PROSODY AND RHYTHM IN THE
POST-TRIDENTINE REFORM OF PLAINCHANT

A Dissertation

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By

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ABSTRACT

In the wake of the Council of Trent, the spirit of reform that influenced the style of sacred polyphony also sparked major revisions of the plainchant repertoire. Various musicians labored to bring the archaic, medieval plainchant style up to date with current standards of tonality, rhythm, and textual lucidity. This dissertation focuses on the close link between textual prosody and musical rhythm forged in this revision process. It begins by examining medieval chant as a basis for comparison with reform chant. After surveying the historical highlights of the plainchant reform, it then probes the connection between prosody and rhythm in two seminal publications of reform chant, the Directorium chori of 1582 and the Editio Medicaea of 1614-15. For the latter work, a new interpretation of the notation and rhythm is offered. A variety of evidence bolsters this interpretation, including written evidence from theorists, circumstantial evidence concerning the similarities between the Editio Medicaea and its predecessor, the Directorium chori, and most importantly, the evidence of unmistakable regularities in the relationship between notational signs and patterns of textual accent.
Dedicated to Lisa, Julia, and Jesse
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CHAPTER 1

INTRODUCTION

Received wisdom labels the Renaissance in music as the “Golden Age of Polyphony.” While not inaccurate, this label points to an historiographical overshadowing of the tradition of liturgical monophony that continued to thrive throughout the period and beyond.1 Similarly, the famous Council of Trent is often cited in connection with reforms of sacred polyphony in the later sixteenth century,2 but the Council also sparked wholesale revisions of the plainchant repertoire. Various musicians labored to bring the archaic, medieval chant style up to date with current standards of tonality, rhythm, and textual lucidity. This post-Tridentine3 chant reform movement, and


3 That is, after the Council of Trent.
more particularly, the relationship between prosody and rhythm in that movement, forms the main topic of this dissertation.

If Renaissance chant has been often been passed over in favor of polyphonic genres, it has also been attacked as a corruption of “true Gregorian chant.” Beginning in the nineteenth century and continuing into the twentieth, the monks of the Abbaye Saint-Pierre in Solesmes, France, undertook a program of extensive research and publication aimed at restoring plainchant to a more “pure” medieval state after centuries of “decay.” Their lionization of Gregorian chant resulted in a concomitant denigration of the styles of plainchant that evolved quite naturally during the following centuries, as one would expect of any living tradition. Willi Apel effectively captures this attitude near the beginning of *Gregorian Chant*:

> While the first half of the two-thousand years’ life of the chant was a period of continuous growth and all-embracing vitality, its existence during the second half was not without vicissitudes. From about 1000 on, polyphonic music, its own offspring, began to challenge the sovereignty of its parent and, beginning with the fifteenth century, organ music became a successful competitor. Even more detrimental were ideas, arising in the sixteenth century, which led to a revision of the old melodies, a revision actually amounting to a complete distortion of their essential qualities. In the seventeenth and eighteenth centuries what went under the name “Gregorian chant” was only a shadow of its former self, and in the nineteenth century the whole tradition was threatened with extinction. Fortunately, rescue came from a group of scholars, mostly French, who devoted themselves to a study of the medieval manuscripts and immediately realized the supreme importance of their contents. One of the first in this group was L. Lambillotte, whose ideas were adopted and brought to final success by the monks of Solesmes. Owing to their endeavor—an endeavor which is no less a credit to musicology than the rediscovery of Bach, Palestrina, Schütz, or Monteverdi—the

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old tradition was brought to new life and, in 1903, was officially adopted by the Roman Church through a decree of Pope Pius X, a decree which may well be said to mark the beginning of the third millennium of Gregorian chant.\footnote{Willi Apel, \textit{Gregorian chant} (Bloomington: Indiana University Press, 1958), 3.}

As the most (in)famous of the products of the post-Tridentine plainchant reform, the \textit{Editio Medicaea},\footnote{Facsimiles of the two volumes comprising this edition have recently been published as Giacomo Baroffio and Manlio Sodi, eds., \textit{Graduale de Tempore iuxta ritum Sacrosanctae Romanae Ecclesiae: Editio Princeps (1614)} (Città del Vaticano: Libreria Editrice Vaticana, 2001), and Giacomo Baroffio and Eun Ju Kim, eds., \textit{Graduale de Sanctis iuxta ritum Sacrosanctae Romanae Ecclesiae: Editio Princeps (1614-15)} (Città del Vaticano: Libreria Editrice Vaticana, 2001).} known commonly as the Medicean Gradual, is frequently singled out as a prime example of the wrong-headedness of the revisions undertaken.\footnote{See, for example, P. Raphael Molitor, \textit{Die Nach-Tridentinische Choral-Reform zu Rom: Ein Beitrag zur Musikgeschichte des XVI. und XVII. Jahrhunderts}, 2 vols. (Leipzig: Leuckart, 1901), 187ff, and P. Maurus. Pfaff, “Die liturgische Einstimmigkeit in ihren Editionen nach 1600,” in \textit{Musikalische Edition im Wandel des historischen Bewusstseins}, Thrasybulus G. Georgiades, ed., \textit{Musikwissenschaftlichen Arbeiten} 23 (Kassel: Barenreiter, 1971), 52.} The present study may serve in part as a corrective to this prevailing point of view by illuminating the context of the reform movement and by elucidating the logic and cohesion of the principles underlying the revision process, particularly with regard to prosody and rhythm.

A recently flurry of scholarly activity in Italy may signal the beginning of a remedy to the neglect of Renaissance chant mentioned above. This activity was apparently inspired by the newly curated collection of printed chant books from the library of Laurence Feininger,\footnote{Marco Gozzi, ed., \textit{Le fonti liturgiche a stampa della Biblioteca musicale L. Feininger presso il Castello del Buonconsiglio di Trento} (Provincia Autonoma di Trento: Servizio Beni Librari e Archivistici, 1994).} and has resulted in important collections of articles.\footnote{Danilo Curti, and Marco Gozzi, eds., \textit{Musica e liturgia nella riforma tridentina} (Provincia Autonoma Trentino, 1993).}
Recent publications in facsimile of notable post-Tridentine liturgical editions (cited and discussed in Chapter 2) are also part of this upsurge. The current study has benefitted immensely from the fruits of the Italian scholars’ labor.

While the bulk of this dissertation focuses on post-Tridentine plainchant, the first main chapter (Chapter 2) deals with pre-Tridentine, “Gregorian” chant—that is, the body of medieval chant as construed and reconstructed by the Solesmes school. That chapter revisits the issue of melodic accent\(^\text{10}\) in chant, armed with a relatively recent, experimentally-derived model of melodic accent developed by Joseph Thomassen. In many respects, Chapter 2 stands alone as a separate study, not only on account of its chronological focus, but also for its preoccupation with melodic accent rather than rhythm as in the rest of the dissertation. The common thread linking Chapter 2 with the others is a concern with Latin prosody and its relationship to purely musical parameters. It also lays much of the conceptual and methodological groundwork necessary for later analyses, particularly those found in Chapters 4 and 6.

Chapter 3 narrates a history of chant reform, first drawing out relevant episodes from the Council of Trent and then focusing on key chant publications, using the Breviary of 1568 and the second volume of the *Editio Medicaea* of 1615 as bookends. Its purpose within this study as a whole is to provide an historical context for the analyses of reform chant that follow in subsequent chapters.

\(^{10}\) Melodic accent is defined here as accent resulting from pitch contour alone; see Chapter 2 for more detail.
Chapter 4 investigates Guidetti’s *Directorium chori* of 1582, which stands as an early landmark of post-Tridentine chant reform. As the first liturgical edition with musical notation to be published after the end of the Council of Trent, and with its system of explicit rhythmic signs, it invites analysis of the relationship between textual prosody and musical rhythm. After laying out the details of Guidetti’s notational system, the chapter presents a series of analyses, progressing from a specific, example-based survey to increasingly global statistical characterizations. The survey inventories his rhythmic treatment of words according to word length and accent type. The analyses begin with a calculation of average syllable durations, again classified by word length and syllable type. Statistical analyses to formalize the relationship between syllable stress and syllable duration follow, as do comparisons of Guidetti’s version with a concordant medieval version of the sample.

Chapter 5 examines the notation and rhythm of the *Editio Medicaea* of 1614-15, commonly called the Medicean Gradual. The modern literature on this edition does not offer any unified or detailed assessment of its notation and rhythm. The chapter remedies that lacuna with a new interpretation of the notation and rhythm. A variety of evidence bolsters this interpretation, including written evidence from theorists, circumstantial evidence concerning the similarities between the *Editio Medicaea* and its predecessor, the *Directorium chori*, and most importantly, the evidence of unmistakable regularities in the relationship between notational signs and patterns of textual accent.
Chapter 6 applies the same analytical program to the Medicean Gradual as applied to the *Directorium chori* in Chapter 4. It provides a systematic description of text-setting practice as well as analysis of the relationship between prosody and rhythm.

Most of the analyses found in this dissertation were performed with the help of the *Humdrum Toolkit*, a set of Unix-based encoding conventions and software tools. Each of the various samples of plainchant was encoded in the *Humdrum* format; the encodings included data on pitch, duration when applicable, text, and accentuation. Individual chant encodings were subjected to rigorous proofing before being used for analysis, and a high degree of accuracy was obtained. No software designer could possibly anticipate the myriad of analyses that various researchers might want to perform, and the *Humdrum Toolkit* is not intended to function as the magic bullet some readers might infer. Rather, *Humdrum* commands are general-purpose tools for data manipulation that become useful when applied in tandem in an intelligent manner. The systematic style of the analyses presented here owes much to the possibilities afforded by *Humdrum*.

This project strikes a balance between the rich contextualization characteristic of humanistic studies and the methodological rigor characteristic of “scientific” or systematic studies. It is a peculiar challenge of interdisciplinary endeavors such as this to satisfy the precepts of both disciplines. As a case in point, the various plainchant repertoires are assessed statistically here rather than aesthetically or spiritually, which

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may leave some readers feeling cold, but at the same time, the randomized samples
demanded by normative scientific procedure are foregone in favor of more unified and
musicologically satisfying repertoires. The humanistic and systematic approaches
mutually reinforce one another to offer an enhanced perspective on the issues at hand.
CHAPTER 2

PROSODIC AND MELODIC ACCENT IN MEDIEVAL CHANT

The relationship between prosodic and melodic accent in medieval chant received considerable attention from musicologists during the twentieth century. Scholars connected to the monastic tradition of Solesmes typically argued for a positive correspondence between prosodic and melodic accent.¹ They were challenged by academic chant scholars on this issue, who criticized a lack of methodological rigor and vague or inconsistent definitions of melodic accent in their work. The impasse that resulted could not be broken without a better understanding of melodic accent, and in recent decades, the issue seems to have fallen mostly below the radar of scholarly interest.

This chapter tackles the issue anew with the help of tools not available to or not utilized by previous writers. It joins a statistical approach to the problem with Joseph Thomassen’s experimentally derived model of melodic accent, to be discussed below. A series of interrelated analyses lead to conclusions that delineate a middle ground between opposing viewpoints.

¹ See below for an expanded discussion of the scholarly views summarized in this paragraph.
The first task, then, is to lay the groundwork for defining the nature of accent in the texts and melodies of the repertoire in question. Speakers cause certain syllables to stand out from others through various means such as intensity, duration, and pitch. Similarly in music, certain notes may be accented or marked for attention. The means by which intensity and duration create musical accent are well established, but the means by which pitch alone creates musical accent are not immediately clear. Certainly a sudden rise in pitch creates what might be called a melodic accent, in a manner analogous to the tonic accent in language, but just as certainly, melodic accent can be created in myriad other ways as well. Although the notion of melodic accent is widely accepted, no clear consensus has emerged in music scholarship concerning its precise nature.

A precise and defensible formulation of melodic accent is critical to this study, however. Thomassen’s model has been adopted for this reason. Although his model does not necessarily represent the final word on the matter, it is the result of the most concentrated attempt to define melodic accent to date. It derives from a systematic experiment with human listeners, and it has received strong empirical support from a subsequent study by Huron and Royal. If the model should prove incomplete or otherwise flawed in the future, the transparency and replicability of Thomassen’s experiment would facilitate further progress in defining melodic accent. In this chapter,


Thomassen’s model will be used to test specific hypotheses concerning the relationship between prosodic and melodic accent in medieval chant.

The model and the experiment upon which it was based will be laid out below, but first, Latin accentuation will be discussed and then previous treatments of the relationship between prosodic and melodic accent in chant will be surveyed.

For the most part, Western plainchants are set to Latin. The Latin language underwent many changes during its remarkably long tenure, but this chapter is concerned only with its state during the postclassical era, a critical period in the development of chant. During this time accent was achieved primarily through increases in intensity, or stress.4 A French school of thought, once influential but now marginalized, maintained that Latin possessed a tonic accent, that is, a primarily pitch-determined accent.5 This school influenced early twentieth-century chant studies,6 perhaps in part because France hosted the birth of modern chant scholarship at the Abbey of Solesmes. These early studies presumed a close directional relationship between the pitch inflection of the text and the contour of the chant melody. Although the stress-accented nature of Latin would seem to pose a challenge to this presumption, one can still inquire as to whether accentual mechanisms of essentially different types, namely stress accent and melodic accent,

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6 See, for example, André Mocquereau, “De l'influence de l'accent tonique latin et de cursus sur la structure mélodique et rhythmique de la phrase grégorienne,” *Paléographie musicale* 3 (Solesmes, 1894. Reprinted Berne: Lang, 1974), 11.
mutually reinforce each other, contrast with each other, or perhaps remain neutral with respect to each other.

The rules of Latin accentuation are fairly straightforward (see Figure 2.1). In a word of three or more syllables, stress falls either on the penultimate syllable, in which case the word is identified as a *paroxytone*, or on the antepenultimate syllable, in which case the word is identified as a *proparoxytone*. The placement of the stress on either the penultima or antepenultima depends on a feature of syllables known as *quantity*, which in turn depends on the configurations of vowels and consonants.7

In bisyllabic words, the stress necessarily falls on the penultima, i.e., first syllable, since there is no antepenultima.8 Bisyllabic prepositions and conjunctions, which are generally devoid of stress and are thus labelled *atonic*, form an exception to this rule.9 Monosyllabic words may be either tonic or atonic. *Lexical* ones (nouns, pronouns, and verbs) receive stress, while *nonlexical* ones (prepositions and conjunctions) do not.10

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9 Matthew Y. Chen, “Toward a Grammar of Singing: Tune-Text Association in Gregorian Chant,” *Music Perception* 1 (1983), 89-90. The use of the terms “tonic” and “atonic” here and elsewhere in this study do not imply endorsement of the pitch-accented view of Latin; rather they are used in conformity with the conventions found in the literature on this subject to indicate “possessing accent” and “not possessing accent,” respectively.

10 Chen, “Toward a Grammar,” 90.
The phenomenon of secondary stress in Latin, undiscussed in traditional Latin grammars, is less well documented, and its status is correspondingly less clear. Its existence seems taken for granted in the literature on the subject, yet detailed discussions are rare. It appears that in long words the syllable two or three positions to the left of the primary stress receives a secondary stress.\(^\text{11}\) As with primary stress, secondary stress depends on the quantity of the syllables, starting with the syllable immediately preceding the primary stress as if it were the last syllable of a word. The longest of Latin words (more than five syllables) can possess more than one secondary accent.

Poetic texts introduce additional considerations that do not factor in to this study, but that may be noted in passing. Classical metrical poetry arranged syllable quantity (not stress as such) into regular patterns called feet. Certain genres of rhythmic poetry, such as medieval hymn and sequence texts, were sensitive to syllable count and regular patterns of stress. All the chants dealt with in this study, however, have prose texts, and the rules stated thus far will suffice for them.

An overview of previous treatments of the relationship between prosodic and melodic accent will help to place the results of this study in historical perspective. In the later nineteenth century, clerical scholars associated with Solesmes took on the task of restoring chant to its “original” medieval state after centuries of evolution. After studying an array of medieval manuscripts, they began to publish chant editions, which

the Vatican subsequently endorsed in 1904. In support of their restorative work, they also studied issues concerning the performance and appreciation of chant. It is in this corollary work that one finds early statements concerning the nature of the relationship between prosodic and melodic accent. Further statements appear in the work of various church-affiliated scholars sympathetic to Solesmes. During the second half of the 20th century, the discussion migrated to the writings of academicians, frequently with no official ties to the church.

Figure 2.2 summarizes various opinions put forth over time, starting with Mocquereau and others in the Catholic tradition up to about the mid-century, and continuing after that time with the academicians. For purposes of comparison, their definitions of melodic accent have been rendered as symbols of basic melodic contours, with the apostrophe indicating the precise location of the accent. Their views concerning the relationship between prosodic and melodic accent have also been summarily characterized. For additional detail and nuance not found in this brief overview, the reader is encouraged to follow up with the references supplied.

Among the first to venture into this territory was Dom André Mocquereau, a Solesmes monk. He subscribed to the view that Latin possessed a tonic accent (see above), and formed his definition of melodic accent accordingly. Mocquereau believed that a note higher than its immediate neighbors, or at least higher than the note following

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12 Bergeron, *Decadent enchantments*, 143-44.
it, constituted a melodic accent.\textsuperscript{13} He argued that a strong relationship exists between prosodic and melodic accent. Dominicus Johner, a German Benedictine writing several decades later, essentially mirrored the views of Mocquereau in a large volume dedicated entirely to the relationship between words and music in chant.\textsuperscript{14}

Peter Wagner, a German musicologist with close ties to the Catholic Church, wrote a three-volume study that has become a classic reference work on chant.\textsuperscript{15} He felt that a positive correspondence between prosodic and melodic accent is a “fundamental law” of plainchant style. He narrowly defined melodic accent as an upward contour pivot point,\textsuperscript{16} as symbolized in the chart.

The Italian cleric Paolo Ferretti wrote more on this subject than any other person. He believed it to be a universal law, albeit subject to certain exceptions, that melodic accents coincide with prosodic accents. Unfortunately he was so vague in his definition of melodic accent and applied with it with such inconsistency that the power of his argument was considerably diffused.\textsuperscript{17}

\textsuperscript{13} Mocquereau, “De l'influence de l'accent tonique latin,” 12.
\textsuperscript{14} Dominicus Johner, \textit{Wort und Ton im Choral: ein Beitrag zur Aesthetik des gregorianischen Gesanges} (Leipzig: Breitkopf & Härtel, 1953).
\textsuperscript{16} Wagner, \textit{Einführung in die gregorianischen Melodien}, 289.
The dialogue on this issue migrated to more academic quarters after mid-century, where opinion began to shift. The musicologist Willi Apel, after lambasting the methodology and critical assumptions of Mocquereau, Ferretti, and Wagner, wrote that the correspondence between prosodic and melodic accent does play an important role but comes nowhere close to achieving the status of a universal law.\textsuperscript{18} Apel’s criterion for melodic accent was simply that a preceding note must be higher than a following one,\textsuperscript{19} which allows for the three melodic contours shown on the chart.

Richard Hoppin’s textbook on medieval music asks readers to consider \textit{descending} contour pivots, and the myriad other ways in which melodic accent might be achieved that previous scholars seem not to have even considered.\textsuperscript{20} He remained skeptical that the prosodic-melodic relationship in chant was even a fruitful line of inquiry. John Stevens, author of a comprehensive book on \textit{Words and Music in the Middle Ages}, gives the even stronger opinion that this line of inquiry is indeed irrelevant, and puts forth an alternative hypothesis concerning modally significant pitches.\textsuperscript{21} Terence Bailey argues that any belief in a special prosodic-melodic correspondence is founded more on a quaint nineteenth-century Romanticism than on any real quality of the

\begin{itemize}
\item \textsuperscript{18} Apel, \textit{Gregorian chant}, 296.
\item \textsuperscript{19} Apel, \textit{Gregorian chant}, 292.
\item \textsuperscript{21} John Stevens, \textit{Words and music in the Middle Ages: Song, narrative, dance, and drama, 1050-1350} (Cambridge: Cambridge University Press, 1986), 283.
\end{itemize}
chant itself. As a final blow, David Hiley’s compendious reference work on Western
plainchant remains silent on this issue, implying that it is in fact no longer valid or
important.

One can only speculate as to why the issue, after enjoying such prominence in
early chant scholarship, has died a slow death amidst the pages of more recent chant
scholarship. Perhaps it has something to do with the seemingly intractable nature of
melodic accent itself: no progress can be made if a fundamental definition cannot be
agreed upon. Perhaps it has something to do with a perceived inevitability of individual
biases and methodological roadblocks. This study makes an effort to surmount both
these difficulties by using the model of melodic accent proposed by Thomassen along
with a transparent statistical method.

