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UT HEC TE FIGURA DOCET: THE TRANSFORMATION OF MUSIC THEORY ILLUSTRATIONS FROM MANUSCRIPTS TO PRINT*

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As modern readers, we accept the insertion of non-prose materials in a music theory treatise as a standard convention of writing about music. On further consideration, however, the use of examples in medieval and Renaissance theory treatises, as with any interruption of any textual narrative, is not without a degree of ambiguity. A figure intrudes upon the narrative of the text, demanding that the writer prepare the reader for a change in narrative style, often by the insertion of a simple phrase, such as *ut hec te figura docet*.[1] With this phrase, the reader must jump from one line of thinking (reading words) to another (looking at a figure) and make connections between these separate modes of thought. Among the questions that arise when considering the use of illustrations in music theory texts are: Why are some examples clear in their relationship to the ideas in the text, while others are difficult to interpret? When confronted with a diverse manuscript tradition for a source that presents numerous variations on a figure, how does a modern reader or editor determine which is the 'best' example? Are we sure we know what the author intended by a figure and where he intended it to go in the text or has the example and its placement been changed by later copyists?

Such questions make it apparent that musical figures and illustrations in music theory texts should be studied in their own right. Questioning the use of illustrations and figures in early music theory texts can provide new perspectives on these works. Recently, Cristle Collins Judd has examined the use of musical examples in the writings of Zarlino and other theorists, uncovering critical questions about the intersection of print culture and musical ideas of the time.[2] While individual studies of specific manuscripts and figures have been done,[3] there has yet to be a broad initiative to study figures in general in music theory texts.

* I would like the thank Thomas J. Mathiesen and Tilman Seebass for their comments and suggestions on earlier versions of this paper.

1 The phrase is used twice in J. CICONIA, *Nova musica*, O. ELLSWORTH ed. and trans., (*Greek and Latin Music Theory*, 9), Lincoln – London, 1993, pp. 128 and 176.

2 C. JUDD, *Reading Renaissance Music Theory: Hearing with the Eyes*, (I. BENT ed., *Cambridge Studies in Music Theory and Analysis*, 14), Cambridge, 2000.

3 See for example T. SEEBASS, *The Illustration of Music Theory in the Late Middle Ages: Some Thoughts on Its Principles and a Few Examples*, in A. BARBERA ed., *Music Theory and Its Sources*, South Bend, Indiana, 1990, pp. 197–234; C. BERGER, *The Hand and the Art of Memory*, in *Musica disciplina*, 35 (1981), pp. 87–120; and J. CHAILLEY and J. VIRET, *Le symbolisme de la Gamme*, (*La Revue Musicale,* 408–409), Paris, 1988.

This article presents some preliminary thoughts on the general study of figures in music theory texts. Such a discussion will establish a context for a proposed creation of a census catalogue of figures in medieval and Renaissance music theory sources and suggest areas of further study and work. The article begins with a review of issues raised by examples in literary theory and suggests how these ideas may be expanded to the study of music theory treatises through the delineation of the factors to consider in such studies. These factors will be applied to the use of figures in two limited examples by comparing Johannes de Muris's *Musica speculativa*, as a representative of works produced in a manuscript culture, with examples in Gaffurio's *Theorica musice*, a treatise created in a print culture.

THEORIES OF EXEMPLARITY AND EARLY MUSIC THEORY

Modern text theorists describe the problems of textual interruptions as the issue of 'exemplarity'. Literary critics have been primarily concerned with the insertion of prose examples into a prose narrative in their discussion of exemplarity, but music theory presents the further problems of non-text examples such as figures or musical examples inserted into a prose narrative. Nevertheless, the literary theory of examples provides an important starting point to use in addressing the issues raised by examples in music theory texts.[4] The basic issues of exemplarity were first laid out by Aristotle, who listed several problems of examples in the *Rhetoric*.[5] One issue concerning the use of examples is whether to use a large number of them to deduce a rule or, conversely, whether one example proves a rule. A second is whether to use true examples from history or fictitious examples such as parables.[6]

Modern literary critics have focused on the fact that the central narrative is interrupted by the insertion of a second narrative, creating a moment of 'intertextuality' – the example creates a second narrative and the reader must hold both of them in mind, and relate them one to the other.[7] The insertion of any example 'opens' the main narrative text to other interpretive possibilities. While the example is meant by the author to clarify and explain the main argument, any form of intertextuality can result in conflicting and competing narratives. A fable inserted into a text may be interpreted

[4] While the literature of exemplarity is large, a clear introduction can be found in J. LYONS, *Exemplum: The Rhetoric of Example in Early Modern France and Italy*, Princeton, 1989. See also A. GELLEY ed., *Introduction*, in *Unruly Examples: On the Rhetoric of Exemplarity*, Stanford, 1995, pp. 1–24; and I. HARVEY, *Derrida and the Issues of Exemplarity*, in D. WOOD ed., *Derrida – A Critical Reader*, Cambridge, 1992, pp. 193–217.

[5] ARISTOTLE, *Rhetoric*, 1.2 (1356b).

[6] LYONS, *Exemplum: The Rhetoric of Example*, p. 6.

