whole, these dances do not have many signs present in their music: "Gioioso" has two signs, "Belreguardo" has one, "Leonçello" has one, and "Anello" and "Gelosia" have none.

¹⁵*Ibid.*, 156.

APPENDIX

Dance Manuscripts

FL Guglielmo Ebreo, *Qui chominca elibro Ghulielmus ebreis pisuariensis de praticha seu arte tripudii volghare opusculum*, Florence, Biblioteca Medicea-Laurenziana, codex Antinori, A13.

FN Guglielmo Ebreo, *Ghuglielmi hebrei pisauriensis De Practicha seu arte tripudij vulghare opusculum feliciter incipit*, Florence, Biblioteca Nazionale Centrale, codex Magliabecchiana-Strozziano XIX 88.

M (Guglielmo Ebreo), Modena, Biblioteca Estense, Codex Ital. 82, ∞ J 94.

NY Guglielmo Ebreo, *Ghuglielmi ebrej pisauriensis de praticha seu arte tripudi vulghare opusculum, feliciter incipit*, New York, New York Public Library, Dance Collection, *MGZMB-Res. 72-254.

Pa Giovanni Ambrosio, *Domini Iohannis Ambrosii pisauriensis de pratica seu arte tripudii vulgare opusculum faeliciter incipit*, Paris, Bibliothèque Nationale, MS fonds it. 476.

Pd Domenico da Piacenza, *De arte saltandj & choreas ducendj De la arte di ballare et danzare*, Paris, Bibliothèque Nationale, MS fonds it. 972.

Pg Guglielmo Ebreo da Pesaro, *Guilielmi Hebraei pisauriensis de practica seu arte tripudii vulgare opusculum, incipit*, Paris, Bibliothèque Nationale, MS fonds it. 973.

S (Guglielmo Ebreo), Siena, Biblioteca Comunale, Codex L.V. 29.

V Antonio Cornazano, *Libro dell'arte del danzare*, Rome, Biblioteca Apostolica Vaticana, Codex Capponiano, 203.