Joseph Thomassen, working at the Institute for Perception Research in The
Netherlands in the early 1980’s, conducted an experiment aimed at deriving a
perceptually-based model of melodic accent. To construct the stimuli for this
experiment, he started with the nine possible three-note contours, or basic motifs, as
shown in Figure 2.3, then crossed them with interval sizes of one, four, or eight
semitones. He embedded these motifs within tone sequences that evoked ternary meter

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24 Thomassen, “Melodic accent.”
by means of dynamic accent (i. e., every third note was slightly louder). He systematically varied the placement of the motifs such that the first, second, and third notes in turn fell in a metrically strong position. He then presented pairs of these tone sequences to listeners and asked them to judge which of the two gave a greater impression of metrical regularity. One possible pair of stimuli has been reconstructed from the parameters described in the paper, and represented graphically in Figure 2.4.

By making comparative judgments of metrical regularity, the listeners presumably avoided responding on the basis of any preconceived notions of melodic accent. This method rests on the premise that when the note possessing greater melodic accent falls in a metrically strong position, less of a disruption will occur and an impression of greater regularity will be evinced.

Thomassen found that interval size had a negligible effect, so he constructed his model on the basis of contour alone. From listener responses, he derived a numerical value between 0 and 1 for the perceived accent weight for the second and third notes, based on the preceding interval, of each basic melodic motif, as shown in Figure 2.5. Since each note is simultaneously a member of three overlapping motifs, Thomassen postulated a moving window in which the accent value for any given note is determined by the interaction of overlapping motifs, as represented in Figure 2.6. Specifically, the final accent value is determined as the arithmetic product of the overlapping motif values.

Huron and Royal subsequently applied Thomassen’s model to samples of both European folksong and Western common-practice music in order to pit the model against
other definitions of melodic accent found in modern music theory.\textsuperscript{25} Since various types of accent show a tendency to coordinate with one another in these types of music, and since a sense of meter is created in large part by the collective action of these various accent types, they calculated correlations between metrical position and the different theoretical notions of melodic accent, including Thomassen’s model. They discovered that Thomassen’s model yielded the highest statistical correlation between metrical position and melodic accent of any of the models, suggesting that it is the one that comes closest to actual perception.

One should bear in mind the following caveats concerning the use of Thomassen's model. First, it probably only approximates listeners’ actual perceptions. The complexity of melodic accent probably cannot be captured by a single experiment. Second, the experiment was conducted with modern Dutch listeners in a controlled environment. It may legitimately be asked what connection exists between this setting and medieval listeners in the real world.\textsuperscript{26} The analyses presented here assume the model approximates a perceptual process that is common to humans and that has not appreciably changed from the Middle Ages to the present. The third caveat is that the use of Thomassen's model requires one to regard the chants simply as sounding objects consisting of a succession of melodic contours. This puts issues of paleography, notation, and transmission on the back burner; these are important concerns in their own right, but

\textsuperscript{25} Huron and Royal, “What is melodic accent?”

\textsuperscript{26} This is the standard question of ecological validity, that is, the applicability of results obtained under highly controlled experimental conditions to the rich experiences of the “real world.”
lie outside the immediate scope of this study. Further work on this topic would have to
expand to include these parameters as well.

With this model of melodic accent in place, an analysis of the relationship
between prosodic and melodic accent can proceed. The first step in an analysis of this
type is to identify an appropriate sample. The sample chosen from the chant repertoire
consists of 58 antiphons performed during Advent and Christmas as part of the Divine
Office, the daily cycle of ritual observance in monasteries. This is the same sample
chosen by Apel to study this issue, and the justification for his choice—that these
antiphons are among the oldest and most syllabic of chants—remains applicable. The
Liber usualis, a compilation of the most frequently performed chants in the Catholic
tradition, served as the source edition.27

Figure 2.7 shows a representative antiphon from the sample, “Facta est cum
Angelo.” Its text-setting style is predominantly syllabic, though it does contain some
melismas. (Settings with two to four notes per syllable are conventionally called
neumatic, but for the sake of simplicity here, any syllable with two or more pitches will
be identified as a melisma.)

Since Thomassen’s model requires three overlapping contours, the first two notes
of any melody cannot be assigned a value. The first word in every chant was therefore
omitted. Also omitted were Hebrew-derived words like “Jerusalem” and “alleluia” since

27 The Benedictines of Solesmes, ed., The Liber usualis, with introduction and rubrics in English
(Tournai: Desclée, 1961). While other, more definitive sources such as René-Jean Hesbert, ed.,
Antiphonale Missarum sextuplex (Brussels: Vromant, 1935) could have been used, re-use of Apel’s
sample will facilitate a more direct test of his conclusions using the new methodology advanced in this
chapter.
their accentuation in a Latin context is uncertain. After these omissions, the sample contained some 2045 pitches and 1493 syllables.

The sample was encoded, error-checked, and analyzed with the help of the *Humdrum Toolkit*, described in the introductory chapter. *Humdrum* contains an implementation of Thomassen’s model, which was used to calculate melodic accent values for each pitch in the sample. Selected sets of these values were then compared statistically, as appropriate to the particular analysis being performed.

The first analysis considers melodic accent in purely syllabic instances only. Syllables bearing two or more pitches are omitted. Since a melisma is a type of durational accent acting upon a syllable, and since it might interact with or somehow confound the operation of purely melodic accent, it is best at the outset to eliminate melismas and then incorporate them into a subsequent analysis. This first analysis tests a two-part hypothesis:

**Hypothesis 1.**

a. Primaries\(^{28}\) will be set to pitches of greater melodic accent and tertiaries to pitches of lesser melodic accent.

b. Secondaries will have melodic accent greater than tertiaries but less than primaries.

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\(^{28}\) For the sake of efficiency and clarity, the following nomenclature has been adopted here and elsewhere:

- Primaries = syllables with primary stress
- Secondaries = syllables with secondary stress
- Tertiaries = unstressed syllables
To test these hypotheses, the mean melodic accent values of the three syllable types were calculated (see Figure 2.8.1). At first glance the values of .336, .319, and .205 for primaries, secondaries, and tertiaries, respectively, appear to support both parts of Hypothesis 1. The question arises as to whether these values represent significant differences, or whether they are too slight to warrant any conclusions.

This question may be answered by employing an inferential statistical test. Such a test will generate a $p$ value between 0 and 1 that represents the probability that the observed results could have come about by chance. Thus, a low $p$ value would argue for the validity of the hypothesis, not necessarily proving that it is true, but lending support to it. It is prudent to state beforehand the threshold below which the $p$ value will be considered significant. For present purposes, this threshold can be set to a customary .05; in other words, one accepts a 5% risk that the observed results are due to chance and not to the interaction of prosodic and melodic accent as hypothesized.

An appropriate statistical test for this scenario is the Mann-Whitney test,\(^{29}\) which allows one to compare the lists of melodic accent values associated with the various syllable types. Figure 2.8.2 presents the three possible comparisons of syllable types. In this instance, the $p$ values indicate that the difference between primary and secondary stress is not significant, but that the differences between primary and tertiary, and between secondary and tertiary, are indeed significant. This leads to acceptance of

\(^{29}\) This is a nonparametric, unpaired comparison. As opposed to a parametric test, it does not rely on the assumption of a Normal, i.e. bell-curved, distribution of the data. (Thomassen's model does not generate Normal distributions.) Since unequal numbers of syllable types occur in the sample, a paired comparison, i.e. of the type that compares a given set of values under two experimental conditions, would be inappropriate.
Hypothesis 1a and to the rejection of 1b. This rejection must occur because no statistically significant distinction can be made between primaries and secondaries.

In the interest of seeking converging evidence, a correlation coefficient was also calculated, in order to assess the strength of the correspondence between prosodic and melodic accent. A correlation coefficient ranges from -1, a completely negative correspondence, to +1, a completely positive correspondence; a value of 0 would indicate a neutral relationship. A positive correlation of +0.232 exists between prosodic and melodic accent in this sample. This value is only moderately positive, so once again the question of statistical significance arises. In this case the \( p \) value works out to less than 0.0001. In other words, there is less than one in ten thousand probability that the observed correlation came about by chance.

These results taken together suggest a moderate but statistically significant tendency, in the context of syllabic text setting, for melodic accent to coincide with and underscore prosodic accent.

With the relationship between prosodic and melodic accent established for purely syllabic contexts, one can begin to incorporate melismas into the picture. This second analysis puts aside melodic accent for the moment and focuses on melismatic accent, i.e., the durational accent accruing to a syllable when it is sung to two or more pitches.

Hypothesis 2: Melismatic accent will tend to coincide with prosodic accent. This can be alternatively stated as follows: more melismas will occur on

\[30\] For the purposes of this correlation, prosodic accents were converted to numerical values as follows: 3, 2, and 1 for primaries, secondaries, and tertiaries, respectively.
stressed syllables (primaries and secondaries) than on unstressed ones (tertiaries).

The method for testing this hypothesis is simple enough at the outset. It simply requires a tally of melismas that occur on syllables of each stress category. In order to interpret the significance of these tallies, however, one must also account for the fact that a certain number of melismas would occur by chance on each type of syllable even if the relationship between prosodic and melismatic accent were neutral. Some kind of control against which to compare the tallies is needed. Such a control was created by randomly scrambling the positions of syllables within each antiphon. This left the melodies and their essential character intact, but created a new, neutral accentual pattern under each melody.  

Figure 2.9 summarizes the results of this analysis. The chi-squared test is appropriate for this situation in which an actual, observed proportion is to be compared to a hypothetical, control proportion. In the case of primary-stressed syllables, 120 out of 506 are set to a melisma in the scrambled version; the proportion jumps to 171 out of 506 in the actual version. This represents a robustly significant increase; there is a very tiny probability ($p < 0.0001$) that this could have occurred by chance, and this argues in favor of Hypothesis 2. Putting aside secondaries for a moment, one observes that the opposite situation obtains with tertiaries: since the proportion decreases between the scrambled

31 This method was inspired by the “Method of Internal Comparison” applied by Tore Janson to *cursus* in medieval texts. See his *Prose rhythm in medieval Latin from the 9th to the 13th century* (Stockholm: Almqvist & Wiksell, 1975).
and the actual version, there is a marked tendency to avoid placing a melisma on
tertiaries. This also supports Hypothesis 2. Secondaries, however, present an unexpected
situation that runs counter to the hypothesis: there is a significant decrease in number of
melismas on secondaries. In this context, it appears that secondaries are treated similarly
to tertiaries.

These results lead to the conclusion that a distinct preference exists for setting
primary-stressed syllables to a melisma, and that a distinct preference for having both
secondaries and tertiaries avoid melismas is present as well.

Both melodic and melismatic accent have been treated in isolation; the question
now arises as to how they might interact with each other. One might put forward the
following reasonable hypothesis:

Hypothesis 3. The melodic accent within melismas is greater for stressed
syllables than for unstressed ones.

Since the multiple notes of a melisma yield multiple melodic accent values, a fair means
of operationally reducing them to a single value must be found. It was decided first to
take the mean melodic accent value for each melisma, and then to compare the mean of
the means across syllable types. In light of the non-significant results for secondaries in
the first analysis, primaries and secondaries were not considered separately, but grouped
together simply as “stressed.”

As seen in Figure 2.10.1, the mean melodic accent of melismas on stressed
syllables is 0.305, and on unstressed syllables, 0.301. A Mann-Whitney test (Figure
2.10.2) indicates that this is not a significant difference: the very high $p$ value argues strongly against accepting Hypothesis 3.

This is not to say that substantial melodic accent does not occur within melismas. On the contrary, the values here are similar to those obtained for stressed syllables under single pitches in the first analysis. This simply means that within the context of a melisma, high melodic accent values are just as likely to occur on an unstressed syllable as on a stressed one. It seems that when a melisma occurs, melodic accent becomes ambivalent with respect to prosodic accent.

In the final portion of their study on Thomassen’s model, Huron and Royal applied the model to a sample of chant from the *Liber usualis.* They concluded that prosodic and melodic accent tend not to coincide, a conclusion partially contradicted by the first analysis here and partially supported by the third analysis. A closer look at Huron’s and Royal’s methodology will resolve the dilemma. They equated prosodic accent with syllable onset, and did not further differentiate among syllables according to levels of stress. They compared the melodic accent values of pitches that coincided with syllable onsets with those that did not. In other words, they put all syllabic pitches and the first pitch of each melisma in the first group, and put all other pitches of melismas in the second group. They found that the melodic accent of the second group as a whole outweighed that of the first group, from which they concluded that the mellifluous chant style seeks to avoid any positive correspondence between prosodic and melodic accent.

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32 Huron and Royal, “What is melodic accent?”
The first analysis here, however, demonstrates that on the one hand a significant positive correspondence does exist in syllabic contexts, because it accounts for the varying levels of stress in Latin words. On the other hand, comparison of the “all” category both in Figure 2.8.1 (syllabic contexts) and in Figure 2.10.2 (melismatic contexts) corroborates the findings of Huron and Royal; the mean melodic accent in purely syllabic instances is 0.250, as compared to 0.303 in melismatic contexts.33 The series of three analyses taken together, though, leads to a different conclusion as to the significance of this observation. The style represented by this sample of antiphons does entail a positive coordination of prosodic and melodic accent (as shown by the first analysis), and a positive coordination of prosodic and melismatic accent (as shown by the second analysis). The occurrence of a melisma, however, appears to obliterate any distinction between levels of stress with respect to melodic accent (as shown by the third analysis), and furthermore, melismatic pitches as a group tend to have greater melodic accent than syllabic pitches.

The foregoing analyses have uncovered certain trends in the sample of 58 chants. As a fourth and final analysis, it will be instructive to consider a few individual chants against the backdrop of these trends.

The antiphon “Veritas de terra” (see Figure 2.11), sung during Matins on Christmas Day, shows the highest positive correlation between prosodic and melodic

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33 The current study differs from Huron and Royal with respect to the role of the first pitch of a melisma. Their study includes such pitches in the group of pitches coinciding with syllable onsets, whereas this study includes such pitches in the group of all melismatic pitches. This difference of approach does not appreciably effect the interpretations offered here concerning the essential concordance of the two studies on this specific point.
accent in the sample, at +.645.\textsuperscript{34} Figure 2.11 lays out an analysis of the chant that helps one visualize the high correlation. Columns 1 to 4 track the progress of the chant in terms of pitch, melodic accent, syllable, and prosodic accent. Column 5 tracks the direction of change (\(\Delta\)) in both melodic accent (column 2) and prosodic accent (column 4) as each new pitch occurs in turn. Column 6 reinterprets column 5 such that two downward changes (– –) or two upward changes (+ +) results in a positive (+) correspondence, a downward and an upward change (+ – or – +) results in a negative (–) correspondence, and no change (0) in either or both terms results in a neutral (0) correspondence. This method provides a rough but comprehensible analogue to the process of calculating a correlation coefficient. In the resulting list in column 6, the positive correspondences significantly outnumber the negative ones by eleven to one, with six instances of a neutral correspondence. If one were seeking evidence for a strong correspondence between prosodic and melodic accent, this chant could be selected as a prime example.

If one were seeking evidence for the opposite conclusion, however, a contrasting example is not difficult to find (see Figure 2.12). The antiphon “Omnipotens sermo tuus Domine,” sung at Vespers on the Fourth Sunday of Advent, has the highest negative correlation in the sample: -0.246. As seen in Figure 2.12, the negative correspondences outnumber the positive ones by seven to four in this chant, with eight neutral instances.

\textsuperscript{34} Prosodic accents were converted to numerical values in the same manner as described in fn. 30. Both syllabic and melismatic pitches factor in to this correlation and the others to follow. For each pitch in a melisma, the prosodic accent value of the corresponding syllable was simply repeated in order to ensure that every melodic accent value was paired with a prosodic accent value.
Finally, the chant shown back in Figure 2.7 more closely reflects the state of the sample as a whole, as compared to the outliers just presented. “Facta est cum Angelo,” sung at Lauds on Christmas Day, shows a moderately positive correlation of +.120. Prosodic and melodic accent are at odds in some places, but in just as many places and then some more, they cooperate.

On a cautionary note, one should be cognizant of the limitations of the foregoing analyses. First, they deal only with the aspects of music that can easily be gleaned from written sources, namely text and melodic contour. Other performative aspects surely play a role in the perception of chant, but these aspects are simply too ephemeral to incorporate. Second, one should bear in mind that these results are based on one sample of a single chant genre. Different principles may be in effect in other genres.

Further reflections on the fourth analysis concerning individual chants will serve to conclude this chapter. That analysis aimed to concretize the generalities offered in the previous ones, but it also had the ulterior motive of demonstrating that it is not a difficult task to select examples in support of one’s preconceived notions. Without casting undue aspersions on the legacies of chant scholars, this may help to explain the radical difference in conclusions reached by various of them (see Figure 2.2). Their conclusions may be conditioned to some degree by the spirit of the times in addition to the evidence offered by the chants themselves. In this author’s opinion, Willi Apel stands as a conspicuous exception to this criticism. His approach to the issue in the pages of *Gregorian Chant* reveals the impulses of a systematizer, and of one who genuinely
wishes the chants to speak for themselves rather than of one who seeks to impose his interpretation on them. Although the models and methods differ substantially, the present chapter can be taken as an attempt to replicate and refine Apel’s study. In fact, these two studies converge on similar conclusions. Apel concluded that melodic accent played an important role with respect to prosodic accent in plainchant, but that it achieves nowhere near the status of a universal law. The results of this study suggest a similar conclusion: a positive correspondence between prosodic and melodic accent is present in moderation, and only in purely syllabic contexts. These results run counter to claims made by the more recent contributors to the discussion, namely that the relationship between prosodic and melodic accent is entirely neutral. The coordination of the melodic contour with the accentual pattern of the text appears to be a significant feature of plainchant, but only in balance with many other expressive, musical, and textual impulses.
<table>
<thead>
<tr>
<th># of syllables</th>
<th>paroxytones</th>
<th>proparoxytones</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>lác</td>
<td>et</td>
</tr>
<tr>
<td>2</td>
<td>pá - ter</td>
<td>su - per</td>
</tr>
<tr>
<td>3</td>
<td>in - dú - cas</td>
<td>lí - be - ra</td>
</tr>
<tr>
<td>4</td>
<td>sà - lu - tá - re</td>
<td>di - mít - ti - mus</td>
</tr>
<tr>
<td>5</td>
<td>ten - tà - ti - ó - nem</td>
<td>dè - bi - té - ri - bus</td>
</tr>
<tr>
<td><em>or:</em></td>
<td>màn - i - fes - tá - bit</td>
<td></td>
</tr>
</tbody>
</table>

*etc.*

**Figure 2.1:** Examples of Latin accentuation. Acute accent (é) indicates primary stress, grave accent (è) indicates secondary stress, and lack of either indicates tertiary stress (i.e., an “unstressed” syllable).
<table>
<thead>
<tr>
<th>author (date)</th>
<th>definition of melodic accent</th>
<th>view on relationship between prosodic and melodic accent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mocquereau (1894)</td>
<td><img src="image1" alt="Diagram" /> or <img src="image2" alt="Diagram" /></td>
<td>strong relationship</td>
</tr>
<tr>
<td>Wagner (1921)</td>
<td><img src="image3" alt="Diagram" /></td>
<td>fundamental law</td>
</tr>
<tr>
<td>Ferretti (1934)</td>
<td><img src="image4" alt="Diagram" /></td>
<td>difficult to pin down universal law, subject to certain exceptions</td>
</tr>
<tr>
<td>Johner (1953)</td>
<td><img src="image5" alt="Diagram" /> or <img src="image6" alt="Diagram" /></td>
<td>strong relationship</td>
</tr>
<tr>
<td>Apel (1958)</td>
<td><img src="image7" alt="Diagram" /> -&gt; <img src="image8" alt="Diagram" /> or <img src="image9" alt="Diagram" /> or <img src="image10" alt="Diagram" /></td>
<td>plays a role but is not a universal law</td>
</tr>
<tr>
<td>Hoppin (1978)</td>
<td>none, but consider: <img src="image11" alt="Diagram" /></td>
<td>neutral; this is not a fruitful line of inquiry</td>
</tr>
<tr>
<td>Stevens (1986)</td>
<td>ø</td>
<td>irrelevant</td>
</tr>
<tr>
<td>Bailey (1990)</td>
<td>ø</td>
<td>the question itself is mere Romanticism</td>
</tr>
<tr>
<td>Hiley (1993)</td>
<td>ø</td>
<td>ø</td>
</tr>
</tbody>
</table>

**Figure 2.2:** Overview of previous treatments of the relationship between prosodic and melodic accent. The diagrams in the middle column represent basic three-note melodic contours, with the apostrophe indicating locations of melodic accent.
Figure 2.3: The nine possible three-note contours used in Thomassen’s melodic accent experiment.

Figure 2.4: Sample pair of stimuli in Thomassen’s melodic accent experiment.
Figure 2.5: Melodic accent values for the nine basic motifs in Thomassen’s melodic accent model.