[7] The issue of 'intertextuality' is a key point in modern text critical theory that cannot be fully explored in this article. Suffice it say that the issue of exemplarity in medieval music theory texts can provide a further avenue for the reconsideration of medieval music culture suggested by J. PERANIO, *Re-Placing Medieval Music*, in *Journal of the American Musicological Society,* 54 (2001), pp. 209–264.

by the reader in a way different from the intentions of the author, thus confusing, rather than clarifying the narrative and creating conflicting narratives. In other words, the use of examples can be a risky device that does not clarify the main narrative, but rather confuses it.

While it is admittedly difficult to discuss the intentions of an author in a manuscript culture in general, and problematic to conceive of an individual creator in the field of early music theory which produced so many anonymous treatises, nevertheless, the text itself must be seen as the primary narrative in music theory treatises that is interrupted by examples of some kind. Several types of exemplary incursions into the text can be listed in music theory and each involves a different type of intertextual change for both the author and reader (see Table 1). The first type is a prose example, similar to the examples studied by literary theorists, such as the insertion of a quotation from a venerable master or a story about a famous musician such as Josquin employed to prove the theorist's position.[8] A prose example, such as the quotation of an earlier writer, is placed directly in the text, close to the material it is meant to clarify. The links between the example and the primary narrative text regarding similar terminology and ideas are often clear to the reader. The quotation presents the usual problems of interpretation and possible textual corruption in transmission, but to no greater extent than is presented by the primary narrative text itself. As the quotation is written in prose, there is no change in mode of thought by the reader – he or she continues to read prose.[9]

1. *Prose*	Quotations from venerable masters; stories of famous composers
2. *Music*	Excerpts of musical works or examples created by theorists
3. *Figures*	Proportion diagrams, charts, illustrations

Table 1. Types of exemplarity in medieval music theory texts.

Music theory texts present not only prose but also non-prose examples such as music and figures. When these non-prose examples appear in theory texts, a new range of issues arises that are not present in prose examples (see Table 2). Ideally, the musical examples and figures should be linked to the primary prose narrative text in some manner. Such links might be the quotation of the text incipit of the musical work, a

[8] R. WEGMAN, '*And Josquin Laughed...': Josquin and the Composer's Anecdote in the Sixteenth Century*, in *Journal of Musicology*, 17 (1999), pp. 319–357.

[9] Further details of the characteristics of prose examples are investigated by such literary theorist as Lyons, who cites seven characteristics of examples: Iterativity and Multiplicity, Exteriority, Discontinuity, Rarity, Artificiality, Undecidability, Excess (see LYONS, *Exemplum: The Rhetoric of Example*, pp. 26–34). While beyond the scope of the present study, investigating the applicability of these characteristics to non-prose examples in music theory texts may be a fruitful subject of future study in this area.

description of the figure, or the inclusion of similar terminology in both the prose and the figure. Likewise, the non-prose example ideally should be placed close enough to the text so that the reader can make a clear connection between the prose narrative and the non-prose example.

Non-prose examples, however, present different problems in both creation and transmission from those presented by prose examples. If negotiating the multiple narratives of a prose text and prose example is difficult, navigating between prose and music notation or prose and figures certainly compounds the intertextual complexities for both the creators of treatises and the readers. Writers and copyists accustomed to the written word face different issues in the creation of non-prose examples that lead to a greater opportunity for errors in the creation and transmission of non-prose examples than would normally be the case for prose examples. Scribes of words may not be good at drawing or music notation. If a second scribe (or third) creates the non-prose examples, other problems may arise, such the absence of adequate space for the example or the omission of the examples in the source text.

The first three factors in the initial creation of an example listed in Table 2 (text relation between prose and example, location of the example, and the clarity of the example) are all compounded by the hand copying of the manuscript treatise over time, which can be seen as a fourth factor affecting the intertextual relationship between texts and non-prose examples; one which greatly affects the first three. This factor was perhaps hidden from the original readers of a treatise (who were probably unaware of the theorist's/copyist's models or other copies of the treatise) but is of prime importance to modern readers (and editors) of these texts. We must assume that later theorists, compilers, and copyists felt free to add, subtract, re-write, and replace not only text but also the music and figures in the transmission of their sources into the new documents they created. For example, Calvin Bower has stated, "Boethius characterized his approach to translating the mathematical works as adhering to the strictest law of translation, but adding for the sake of elucidation, sometimes condensing when his source became too diffuse, and supplying charts and diagrams for the sake of clarity".[10] While changes in text are often well documented in modern editions, the differences between various manuscript sources in music and figures are not always clearly cited.

Finally, non-prose examples force the reader to change modes of thought and shift from reading words to either 'hearing' the music notation written in the text[11] or 'visualizing' the diagrams, charts, and illustrations – a change in thinking not required in considering prose examples in a text. Thus, the reader of a medieval theory treatise can be called upon to coordinate four intersecting 'texts': the prose narrative, the prose examples, the musical notation, and the figures or diagrams; and to employ

[10] C. BOWER, *Boethius and Nicomachus: An Essay Concerning the Sources of the 'De institutione musica'*, in *Vivarium*, 16 (1978), p. 2.

three modes of thought: reading, hearing, and visualizing. While it is not possible to quantify or measure how this mental juggling affects the reader of the text, it is important to note such changes in modes of thought in order to thoroughly delineate the issues involved in exemplarity in music theory treatises as different from those in a literary prose work.