Figure 2.6: Final calculations in Thomassen’s melodic accent model. The final accent value is determined as the arithmetic product of overlapping values in a three-note moving window.
Figure 2.7: The antiphon “Facta est cum Angelo.” The text, from Luke 2:13-14 of the Vulgate, can be translated as: “A great company of the heavenly host appeared with the angel, praising God and saying, ‘Glory to God in the highest, and on earth peace to men on whom his favor rests.’”
Table 1: Mean melodic accent by syllable type.

<table>
<thead>
<tr>
<th>syllable type</th>
<th>mean melodic accent</th>
<th># syllables</th>
</tr>
</thead>
<tbody>
<tr>
<td>primary</td>
<td>0.336</td>
<td>335</td>
</tr>
<tr>
<td>secondary</td>
<td>0.319</td>
<td>45</td>
</tr>
<tr>
<td>tertiary</td>
<td>0.205</td>
<td>698</td>
</tr>
<tr>
<td>all</td>
<td>0.25</td>
<td>1078</td>
</tr>
</tbody>
</table>

Table 2: Probability ($p$) values from Mann-Whitney test to assess significance of differences in melodic accent among syllable types.

<table>
<thead>
<tr>
<th>syllable comparison</th>
<th>$p$</th>
<th>comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>primary, secondary</td>
<td>0.799</td>
<td>not significant</td>
</tr>
<tr>
<td>primary, tertiary</td>
<td>&lt; 0.0001</td>
<td>significant</td>
</tr>
<tr>
<td>secondary, tertiary</td>
<td>0.0076</td>
<td>significant</td>
</tr>
</tbody>
</table>

Figure 2.8: First analysis: melodic accent in purely syllabic instances (i.e., excluding melismas). Table 1: Mean melodic accent by syllable type. Table 2: Probability ($p$) values from Mann-Whitney test to assess significance of differences in melodic accent among syllable types.

<table>
<thead>
<tr>
<th>syllable type</th>
<th>melismas : syllables</th>
<th>chi-squared</th>
<th>comment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>control *</td>
<td>actual</td>
<td>$p$</td>
</tr>
<tr>
<td>primary</td>
<td>120 : 506</td>
<td>171 : 506</td>
<td>&lt; 0.0001</td>
</tr>
<tr>
<td>secondary</td>
<td>19 : 51</td>
<td>6 : 51</td>
<td>0.005</td>
</tr>
<tr>
<td>tertiary</td>
<td>278 : 938</td>
<td>240 : 938</td>
<td>0.042</td>
</tr>
</tbody>
</table>

*derived by random scrambling of syllable positions

Figure 2.9: Second analysis: melismatic accent. Comparison by syllable type of the number of melismas (melismatic accents) in actual sample against a randomly-scrambled (control) sample.
### Table 1: Mean melodic accent within melismas for stressed and unstressed syllables.

<table>
<thead>
<tr>
<th>syllable type</th>
<th>mean melodic accent within melismas</th>
<th># of notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>stressed</td>
<td>0.305</td>
<td>425</td>
</tr>
<tr>
<td>unstressed</td>
<td>0.301</td>
<td>524</td>
</tr>
<tr>
<td>all</td>
<td>0.303</td>
<td>949</td>
</tr>
</tbody>
</table>

### Table 2: Probability ($p$) value from Mann-Whitney test to assess significance of difference between melodic accent values for stressed and unstressed syllables.

<table>
<thead>
<tr>
<th>comparison</th>
<th>$p$</th>
<th>comment</th>
</tr>
</thead>
<tbody>
<tr>
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**Figure 2.10:** Third analysis: melodic accent within melismas. Table 1: Mean melodic accent within melismas for stressed and unstressed syllables. Table 2: Probability ($p$) value from Mann-Whitney test to assess significance of difference between melodic accent values for stressed and unstressed syllables.
Figure 2.11: Individual analysis of the antiphon “Veritas de terra.” The text, from Psalm 84: 12 in the Vulgate, can be translated as “Faithfulness springs forth from the earth, and righteousness looks down from heaven.” The correlation between prosodic and melodic accent in this antiphon is +0.645.
Figure 2.12: Individual analysis of the antiphon “Omnipotens sermo tuus Domine.” The text can be translated as “Your almighty word, O Lord, shall come from your royal throne, alleluia.” The correlation between prosodic and melodic accent in this antiphon is -0.246.
**Figure 2.12:** continued

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CHAPTER 3

THE COUNCIL OF TRENT AND HISTORICAL HIGHLIGHTS OF THE PLAINCHANT REFORM FROM 1568 TO 1615

By examining Gregorian chant in its medieval state, the previous chapter contributed to an understanding of the musical style that was found to be in need of reform in the 16th century. The present chapter narrates a history of chant reform, first drawing out relevant episodes from the Council of Trent and then focusing on key chant publications, using the Breviary of 1568 and the second volume of the *Editio Medicaea* of 1615 as bookends. Its purpose within this study as a whole is to provide an historical context for the analyses of reform chant that follow in subsequent chapters.

Within a few decades of 1517, the year Martin Luther sparked the Protestant Reformation by posting his 95 theses to the door of the Wittenberg Cathedral, the Catholic Church found itself in a state of crisis. In response to the perceived threat of the rapid increase in the ecumenical and political power of the Reform movement, Pope Paul III (pontificate 1534-49) issued a bull in 1536 to convene the 19th Ecumenical Council of the Western Church, more commonly known as the Council of Trent.¹ Before the

Council could begin, the issue of location had to be settled. Participants came from all corners of Christendom; various parties proposed locations congenial to them, but in the end they settled upon the small town of Trent,\textsuperscript{2} then part of Austria but now in northern Italy. The Council finally convened nine years after the Pope called for it, on 13 December 1545.

The Council of Trent inaugurated what has come to be known as the Counter-Reformation. While the primary motivation for the Council may indeed have been to stem the rising tide of Protestantism, recent scholarship has also situated it in the wider context of a long and rich history of internal impetus toward reform. As Craig Monson writes, “the Council is no longer perceived as an ultimately decisive event, which by its decrees effectively turned Catholicism aside from centuries of corruption, but as a primary episode in several hundred years of reform.”\textsuperscript{3} Hubert Jedin, for instance, proposes the term “Catholic Reformation-Counter Reformation” to recognize the plurality of reform movements within Catholicism.\textsuperscript{4} Dealing specifically with the issue of liturgical music, Karl Gustav Fellerer identifies the pronouncements of various local

\textsuperscript{2} Edith Weber, 	extit{Le Concille de Trente et la Musique} (Paris: Librairie Honoré Champion, 1982), 68.


councils, beginning with the Council of Basel in 1503, as precursors to the Tridentine Council’s treatment of music. Monson expands on this idea:

When it came to music . . . the pronouncements of the more reform-minded participants at Trent seem less a reaction to Protestantism than a continuation of the reform tradition extending back substantially before the Council. In this respect, interest in musical reform at the Council was part of long-standing concerns with Catholic reform and renewal . . .

In fact, as Marco Gozzi argues, the impetus toward liturgical reform can be traced at least as far back as the end of the 14th century, if one is to judge by the numerous pronouncements of various popes, bishops, synods, and councils from that time forward.

The Council of Trent lasted from 1545 to 1563. This does not represent a full 18 years of meetings; rather, it encompasses three separate convocations of the Council that each lasted for a year or two (1545-47, 1551-52, and 1562-63). Each convocation consisted of several sessions; 17 of the 25 total sessions featured actual deliberation and resulted in official pronouncements, and the remainder were devoted to elaborate formal openings and closings and the like.

Although the Council of Trent features prominently in standard music-history texts for its effect on the subsequent direction of sacred music, the issue of music took up

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6 Monson, The Council of Trent Revisited, 4.


8 Weber, Le Concile de Trente et la Musique, 70.

9 Monson, The Council of Trent Revisited, 3 (footnote 4).
relatively little of the Council’s time. The delegates had to grapple first of all with the serious doctrinal and administrative issues raised by the Protestants. It was not until the final few sessions that music came up (the 22nd, 24th, and 25th). The goals of the Catholic reformers with regard to musical performances in the church can be distilled to these few: promoting an attitude of reverence and propriety on the part of the performers, removing “profane” or secular elements from the music, and ensuring the intelligibility of the text. The second goal would prohibit, for instance, the performance of masses based in some way on a popular tune or secular composition. The third goal would directly affect certain composers’ polyphonic approaches to setting sacred texts to music, and would also affect the long and ongoing tradition of liturgical monophony.

During the 22nd session (September 1562), the following draft for a canon (rule) was put forward for general discussion:

Canon 8. Since the sacred mysteries should be celebrated with utmost reverence, with both deepest feeling toward God alone, and with external worship that is truly suitable and becoming, so that others may be filled with devotion and called to religion: . . . Everything should indeed be regulated so that the Masses, whether they be celebrated with the plain voice or in song, with everything clearly and quickly executed, may reach the ears of the hearers and quietly penetrate their hearts. In those Masses where measured music [i. e., polyphony] and organ are customary, nothing profane should be intermingled, but only hymns and divine praises. If something from the divine service is sung with the organ while the service proceeds, let it first be recited in a simple, clear voice, lest the reading of the sacred words be imperceptible. But the entire manner of singing in musical modes [i. e., polyphony] should be calculated, not to afford vain delight to the ear, but so that the words may be comprehensible to all; and thus may the hearts of the listeners be caught up into the desire for celestial harmonies and contemplation of the joys of the blessed.10

10 Translated by Monson in The Council of Trent Revisited, 9.
After the debates, however, this wording was severely reduced. In the company of various prohibitions against *abusus Missae* (abuses of the Mass) in the final *Decretum de observandis et evitandis in celebratione missarum* (Decree concerning the things to be observed and avoided in the celebration of the mass), stand these words: “Let them keep away from the churches compositions in which there is an intermingling of the lascivious or impure, whether by instrument or voice.”¹¹ Apparently the delegates wanted to keep the prohibitions against the long list of abuses short and general, and so all references to reverent behavior and textual intelligibility have been purged. Monson points out that in most secondary musicological literature on this episode, writers conflate “Canon 8” and the final decree without recognizing or acknowledging that the former was a draft that was never actually adopted.¹²

Not all were happy with this outcome of the 22nd session, however. Certain delegates worked behind the scenes to revive the issue during the 24th session (November 1563). This time, the decree includes a general exhortation to reverence, but again does not articulate a view on the issue of textual intelligibility:

> Canon 12. Because worthy offices in churches, particularly cathedrals, were established to preserve and strengthen ecclesiastical discipline, so that those who hold them might distinguish themselves for piety, set an example for others, and assist bishops by their works and service: it is fitting that those called to them ought to be the sort who could meet their obligation. . . . Let them all be required to attend divine services and not by substitutes; and to assist and serve the bishop when celebrating or carrying out other pontifical functions, and to praise the name

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¹¹ Translated by Monson in *The Council of Trent Revisited*, 11.

of God reverently, clearly, and devoutly in hymns and canticles in a choir established for psalmody. They shall, furthermore, always adopt appropriate attire, both in and out of church, shall abstain from unlawful hunting, bird catching, dancing, taverns, and play, and they shall be so rich in purity of moral character as to be justly called the senate of the church. With regard to the proper direction of the divine offices, concerning the proper manner of singing or playing therein, the precise regulation for assembling and remaining in choir, together with everything necessary for the ministers of the church, and suchlike: the provincial synod shall prescribe an established form for the benefit of, and in accordance with, the customs of each province. In the interim, the bishop, with no less than two canons, one chosen by himself, the other by the chapter, may provide in these matters as seems expedient.  

A significant new element appears in this canon: responsibility for specific regulations concerning musical matters is passed on to the provincials synods and bishops. The working out of this responsibility at the local level would have as great an impact on music as anything the Council itself decreed, and it ensured the diversity of post-Tridentine musical practice.  

During the 25th session (December 1563) an attempt was made to ban the use of professional musicians and polyphony in certain convents. Supporters of nuns’ music won the day, however, for in the decrees of this 25th and final session of the Council of Trent, all mention of the issue was dropped.  

Although the issue of textual intelligibility found no home in official conciliar decrees, it was “in the air” both during and after the Council. References to the topic found their way back in to later editions of the Acts of the Council; some provincial

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13 Translated by Monson in *The Council of Trent Revisited*, 18.


synods, taking up the responsibility passed to them in the 24th session, issued decrees on
the topic; new editions of polyphony with conspicuously improved textual clarity
appeared under the rubric “Iuxta Formam Concilii” (according to the form of the
Council).16 In fact, as Monson asserts, “[w]ithin a few years of the Council’s conclusion,
the issue of textual intelligibility in sacred music had thus come to be taken for granted as
part of its reforms.”17

While the new concern for textual clarity is often invoked when evaluating
polyphonic pieces composed by the likes of G. P. da Palestrina and Vincenzo Ruffo, it
also has important implications for the post-Tridentine reform of the Gregorian chant
repertoire. It combined with a more general humanistic concern for proper declamation
and correct accentuation to create a chant reform movement that radically recast the
traditional melodies and profoundly reconfigured the relationship between text and
music.

A precipitating event for this substantial reform of plainchant was the church’s
revision of liturgical books. By the 16th century, numerous errors, both musical and
textual, had crept into these books. Many singers simply repeated the errors because they
lacked the necessary knowledge of music or Latin to correct them, and so the liturgical
services could devolve into risible spectacles. Concern over this state of affairs was
expressed by Friedrich Nausea von Waischenfeld (a.k.a. Blancicampianus), Bishop of

16 Monson, The Council of Trent Revisited, 22, 26.
17 Monson, The Council of Trent Revisited, 27.
Vienne, in a 1543 letter to Pope Paul III in which he suggests various issues to be taken up by the Council of Trent. His worries over the situation are excerpted as follows:

The first abuse of these singers arises from the fact that many of them do not even know one note from another, as they say, and are in fact unskilled in any phase of music. Therefore they teach through substitute assistants—a course of action not without its derision and mockery from the people.

The second abuse, coming from the first, is that there is no care in them as to whether there are either corrected or uncorrected musical books, even daring to use them in church. But since even one vowel, incorrectly written, is able to make the sense of the words perverse and heretical, therefore those most important books which are accustomed to be used, which they call Missals and Breviaries, ought to be most carefully written and edited.

. . . Let them take care that they use in Choir only corrected books, and let them not use any other chants than those which are taken from Scripture or at least are not contrary to it.18

The Council first dealt with these specific concerns of the Bishop during the 4th session of its first convocation. This session focused on the Scriptural canon (i. e., which texts were to be included in the Bible) and on the usage of service books in celebrating the liturgy.19 The idea of a new, universal Missal that would be used throughout the entire Church was raised at this session, but no conclusion was reached.20 Apparently many felt that they did not have enough information on this and related matters, so they formed a commission to investigate abuses in the Mass, whose work finally resulted in the above-mentioned Decretum de observandis et evitandis in celebratione missarum (Decree concerning the things to be observed and avoided in the celebration of the mass)


at the third convocation many years later. During the first convocation, the Council officially adopted the Vulgate, the Latin translation of the Bible by Jerome (347-420), in spite of the many mistranslations pointed out by Protestant reformers and humanists. In so doing, the Council implicitly affirmed the use of Latin rather than any vernacular language in the celebration of the Mass, an affirmation made official much later in the 22nd session.21

Concerns for the correctness of liturgical books came up again in connection with the third conciliar convocation. Among the petitions presented in May of 1562 by representatives of the Holy Roman Emperor for consideration at the Council, appear the following statements:

Services are currently performed, prayers are said, and psalms are sung laughably, negligently, irreverently, and so fast as to be unintelligible even to the performers. The church hierarchy ought therefore to consider how to correct this, so that what is said or sung will be pronounced correctly, distinctly, slowly, and with respectful gravity. Since many faults have crept into the church’s songs and prayers, service books should be reviewed and corrected so that nothing is read, sung, offered in prayer, or presented to the people that does not appear in scripture or is not proper according to the Church Fathers or accepted church histories. If lengthy prayers and songs provoke inconsiderate haste in performing the service, that tedious longwindedness should be cut back. Better five psalms sung in peace and joy than the entire psalter in sadness and anxiety.22

The Council dealt indirectly with the issues surrounding liturgical books, by giving the Pope the responsibility for seeing to the publication of a new, carefully emended Missal

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22 As translated and summarized in Monson, *The Council of Trent Revisited*, 32.
and Breviary. In 1564, shortly after the conclusion of the Council, Pope Pius IV (pontificate 1559-65) accordingly formed a commission to reform these books.

The new Breviary was published in July 1568, “Ex Decreto Sacrosancti Concilii Tridentini restitutum, Pii V Pont. Max. iussu editum” (restored by decree of the most holy Tridentine Council, published by order of the Supreme Pontiff Pius V). Figure 3.1 shows the title page of this new edition of the texts for performing the Divine Office (it contains only a few notated chants at the end). The new Missal appeared a few years later in July 1570, again “Ex Decreto Sacrosancti Concilii Tridentini restitutum, Pii V Pont. Max. iussu editum”. Figure 3.2 shows the title page of this new edition of the texts for performing the Mass. Concurrent with the publication of the Missal, Pius V (pontificate 1566-72) issued a bull making the Missal and Breviary obligatory for all dioceses and cloisters, with the exception of those that could show an established, local tradition at least 200 years old. Gozzi notes that only the printing press, still relatively new at that time, could make the unprecedented notion of mandating a uniform liturgical practice even conceivable. Not every church purchased a copy of these and subsequent editions.

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revised editions of liturgical books, however. In some cases, a church would correct its existing books by hand to bring them into conformity.\textsuperscript{27}

To carry out the revisions, the commission had consulted old manuscripts in the Vatican Library, in order to restore the Breviary and Missal to a pristine state.\textsuperscript{28} Weber claims that the work was hasty, however, and that these liturgical books were not adequately purged of errors until later editions.\textsuperscript{29} Minor emendations were performed on the texts in an attempt to return them to a purer state of Latin; a more substantial revision came in the form of the liturgical repositioning of many items.\textsuperscript{30} Last, but certainly not least in terms of historical significance, the large repertoire of medieval sequences was dropped from the liturgy at this time, leaving only four (\textit{Victimae Paschali laudes}, \textit{Veni Sancte Spiritus}, \textit{Lauda Sion}, and \textit{Dies irae}).\textsuperscript{31}

The publication of the revised Breviary and Missal set off a domino effect. It was not long before the Church felt that other liturgical books, especially the Antiphonal and the Gradual (with notated chants for the Office and Mass, respectively), ought to be revised as well in order to bring them into agreement with the Breviary and Missal. It would be some time, however, before such books, officially commissioned by the

\textsuperscripts
\begin{itemize}
  \item Gozzi, \textit{Le editioni liturgico-musicali}, 39.
  \item Pfaff, \textit{Die liturgische Einstimmigkeit}, 51.
  \item Weber, \textit{Le Concile de Trente et la Musique}, 117, 125.
  \item Gozzi, \textit{Le editioni liturgico-musicali}, 39.
  \item Emerson with Bellingham and Hiley, “Plainchant.”
\end{itemize}
Church, were published. In the meantime, printing privileges were granted to entrepreneurial individuals who put out “private editions” of liturgical books, that is, editions not directly commissioned by the Church, but allowed by it through the granting of privileges.

One such individual was Giovanni Domenico Guidetti (1531-1592), a pupil and friend of Palestrina’s. He served as a Chaplain to Pope Gregory XIII (pontificate 1572-1585) and is known to have been a singer in the papal chapel in 1575.\(^{32}\) He received a privilege in 1582 specifically for the printing of chant books in formats such as quarto that were smaller than the customary folio size.\(^{33}\) He wasted no time: that same year, he edited and had published his *Directorium chori ad usum Sacrosanctae Basilicae Vaticanae et aliarum Cathedralium et Collegiatarum Ecclesiarum* (Choir Directory according to the Use of the Holy Vatican Basilica and other Cathedrals and Collegiate Churches).\(^{34}\) The title conspicuously advertises that his edition represents the tradition of the major Roman churches. Interestingly, the title page, as seen in Figure 3.3, makes no mention of the Council of Trent, though Guidetti did carry out a significant reform of the material. The historical significance of the *Directorium chori* lies not only in the nature of Guidetti’s revision, as will be discussed, but also in the fact that it was the “first

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complete post-Tridentine chant book”\textsuperscript{35} and that it served as a model for other chant editions in the centuries to follow.\textsuperscript{36}

As the 1909 edition of the Catholic Encyclopedia relates, “\textit{directorium} simply means guide, but in the later Middle Ages it came to be specially applied to guides for the recitation of Office and Mass”.\textsuperscript{37} Guidetti’s \textit{Directorium chori} aimed to be a practical guide for those who performed the Divine Office from day to day; it contains all the items necessary for that (antiphons, hymns, psalm tones, etc.) in a compact, easy-to-use format. For most items it only gives an incipit or a single verse; at first this would seem to strictly limit its usefulness, until one realizes that it is a mnemonic aid for the singers instead of a full accounting of the repertoire.\textsuperscript{38} As such it does not replace other chant books such as the Antiphonal, rather it acts as a handy “quick reference guide” for the Office chants.

In the editing of the \textit{Directorium chori}, Guidetti was conservative with regard to melodic content but progressive with regard to rhythmic interpretation. He based the melodies on the older traditions of Rome. As he wrote in the Preface, he had consulted various manuscripts found in the Vatican Basilica as well as some newer Antiphonals.\textsuperscript{39}

\textsuperscript{35} Emerson with Bellingham and Hiley, “Plainchant.”

\textsuperscript{36} Hayburn, \textit{Papal Legislation}, 44.


\textsuperscript{38} Gozzi, \textit{Le edizione liturgico-musicali}, 24.

\textsuperscript{39} Molitor, \textit{Nach-Tridentinische Choral-Reform}, II, 3.
He did not substantially alter the melodic content as some later editors would, but he did give the melodies a new rhythmic overlay. In fact, Guidetti’s work is most often cited for its innovative proportional notation. In the Preface, he explains the system of four note shapes: a lozenge is a semibreve of half a tempus, a square is a breve of one full tempus, a square with a semicircle above it is like an imperfect longa of one-and-a-half tempora, and a square with a dotted semicircle above it (looks like a fermata to modern eyes) is like a longa of two full tempora.\textsuperscript{40} Traditional neume forms do not appear, although the breves in a string of breves on a single syllable (i.e., a melisma) are placed flush against each other as if ligated. In editions of the \textit{Directorium chori} subsequent to Guidetti’s death, with the responsibility for them having passed to other parties, the number of discrete note shapes was reduced to three. Both the square-with-semicircle and square-with-dotted-semicolon were replaced by a single symbol, the virga, representing the duration of a longa. This did not alter the rhythms, though, because, according to context, the longa could represent either two tempora (if it were followed by a breve or a barline), or one and a half tempora (if it were followed by a semibreve). The four-note system, although completely context-independent and thus perfectly clear, had been idiosyncratic to Guidetti. The three-note system adopted the standard context-dependency of mensural notation, and brought the work into conformity with other rhythmic chant notations of the time.\textsuperscript{41}

\textsuperscript{40} See Hiley, \textit{Western Plainchant}, 616, or Hiley and Szendrai, “Notation,” for an example.

\textsuperscript{41} See Gozzi, “Le edizioni liturgico-musicali.”
Guidetti sought to bolster the prestige of the *Directorium chori* through association with Palestrina. He writes in the Preface that although he had made use of authoritative sources, he did not want to rely solely on these or on his own judgment. So he “gave the complete work for inspection and correction to Ioanne Petro Aloisio Praenestino [i.e., Palestrina], our *maestro di capella* and a man pre-eminent in the art of music who, with his natural humanity, proved not unwilling to lend me his opinion, so that I believe this book to be the best and most correct of its kind possible”.42 In this way Palestrina lent his seal of approval to Guidetti’s efforts.

On account of its wide availability and convenience, the *Directorium chori* was well received and was adopted by a number of dioceses.43 Guidetti’s rhythmicization of the chant may seem radical, but if he were in fact proposing a bold new interpretation, one would expect more resistance to it from the intended users. It seems unlikely that Guidetti, as an entrepreneur, would have taken such an enormous financial risk. Instead, it appears that his new edition reflected current performance practice, at least in some locations. Lockwood, O’Regan, and Owens assert that Guidetti’s rhythmic interpretation “can be assumed to reflect performance practice in Palestrina’s Cappella Giulia”.44 If this is true, the *Directorium chori* merely systematized what singers were already doing, and Guidetti must have calculated that they would appreciate his edition. This view is


43 Hayburn, *Papal Legislation*, 44.

44 Lockwood, O’Regan, and Owens, “Palestrina.”
further supported by the fact that he gave only incipits: if the interpretation were truly new and different, the singers would need complete renditions rather than short reminders.

After the first publication of the *Directorium chori*, Guidetti also edited and had published in Rome books of chants for the Passion (*Cantus ecclesiasticus passionis*, 1584) and for Holy Week (*Cantus ecclesiasticus officii maioris hebdomadae*, 1587), and finally a book of Mass prefaces (*Praefationis in cantu fermo*, 1588). These later works followed the same editorial principles as the *Directorium chori*.

If Guidetti’s seminal *Directorium chori* of 1582 can be regarded as the first blossom of the post-Tridentine chant reform movement, then the *Editio Medicaea* of 1614-15, also known as the Medicean Gradual, comprises its mature fruit. This edition more than any other has come to represent the reform movement as a whole. The Medicean Gradual survived many historical vicissitudes and finally appeared in the second decade of the 17th century, but its genesis can be traced back to 1577, even before Guidetti’s first efforts.

As mentioned above, the revised texts of the new Breviary and Missal (1568 and 1570, respectively) prompted revision of liturgical editions with music (principally the Gradual and Antiphonal, but others as well), for the sake of consistency. Accordingly, in 1577, Pope Gregory XIII appointed Palestrina and Zoilo to the task of revising the full gamut of notated chant books. At that time, Palestrina was working as choirmaster of the
Cappella Giulia at St. Peter’s Basilica in Rome, while Annibale Zoilo (1540?-1592) had just resigned his post as singer in the Cappella Sistina, the papal chapel. Gregory XIII wrote the following letter to the two musicians:

Beloved sons:

Greetings and apostolic benediction!

Inasmuch as it has come to our attention that the Antiphoners, Graduals, and Psalters that have been provided with music for the celebration of the divine praises and offices in plainsong (as it is called) since the publication of the Breviary and Missal ordered by the Council of Trent have been filled to overflowing with barbarisms, obscurities, contrarieties, and superfluities as a result of the clumsiness or negligence or even wickedness of the composer, scribes, and printers: in order that these books may agree with the aforesaid Breviary and Missal, as is appropriate and fitting, and may at the same time be so ordered, their superfluities having been shorn away and their barbarisms and obscurities removed, that through their agency God’s name may be reverently, distinctly, and devoutly praised; desiring to provide for this in so far as with God’s help we may, we have decided to turn to you, whose skill in the art of music and in singing, whose faithfulness and diligence, and whose piety toward God have been fully tested, and to assign to you this all-important task, trusting confidently that you will amply satisfy this desire of ours. And thus we charge you with the business of revising and (so far as shall seem expedient to you) of purging, correcting, and reforming these Antiphoners, Graduals, and Psalters, together with such other chants as are used in our churches according to the rite of the Holy Roman Church, whether at the Canonical Hours or at Mass or at other divine services, and over all of these things we entrust you for the present with full and unrestricted jurisdiction and power by virtue of our apostolic authority, and in order that you may pursue the aforesaid more quickly and diligently you have our permission to admit other skilled musicians as assistants if you so desire. The Apostolic Constitutions and any other regulations that may be to the contrary notwithstanding. Given at St. Peter’s in Rome under Peter’s seal this twenty-fifth day of October, 1577, in the sixth year of our pontificate.

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45 Lockwood, O’Regan, and Owens, “Palestrina.”

To our beloved sons Giovanni Pierluigi da Palestrina and Annibale Zoilo Romano, musicians of our private chapel.\textsuperscript{47}

With this letter, the Pope gave Palestrina and Zoilo a virtual \textit{carte blanche}. He entrusted them with “full and unrestricted jurisdiction and power” for “the business of revising and (so far as shall seem expedient to you) of purging, correcting, and reforming” the various notated chant books. Not only did he charge them with bringing the various books into conformity with the revised texts of the Breviary and Missal, a relatively minor task, but also with a complete overhaul that would remove all “barbarisms, obscurities, contrarieties, and superfluities” from the books. The list of faults beginning with “barbarisms” clearly reveals the influence of the humanist agenda,\textsuperscript{48} promoted of Gregory’s own accord or through the urging of individuals who had his ear.

According to Molitor, Palestrina and Zoilo divided up the labor and worked separately: Palestrina on the Proper of the Time for the Gradual, and Zoilo on the Proper of the Saints for the Gradual and on the Antiphonal. The only known reference by Palestrina himself to his work on the chants appears in a letter to Guglielmo Gonzaga, Duke of Mantua, dated 5 November 1578. The letter primarily concerns the masses he was writing for the duke, and only mentions his work on the Gradual in passing near the end:


To my most serene Lord and Master, the most learned Duke of Mantua and Monferrato, at Mantua:

Most Serene Prince:

Your Highness will receive the enclosed Mass, which I composed during my convalescence. God only knows that when the *cantus firmi* were brought to me, I was much more concerned with being of service to Your Excellency than about my illness. Now I will take care of the others, with all careful study, so that they may have the parts which Your Highness wishes.

In composing this Mass, I have transposed the *cantus firmus* now a fifth above, and then an octave, in order that it might result in a more cheerful effect, than if transposed by the interval of a fourth.

This other will not need the help of the Madonna in order to be authentic in itself. It will be a very great favor for me to obtain the remainder of the *cantus firmi*, so that thus well purged of barbarisms and bad sounds, and if Your Highness will be satisfied, we can send them to the printer with the Gradual which Our Lord (the Pope) has ordered that I correct.

There being nothing else that I need, I kiss most humbly Your Highness’ hand, invoking for Your Highness, from Our Lord God, every greatness and a long and lasting life.

From Your Most Serene Highness’ most humble and most devoted servant.

Gio. Petro Loysio

Palestrina had suffered a serious illness during 1578, but was able to continue work during his recovery period. During this year he was engaged not only with the reform of the Gradual, but with composing a special set of masses for the Duke of Mantua. These were unique in Palestrina’s mass output, as they were *alternatim* settings, i.e., alternating sections of plainchant with sections of polyphony. So the *cantus firmi* to which he refers in the letter are those chants specific to the so-called “Mantuan masses,” not to the Gradual as such. The “barbarisms and bad sounds” were thus to be purged from these

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49 Translated in Hayburn, *Papal Legislation*, 37-38. The original text can be found in Molitor, *Nach-Tridentinische Choral-Reform*, I, 300.

specific chants, though presumably he had adopted the same approach to the chants of the Gradual as a whole. Upon completion of the mass project, Palestrina apparently intended to send both the masses and the revised Gradual to the printer at the same time.

Palestrina and Zoilo completed work on the Gradual and Antiphonal during 1578.\textsuperscript{51} Their work was not immediately published, however, for in the meantime a Spanish representative in Rome had initiated a series of correspondences involving his king, whose objections to the reform project would ultimately scuttle it. Don Fernando de las Infantas (1534 - c. 1610), a composer and theologian of some influence,\textsuperscript{52} immediately got wind of Palestrina’s and Zoilo’s reforms, and objected to them on aesthetic grounds, as excerpts from his letter of 25 November 1577 to King Philip II of Spain make clear:

\begin{quote}
Your Majesty:
A general printing has been begun here by order of His Holiness. The purpose of this project is to print in all the languages, so that the things of the Catholic Church can be purified from the errors caused in other printing offices. Thus from here, as from the source, they can be diffused all through the Church and be received with all safety . . .
\end{quote}


With this occasion there has been some evil spirit who has suggested that it would be good also to print anew all the Gregorian chant, and this should include all the books on plainchant of the Church. And concerning the melody, they propose to change many things which, according to some, they say are not according to the art of music. However, this does not seem to be right to me. Finally, without having made it well known, they have ordered this to be done, and it has been committed to Giovanni Palestrina and to one other. Both of them work as composers in the Papal Chapel and have begun to make new books.

They say they are going to change only the things which do not keep the tune, and also in some places the ancient and full ligatures which come in places. They will do this to avoid undue length. This has been done in such a manner that they destroy all which has been done so far. The chant will now become very different from that which it is at present.

I feel a tremendous sorrow because I see clearly that they go blindly and out of the road, so that they force me to dare with my little sufficiency to try to enlighten His Holiness and the Cardinals committed for this work of the printing of this Gradual. With the grace of God I would have them understand how excellent is the plainchant of the Church and how little esteemed are the things which they oppose to it. I do this in an effort to dissuade them, so that they will not take away anything, but rather that they may hold in great reverence, as always, this sacred chant, since it was done and composed by such a glorious saint as St. Gregory was, and has been the possession of the Church for many centuries, and is called thereby Gregorian chant . . .

. . . I thought that I must let Your Majesty know of this, as I owe this information to you, as a faithful subject, and am devoted to your royal service, and inasmuch as the Spanish Libraries are concerned, these Libraries would become as important as the ones which Your Majesty is to build for the memorable Church of the Escorial. Even though this one would be a privileged one, nevertheless, it would still then be deauthorized, and with time would have to change, and to pattern itself after the head, as it always was . . .

Don Fernando identifies two aspects of the revisions as he understands them: first, alteration of “things which do not keep the tune,” which probably refers to melodic elements that do not conform to the system of modes as practiced in the later 16th century; second, reduction of “the ancient and full ligatures,” i. e., the shortening of long

melismas, in order to “avoid undue length.” He feels that these alterations would have a
disastrous effect on the character of the chant melodies. His feelings on the matter can be
summed up by this comment found in a letter he subsequently sent to the pope: “The
errors which certain musicians, in all good faith, think they have found in plainchant are
not errors at all, but on the contrary contain some of the most beautiful musical passages
ever written.”

In addition to these aesthetic objections, Don Fernando also discusses in his letter
to the king the likely prospect of a papal decree compelling all churches to use the revised
chant books, similar to the decrees that bound everyone to use the new Breviary and
Missal. An oblique reference is made to the significant economic repercussions this
scenario would have for church and state in Spain. The reference was not lost on Philip
II. In a letter of 20 January 1578, excerpted here, the king sent pointed comments and
instructions to his ambassador at Rome, Don Juan de Zuniga:

. . . If in the editions of books of new prayers which His Holiness Pope
Pius V made and arranged [i.e., the new Breviary and Missal], something
substantial had to be changed, from what it was in their chants, a great damage
and loss would follow to my kingdoms, and to all the churches and ecclesiastical
persons. For they are provided with the necessary books, particularly in the
Cathedral and Collegiate Churches, and in the Convents of the Religious. Indeed,
they have had new chant books, which have been written at great cost, and by
hand, and these have been provided for the choirs.

If this should be changed or modified in the new editions, in a substantial
way, it would provoke great losses and a compensation would be sought from the
state. You should avoid this by summoning Don Fernando de las Infantas. . .
Obtain from Don Fernando full information of everything which is done in those

54 Hayburn, Papal Legislation, 41. The full text of the letter can be found in Respighi, Nuovo Studio,
133-34.
new printings, which might be harmful and new in comparison with what was had in the earlier books of plainchant. Whatever you understand to be new, try to avoid, by indicating to His Holiness, from our part, and to the Cardinals, who are the persons deputized for this. Indicate to them what you deem to be convenient according to the means and motives which Don Fernando de las Infantas will tell you, and according to what you also think will be conducive for the remedy. If this is done there will be no cause or reason for complaint in these kingdoms.

Concerning other Catholic books on other subjects, if His Holiness intends to purge them, His Holiness will do whatever seems to be more convenient to the universal good of the Church. It is not my intention to avoid it.55

Whereas Don Fernando’s original complaint was an aesthetic one, the king’s protest seems to have been grounded only in financial considerations. He makes no mention of the harm that would come to the chants, only of the harm that would come to his treasury. He instructs Don Zuniga and Don Fernando to use whatever arguments were necessary to sway Pope Gregory XIII. Philip II had good reason to believe that his protest would have its desired effect. His political clout was such that he had been able to obtain a waiver from the previous pope, Pius V, exempting Spain from the decrees promulgating the use of the new Breviary and Missal.56

In response to Philip II’s petitions through his representatives in Rome, Pope Gregory XIII ordered an investigation.57 This resulted in a “Report on the Gradual of Palestrina,” whose authorship remains unknown, that outlines in general terms the nature

55 Translated in Hayburn, *Papal Legislation*, 40. The original Spanish text can be found in Molitor, *Nach-Tridentinische Choral-Reform*, I, 301-02.

56 The text of Pius V’s *motu proprio* for Spain can be found in Molitor, *Nach-Tridentinische Choral-Reform*, I, 294-95.

57 Hayburn, *Papal Legislation*, 42.
of the revision undertaken.\textsuperscript{58} The anonymous author speaks approvingly of Palestrina and his editorial work. Apparently, however, the Spanish king’s political pressure trumped any aesthetic considerations in the end, for the revised Gradual and Antiphonal never received approval for publication, and Palestrina and Zoilo ceased work on the project.

The project laid dormant during the 1580’s, the decade during which Guidetti’s enterprising chant book publications began to appear. The death of Pope Gregory XIII in 1585 also seemed to sound the death knell for an ecclesiastically commissioned reform of the Gradual and other chant books. In 1592, however, a certain entrepreneur by the name of Giovanni Battista Raimondi learned of the failed project, and began a campaign to take it over himself. He worked as a printer for the Medicean Press, so named for its founding patron, Cardinal Ferdinand de Medici. Raimondi had learned the details of the chant reform episode involving Palestrina and Zoilo from his friend Fulgenzio Valesi, a Cistercian monk who worked at composing and printing.\textsuperscript{59} Raimondi and Valesi entered into a business partnership, along with Leonardo Parasoli, inventor of a wooden moveable type system for the printing of plainchant. Prior to this invention, printers had been unable, due to technical difficulties, to reproduce the large size of the notes and words found in manuscript choirbooks. Parasoli’s invention remedied this situation, and

\textsuperscript{58} An English translation of this item appears in Hayburn, \textit{Papal Legislation}, 42, and the original text appears in Molitor, \textit{Nach-Tridentinische Choral-Reform}, I, 305.

books printed with it were appreciated for their “large notes and words.” On 16 September 1593, Raimondi and friends obtained a 15-year privilege for the printing of chant books with this system from the current pope, Clement VIII (pontificate 1592-1605).  

The partnership initially focused on the Gradual. Naturally they sought out Palestrina to obtain from him the manuscript resulting from his work in 1578. The composer only had the Temporale in his possession, the part he had worked on. Zoilo, who had worked on the Sanctorale, had relocated to Loreto in 1584, and had passed away in 1592. Since Zoilo’s work was therefore possibly lost or at least difficult to obtain, Palestrina agreed to simply redo the work himself (and, probably not incidentally, to thereby obtain greater profit for himself). Palestrina thought it would take him three or four months to complete the work, and the printers promised to pay him 1,000 scudi upon delivery of both manuscripts. Palestrina also agreed to revise, upon completion of the Gradual, the other main notated liturgical books, namely the Antiphonal and the Psalter.

This new attempt at publishing a reformed Gradual required the approval of the Congregation of Sacred Rites, a panel of high church officials that had been established in 1588 to oversee and regulate all matters relating to the liturgy of the church. The Congregation approved of the project, but did not want to give the printers permission to

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60 The text of this privilege appears in Molitor, Nach-Tridentinische Choral-Reform, II, 213. An English translation appears in Hayburn, Papal Legislation, 44-45.

proceed until the material had been carefully examined. Their decree of 21 January 1594 reads:

The Congregation of Sacred Rites has praised the new method developed by the inventors for the printing of the *cantus firmus*, since this is for the general benefit of ecclesiastics. However, it has decided that their work must be examined diligently before it is put out. Therefore, it has given the task of doing this into the hands of His Eminence, Cardinal del Monte, who is to employ those who are very skilled in music to do the work. It has likewise decided that there can be granted to these same reformers, after their work has first been examined and approved, the assurance that no other person may print books of ecclesiastical plainchant of this kind for thirty years. The Churches, however, are not to be forced to correct the old books written or printed up to now, which they are using for the present, nor to correct other books again.\[^{62}\]

Perhaps remembering the political fallout from the first attempt at reforming the Gradual in the late 1570’s, the Congregation explicitly stated its intention that the new edition not be made binding for any church. Cardinal del Monte subsequently appointed a group of respected Roman composers to be the expert inspectors of Palestrina’s manuscripts: Mario Nanino, Andrea Dragoni, Luca Marenzio, and Fulgenzio Valesius himself (who did not in fact present a conflict of interest, because he had quit the partnership with Raimondi and Parasoli in the meantime).

In the midst of these negotiations, Palestrina died on 2 February, 1594. Ownership of his manuscripts passed to his sole surviving son, Iginio. Iginio demanded of Raimondi more than double the price agreed to by his father. Raimondi, desperate to move the project forward, and confident that he would make a small fortune from it, accepted Iginio’s exorbitant terms. Before paying, however, Raimondi submitted the

manuscripts to the expert panel, who discovered a major problem. Palestrina had not in fact completed the *Sanctorale*, and Iginio had clumsily forged it, even going so far as attempting to give the appearance of age to the paper. The panel of composers approved the authentic *Temporale* for publication, but of course not the forged *Sanctorale*, which was full of discrepancies and errors.

Naturally Raimondi refused to pay, but remarkably, even with his subterfuge thus discovered, Iginio instigated a lawsuit against Raimondi, attempting to get his 2,105 *scudi*. The proceedings went through many phases and generated a wealth of juridical documents. After several years of this, the court finally ruled against Iginio in 1599. Iginio appealed the decision, but lost again for the final time in 1602. The court ordered that the manuscripts be returned to Iginio, but he refused to take them, so they were sold to a pawnshop and disappeared without a trace.