1. *Text relation*	The use of similar phrases, terms, or descriptions in text and example
2. *Location*	The placement of the figure in relationship to the text
3. *Clarity*	The precision of the figure's shape, size, and dimensions
4. *Transmission*	Changes due to hand copying of treatise
5. *Change of mode of thought*	The reader's shift from reading prose to 'hearing' music notation or 'visualizing' figures and diagrams

Table 2. Factors affecting intertextual relationship between texts and non-prose examples (music and figures).

EXAMPLES IN DE MURIS'S *MUSICA SPECULATIVA*

The *Musica speculativa secundum Boetium* of Johannes de Muris provides a rich source in which to investigate the types of exemplarity in a music theory text transmitted by hand copying. The work was written in the early 1320s and exists in approximately fifty manuscript copies. There have been three recent editions of the work by Christoph Falkenroth,[12] Susan Fast,[13] and Elizabetha Witkowska-Zaremba[14] in addition to the edition presented in Gerbert's *Scriptores*.[15]

The work itself is built around an example; it is an extended commentary on Boethius's *De institutione musica*. De Muris cites Boethius frequently in the text so that the source of his text example is clear to the reader, as in such phrases as *eleganter docuit Boethius in prologo suae musicae*.[16] De Muris does not include musical

[11] The issues raised by music examples has most clearly been explored by Cristle Collins Judd, in JUDD, *Reading Renaissance Music Theory* (see note 2 supra).

[12] C. FALKENROTH ed., *Die Musica speculativa des Johannes de Muris*, (*Beihefte zum Archiv für Musikwissenschaft*, 34), Stuttgart, 1992.

[13] S. FAST ed., *Johannis de Muris, Musica <speculativa>*, (*Musicological Studies*, 61), Ottawa, 1994.

[14] E. WITKOWSKA-ZAREMBA ed., *Musica Muris i nurt spekulatywny w muzykografii średniowiecznej* [*Muris's Musica and the Speculative Trend in Medieval Musicography*], (*Studia Copernicana*, 32), Warsaw, 1992.

[15] M. GERBERT ed., *Scriptores ecclesiastici de musica sacra potissimum*, St. Blasien, 1784, repr. Hildesheim 1963, 3, pp. 249–255.

[16] FALKENROTH ed., *Die Musica speculativa des Johannes de Muris,* pp. 72–74.

examples or references to specific works in the *Musica speculativa*, and the second type of exemplarity (musical notation), therefore, does not apply to this work.

In contrast, de Muris's speculative treatise abounds in diagrams and figures, providing numerous opportunities for considering the third type of exemplarity – figures – and the factors affecting the intertextual relationship between the text and non-prose examples. Figures and diagrams of musical proportions appear in almost every chapter of the treatise to demonstrate the author's concepts. In many cases, the relationship between the text and figure is clear with little ambiguity or confusion because the figure contains phrases, terms, or numerical proportions also used in the text, clearly linking the text and figure. These figures are often similar across the manuscript tradition in design and placement in the text.

Nevertheless, the *Musica speculativa* also contains some striking examples of intertextual confusion and ambiguity in its use of examples. One of the better-known examples is the figure of consonance from Book 1, Propositions 2–4, which comments on the basic numerical consonances of the fourth, fifth, and octave.[17] Propositions 2 and 3 lay out the basic consonances as seen in the proportions between the numerals 12, 9, 8, and 6. De Muris wishes to extend the discussion of these proportions in Proposition 4 with reference to a figure.

> *Haec figura consonatiarum in musica perfectarum omnia principia et omnes conclusiones musicae continet in virtue, quae si essent exterius enodatae, tota musica nota fieret. Sed haec figura quasi unum chaos, in quo latitant plures formae, potest satis rationabiliter appellari, in qua secundum plus et minus conclusiones nobilissimas considerantis suggerat intellectus. Unus enim ab ea haurire poterit, quod alter hactenus numquam vidit. Quae autem de consonantiis sunt in suis circulis figurata debent concedi pro principiis huius artis. Nam experientia ex natura rei eas hominibus revelavit. Oportet enim credere, qui discit, quod si non credat, ad experientiam currat et certus reddetur omni ambiguitate remota. His ita se habentibus iam potest huius figurae intellectus misteria et inclusa mirabila extrahere sigillatim.*
>
> This figure of perfect consonances in music contains in potentiality all the principles and all the conclusions of music. If they could be clearly and outwardly given, the whole of music would be noted. But this figure can be rationally enough called sort of chaos, in which many forms are hidden, and in the figure, the intellect may accordingly more or less suggest the most noble conclusions for consideration. For one intellect will be able to draw from it what another has so far never seen. Which among the consonances are figured in its circles, these ought to be conceded as the principles of this art, for experience from nature has revealed the consonances to mankind. It is necessary to believe one who teaches, because if one does not believe,

[17] See also F. HENTSCHEL, *Sinnlichkeit und Vernunft in der mittelalterlichen Musiktheorie: Strategien der Konsonanzwertung und der Gegenstand der musica sonora um 1300*, (*Beihefte zum Archiv für Musikwissenschaft*, 47), Stuttgart, 2000, pp. 89–103.

> he runs to experience [i.e., he relies on experience], and he is certain to return to every remote ambiguity. As these things are so, the intellect can now bring forth separately the secrets of this figure and the marvels included.[18]

De Muris clearly expected an important diagram to accompany this passage, one that 'contains in potentiality all the principles and all the conclusions of music'. De Muris makes reference to a circular figure describing it as 'a sort of chaos' because it contains many hidden forms. The passage clearly prepares the reader to make an intertextual change from the narrative of the text to another mode of thought – interpreting a figure that will help explain the narrative.