In the meantime, the ever-ambitious Raimondi had improved upon Parasoli’s system. He now made the pieces of type out of metal instead of wood, which made them quicker to manufacture and easier to use. With new type in hand, he attempted yet again to revive the twice-failed Gradual project. He approached the new pope, Paul V, who had succeeded Clement VIII in 1605, for permission. In light of the debacle caused by Iginio’s trickery, Paul V sought advice as to whether such books were even necessary or desirable. He received an affirmative response, dated 24 February 1608, from Father Poimbino, head of the Augustinian order:
Most Holy Father:

It has come to our attention that Your Holiness would like to know from us, as Procurators and Ministers of [the] Religious, whether or not we deem it useful for the Church of God to print the books of cantus firmus in the manner already invented concerning the big letters and notes. These books are used nowadays in the Ecclesiastical Choirs. We believe that this printing is not only useful for the Religious of Christiainiy, but we assure you that it is also necessary, because there is a great need of such books.

We therefore beg Your Holiness to order this printing as soon as possible, because from it will derive yet another advantage. This is that the cantus firmus that we mentioned above will be purified of its many errors of which it is full and everything will turn out to be a great blessing.63

Poimbino sees two benefits in the acceptance of Raimondi’s proposal: an additional supply of the easy-to-ready chant books would be created, and the repertoire would be purged of its “errors” (perhaps referring not only to variant readings, but also to unfashionable, “medieval” characteristics of chant such as prosodic “barbarisms” and overly long melismas).

Paul V accepted the advice of his subordinates and, on 31 May 1608, issued Raimondi a renewed 15-year printing privilege.64 Since the original material of Palestrina and Zoilo had been lost, however, the Congregation of Sacred Rites, following the suggestions of Raimondi, appointed a new panel of composers to complete the task: Nanino, Mancini, Soriano, Giovanelli, Felini, and Anerio. For reasons unknown, the six made little progress (Gastoué speculates that the composers experienced friction among

63 Translated in Hayburn, Papal Legislation, 57-58. The original text appears in Molitor, Nach-Tridentinische Choral-Reform, II, 234.

64 An English translation of the decree appears in Hayburn, Papal Legislation, 58-61, and the original text appears in Haberl, Palestrina e il Gradual Romanum, 36.
themselves, perhaps concerning the nature and extent of the revisions to be made\textsuperscript{65}). By 1611, only Anerio and Soriano remained committed to the project. Both men had been closely associated with Palestrina: Anerio had succeeded Palestrina as the composer for the papal chapel, and Soriano had been a student of both Palestrina and Zoilo.

Anerio and Soriano completed their work over the next few years, and at long last, in 1614, the first volume of the Gradual (the \textit{Temporale}) was published. The \textit{Sanctorale} came out the following year, in 1615. Raimondi had finally triumphed after more than two decades of setbacks and delays, but he died while the Gradual was being printed. With Raimondi’s death, responsibility for the publication reverted to the Medicean Press, and for this reason the edition has come to be known as the \textit{Editio Medicaea} or Medicean Gradual. For obvious economic reasons, he had desired that all churches be required to use the new Gradual, but Paul V refrained from imposing such a requirement. In fact, the pope had withdrawn his official support for the project before the printing had gotten underway (perhaps under political duress or because of doubts as to its favorable reception), leaving intact only the printing privilege itself. Even so, the title pages of both volumes contain the words, “cum cantu Pauli V. Pont. Max. iussu reformato” (with chants reformed by order of the Supreme Pontiff Paul V; see Figures 3.1 and 3.2).

The story of chant publication could be traced well into the nineteenth century, during which Solesmes sought to reverse centuries of “decay” in the chant tradition, but

\textsuperscript{65} Gastoué, \textit{Le Graduel et l’Antiphonaire}, 178.
in the coming chapters the focus shifts to close examination of Guidetti’s *Directorium chori* and Anerio’s and Soriano’s *Editio Medicaea*.
Figure 3.1: Title page of the postconciliar Breviarium Romanum, published in 1568.
Figure 3.2: Title page of the postconciliar *Missale Romanum*, published in 1570.
Figure 3.3: Title page from Guidetti, Directorium chori (1582).
CHAPTER 4

PROSODY AND RHYTHM IN GUIDETTI’S *DIRECTORIUM CHORI* (1582)

As discussed in the previous chapter, Guidetti’s *Directorium chori* of 1582 stands as an early landmark of post-Tridentine chant reform. As the first liturgical edition with musical notation to be published after the end of the Council of Trent, and with its system of explicit rhythmic signs, it invites analysis of the relationship between textual prosody and musical rhythm. After laying out the details of Guidetti’s notational system, this chapter will present a series of analyses, progressing from a specific, example-based survey to increasingly global statistical characterizations. The survey will inventory his rhythmic treatment of words according to word length and accent type. The statistical analyses will begin with a calculation of average syllable durations, again classified by word length and syllable type. Statistical analyses to formalize the relationship between syllable stress and syllable duration will follow, as will comparisons of Guidetti’s version with a Gregorian version of the sample.

Guidetti devised a system of four discrete rhythmic signifiers for his publication, *Directorium chori* (see Figure 4.1). The diamond shape, alternatively referred to as the lozenge or rhomb(us) in notational studies, represents a semibreve worth half a tempus.
A simple, unadorned square represents a breve worth one tempus. Two modifications of
the breve are possible: a semicircle above a square adds half a breve’s duration (for a
total of one-and-a-half tempora), and a semicircle with a dot inside adds a full breve’s
duration (for a total of two tempora). The analagous counterpart in mensural music of
Guidetti’s square-with-dotted-semicircle is the imperfect long of two tempora, and the
square-with-semicoloncicle is like the imperfect, two-tempora long that has been further
reduced by half a tempus by a subsequent semibreve. Accordingly, these two note shapes
will be referred to as the full long and the reduced long respectively in the ensuing
discussion. In later editions of the *Directorium chori* and other publications of Guidetti
subsequent to his death, the two types of modified squares were conflated into one note
shape, namely the long (a square with a right descender). Context determined the note’s
exact duration, just as it did in polyphonic mensural music: it was a reduced long if
followed by a semibreve, otherwise a full long. In the ensuing discussion, the following
rhythmic shorthand will be used:

\[ L = \text{full long (two tempora)} \]
\[ l = \text{reduced long (one-and-a-half tempora)} \]
\[ b = \text{breve} \]
\[ s = \text{semibreve} \]

A hyphen (–) between letters indicates a syllable boundary.
A tilde between letters (~) indicates a word boundary.

In a unique circumstance of the 1582 edition—over the first syllable of apéries in
the short Matins versicle, *Domine labia mea aperies*—a square (breve) and a rhomb
(semibreve) appear together on the same pitch under one broad semicircle, signifying
that, in this one instance, a reduced long and a semibreve were to be performed as a sort
of repercussion on a single syllable. This unique usage, while interesting to note in passing, does not impinge upon the analyses presented below.

In determining a suitable sample for analysis from the *Directorium chori*, one is presented with a dilemma, since the majority of its items appear as incipits only. The concordant versions of the antiphons analyzed in Chapter 2 would be a logical choice, but their severely truncated form would be a detriment. A few classes of chant are given in their entirety, however, and from these one may glean a representative sample from the edition. The ten complete settings of Psalm 94 will serve here as a sample for analysis. Although multiple settings of the same text may reduce the variety and statistical independence of the sample, they do provide the opportunity to study alternative treatments of a given word or phrase.

Psalm 94, *Venite exultemus Domino*, is known as the Invitatory Psalm, for it invites worshippers to “come, rejoice unto the Lord” at the opening of every Matins,¹ an Office Hour with substantial liturgical and music-historical significance. The melodies adorning this psalm are rather more elaborate and varied than other types of psalm tone. In Guidetti’s edition, and indeed in nearly all manuscripts in which it appears, this psalm retains its full, archaic form, in that the antiphon is repeated after every verse.² Figure

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¹ Or, in more recent times, at the opening of whichever Office Hour begins the day.

² Apel, *Gregorian Chant*, 20, 241-44. Also archaic is the version of the text: it is drawn from the *Vetus Itala* (Old Latin) rather than the Vulgate translation, and thus in comparison with the Vulgate it features several textual variants, a different versification scheme, and even an extra phrase. In Abbaye Saint-Pierre de Solesmes, *Antiphonale Romanum secundum liturgium horarum ordinemque cantus officii dispositum a solesmensibus monachis praeparatum*, Tomus Alter: *Liber hymnarius cum invitatoriis & aliquibus responsorii* (Paris-Tournai: Desclée, 1983), 173-74, one may find the New Vulgate rendition of Psalm 94, which celebrants are instructed to use on occasions when the psalm is
4.2 presents the Psalm 94 text as it appears in the *Directorium chori*, along with an English translation.

One can gain an overall sense of Guidetti’s systematic approach to rhythmicizing the chants by examining the first Psalm 94 setting in facsimile (Figure 4.3; for a modern transcription of the same excerpt, see Figure 4.4). The default note value, judging by sheer frequency, is the breve \(b\), constituting 76.1% of the notes in the Psalm 94 sample are breves (see Figure 4.5). The other symbols effect an alteration of that basic value, either by extending it or shortening it. The number of reduced longs \(l\) is necessarily equivalent to the number of semibreves \(s\), since, by definition, a reduced long is followed by a semibreve; these each comprise a further 11.4%. The full long \(L\) is rare, comprising only 1.1% of the notes.

The full long appears almost exclusively as the second-last note of a phrase. Figures 4.6.1 and 4.6.2 present typical examples of this practice, drawn from the first Psalm 94 setting in the sample. In the first instance (1), the full long begins the final two-note neume, and thus coincides with the onset of the last syllable. In the second instance (2), the full long appears near the end of a longer neume, and thus does not coincide with the final syllable onset. Each piece within this sample tends to rely on one or the other style in this regard. Figure 4.6.3 displays the single exception with the sample to the practice just described. In this instance, the full long appears four notes from the end of the phrase and coincides with the onset of the first syllable of the word *eius*.

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*recited rather than sung.*
The best way to grasp Guidetti’s use of the other note shapes (l, s, and b) is in the context of surveying his rhythmic treatments of words. This survey will proceed through various word categories according to length and accent type (paroxytonic and proparoxytonic).

Settings of proparoxytones are variable, but with few exceptions they incorporate an l–s–b sequence, with these three durations falling on the strong antepenultima, weak penultima, and final syllable respectively. Use of this rhythmic sequence for proparoxytones is so consistent, in fact, than one can properly speak of it as the “proparoxytone formula.” About half the time, three-syllable proparoxytones are set syllabically to the l–s–b formula (i.e., no additional notes are introduced). For a typical example, see the setting of dóminus in Figure 4.7.1. In the remaining instances, the formula is embedded into a melismatic setting. These instances, only first and last syllables bear melismas; weak middle syllables always bear a single semibreve. Figure 4.7.2 shows a setting of ópera in which the strong first syllable bears a melisma consisting of three breves and a reduced long, and the final syllable bears a melisma consisting of three breves: bbbl–s–bbb. In this sample, up to ten breves precede the long on first syllables, with the average being about three. Up to four breves (but usually two or three) occur on final syllables. Two rare instances of l–s–Lb occur on proparoxytones in the Psalm 94 settings (see Figure 4.7.3 for one of these). The other exceptional cases involve the word ipsius. In nine of the ten Psalm 94 settings, Guidetti sets this word to b–b–b, i.e., with

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3 As in Chapter 2, the terms “melisma” and “melismatic” will refer to settings with two or more pitches per syllable (i.e., no distinction between neumatic and syllabic will be made).
straight breves (see Figure 4.7.4). While not exactly a “barbarism,” this setting is unwontedly neutral with respect to the word’s accentual structure. In the vast majority of cases, though, Guidetti introduces clear agogic contrasts in the music to reflect the distinction between strong and weak syllables.

This approach to three-syllable proparoxytones also carries across to longer proparoxytones of four and five syllables (no proparoxytones of more than five syllables occur in the Psalm 94 text); additional issues are raised, however, by the one or two syllables that precede the primary stress. Only two different 4pp words appear in the text (spiritui and princípio), but the resulting 20 settings reveal a distinct prosodic trend. As with the 3pp words described above, the last three syllables always incorporate the l–s–b formula, with or without extra breves preceding the long on the first syllable or following the breve on the last syllable. In 17 of 20 instances, the first syllable, like the weak penultima, is also set to a semibreve. Figure 4.8.1 shows a typical setting of spiritui. Since semibreves necessarily follow reduced longs, the syllable of the word preceding the 4pp must be set to a reduced long; in this manner, Guidetti has transcended word boundaries in his prosodic conception. Both spiritui and princípio are preceded by monosyllables in the text (et and in respectively), which are thus set to reduced longs when the subsequent note is a semibreve.

As with 4pp words, only two different 5pp words occur in the text (àltitúdines and àudiéritis), for a total of 20 different settings. As one would expect, Guidetti uses the
$l\!-\!s\!-\!b$ formula for the last three syllables in all 20 settings. He is also sensitive to the secondary accent borne by the first syllable of $5pp$ words. In 17 of the 20 settings, the secondary-accented syllable bears a reduced long, and is followed by a semibreve on the weak intervening syllable (see Figure 4.8.2). In two cases Guidetti sets up a contrast between the first two syllables using breves only (Figure 4.8.3), and in only one case does he refrain from highlighting the secondary accent, using a $b\!-\!b\!-\!l\!-\!s\!-\!b$ setting. Most of the time, then, secondary accents receive a similar durational emphasis to primary accents.

Guidetti adopts a more varied and less formulaic approach to paroxytones than to the proparoxytones just surveyed. Still, their settings indicate sensitivity to the prosody of the text.

Just under half the settings of three-syllable paroxytones ($3p$) are neutral with respect to accentuation, as in the $b\!-\!b\!-\!b$ setting seen in Figure 4.9.1. The remaining small majority of settings introduce agogic contrast, especially between the first two syllables, with some combination of rhythmic and melismatic opposition. (Here, rhythmic opposition refers specifically to contrast created by different note durations, as in $l\!-\!s$, whereas melismatic opposition refers to contrast created by different quantities of notes attached to syllables, as in $bbb\!-\!b$.) For paroxytones, one might expect the $l\!-\!s$ of the proparoxytone formula simply to be reversed ($s\!-\!l$). But in the Guidettian universe, semibreves always follow and never precede reduced longs (unless the subsequent long is itself followed by a semibreve, as in $l\!-\!s\!-\!l\!-\!s\!-\!b$). A significant number of $3p$ words are set to $s\!-\!b\!-\!b$, meaning that they participate in a setting that transcends the word boundary.
See, for example, Figure 4.9.2, in which repéllet, set to s–b–b, is preceded by non set to l, creating the composite rhythm of l–s–b–b. This type of setting sets up an agogic contrast between the first two syllables of a 3p word (weak and strong, respectively), though the s–b contrast is not as marked as that of the l–s. It would also be reasonable to imagine that for 3p words the l–s of the 3pp word would simply be “shifted to the right” by one syllable position, to create a b–l–s setting. But in fact this happens in only one exceptional setting, shown in Figure 4.9.3, in which the 3p word plorémus participates in creating a composite phrase rhythm (these types of settings will be discussed in greater detail below).

In several instances of 3p settings, Guidetti creates a melismatic contrast between syllables by manipulating the number of breves assigned to them (see Figure 4.9.4). For reasons that are not apparent, he also allows two barbarisms (that is, contradictions or negative correlations between word accent and musical setting), one of which is seen in Figure 4.9.5.

The great majority of paroxytones of four or more syllables appear with reduced longs on secondary accents (and the necessary semibreve on the immediately following syllable). The principle observed with 3p words, namely that syllables with primary accent are not set to reduced longs as one might expect, also applies to these longer paroxytones. A syllable with primary accent bears one or more breves instead of a reduced long. What reason can be given for the all but complete avoidance of the reduced long on the primary accent of 3+ paroxytones? If one were to occur, it would
necessarily be followed by a semibreve on the last syllable. (Semibreves on final
syllables, or, to state it differently, to the immediate left of a syllable boundary, are rare.
They occur in only a little over 1% of cases. In all but the one instance shown in Figure
4.9.3, the semibreve is borne by a monosyllable or by the end of a bisyllable.) Perhaps
such a short syllable at the end of a word of three or more syllables felt too hasty,
disjunct, or otherwise unnatural to Guidetti. While final syllables are unstressed
according to the rules of accentuation, they seem to have a qualitatively different status
than weak syllables earlier in the word (this holds true for both paroxytones and
proparoxytones). From a durational perspective, final syllables seem more like neutral
syllables than weak syllables: their average duration (1.16 tempora) is closer to the
average of all syllables combined (1.31 tempora), while the average duration of earlier
weak syllables is much less (0.64 tempora). (See Figures 4.14 and 4.15 below). While a
reduced long might be appropriate for the stressed penultima, the semibreve that would
necessarily follow would lead to an awkward setting.

Figure 4.10.1 shows a typical 4p setting (l–s–b–b). In other, non-syllabic 4p
settings, extra breves can occur on any syllable except the one receiving the semibreve, as
in the setting shown in Figure 4.10.2. 5p words are set similarly; the additional syllable
at the beginning usually bears a breve (see Figure 4.10.3), but sometimes it bears a
semibreve (see Figure 4.10.4). Only one 6p and one 7p occur in the Psalm 94 text (for a
total of ten settings each): gèneràtióne and exàcerbàtióne respectively. These rare, long
paroxytones exhibit the same approach as their shorter counterparts, with the additional
consideration of not one but two secondary accents. In these words, Guidetti assigns a reduced long to both secondary accents, but not to the primary accent (see Figures 4.10.5 and 4.10.6).

To summarize the observations laid out above, it will be helpful to create a set of regularized expressions to encapsulate the possibilities for each type of word. These expressions can be found in Figure 4.11. They consist of the rhythmic shorthand in use above, plus superscript number ranges after some breves to indicate how many of these could appear in a given syllable position. For example, the range of text settings for four-syllable proparoxytones can expressed as: \( b-b^0-2l-s-b^{1-4} \), which means, “a breve on the first syllable, zero to two breves followed by a reduced long on the second syllable, a semibreve on the third syllable, and one to four breves on the final syllable.” These expressions capture the large majority of the possibilities, but not some of the exceptional settings, such as the neutral \( b-b-b \) settings of the word \textit{ipsisius}. In some cases, more than one expressions is necessary for a given word type.

Most of the time the rhythmic setting for a given word is self-contained, reflecting the prosody of that particular word. As noted above, however, there are cases in which Guidetti transcends word boundaries to create composite phrase rhythms. The rhythms of individual words in the phrase are not independently conceived, but rather fit into the larger rhythmic pattern of a two- or three-word phrase. For example, Guidetti often sets the word \textit{fecit} with \( bl-s \). If this word rhythm were to appear in a self-sufficient context, as, for instance, at the end of a phrase or entire piece, it would seem improbable and
unnatural. But in fact it appears in the context of a composite two-word rhythm: *fecit nos* set with *bl–s~b* (see Figure 4.13.1). In this example, two short words are brought together to form a rhythmic setting that is typical for a three-syllable proparoxytone. One can signify this combination with a convenient formula such as “[2+1]pp.” This practice can be seen as a sort of enclisis, since, from the perspective of their rhythmic setting, two or three words forming a syntactic unit flow together as if they were a single word.\(^4\) Be that as it may, the more general term “concatenation” is adopted here, since in Latin studies the term “enclisis” is reserved for certain highly specific circumstances. Figure 4.12 presents an overview of the concatenations that occur in the sample, providing a formula for each, a regularized expression to convey the range of possible rhythmic settings, and a link to an example for each type in Figure 4.13. The numbers in brackets after the phrases in the left column indicate how many times, out of the ten possible Psalm 94 settings, Guidetti set the phrase with the indicated concatenation. Some word combinations trigger a concatenation without fail (e.g., *et vidérunt*), while others trigger one most of the time (e.g., *in princípio*) or only small number of times (e.g., *super omnes*).

The foregoing discussion provides numerous specific examples of the manner in which Guidetti reflects (and occasionally does not reflect) the prosody of the text through rhythmic notation. Calculations of average syllable durations, classified by word length and accent type, will provide a more global perspective on his practice. Discussion of

\(^4\) A similar phenomenon is observed in by Janson in *Prose Rhythm in Medieval Texts*, 31.
these calculations will proceed through proparoxytones, paroxytones, and one- and two-
syllable words.