But what was the figure to look like, and where was it to appear in relation to the text? Within the manuscript tradition, the figure varies widely in its presentation and placement. A few examples will suffice to demonstrate the problems of exemplarity for this figure. Two clear examples are found in Milan, Biblioteca Ambrosiana, MS C. 241 Inf., fol. 126v (Figure 1) and Kraków, Biblioteka Jagiellońska, MS 1927 BB XXV 14, fol. 116r (Figure 2).[19]

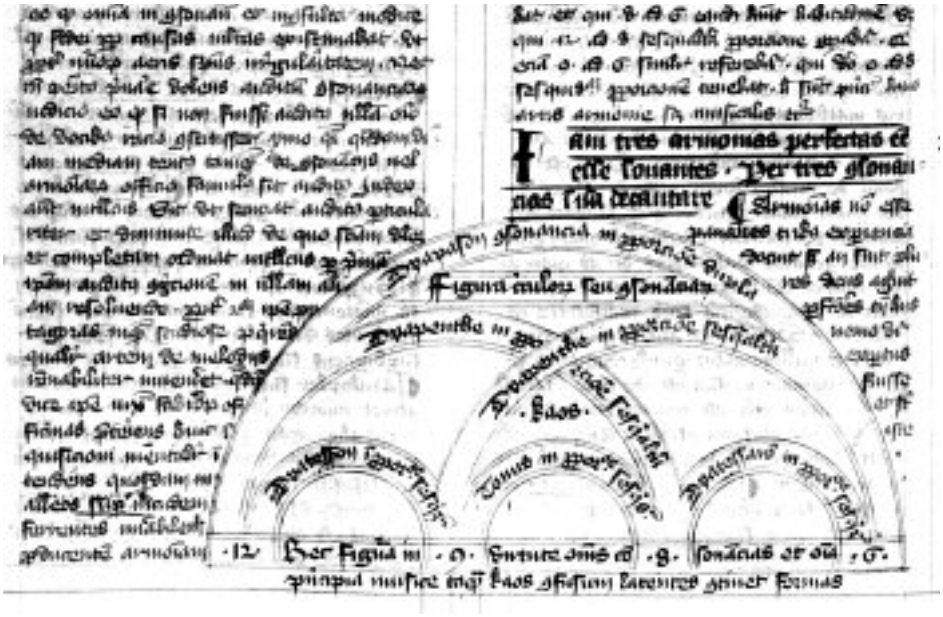


Figure 1. Johannes de Muris, *Musica speculativa*, Book 1, Proposition 4, Consonance figure. Milan, Biblioteca Ambrosiana, MS C. 241 Inf., fol. 126v.

[18] FALKENROTH, *Die Musica speculativa des Johannes de Muris,* pp. 114–118. I would like to thank Thomas J. Mathiesen for his help in clarifying this translation of the passage.

[19] Modern transcriptions of these examples appear in FAST, *Johannis de Muris, Musica <speculativa>*, p. 56 (Figure 1); and in FALKENROTH, *Die Musica speculativa des Johannes de Muris*, p. 118 (Figure 2).

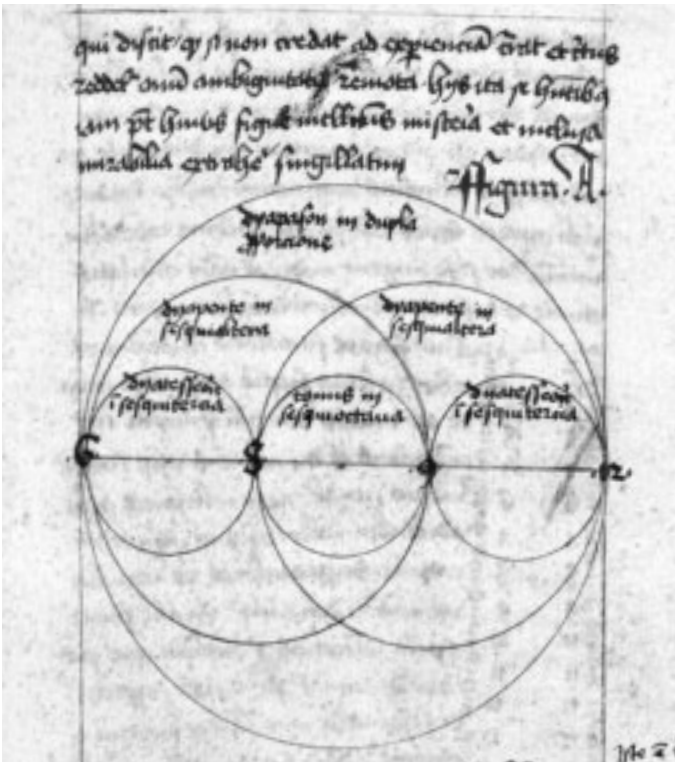


Figure 2. Johannes de Muris, *Musica speculativa*, Book 1, Proposition 4, Consonance figure. Kraków, Biblioteka Jagiellońska, MS 1927 BB XXV 14, fol. 116r.

In the Milan manuscript, the figure appears as semicircles (rather than as a circular figure, which the text indicates), the numerals appear in decreasing order from left to right, and the word *kaos* appears in the middle of the figure (clearly linking it to the passage in the fourth proposition). But the figure appears at the end of the third proposition, not in the middle of the fourth, meaning that the reader somehow had to remember the figure or flip back and forth between the recto and verso sides to integrate the text narrative and the example. In contrast, the Kraków manuscript is in a circular format (as the text indicates it should be) and the numbers appear in ascending order from left to right, but the figure omits the word *kaos*. This example is placed directly at the end of the fourth proposition and cited as *Figura A*. While the readers of the individual manuscripts were presented with figures they could basically understand, modern readers and editors are faced with an ambiguous situation.

These problems are compounded when the examples are not presented clearly in the manuscript – a visual parallel to the more frequently studied problem of garbled text transmission. The version of the *Musica speculativa* transmitted in Paris,

Bibliothèque nationale, fonds lat. 7369 provides a contrast to the clearly drawn examples in the Milan and Kraków examples. In an explicit to de Muris's work, the scribe gives his name as 'Matheus', saying he was a student of Hothby and a Servite.[20] While we can assume he was a musically educated scribe who would be keenly interested in presenting the treatise as clearly as possible, Matheus presents us with several examples of how transmission compounds the problems of exemplarity. The lighter ink of the figures makes it apparent that the figures were added at a different time than the text, probably by a different scribe. Matheus transmitted an abbreviated form of the *Musica Speculativa* (Falkenroth's 'Fassung B'). For the example of consonances in the fourth proposition, Matheus left space for an example but apparently not enough to present the figure in the same direction as the text (Figure 3). Instead, the reader must turn the manuscript (or his/her head) to interpret a semi-circular figure with numerals in descending order and without the word *kaos*. The text is also difficult to interpret, given the small space Matheus left for his example. While there are several problems with this figure, its placement makes it perfectly clear that it is to be linked to the fourth proposition. Matheus frequently ran into the problem of space for the figures, forcing whoever entered them to resort to drawing figures on their sides, bending figures, or overlapping figures with the text in order to fit the example into the given space.[21] In these examples, the reader of the manuscript, not to mention the modern reader and editor, is presented with ambiguous intertextual changes.

The earliest modern editions of medieval and Renaissance theorists by Gerbert and De Coussemaker presented these works in print to a wide audience but often continued or compounded the problems of exemplarity. Figures that were originally round or spherical were often printed squarely, placed in positions other than those found in the sources, or omitted altogether. Thus, Gerbert's edition of the *Musica speculativa*, using an abbreviated version of the treatise, omitted altogether the figure intended to accompany Book 1, Propositions 2–4.[22]

For the modern reader and editor who have the luxury of comparing various manuscript versions of a single treatise, the confusion at the intertextual conjunction is compounded. While it is clear that de Muris intended an example to accompany his fourth proposition in Book 1, it is difficult to know how he envisioned it to appear (circles or semicircles, ascending or descending numbers, the presence or absence of the word *kaos*) or where he intended it to be placed (before the text, after it, or in the middle).

[20] *… Explicit musica speculativa magistri Johannis de muris scripta per me fratrem matheum francisci de testa draconibus de florentia ordinis servorum sancte marie cum inpenderem operam musice sub egregio musicorumque doctorum primo magistro Johanne hothbi Anglico, necnon theologie lectori meritissimo, 1471, die 5 martii, circa oram vesperarum, nec eram multum letum*. Paris, Bibliothèque nationale, fonds lat. 7369, fol. 45r.

[21] See for example fol. 41r.

[22] GERBERT, *Scriptores*, 3, p. 250.