Figure 4.14 lays out average\(^5\) syllable durations in breve units for proparoxytones. This figure includes atonic one- and two-syllable words included as well, since their stress pattern fits conveniently in the chart. Most often, stressed syllables are highlighted through the principle of agogic contrast. This is accomplished both by extending the duration of the stressed syllable beyond average and by reducing to below average the duration of the unstressed syllables immediately surrounding the stressed one. In the case of 4\(pp\) words, for example, stressed antepenultimas average 1.80 breves, well beyond the overall average of 1.31 breves. The surrounding unstressed syllables are 0.58 and 0.50 breves, both well below the average. In the case of 3\(pp\) words, the 2.63 to 0.52 contrast between antepenultimas and penultimas is even more pronounced, resulting from the highly consistent application of the proparoxytone formula as discussed above. With secondary stresses in long words, one might expect their durations to exhibit a middle ground between stressed and unstressed syllables, but that is not the case. Rather, their durations are in the same range as those of stressed syllables (compare the first and third syllables of 5\(pp\)). Final syllables, though unstressed, do not participate to the same extent in creating agogic contrast; their durations are closer to the range of the average than to those of the agogically contrasting unstressed syllables. This stands to reason, since

\(^5\) Unless otherwise specified, the type of average indicated is the arithmetic mean (i. e., total of syllable durations divided by number of syllables).
Guidetti usually places semibreves above post-tonic syllables in proparoxytones and usually places a single breve or a short string of breves above final syllables.

Figure 4.15 reveals that the principle of agogic contrast is equally evident with paroxytones. The durations of primary and secondary stresses are double or triple those of the surrounding unstressed syllables (with the following exception: the contrast between the stressed penultima and the final syllable is present but not so pronounced).

Curiously, Guidetti gives even more emphasis to secondaries than primaries. This finding is in keeping with the convention noted above, namely that Guidetti often gives a reduced long to secondaries in long paroxytones, but only a normal breve to the primary.

Generally speaking, Guidetti is less concerned with defining prosodic oppositions in one- and two-syllable words. As noted in Chapter 2, some monosyllables may be classified as tonic (accented) and some as atonic (unaccented). The great majority of bisyllables are tonic, although a small number of bisyllabic prepositions and conjunctions may be classified as atonic. The average duration of atonic monosyllables actually edges out that of tonic monosyllables by a ratio of 1.30 to 1.18, the opposite of what one might expect (see Figures 4.14 and 4.15). The reason for this seems to be that atonic monosyllables participate more frequently in rhythmic concatenations than their tonic counterparts (refer back to Figure 4.13.8 for an example). In tonic bisyllables, a contrast is evident between the average durations of the two syllables, as one might expect, although the contrast is less pronounced than the one between stressed syllables and their short neighbors in longer words (see Figure 4.15). In this regard they follow the general
pattern of the other paroxytones. Contrary to expectations, atonic bisyllables also exhibit a contrast, although the average durations of both syllables are lower than those of their tonic counterparts (see Figure 4.14). On the basis of these observations, one may conclude that the fine distinctions between tonic and atonic one- and two-syllable words fell beneath the threshold of Guidetti’s concern.

The figures just discussed reveal durational relationships among syllable classes within the various word classes. Marked differences in average duration between stressed (primary and secondary) syllables and unstressed (tertiary) syllables are evident, but any differences that exist between primaries and secondaries are less apparent. In fact, there may be no effective difference between them from a durational perspective. The significance or lack of significance of any differences may be confirmed by means of a statistical test that will formalize the relationship between syllable stress and syllable duration.

The average (mean) durations of primary, secondary, and tertiary syllables may be compared by means of a one-way ANOVA (analysis of variance) with appropriate post-hoc tests. In simple terms, the ANOVA procedure will assess whether syllable

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6 ANOVA procedures assume 1) a normal (i.e., Gaussian or bell-curve) distribution of the data, and 2) the approximate equivalence of variance among groups (stress categories, in this case). The distribution of syllable durations in this sample approaches a bell curve, though it is rather leptokurtic (peaked) and skewed toward lower values. Also, the ratio of variance among groups is greater than about 2:1, which violates the second assumption. However, ANOVA is fairly robust with respect to non-normality of distribution and heterogeneity of variance, especially with samples of large size like the one here (N=3680); see Roger E. Kirk, *Experimental Design: Procedures for the Behavioral Sciences*, 2nd ed. (Belmont: Brooks/Cole, 1982), 75. The nonparametric alternative to ANOVA, the Kruskal-Wallis test, does not permit the post-hoc comparisons among groups that are necessary to this study. The selected post-hoc comparison method, Scheffé’s, is the most conservative of the alternatives available (that is, it has the most stringent requirements for achieving statistical significance), and therefore explicitly mitigates the multiple tests problem (that is, the increased probability of accepting a false positive hypothesis due to the increased number of tests performed).
durations depend upon, or are affected by, syllable stress, and the post-hoc tests will suggest which differences among groups (primaries, secondaries, and tertiaries syllables) are significant. As shown in the top table of Figure 4.16, the mean durations of primary, secondary, and tertiary syllables are 1.64, 1.60, and 1.07 breve units respectively. The difference between stressed and unstressed syllables seems sizeable, but when further differentiating stressed syllables into primaries and secondaries, the difference between them might be negligible. The ANOVA table in Figure 4.16 confirms the impression that syllable stress in general has a significant effect on syllable duration, with \( p < 0.0001 \) (i.e., an extremely low probability that the observed differences in duration of syllables according to their stress is the result of chance). The post-hoc Scheffé comparisons, shown as the bottom table in Figure 4.16, reveal that the durational differences between primary and tertiary syllables, and between secondary and tertiary syllables, are significant. The difference between primaries and secondaries, however, is not at all significant. From this latter result, one can conclude that Guidetti’s treatment does not differentiate between primaries and secondaries, but treats them alike (at least with respect to average duration). From the point of view of rhythmic text setting, then, syllable strength would seem to exist in a two-level rather than a three-level hierarchy.

Some readers might prefer a less abstract method of assessing the relationship between stress and duration. A simpler but still effective means of assessment is the sign

Finally, ANOVA and other statistical tests used in this chapter assume independent samples, which in this case could be obtained by sampling only a single syllable from each of a random selection of pieces. From a musicological perspective, however, it is more interesting to study a defined corpus such as the ten Psalm 94 settings. In this case, the sample of Psalm 94 settings, consisting of one text set to ten different melodies, does violate the assumption of independence, but it also represents a tolerable compromise between competing disciplinary paradigms.
test. In this analysis, one can categorize each word as being a positive example of correspondence between stress and duration, a negative example, or a neutral example. In order to present as clear a picture as possible, only the two critical syllables (the penultima and antepenultima) from words of three or more syllables will be used, since these more than any other influence the accentual pattern of a text. With a proparoxytone, moving from the antepenultima to the penultima involves a decrease in stress, and so a corresponding decrease in the musical duration associated with each syllable would be considered a positive example. An increase in duration would constitute a negative example, while no change in duration would constitute a neutral example. Figure 4-17 presents the results of a sign test performed according to these criteria. Positive examples form an overwhelming majority for all word types except $3p$ (more on these below). Only five negative examples or “barbarisms” occur in the entire sample, all with three- or four-syllable paroxytones. A small number of neutral settings of $4p$, $5p$, and $3pp$ words occur (with $3pp$, recall the nine straight-breve settings of ípsiús). These rare negative and neutral settings appear to be the exceptions that prove the rule. Perhaps the biggest surprise is that nearly half the settings of $3p$ words are neutral. In the context of all paroxytones, however, neutrals and negatives are dwarfed by the number of positives.

One question remains: to what extent did Guidetti’s interventions alter whatever relationships existed between stress and duration in the original Gregorian versions? As mentioned above, Guidetti consulted Antiphonals then in use as well as manuscripts in
the Vatican archive. The exact versions of the melodies Guidetti had before him will remain unavailable to this author without further archival research, so a specific “before and after” study must remain a future prospect. But concordant pre-Tridentine versions of each Psalm 94 setting in Guidetti are available in the Liber hymnarius, one of the latest products of the Solesmes publishing enterprise. These versions will enable a general comparison between the medieval approach and the Guidettian approach, though it bears repeating that the medieval versions are not necessarily the exact ones used as raw material for Guidetti’s revisions.

Guidetti includes ten settings of the Invitatory Psalm 94, while the Liber hymnarius includes 15; only the ten concordant versions will factor into this study.

Figure 4.18 reproduces from the Liber hymnarius the opening excerpt of the first Psalm 94 setting that appears in the Directorium chori (see Figure 4.3 above). The reader is invited to make a quick visual comparison of the two, facilitated by the synoptic transcription appearing in Figure 4.19. For example, the medieval version (LH) sets the first two syllables of the opening word, veníte, neutrally (two notes each) and gives the final syllable a six-note melisma, whereas the Guidettian version (DC) more closely reflects the word accent by shifting the final syllable to the right, thus giving the stressed syllable (-ní-) the melisma instead. Quóniam, at the end of the fifth stave, shows a proparoxytone being appropriately adapted to the same melodic phrase.

In the Gregorian versions (i.e., from the *Liber hymnarius*), the correlation of signs between syllable stress and syllable duration is: $r = +0.203$ (as compared to $r = +0.533$ in the Guidettian versions). These are both statistically significant at $p < 0.0001$. One can thus infer that a substantial increase in correlation resulted from Guidetti’s interventions.

As noted above, Guidetti apparently left the melodies of his models largely unaltered, but the interventions he did make presumably took two forms: adjustment of text underlay (i.e., shifting syllable positions), and alteration of rhythm via the system of note durations discussed above. To what extent do these different forms of alteration contribute to the strengthened relationship between syllable stress and duration in the *Directorium chori*? One might hypothesize that each contributes significantly. This hypothesis may be tested by comparing the syllable durations according to stress category across three versions: 1) the medieval version; 2) an artificial Guidettian version that eliminates the influence of the rhythmic system and only captures the influence of text underlay; and 3) the true Guidettian version. In the medieval version, it is assumed that all notes are of equal duration, and are coded as breves for the sake of comparison. The second, artificial version is created by equalizing all note values in the true Guidettian version—that is, by ignoring the rhythmic signs and coding each note as a breve.

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A potential stumbling block to using a standard correlation in this context is that it assesses a linear relationship between variables, but such cannot be assumed here. (There is likely some kind of relationship, but it may not be linear.) This problem can be avoided by disregarding the magnitude of change in stress and duration when moving from one syllable to the next, and focusing only on the direction of change (that is, up, down, or the same). This method may be called “correlation of signs,” since it deals only with the sign of the change (positive, negative, or no change) and not the actual values.
Figure 4.20.1 presents the mean syllable duration in breve units, by syllable stress category, in each of the three versions: column (1) contains values for the medieval version, as found in the *Liber hymnarius*; column (2) contains values for the Guidettian version modified so as to eliminate the influence of the rhythmic system; and column (3) contains values for the full Guidettian version, as found in the *Directorium chori*. Primary syllables show a steady increase in duration from left to right. In other words, both text underlay and rhythm seem to contribute about equally to the lengthening of primary syllables. Secondary syllables show a small, perhaps insignificant increase from (1) to (2), and a large increase from (2) to (3), indicating that text underlay contributes very little, while rhythm contributes a great deal, to the lengthening of secondary syllables. Unstressed syllables show a progressive *decrease* in duration from left to right, indicating that both text underlay and rhythm contribute to the *shortening* of unstressed syllables. The question of the statistical significance of these apparent trends is answered in Figure 4.20.2, a series of *t*-tests\(^9\) for the three possible combinations of versions laid out in Figure 4.20.1. With the exception of secondary syllables in the (1) - (2) comparison, all differences are robustly significant. For primary syllables, both text underlay and rhythm significantly increase duration, but for secondary syllables, only rhythm significantly increases duration. For unstressed syllables, both text underlay and rhythm significantly decrease duration.

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\(^{9}\) To mitigate the multiple tests problem (the increased likelihood of a false positive or Type I error due to the repetition of the test on the same sample), the acceptable level of significance was reduced from \(p = 0.05\) (1 in 20) to \(p = 0.01\) (1 in 100).
Additional converging evidence concerning the differences between medieval and Guidettian versions of the Psalm 94 may be gained by using a recently developed technique in linguistics, the normalized Pairwise Variability Index or nPVI.\textsuperscript{10} This index was developed to characterize the amount of variability among the syllable durations of a spoken utterance regardless of its overall speed or fluctuations in speech rate,\textsuperscript{11} and recently has been applied to musical situations as well.\textsuperscript{12} The nPVI of the medieval version is 22.19, while the nPVI of the Guidettian version is 47.58. This more-than-twofold increase in the variability of syllable durations supplements the results obtained above; it confirms that Guidetti’s revisions heightened the difference between stressed and unstressed syllables in terms of duration.

This chapter has provided a systematic description of the rhythmic treatment of words in a sample from Guidetti’s \textit{Directorium chori}. Of particular note are certain seemingly counterintuitive tendencies, such as the elongation of the secondary but not the

\textsuperscript{10} The normalized Pairwise Variability Index (nPVI) is calculated with the following formula:

\[ nPVI = \frac{100}{m - 1} \times \sum_{k=1}^{m-1} \left| \frac{d_k - d_{k+1}}{d_k + d_{k+1}} \right| \]

where \( d_k \) = duration of the \( k \)th syllable, and \( m \) is the number of syllables. The nPVI for a given input is a relative rather than an absolute characterization of variability, so it gains significance only in comparison with other nPVI results.


primary syllable in longer paroxytones. It has quantified the durational relationships among syllables in the various word types, as well as among all primary, secondary, and tertiary syllables. As categories, primaries and secondaries are indistinguishable in terms of duration, but both are significantly longer than tertiaries. Further analyses provide evidence that Guidetti systematically strengthened the relationship between prosody and rhythm in his version as compared to a medieval version.
<table>
<thead>
<tr>
<th>Rhythmic sign</th>
<th>Duration</th>
<th>Mensural Equivalent</th>
<th>Modern Equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.5</td>
<td>Semibreve</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Breve</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1.5</td>
<td>Long</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Long</td>
<td></td>
</tr>
</tbody>
</table>

**Figure 4.1:** Rhythmic signs used in Guidetti, *Directorium chori* (1582).
1 Venite exultemus dómino, 
iübilemus deo salutári nostro: 
prefacemus fáciem eius in confessione, 
et in psalmis iübilemus ei.

2 Quóniam deus magnus dólminus, 
et rex magnus super omnes deos: 
quóniam non repéllet dólminus plebem suam 
quia in manu eius sunt omnes fines terrae, 
et altitudines montium ipse conspicit.

3 Quóniam ípsius es mare, et ipse fecit illud, 
et áridam fundavérunt manus eius: 
venite adorémus, et proscédámus ante deum: 
plerémus coram dólmino qui fecit nos: 
quia ipse est dólminus deus noster, 
nos autem púpulus eius, et oves pásaue eius.

4 Hódie si vocem eius audiéritis, 
nólite òbduráre corda vestra, 
sicut in exácerbatio secúndum diem tentátiónis 
in déserto ubi tèntavérunt me patres vestri, 
probavérunt, et vidérunt ópera mea.

5 Quadráginta annis próximus fui gènerátióni 
huic, et dixi semper hi erant corde: 
ipsi vero non cògnovérunt vias meas, 
quibus iuravi in ira mea 
si introibunt in réquiem meam.

Glória patri, et filio, et spiritui sancto. 
Sicut erat in princípio, et nunc, et semper, 
et in saécula saécúlorum. Amen.

Glória be to the Father, and to the Son, and to the Holy Spirit. As it was in the beginning, it is now and ever shall be, throughout the ages. Amen.

Figure 4.2: Text and translation of Psalm 94, from the Vetus Itala (Old Latin) version, as it appears in Guidetti, Directorium chori (1582). Accent marks added by this author: acute accents (/) indicate primary stress, and grave accents (\) indicate secondary stress.
Figure 4.3: Opening excerpt of the first Psalm 94 setting in the *Directorium chori*. See Figure 4.4 for a transcription.
Figure 4.4. Transcription of the opening excerpt of the first Psalm 94 setting in the *Directorium chori*. See Figure 4.3 for the original notation.
\begin{table}
\centering
\begin{tabular}{|c|c|c|}
\hline
rhythmic sign & N & \% of total \\
\hline
\hline
\textbullet & 3675 & 76.1\% \\
\textbullet & 552 & 11.4\% \\
\textbullet & 552 & 11.4\% \\
\textbullet & 52 & 1.1\% \\
\hline
\end{tabular}
\end{table}

**Figure 4.5:** Number and percentage of rhythmic signs in the sampled repertoire: ten settings of the Matins Invitatory Psalm (Psalm 94), *Venite exultemus Domino*, from Guidetti, *Directorium chori* (1582).
Figure 4.6: Uses of the full long (square with dotted semicircle) in the Psalm 94 settings in the *Directorium chori*. The numbers to the right of the examples indicate page number and line of music in that edition. This convention will be used for all subsequent examples drawn from it.
Figure 4.7: Settings of three-syllable proparoxytones in the sample.
Figure 4.8: Settings of four- and five-syllable proparoxytones.
Figure 4.9: Settings of three-syllable paroxytones.
Figure 4.10: Settings of paroxytones with four to seven syllables.
Figure 4.11: Regularized expressions by word length and accent type, conveying the range of typical rhythmic settings for each.
<table>
<thead>
<tr>
<th>phrases</th>
<th>concatenation</th>
<th>regularized expression</th>
<th>example</th>
</tr>
</thead>
<tbody>
<tr>
<td>fecit nos (10*)</td>
<td>[2**+1]pp</td>
<td>b^{0} l - s ~ b</td>
<td>Fig. 4.13.1</td>
</tr>
<tr>
<td>ipse est (2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>et spirítiui (10)</td>
<td>[1+4pp]pp</td>
<td>b^{0} l - s - b^{0} l - s - b^{1}</td>
<td>Fig. 4.13.2</td>
</tr>
<tr>
<td>in princípio (7)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>plorémus coram dómino (1)</td>
<td>[3p+2+3pp]pp</td>
<td>b - l - s - l - s - l - s - b</td>
<td>Fig. 4.13.3</td>
</tr>
<tr>
<td>super omnes (3)</td>
<td>[2+2]p</td>
<td>l - s ~ b^{1} - b^{1}</td>
<td>Fig. 4.13.4</td>
</tr>
<tr>
<td>ira mea (1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>nunc et semper (1)</td>
<td>[1+1+2]p</td>
<td>l - s ~ b^{1} - b^{1}</td>
<td>Fig. 4.13.5</td>
</tr>
<tr>
<td>et in psalmis (2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>et vidérunt (10)</td>
<td>[1+3]p</td>
<td>l - s - b^{1} - b^{1}</td>
<td>Fig. 4.13.6</td>
</tr>
<tr>
<td>in desérgto (8)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>non repéllet (10)</td>
<td>[2+3]p</td>
<td>b^{1} - l - s - b^{1}</td>
<td>Fig. 4.13.7</td>
</tr>
<tr>
<td>quibus iurávi (7)</td>
<td>[1+5]p</td>
<td>b^{0} l - s - b^{0} l - s - b^{1}</td>
<td>Fig. 4.13.8</td>
</tr>
<tr>
<td>in confèssíone (9)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Key:**

* # of times (out of 10) this phrase is set as a rhythmic elision (as indicated in the next column)

** # of syllables

p paroxytone

pp proparoxytone

b breve

l reduced long

s semibreve

superscripts # of possible breves

dash (-) syllable boundary

tilde (~) word boundary

**Figure 4.12:** Inventory of prosodic concatenations. See Figure 4.13 for examples.
Figure 4.13: Examples of prosodic concatenation. See Figure 4.12 for a full inventory.
Figure 4.13: continued.