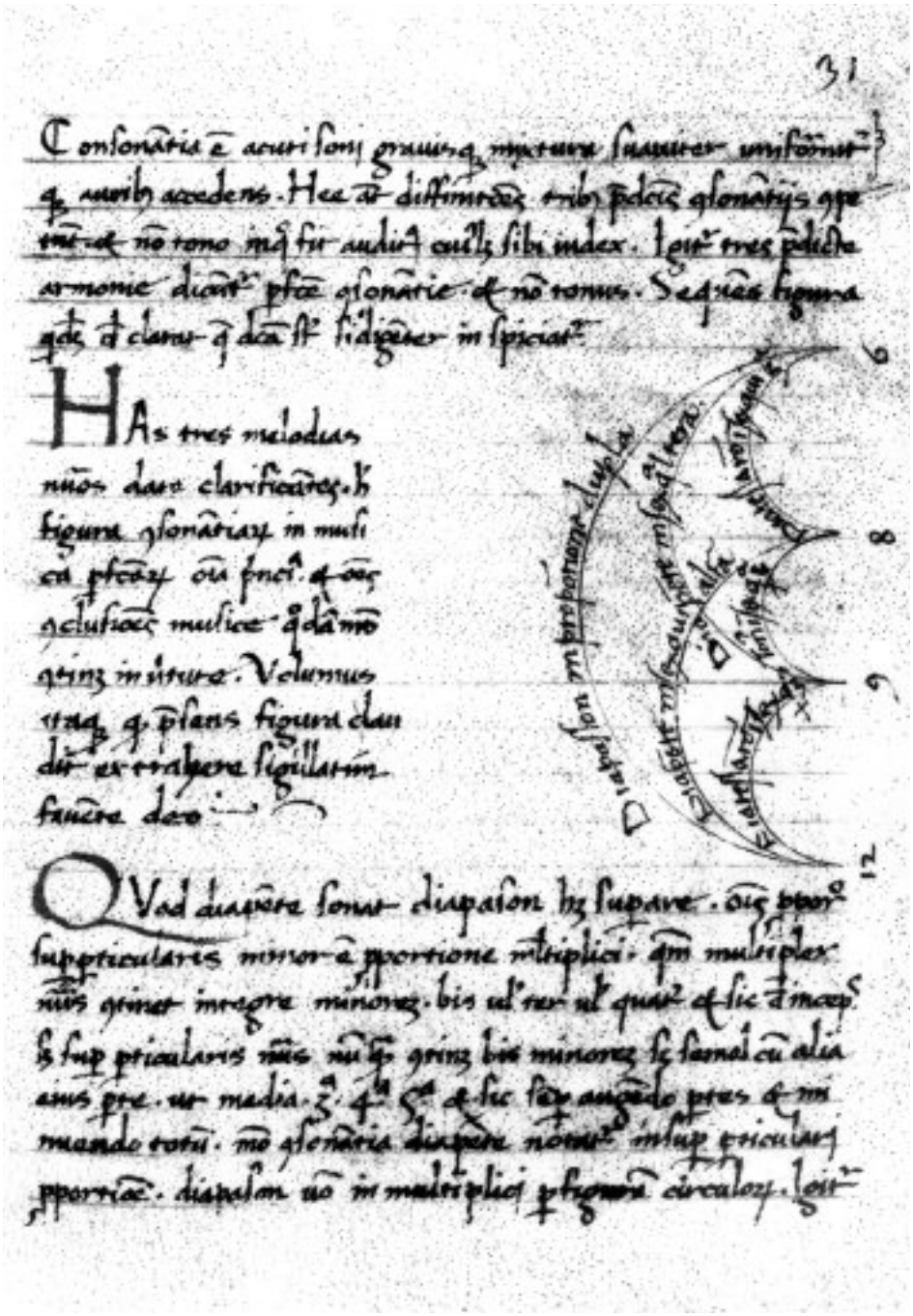


Figure 3. Johannes de Muris, *Musica speculativa*, Book 1, Proposition 4, Consonance figure. Paris, Bibliothèque nationale, fonds lat. 7369, fol. 31r.

The multiplicity of possible representations for the figure de Muris intended in this passage demonstrates an important area of future work in the study of figures in music theory – the consistent use of a critical apparatus in editions of music theory texts to delineate the variety of figures (or lack of them) in the sources. While Martin L. West presents a standard model for text editing in his *Textual Criticism and Editorial Technique*[23] and there have been several recent publications on the editing of music in early sources,[24] to the best of my knowledge, one of the few resources for editing figures in early music theory is the *Style Guide* for the series *Greek and Latin Music Theory*, edited by Thomas J. Mathiesen and Jon D. Solomon.[25] At a minimum, an apparatus for figures might convey to the reader such things as the location of the figure in relation to the text (or the omission of the figure), a general description of the figure's shape, and the text and/or numerals in the figure.

A more complete apparatus for figures would provide multiple versions of all figures, perhaps as an appendix to the edition.[26] Giving modern readers more complete information on the figures will deepen our understanding of the variety of intertextual possibilities in these treatises and their possible interpretation.

EXAMPLES IN GAFFURIO'S *THEORIA MUSICE*

The introduction of publishing resolved many of the ambiguities in the transmission of figures in music theory treatises. Theorists who published their work had a greater degree of control over all the elements of the treatise (text, musical examples, and figures) and thus over their relationship than writers in an age of hand copying of works. Once arranged on the printed page, the relationship between these elements would be the same for every reader of that edition of the work, which essentially eliminated the problem of changes in the examples due to transmission, at least for each edition of the printed treatise. Some rearrangement of materials may occur between printed editions or in the rare case of a printed treatise subsequently transmitted by hand. It is also possible for differences to appear in various states of an edition if an error is corrected during the printing of a work.

[23] M. WEST, *Textual Criticism and Editorial Technique*, Stuttgart, 1973.

[24] See, for example, J. CALDWELL, *Editing Early Music*, Oxford, 1985; and J. GRIER, *The Critical Editing of Music: History, Method, and Practice,* Cambridge, 1996.

[25] T. MATHIESEN and J. SOLOMON, *Greek and Latin Music Theory: A Style Guide for Text Criticism, Translation, and the Preparation of Camera-Ready Typescript*, Lincoln – London, 1982, p. 9.

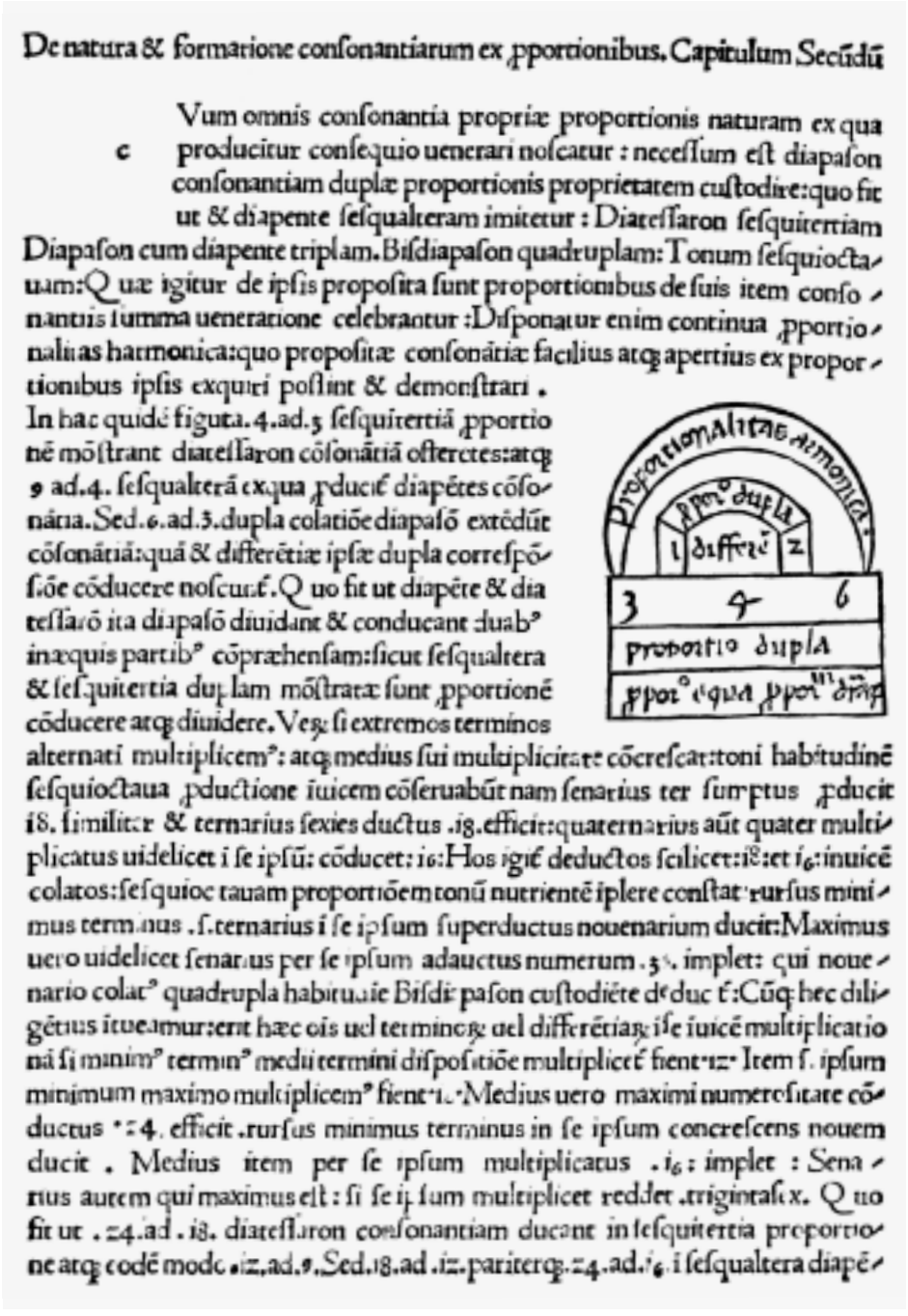
[26] Two volumes of *Greek and Latin Music Theory* (*GLMT*) in particular present extensive critical apparatus on figures: O. ELLSWORTH ed., *The Berkeley Manuscript*, (*Greek and Latin Music Theory*, 2), Lincoln – London, 1984; and A. BARBERA ed., *The Euclidean Division of the Canon: Greek and Latin Sources*, (*Greek and Latin Music Theory*, 8), Lincoln – London, 1991.

Franchino Gaffurio's *Theoria musice*, first printed in Milan in 1492, may serve as an example of a printed treatise to use in contrast with de Muris's work.[27] While there are, of course, tremendous differences between the two, both are speculative treatises that borrow heavily from Boethius and both lack examples of printed music. Gaffurio's figures of the perfect consonances (which are slightly different from the figure in de Muris) appear in Book 4, chapter 2 (Figure 4). What is striking in terms of the exemplarity of the chapter is the specificity of Gaffurio's text in its description of the figure. In place of de Muris's general description of a circular figure of some sort, Gaffurio's descriptions of his examples are precise and exact. The examples appear close to the text they are describing. Thus, when Gaffurio employs the rhetorical exemplary phrase, *hec omnia presens figura apertissime demonstrat*, to introduce the second example in the chapter, the reader knows exactly what to look for in the figure, and how it relates to the narrative.

In comparing the figures on consonance in both the de Muris and Gaffurio treatises, I do not mean to suggest that all examples in all manuscript-transmitted treatises are as ambiguous as the figure related to the fourth proposition of Book 1 in the *Musica speculativa*. The exemplary ambiguity in this passage rests as much in the abstract nature of what de Muris is trying to express as it does in the versions of the figures as they appear in individual sources. Nevertheless, while providing only one example each from a written and printed tradition, I would like to suggest that a possible further area for study is the way in which the technology of printing changed the content of music theory texts. Such studies have proven fruitful in a wide range of areas in music and may prove useful as well in the matter of exemplarity in music theory.[28] With the advent of printing, it is possible to propose that theorists would begin to write theory in a different manner from their manuscript-bound predecessors. Knowing that their figures would appear clearly in a specific relation to the text may have changed the way writers in a print culture wrote about their figures and diagrams and integrated the two narratives in new ways, just as theorists in a print culture began to use musical examples in different ways from their manuscript-based predecessors. Investigating such suggestions would surely be possible with further research in the field of figures and theory texts. One example of the changes brought about by printing may be seen in the renewed interest in tuning and temperament that took place in the late-fifteenth and sixteenth centuries. The exactness of figures and diagrams which printing brought was excellently suited for these highly technical

[27] F. GAFFURIO, *Theoria musice*, Milan, 1492, repr. New York 1967. English trans. by W. KREYSZIG, *The Theory of Music by Franchino Gaffurio*, (C. PALISCA ed., *Music Theory Translation*), New Haven – London, 1993.