5 482/4
(et in psalmis)
[1+1+2]p

6 500/6
(et vidérunt)
[1+3p]p

7 491/2
(quibus iurávi)
[2+3p]p

8 482/4
(in confessióne)
[1+5p]p
<table>
<thead>
<tr>
<th></th>
<th>\</th>
<th>/</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1a</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2a</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3pp</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4pp</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5pp</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Key:**
- **a**: atonic
- **pp**: proparoxytone
- **1 2 3 . . .**: number of syllables
- **\** primary stress
- **/** secondary stress
- **\** tertiary stress

**Figure 4.14:** Average syllable durations of proparoxytones, and of atonic one- and two-syllable words.
<p>| | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1t</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.18</td>
</tr>
<tr>
<td>2t</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.50 1.29</td>
</tr>
<tr>
<td>3p</td>
<td>0.85</td>
<td></td>
<td>1.41</td>
<td></td>
<td>1.14</td>
<td></td>
</tr>
<tr>
<td>4p</td>
<td>1.64</td>
<td>0.55</td>
<td>1.49</td>
<td></td>
<td>1.24</td>
<td></td>
</tr>
<tr>
<td>5p</td>
<td>0.95</td>
<td>1.65</td>
<td>0.52</td>
<td>1.30</td>
<td>1.23</td>
<td></td>
</tr>
<tr>
<td>6p</td>
<td>1.50</td>
<td>0.50</td>
<td>1.50</td>
<td>0.50</td>
<td>1.00 1.00</td>
<td></td>
</tr>
<tr>
<td>7p</td>
<td>1.00</td>
<td>1.50</td>
<td>0.50</td>
<td>1.50</td>
<td>0.50 1.30 1.00</td>
<td></td>
</tr>
</tbody>
</table>

**Key:**
- t: tonic
- p: paroxytone
- 1 2 3 . . .: number of syllables
- /: primary stress
- \: secondary stress
- \: tertiary stress

**Figure 4.15:** Average syllable durations of paroxytones, and of tonic one- and two-syllable words.
### Means Table for syllable duration

**Effect: syllable stress**

<table>
<thead>
<tr>
<th></th>
<th>Count</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Std. Err.</th>
</tr>
</thead>
<tbody>
<tr>
<td>primary</td>
<td>1340</td>
<td>1.64</td>
<td>1.28</td>
<td>0.03</td>
</tr>
<tr>
<td>secondary</td>
<td>210</td>
<td>1.60</td>
<td>0.41</td>
<td>0.03</td>
</tr>
<tr>
<td>tertiary</td>
<td>2130</td>
<td>1.07</td>
<td>0.73</td>
<td>0.02</td>
</tr>
</tbody>
</table>

### ANOVA Table for syllable duration

<table>
<thead>
<tr>
<th></th>
<th>syllable stress</th>
<th>Residual</th>
</tr>
</thead>
<tbody>
<tr>
<td>DF</td>
<td>2</td>
<td>3677</td>
</tr>
<tr>
<td>Sum of Squares</td>
<td>290.87</td>
<td>3355.82</td>
</tr>
<tr>
<td>Mean Square</td>
<td>145.43</td>
<td>0.91</td>
</tr>
<tr>
<td>F-Value</td>
<td>159.35</td>
<td></td>
</tr>
<tr>
<td>P-Value</td>
<td>&lt;0.0001</td>
<td></td>
</tr>
<tr>
<td>Lambda</td>
<td>318.71</td>
<td></td>
</tr>
<tr>
<td>Power</td>
<td>1.00</td>
<td></td>
</tr>
</tbody>
</table>

### Scheffé’s test for syllable duration

**Effect: syllable stress**

**Significance Level: 5 %**

<table>
<thead>
<tr>
<th></th>
<th>Mean Diff.</th>
<th>Crit. Diff</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>primary, secondary</td>
<td>0.04</td>
<td>0.17</td>
<td>0.8509</td>
</tr>
<tr>
<td>primary, tertiary</td>
<td>0.57</td>
<td>0.08</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>secondary, tertiary</td>
<td>0.53</td>
<td>0.17</td>
<td>&lt;0.0001</td>
</tr>
</tbody>
</table>

**Figure 4.16:** Results for a one-way ANOVA (analysis of variance) with Scheffé’s post-hoc test, comparing differences in mean duration of primary, secondary, and tertiary syllables. (Sample: ten Psalm 94 settings in Guidetti, Directorium chori, 1582.)
<table>
<thead>
<tr>
<th>word type</th>
<th>positive (+)</th>
<th>neutral (Ø)</th>
<th>negative (–)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3pp</td>
<td>219</td>
<td>9</td>
<td>0</td>
</tr>
<tr>
<td>4pp</td>
<td>20</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>5pp</td>
<td>20</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>total pp</td>
<td>259</td>
<td>9</td>
<td>0</td>
</tr>
<tr>
<td>3p</td>
<td>46</td>
<td>42</td>
<td>2</td>
</tr>
<tr>
<td>4p</td>
<td>133</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>5p</td>
<td>20</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>6p</td>
<td>10</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>7p</td>
<td>10</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>total p</td>
<td>518</td>
<td>49</td>
<td>5</td>
</tr>
</tbody>
</table>

**Figure 4.17**: Sign test for correspondence between syllable stress and syllable duration, examining antepenultimas and penultimas only.
Figure 4.18: First two verses of a medieval setting of Psalm 94, concordant with the Guidettian setting in Figure 4.3. Source: Liber hymnarius, 1983 (see fn. 7 for full citation).
Figure 4.19: Synoptic transcription of the opening excerpt of the first Psalm 94 setting in the Directorium chori (DC) and its concordant medieval version from the Liber hymnarius (LH). Barlines are those from the DC.
Deus magnus Dominus, et rex magnus super omnes
Deos quoniam non repellet Dominus
Plebem suam, quia in manu eius sunt omnes
Fines terrae, et altitudo montium
Ipse conspicit.
### Syllable Stress

<table>
<thead>
<tr>
<th>Syllable Stress</th>
<th>Mean Syllable Duration in Breve Units:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(N)</td>
<td>(1) LH</td>
</tr>
<tr>
<td>primary (1340)</td>
<td>1.419</td>
</tr>
<tr>
<td>secondary (212)</td>
<td>1.105</td>
</tr>
<tr>
<td>tertiary (2128)</td>
<td>1.295</td>
</tr>
</tbody>
</table>

### Paired t-tests

<table>
<thead>
<tr>
<th>Comparison</th>
<th>Stress</th>
<th>Mean Diff.</th>
<th>df</th>
<th>t</th>
<th>p</th>
<th>Significant?</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) - (2)</td>
<td>primary</td>
<td>0.107</td>
<td>1339</td>
<td>3.89</td>
<td>0.0001</td>
<td>yes</td>
</tr>
<tr>
<td></td>
<td>secondary</td>
<td>0.024</td>
<td>211</td>
<td>0.93</td>
<td>0.354</td>
<td>no</td>
</tr>
<tr>
<td></td>
<td>tertiary</td>
<td>-0.131</td>
<td>2127</td>
<td>-6.93</td>
<td>&lt;0.0001</td>
<td>yes</td>
</tr>
<tr>
<td>(1) - (3)</td>
<td>primary</td>
<td>0.222</td>
<td>1339</td>
<td>7.54</td>
<td>&lt;0.0001</td>
<td>yes</td>
</tr>
<tr>
<td></td>
<td>secondary</td>
<td>0.495</td>
<td>211</td>
<td>18.82</td>
<td>&lt;0.0001</td>
<td>yes</td>
</tr>
<tr>
<td></td>
<td>tertiary</td>
<td>-0.230</td>
<td>2127</td>
<td>-11.85</td>
<td>&lt;0.0001</td>
<td>yes</td>
</tr>
<tr>
<td>(2) - (3)</td>
<td>primary</td>
<td>0.114</td>
<td>1339</td>
<td>18.89</td>
<td>&lt;0.0001</td>
<td>yes</td>
</tr>
<tr>
<td></td>
<td>secondary</td>
<td>0.472</td>
<td>211</td>
<td>59.40</td>
<td>&lt;0.0001</td>
<td>yes</td>
</tr>
<tr>
<td></td>
<td>tertiary</td>
<td>-0.099</td>
<td>2127</td>
<td>-16.47</td>
<td>&lt;0.0001</td>
<td>yes</td>
</tr>
</tbody>
</table>

**Figure 4.20:** Comparison of syllable durations in the *Liber hymnarius* (medieval version), in the *Directorium chori* without rhythms, and in the *Directorium chori* with rhythms. Part 1 shows mean syllable duration in breve units by syllable stress. Part 2 shows the results of paired t-tests for all combinations of columns in Part 1.
CHAPTER 5

THE NOTATION AND RHYTHM OF THE EDITIO MEDICAEA (1614-15)

Along with the Directorium chori, the Editio Medicae or “Medicean Gradual” has become an icon of post-Tridentine plainchant reform, due in significant part to its connection, albeit indirect, with the work of Palestrina. An analysis of prosody and rhythm in the Medicean Gradual, comparable to the one performed on Guidetti’s work in the previous chapter, will further illuminate the principles of the plainchant reform movement. Such an analysis, however, cannot proceed on the basis of the current state of knowledge concerning the notation and rhythm of the Medicean Gradual. The correct method of deciphering the notation has apparently been lost to the passage of time. This chapter reconstructs the correct method of interpretation, thus enabling the prosodic-rhythmic analysis of the Medicean Gradual in the next chapter.

In contrast to Guidetti’s Directorium chori, the Medicean Gradual contains no explanation of its notation or correct rhythmic interpretation. Molitor, author of the classic study on post-Tridentine chant reform that is still definitive in many respects after 100 years, makes several telling observations concerning the notation of the Medicean Gradual, but nevertheless concludes that its editors were so unprincipled and inconsistent
that nothing about its rhythm can be deduced with certainty.\textsuperscript{1} Pfaff expresses the similar opinion that whatever rhythms may be concealed within the notational system, they remain obscure because the editors, Anerio and Soriano, did not clarify their working principles.\textsuperscript{2}

Other scholars apparently hold the position, even if not stated explicitly, that the melodies of the Medicean Gradual should be performed in equal note values. In a recent publication on postconciliar liturgical editions, Marco Gozzi places the Medicean Gradual in the category “Editions with Traditional Notation,” as opposed to editions with proportional notation or other kinds of rhythmic indications.\textsuperscript{3} Gozzi’s categorization implies that its chants should be performed with equal note values. In Apel’s treatment of the Medicean Gradual in \textit{Gregorian Chant}, he touches only briefly on a general tendency “toward a drastic reduction of the Gregorian melismas,” and on the marked avoidance of melismas on weak syllables.\textsuperscript{4} Meier’s treatment of the subject likewise focuses on the abbreviation of melismas, and also on pitch alterations for the sake of modal conformity and on the use of melodic formulas to explicate certain words.\textsuperscript{5} The

\begin{flushleft}
\textsuperscript{1} Molitor, \textit{Nach-Tridentinische Choral-Reform} II, 187ff. A closer consideration of Molitor’s arguments appears below.
\textsuperscript{2} Pfaff, “Die liturgische Einstimmigkeit,” 52.
\textsuperscript{3} Gozzi, “Le edizioni liturgico-musicali,” 46. The notation of the Medicean Gradual does have much in common with traditional chant notation, but the differences are critical, as will be seen.
\textsuperscript{4} Apel, \textit{Gregorian Chant}, 289.
\end{flushleft}
unspoken assumption of both Apel and Meier, along with Gozzi, seems to be that the melodies were to be performed in equal note values. In his comprehensive handbook on Western plainchant, David Hiley makes such an assumption explicit. He does bring up the issue of prosody, but links it only to syllable placement and not to rhythm as such: “The corner-stones of the revision [of the Medicean Gradual] were modernization of the tonality and rearrangement of the notes to reflect correct declamatory principles, so that unaccented syllables should not have more notes than unaccented ones.”

He then goes on to transcribe both medieval and Medicean versions of the gradual *Omnes de Saba*, using for both the standard transcription technique of black, round noteheads without tails, thus indicating an equalist interpretation for the Medicean Gradual.

This interpretation of Hiley’s appears to be at odds with his earlier stance in a contribution to a performance practice manual, where he concludes that “[t]he so-called Medicean edition of 1614-15 was published without an explanation of its note shapes, but appears to have been mensurally conceived, with the same system as in later editions of Guidetti.”

In the same vein, Haar seems to use the term “Medicean” as a loose synonym

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7 David Hiley, “Chant” in *Performance Practice: Music Before 1600*, ed. Howard Mayer Brown and Stanley Sadie (New York: Norton & Company, 1990): 49. As discussed above, the system found in later editions of Guidetti reduces the number of different note values from four to three, using the virga for both the full and reduced long, the square for the breve, and the lozenge for the semibreve. The possibility of a mensural interpretation of the Medicean note shapes is taken up below.
for “rhythmicized.” The *Grove Music Online* article on plainchant mentions “accentual declamation” in connection with the Medicean Gradual, but gives no further detail.\(^8\)

In light of the sketchy and divergent treatment of the Medicean Gradual’s rhythm in the secondary literature, a closer study of the issue from the ground up is called for. The rhythmic interpretation of the Medicean Gradual may be clarified by examining its notation and text underlay in the context of its forerunner, the *Directorium chori*, and in the context of contemporaneous theoretical testimony.

The notation of the Medicean Gradual is a modified version of the quadratic or “square” notation that first became prevalent in the twelfth century. Figure 5.1 compares traditional square notation with that of the Medicean Gradual. Medicean notation uses the same basic neumes, but in a neume with “stacked” pitches (that is, two pitches occupying the same vertical plane such as in the podatus, scandicus, and porrectus) it offsets the stacked pitch so that each pitch occupies a discrete vertical plane. This particular modification may have been motivated by typesetting considerations, since it reduces the number of different kinds of type needed. Medicean notation reserves the virga for special circumstances (see the discussion below); thus the climacus is modified (no descending stroke on first pitch) to avoid possible confusion. There are no repercussive neumes in the Medicean Gradual, since pitch repetitions occur exclusively across syllable boundaries. For longer melismas, it combines the basic neumes to create

\(^8\) Haar, “Monophony and the Unwritten Traditions,” 242.


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composite neumes in the same flexible, modular manner as square notation.\textsuperscript{10} Neither square notation nor that of the Medicean Gradual uses specialized neume forms such as the liquescence or the quilisma, as do the modern chant editions published by the Solesmes school.\textsuperscript{11} For the purpose of visual comparison, Figures 5.2 and 5.3 present extracts from a manuscript in square notation and from the Medicean Gradual, respectively.\textsuperscript{12}

In the Medicean Gradual, the virga appears to be used in a way that is significant for the interpretation of rhythm. To investigate this and other features of the Medicean Gradual, a representative sample of chants was chosen. The sample consists of the sung Proper mass items (the predominant focus of Graduals) from \textit{In Vigilia Nativitatis Domini} (Christmas Eve) to \textit{Dominica iii post Epiphaniam} (Third Sunday after Epiphany).\textsuperscript{13} After omission of the single Tract that appears in this segment of the liturgical calendar (“Effuderunt sanguinem” \textit{In festo SS. Innocentum} [Feast of the Holy Innocents]), and after omission of three feast days whose chants are simply repetitions of previous ones, the sample consists of 50 chants (10 each of the Introit, Gradual, Alleluia,

\textsuperscript{10} By contrast, Guidetti simply strings together as many \textit{puncta} as needed in his 1582 \textit{Directorium chori}.

\textsuperscript{11} To create their font, the Solesmes monks began with the basic shapes of square notation, but also incorporated specialized neumes from earlier notation types that were not found in square notation. See David Hiley and Janka Szendrai, “Notation, §III: History of Western notation, 1: Plainchant,” \textit{Grove Music Online}, ed. L. Macy (Accessed 17 November 2003) <http://www.grovemusic.com>.

\textsuperscript{12} \textit{Paleographie musicale} 3 (Solesmes, 1894; reprinted Berne: Editions Herbert Lang, 1974), plate 204A; Barrofio and Sodi, \textit{Graduale de Tempore}, 37.

\textsuperscript{13} This sample largely parallels the repertoire chosen by Apel from the \textit{Liber usualis} for his initial analysis of “the sustaining (melismatic) accent.” See \textit{Gregorian Chant}, 279-289.
Offertory, and Communion genres).\textsuperscript{14} Figure 5.4 lists the chants in the sample, along with liturgical contexts, genres, and item numbers in the facsimile edition of the Medicean Gradual.\textsuperscript{15} As in previous analyses, words of Hebrew origin are taken out of consideration, since their accentuation in a Latin context is ambiguous.

The virga appears most commonly over the stressed antepenultimas of proparoxytones. At times it appears alone over such syllables, as in the words \textit{glóriam} and \textit{hábitant}, but more frequently it appears as the last pitch in a melisma, as in the words \textit{hódie}, \textit{véniet}, \textit{vidébitis}, and others (these words may be viewed in context in Figure 5.3). The editors of the Medicean Gradual were highly though not perfectly consistent in their application of virgas to proparoxytones. Of the 216 proparoxytones in the sample delineated above, 203 of them (94\%) have a virga on the antepenultima. In 181 of those cases, the antepenultima carries a melisma that concludes with a virga, while in the remaining 22 cases, the antepenultima bears just a single virga. The immediately following unstressed penultima is always set to a single punctum.

The virga’s role in the Medicean Gradual with respect to proparoxytones is strikingly similar to that of the breve-with-corona (that is, the reduced long of one-and-a-half tempora) in Guidetti’s \textit{Directorium chori}. Of the 259 proparoxytones in the \textit{Venite} settings, 250 of them (97\%) have a reduced long on the stressed antepenultima. In 105 of

\textsuperscript{14} The standard Doxology verses of introits are left out of the sample since only incipits are given in the edition; furthermore, even if the incipits were to be fully expanded for the encoding, the frequent repetition of these standard melodies might unduly influence the analytical results.

\textsuperscript{15} Baroffio and Sodi, \textit{Graduale de Tempore}. In this edition, subsections of chants (e. g., responds and verses of graduals) are given separate numbers.
those cases, the antepenultima carries a melisma that concludes with the reduced long, while in the remaining 145 cases, the antepenultima bears just a single virga.\textsuperscript{16} As seen in the previous chapter, the presence of a reduced long in the \textit{Directorium chori} always signals the beginning of a proparoxytone formula: $l$–$s$–$b$. Since the later editions of the \textit{Directorium chori} use virgas to indicate reduced longs, perhaps the virgas in the Medicean Gradual also indicate reduced longs and the inevitable proparoxytone formula that they initiate.

A small number (3\%) of the proparoxytones in the \textit{Directorium chori} sample are not treated with the proparoxytone formula. A similarly small number of exceptions to the use of virgas over stressed antepenultimas (6\%) occurs in the Medicean Gradual sample.

While the majority of virgas do appear over proparoxytones in the Medicean Gradual, they occasionally appear in other situations, too, usually at the beginning of a phrase or at the end of a phrase, often in a cadential situation (descending second or third at the end of a phrase). The respond of the gradual “Benedictus qui venit” provides an example of both situations (see Figure 5.5). It seems unlikely that the virga over $Be$ of \textit{Benedictus} (first note) and the one over $no$ of $nobis$ (penultimate note) should be interpreted as reduced longs as they would be in connection with proparoxytones. A comparison with the unambiguous \textit{Directorium chori} again provides illumination. The

\textsuperscript{16} This reflects the more syllabic style of the \textit{Venite} settings as compared to the Medicean Gradual proper settings. The \textit{Venite} settings average only 1.3 notes per syllable, while the Medicean Gradual sample averages 2.15 notes per syllable.
phrase-initial virgas have no counterpart in the *Venite* settings, but situations comparable to the phrase-ending virgas can be found. In the *Venite* settings, the breve-with-dotted-corona symbol (full long of two tempora) appears almost exclusively as the penultimate note of a phrase in a cadential gesture (see Figure 5.6 for an example). This suggests that the analogous virgas in the Medicean Gradual should also be interpreted as perfect longs of two tempora. The phrase-initial virgas of the Medicean Gradual have no clear precursor in the *Directorium chori*, as mentioned, but it seems reasonable to assume on the basis of the correspondences just discussed that all non-proparoxytonic virgas should be interpreted as full longs of two tempora. If there are systematic reasons why a certain few phrases and not others should begin with a perfect long, or why a certain few cadences and not others should be elongated, they are not immediately apparent.

There are a very few ambiguous cases of virgas that do not fit any of the above categories (i. e., over a proparoxytone, at the beginning of a phrase, or as part of a cadence at the end of a phrase). One such case merits further consideration because it demonstrates the vagaries of the typesetting process. The word *Puer* at the beginning of the introit *Puer natus est nobis* (for The Mass of the Day on Christmas) sports an anomalously located virga on its first syllable, which at face value indicates a full, two-tempora long (see Figure 5.7). When this chant is later repeated for both the Octave of the Nativity and the Circumcision, however, it appears in new typesettings and the anomalous virga is gone. While not provable as an error, this case does at least suggest that the possibility for error existed. Such marginal inconsistencies, though, should not
distract from the otherwise consistent use of virgas to indicate local elongations of the basic unit of time.

In the *Directorium chori*, the basic unit of time is the breve of one tempus. It is interrupted only by the proparoxytone formula and by the occasional cadential full long. If the parallel between the Medicean Gradual and the *Directorium chori* is valid, the basic note value of the Medicean Gradual is also the breve of one tempus.

On the basis of the foregoing observations, one can make the following proposals concerning the rhythm of the Medicean Gradual. Despite its traditional square notation, the Medicean Gradual should be performed in a manner similar to editions featuring proportional notation such as Guidetti’s *Directorium chori*. The virgas over the antepenultimas of proparoxytones should be treated as reduced longa of one and a half tempora; the following punctum over the penultima should be treated as a semibreve of one-half tempus. All virgas not associated with proparoxytones should be treated as full longs of two tempora. All other notes should be treated as breves of one tempus. Figure 5.8 presents the gradual *Benedictus qui venit*, transcribed according to these proposals (the original notation appears in Figure 5.5).

The Medicean Gradual was created as a “private edition,” intended more as a beautiful document and less as a practical singer’s tool. (By contrast, Guidetti’s *Directorium chori* was specifically intended for the practical use of liturgical singers.) Anerio and Soriano achieved the best of both worlds: they retained the visually pleasing
neumatic notation of tradition, but also incorporated the necessary cues for a rhythmic interpretation.