[28] In addition to JUDD, *Reading Renaissance Music Theory*, see K. VAN ORDEN ed., *Music and the Cultures of Print*, (*Critical and Cultural Musicology*, 1; *Garland Reference Library of the Humanities*, 2027), New York – London, 2000.



De natura & formatione consonantiarum ex ꝓportionibus. Capitulum Secūdū

c Vum omnis consonantia propriæ proportionis naturam ex qua producitur consequio uenerari noscatur : necessum est diapason consonantiam duplæ proportionis proprietatem custodire: quo fit ut & diapente sesqualteram imitetur : Diatessaron sesquitertiam Diapason cum diapente triplam. Bisdiapason quadruplam: Tonum sesquioctauam: Quæ igitur de ipsis proposita sunt proportionibus de suis item consonantiis summa uenerationе celebrantur : Disponatur enim continua ꝓportionalitas harmonica: quo propositæ consonātiæ facilius atq; apertius ex proportionibus ipsis exquiri possint & demonstrari . In hac quidē figura. 4. ad. 3 sesquitertiā ꝓportionē mōstrant diatessaron cōsonātiā offerentes: atq; 9 ad. 4. sesqualterā ex qua ꝓducīt diapētes cōsonātia. Sed. 6. ad. 3. dupla colatiōe diapasō extēdūt cōsonātiā: quā & differētiæ ipsæ dupla correspōdēre cōducere noscunt. Quo fit ut diapēte & diatessaron ita diapasō diuidant & conducant duab⁹ inæquis partib⁹ cōpræhensam: sicut sesqualtera & sesquitertia duplam mōstratæ sunt ꝓportionē cōducere atq; diuidere. Ves; si extremos terminos alternati multiplicem⁹: atq; medius sui multiplicitate cōcrescat: toni habitudinē sesquioctaua ꝓductione iuicem cōseruabūt nam senarius ter sumptus ꝓducit 18. similiter & ternarius sexies ductus .18. efficit: quaternarius aūt quater multiplicatus uidelicet i se ipsū: cōducet: 16: Hos igit deductos scilicet: 18: et 16: inuicē colatos: sesquioctauam proportiōem tonū nutrientē iplere constat. rursus minimus terminus .s. ternarius i se ipsum superductus nouenarium ducit: Maximus uero uidelicet senarius per se ipsum adauctus numerum .36. implet: qui nouenario colat⁹ quadrupla habitudie Bisdiapason custodiēte deducit: Cūq; hec diligētius ituemur: erit hæc ois uel terminoꝝ uel differētiaꝝ ise iuicē multiplicatio nā si minim⁹ termin⁹ medi termini dispositiōe multiplicet fient. 12. Item s. ipsum minimum maximo multiplicem⁹ fient. 18. Medius uero maximi numerositate cōductus . 24. efficit . rursus minimus terminus in se ipsum concrescens nouem ducit . Medius item per se ipsum multiplicatus . 16: implet : Senarius autem qui maximus est : si se ipsum multiplicet reddet . triginta sex. Quo fit ut . 24. ad . 18. diatessaron consonantiam ducant in sesquitertia proportione atq; eodē modo . 12. ad. 9. Sed. 18. ad. 12. pariterq; 24. ad. 16. i sesqualtera diapē-

Figure 4. Franchino Gaffurio, *Theoria musice*, Book 4, chapter 2, Milan, 1492, repr. New York, 1967.

and detailed discussions. I am not proposing that printing was the cause of this debate, but that the specificity printed examples afforded, along with the wide circulation of printed treatises, provided a rich environment for the debate to take place. Thus a work like Ludovico Foliani's *Musica theorica* (1592) relies heavily on the exact representation of the monochord divisions it presents.[29]

Towards a Catalogue of Illustrations in Western Latin Medieval and Renaissance Theory Treatises, c. 1000-1600

This article has explored the conceptual issues involved in exemplarity in early music theory and presented a limited exploration of these issues as a prolegomena to the creation of a catalogue of illustrations in western Latin medieval and Renaissance theory treatises, c. 1000–1600. Figures should be seen as being of equal importance to the more commonly studied types of exemplarity seen in music theory treatises – quotations and musical excerpts. In proposing the study of figures and illustrations in music theory as a relatively unexplored field of research in our discipline, this article suggests that in addition to a catalogue of source materials, further work in this area would include the refinement of the theory of exemplarity as applied to music theory as well as the regular use of a critical apparatus to convey to the modern reader the variety of differences found in the sources. When scholars have a stronger sense of the range of examples in the corpus of early music theory, a consistent editorial apparatus to explain the variations in the figures to modern readers, as well as a broader theoretical framework to conceptualize these examples, then we will begin to understand more fully what the figures are teaching us.

[29] L. FOLIANI, *Musica theorica*, Venice, 1529, repr. New York 1969 (*Monuments of Music and Music Literature in Facsimile*, 2/93); and L. FOLIANI, *Musica theorica*, Venice, 1529, repr. Bologna 1970 (*Bibliotheca Musica Bonoiensis*, Series 2, 1).