If the proposed interpretation of Medicean notation is correct, one puzzling feature remains to be explained. Why are the isolated puncta on the penultimas of proparoxytones given as squares instead of the lozenges that one might expect by analogy with the Directorium chori? This practice, although it seems to have contributed to the modern uncertainty concerning the rhythm of the Medicean Gradual, must have been intended by the editors to disambiguate the notes in question from the lozenge-shaped mediocres of the climacus neumes. In other words, if the notes in question appeared as lozenges and were to be interpreted as semibreves, one might be tempted to interpret the mediocres of climacus neumes as semibreves also. Then it would be but a short step to interpreting the entire notation as if it were the mensural notation of polyphony.

Some confusion between chant notation and mensural notation apparently did occur. Chant and polyphony coexisted, of course, and singers often performed both. As Richard Sherr observes, “singers with polyphonic training could not have helped noticing that the ligatures and basic note forms of chant were the same as those of mensural notation, and this might have had an effect on their methods of performance.”¹⁷

Furthermore, a particular tradition of measured performance of certain chants probably helped blur the distinction between chant notation and mensural notation. Hiley states that “a small number of chants, in sources from the 13th century onwards, are to be found

in mensural notation. These are almost exclusively chants with texts in regular accentual verse, such as sequences. One such chant was *Veni sancte spiritus*, one of the few sequences to survive the Council of Trent. Haar conjures up an array of polyphonic paraphrases of *Veni sancte spiritus* by Dufay, Josquin, Willaert, Palestrina, and Victoria to show that these composers must have been familiar with a mensural version of it.

Most mensurally notated chants remained a marginal phenomenon, but a particular Credo melody did gain wide currency. One of the earliest printed examples appears in a gradual edited by Francis of Bruges, published in Venice by Giunta in 1499. In the opening excerpt given of it in Figure 5.9, one can note the use of a “cut-C” time signature (*tempus imperfectum diminutum*), the use of longs, semibreves, and minims (oddly, no breves are used), and the use of ligatures with opposite propriety (e. g., over the syllable -ten- in the word *omnipotentem* on the first line). A curious feature of this print is its use of what might be called “distropha longs,” two longs placed together over a single syllable to achieve a double-long note value (see the word *Patrem*, for example). This appears to have been done under the influence of the fleeting phenomenon known as stroke notation, in which a single stroke indicated one tempus,

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20 Hiley, “Chant,” 49.

two strokes indicated two tempora, and so on.\textsuperscript{22} Figure 5.10 presents a transcription of the excerpt.\textsuperscript{23}

This Credo melody seems to have been composed in the early 15th century, and, as Sherr observes, “the vast majority of the sources of this chant present it as a \textit{cantus fractus}\textsuperscript{24} (i. e., a chant notated mensurally). It is referred to as the “Credo Maior” or as some variant of “Credo Cardinale” in various sources.\textsuperscript{25} It appears in the \textit{Liber usualis} as Credo IV, in the standard notation for that edition, which ironically is an anachronistic imposition of an equalist interpretation on this particular melody.\textsuperscript{26}

Several theorists of the Renaissance attest to the practice of singing from chant notation as if it were mensural notation, and some of them specifically mention the \textit{Credo cardinale} in this connection. Sherr states that later theorists who advocated equal note performance of virgæ, punctæ, and ligatures imply that mensural interpretations might influence singers. For instance, they admit that the notes that looked like semibreves (called \textit{mediocres}) in the climacus or virga subtripunctis neumes often were sung twice as fast as the ‘breves’ (punctæ) and ‘longs’ (virgæ), although they clearly do not like the practice.\textsuperscript{27}

\begin{itemize}
\item \textsuperscript{22} Richard Rastall, \textit{The Notation of Western Music} (London: J. M. Dent & S Ltd, 1983), 106. See also More, \textit{The performance of plainsong}, 134.
\item \textsuperscript{23} Guidance for this task was taken from a similar transcription appearing in Sherr, “Chant in the Renaissance,” 186-87.
\item \textsuperscript{24} Sherr, “Chant in the Renaissance,” 184.
\item \textsuperscript{25} Sherr, “Chant in the Renaissance,” 183.
\item \textsuperscript{26} The Benedictines of Solesmes, ed., \textit{The Liber Usualis, with introduction and rubrics in English} (Tournai: Desclée, 1961).
\item \textsuperscript{27} Sherr, “Chant in the Renaissance,” 181.
\end{itemize}
In his *Practica Musicae* of 1496, Gaffurius has this comment on *mediocres*:

> These however are equal in pronunciation and rhythmic value, although some sing them twice as fast as the others, which we believe to be done not according to reason, but according to the whim of the singer.\(^{28}\)

In a different place he says:

> There are those who write these notes of the plain chant all alike, and at the same time, count them in mensurable dimensions as longs, breves, and semibreves. This is evident in the *Symbolum cardineum* [i. e., Credo Cardinale] and in several sequences and hymns.\(^{29}\)

While mensural settings of hymns and sequences might be regarded as a natural outgrowth of the accentual verse in those texts, mensural settings of the prose Credo text need another explanation. Perhaps the length and wordiness of the Credo text called for some method of livening up its performance in order to minimize fatigue and boredom.

Lanfranco and Zarlino broach the subject briefly in the context of discussing text setting in polyphony. In his *Scintille di musica* of 1533, Lanfranco observes that

> in chant, syllables are placed only on square notes, except occasionally where by custom the *mezzane* are sung in duple proportion [and have separate syllables], as can be seen in Credos and other chants.\(^{30}\)

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Mezzane is Lanfranco’s word for mediocres. Zarlino’s comments on the matter in his Le istitutione harmoniche of 1558 are derivative of Lanfranco’s:

As may be observed in chant, being that every square note should have its own syllable, excepting occasionally [when] the mezzane [do], which are sung like minimis, and also like semiminims, as can be seen in many chants, especially in the Credo in unum deum which they call ‘Cardinalesco.’

One must be careful to distinguish between two different but interrelated practices: the interpretation of traditional chant notation as if it were mensural notation, and the writing of chant melodies in actual mensural notation of some sort. It is not clear which came first, but it does appear that the two practices exerted mutual influence upon each other.

These discussions of pseudo-mensural performance (i.e., reading square chant notation as if it were mensural notation) and of the genuinely mensural Credo cardinale help to explain the puzzling feature of Medicean notation raised above, namely the practice of giving a square punctum instead of a lozenge-shaped one the post-accent weak syllable in a proparoxytone. The decision to use square chant notation with an overlay of rhythmically significant virgas led to the potential for the mistaken interpretation of the mediocres of climacus neumes as semibreves. If the semibreves of proparoxytonic penultimas were to be performed as half a tempus, it would be easy to assume that mediocres should be too, and from there to assume that all the signs had mensural significance when in fact they did not. To avoid this, the editors simply

31 In a footnote in “Chant in the Renaissance,” Sherr brings up an interesting translation issue surrounding this point: “It seems incorrect to translate ‘mezzane’ [as] ‘middle notes,’ as many . . . do. For one thing, ‘mezzana’ is a legitimate Italian word meaning ‘flooring tiles,’ and was probably used because of its reference to the diamond shape of the notes, not to their position within ligatures.”

32 Zarlino, Le istitutione harmoniche.
rendered the semibreves as square puncta instead, and relied on interpreters of the notation to understand that proparoxytones ought to be performed with the dotted rhythm of the proparoxytone formula.

There are a small number of chants in the Medicean Gradual in which the standard editorial principles concerning prosody and rhythm are temporarily suspended. For each of these chants, however, a specific reason can be adduced for the departure, and so they are the exceptions that prove the rule rather than an undermining of the standards evident throughout the rest of the edition.

Not surprisingly, one such exceptional chant is the edition’s rendition of the *Credo cardinale*, the opening excerpt of which is reproduced in Figure 5.11. A number of clues leads to the conclusion that the notation of this chant is not quite commensurate with the rest of the edition. The repertoire of symbols is the same, but they are used somewhat differently. One sees mid-phrase virgas not associated with proparoxytonic antepenultimas, such as on the last syllable of *visibílium* and on the first syllable of *Dei* (on staves 2 and 4 respectively). One also sees proparoxytones without their signature virgas in a greater number than can be explained away as rare exceptions, e. g., *visibílium, ómnium, Dóminum*, and *unigénitum* (all within the first few stave of the excerpt). Virgas appear as the final notes of several phrases, whereas they never do in the rest of the book. These clues, together with the long tradition of singing this particular *Credo* melody in a measured manner, indicate that the notation of this chant should be interpreted somewhat differently. Squares remain breves, but the lozenge-shaped...
mediocres should probably be performed in this case as semibreves (e. g., over the penultimas of “omnipoténtem” and “terrae”). Virgas not over the antepenultimas of proparoxytones should be interpreted in the standard fashion as longs of two tempora. For virgas that do appear over the antepenultimas of proparoxytones, it seems that some should be interpreted in the usual way as longs of one-and-a-half tempora (and the following square punctum as a semibreve), but in other cases as longs of two tempora (with the following square punctum as a breve). With Francis of Bruges’s Credo cardinale as a guide (see Figure 5.9), a reasonably secure transcription can be given (see Figure 5.12).

One other Credo in the Medicean Gradual receives a mensural treatment (see Figure 5.13 for an excerpt). One can assume that this melody also enjoyed a tradition of mensural performance. In this chant, there can be no doubt that the individual lozenge-shaped signs should be treated as semibreves (e. g., over visibílium in the second stave). A feature of this chant that is unique within the edition is the use of c.o.p. ligatures (ligatura cum opposita proprietate or ligatures with opposite propriety, i. e., with an upward stroke on the left). These can be seen over the words ómnium, invisibílium, and natum, and they always express the same phrase-ending melodic formula. According to the conventions of mensural notation, the first two notes of these c.o.p. ligatures are semibreves, and the last note is a breve. Thus for instance the rhythm of natum (fifth stave) would be ssb–L.
As quoted above, Gaffurius mentions “several sequences and hymns” in addition to the *Credo cardinale* that singers were wont to perform with “mensurable dimensions,” probably in response to their metrical texts. The small number of hymns that appear in the Medicean Gradual, however, are treated in the standard fashion of the rest of the edition. The same holds true for the most part in the four Trent-approved sequences that appear in the edition, but with these there are a few quirks or other facts that merit attention. In spite of evidence mentioned above that a mensural version of the sequence *Veni sancte Spiritus* had wide currency, the Medicean Gradual’s version of it (vol. 1, ff. 188v-190) shows the standard treatment. The famous *Dies irae* (vol. 1, ff. 264-267) also receives the standard treatment, which in this case has a paltry two proparoxytones to deal with, on account of the text’s almost exclusive use of paroxytones in order to create an insistent accentual rhythm. In the sequence *Victimae paschali laudes* (vol. 1, ff. 159-160), several non-standard mid-phrase longs (i.e., not associated with proparoxytones) appear, perhaps as a minimal accommodation to the metrical text. Finally, the sequence *Lauda Sion* (vol. 1, ff. 205v-209v) presents a few curious features (see Figure 5.14 for the opening excerpt). It begins with one of the very few anomalous symbols in the edition: the first notehead has an upward stroke on the right. More importantly, it contains what appear to be hand-made corrections, at least in the copy from which the facsimile edition was made. The notes above *pastórem*, for instance (second stave), are larger than normal and irregularly formed. Other hand-drawn

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33 Haar, “Monophony and the Unwritten Traditions,” 241-46.
symbols include lozenge-shaped notes above the unstressed penultimas of proparoxytones (see cánticis on the second stave and propónitur on the sixth). This appears to be the only place in the edition where the standard graphic conventions for setting proparoxytones are violated. Other proparoxytone settings without manual intervention in this sequence retain the standard convention (e. g., see súfficis on the fourth stave). These observations lead to the conjecture that whoever made the revisions by hand lapsed into the much more common and less idiosyncratic practice of using lozenge-shaped semibreves for such syllables. The revised settings of these particular words now appear just as they would have in later editions of Guidetti’s Directorium chori and in other printed chant editions of the time. Thus, the Medicean Gradual’s rendition of Lauda Sion serendipitously offers converging evidence in favor of the interpretation of the edition’s rhythm advanced in this chapter.

Now that a rationale has been advanced for the idiosyncratic but internally consistent editorial principles concerning notation and rhythm in the Medicean Gradual (with duly noted exceptions), Molitor’s assessment of the edition may be addressed in greater detail. He holds a generally negative opinion of the quality of Anerio’s and Soriano’s workmanship: in terms of expressive power, the revised chants are impoverished in comparison to both traditional chant and polyphony,34 and the application of note signs with respect to the prosody of the text is inconsistent and

34 Molitor, Nach-Tridentinische Choral-Reform II, 193.
arbitrary to the point that the poor singer has no choice but to give up in confusion.\textsuperscript{35} He feels that one cannot turn to Guidetti for clarification because the \textit{Directorium chori} and the Medicean Gradual are simply incommensurable, an opinion that seems to be based largely on the observation that while Guidetti consistently uses the rhombus (lozenge) over unaccented syllables following the word accent, the Medicean Gradual avoids doing so.\textsuperscript{36} Molitor missed the crucial interpretive step that such notes in the Medicean Gradual are semibreves in value but not in appearance, as argued above. Some of Molitor’s frustration also seems to stem from his notion that the editors ought to have been sensitive to syllable quantity (i. e., long and short in the pure sense, not as substitutes for stressed and unstressed),\textsuperscript{37} when in fact it appears that they were concerned solely with syllable stress.

Molitor makes many useful observations on the Medicean Gradual. The most important of these for the present discussion are listed here: the editors rejected the principle of the equal worth of the notes; melismas are avoided over unaccented syllables immediately after the word accent; the frequent use of the virga over accented syllables indicates a special meaning for it; neumes over accented syllables usually conclude with a virga, when the following syllable is “short.”\textsuperscript{38} On the basis of these observations,

\begin{footnotesize}
\begin{itemize}
\item[37] Molitor, \textit{Nach-Tridentinische Choral-Reform} II, 190: see point number 4.
\item[38] Molitor, \textit{Nach-Tridentinische Choral-Reform} II, 188, 192.
\end{itemize}
\end{footnotesize}
Molitor seems poised to take the final steps toward an interpretation similar to the one offered here. Instead, he highlights a few counterexamples that he believes undermine the whole enterprise, such as proparoxytones without a virga on the accented antepenultima, virgas on the accented penultimas of paroxytones and on monosyllables, virgas at the beginnings of chants and on the final syllables of phrases, and the same word being set differently in different locations.\(^{39}\) Perhaps he is only hyperbolizing when he says that “a hundred” such examples could be dredged up,\(^{40}\) but even if this were true, it would still be a very small number in comparison to the many thousands of consistently set words.

Two of the counterexamples brought up by Molitor deserve particular mention, because they reside in the mensural Credos discussed above. He objects to virgas over final syllables as in the word *visibilium* (see Figure 5.11, second stave), but these derive from the independent mensural rhythm of the *Credo cardinale* tradition rather than from an editor’s lack of sensitivity to prosody. Molitor also puzzles over the single rhombs (lozenges) in the edition’s one other mensural Credo (see Figure 5.13) that have no counterpart elsewhere (except by accident in *Lauda Sion*; see Figure 5.14). Again, these are due to a suspension of normal principles in deference to the tradition of performing this Credo melody mensurally.


\(^{40}\) Molitor, *Nach-Tridentinische Choral-Reform II*, 192.
While due respect must be paid to the fine scholarship of Molitor, enough evidence exists to challenge his conclusions concerning the notation and rhythm of the Medicean Gradual. The producers of the edition were actually rather conscientious; the number of editorial gaffes and typographical errors is far smaller than one might expect in an undertaking of this magnitude. Though highly consistent in their application of editorial principles, the editors did not put a straitjacket on themselves. In a limited number of cases other factors apparently took precedence over a perfect rendition of the prosody, and for a few entire chants they were willing to suspend standard practice out of respect for an established performing tradition.

The interpretation of Medicean notation and rhythm offered here may be called the “declamatory rhythmic interpretation” (DRI), to be distinguished from both an equalist interpretation and a pseudo-mensuralist interpretation (PMI). The implications of DMI for historically informed performance of early music may be demonstrated in connection with a recent recording of Philippe Herreweghe, produced in collaboration with two well-known early music ensembles, Ensemble Vocal Européen de la Chapelle Royale, and Ensemble Organum (founded by Marcel Pérès). It is a recording of Palestrina’s *Missa Viri Galilaei*. Chanted propers are interspersed among Palestrina’s polyphonic ordinaries, as they might have been in an actual liturgical performance. To achieve an historically informed performance, the propers are drawn from the Medicean Gradual, from the Ascension feast. Realizing a performance such as this requires one to

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commit to an interpretation of the rhythm. The performers in this recording seem to be using the pseudo-mensuralist interpretation (i.e., the chant notation is read as if it were mensural notation). As argued above, this is precisely the eventuality that Anerio and Soriano attempted to avoid by using squares instead of lozenges on the weak penultimas of proparoxytones.

Figure 5.15 presents the choral respond of the introit *Viri Galilaei* from the Medicean Gradual. Figure 5.16 presents a synoptic transcription of this segment both according to the Herreweghe recording (using PMI), and according to the newly proposed DRI. The points of disagreement are several. In the PMI transcription, the lozenges are sung as semibreves (see *admirámini* and the last *allelúia*), whereas in the DRI transcription, they are given as breves (quarter notes). In the PMI, square puncta on weak penultimas of proparoxytones are sung as breves and do not reduce the previous longs, but in the DRI, these signs are given as semibreves (eighth notes) and do reduce the previous longs (see *admirámini* and *quemádmodum*). Finally, in the PMI, the neumes are read as though they appear in a mensural context. For example, the three-pitch neume on the first syllable of *Galiláei* is read as a ligature with both propriety and perfection, resulting in $bbL$ (quarter-quarter-half in the transcription). The ascending three-pitch neume on the first syllable of *caelum* is read as a ligature with propriety but

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42 This is the principle informing the choral sections, at any rate. The solo sections, while using a variety of durations, exhibit a considerable amount of rhythmic freedom such that any systematic interpretive principle seems to have been suspended.

without perfection, resulting in $bbb$. The pitch marked with an asterisk in Figure 5.16 highlights an inconsistency in this recorded performance; it is sung as a breve instead of a long as it ought to be according to PMI). In the DRI transcription, the neumes have no mensural significance apart from the role of the virga. In the PMI transcription, the “turn” sign indicates a florid, improvisatory transition between syllables; it occurs once in this segment and several times in the other propers, especially in the solo sections. This is a performance decision unrelated to the issue of rhythm.

Both PMI and DRI have a certain legitimacy for those seeking to produce historically informed performances. Based on the testimony of the theorists discussed above, erroneous PMI performances presumably did occur, although how frequent they were in proportion to DRI performances is difficult to say. If the arguments presented in this chapter are correct, a DRI performance would accurately reflect the intentions of the editors.
<table>
<thead>
<tr>
<th>Symbol / Neume</th>
<th>Square notation</th>
<th>Medicean notation</th>
</tr>
</thead>
<tbody>
<tr>
<td>virga</td>
<td></td>
<td>same, but reserved for special circumstances</td>
</tr>
<tr>
<td>punctum</td>
<td></td>
<td>same</td>
</tr>
<tr>
<td>podatus (pes)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>clivis</td>
<td></td>
<td>same</td>
</tr>
<tr>
<td>scandicus</td>
<td></td>
<td></td>
</tr>
<tr>
<td>climacus</td>
<td></td>
<td></td>
</tr>
<tr>
<td>torculus</td>
<td></td>
<td>same</td>
</tr>
<tr>
<td>porrectus</td>
<td></td>
<td></td>
</tr>
<tr>
<td>repercussive neumes,</td>
<td></td>
<td>none</td>
</tr>
<tr>
<td>e.g. distropha</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Figure 5.1:** Comparison of square notation and Medicean notation.
Figure 5.2: Example of quadratic or “square” notation.
Figure 5.3: The Introit *Hodie scietis* from the Medicean Gradual.
<table>
<thead>
<tr>
<th>liturgical context</th>
<th>title</th>
<th>genre</th>
<th>item #</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>In Vigilia Nativitatis Domini</strong></td>
<td><strong>Hodie scietis</strong></td>
<td>introit</td>
<td>101-103</td>
</tr>
<tr>
<td>(Christmas Eve)</td>
<td><strong>Hodie scietis</strong></td>
<td>gradual</td>
<td>104-05</td>
</tr>
<tr>
<td></td>
<td><strong>Crastina die</strong></td>
<td>alleluia</td>
<td>106-107</td>
</tr>
<tr>
<td></td>
<td><strong>Tollite portas</strong></td>
<td>offertory</td>
<td>108</td>
</tr>
<tr>
<td></td>
<td><strong>Revelabitur</strong></td>
<td>communion</td>
<td>109</td>
</tr>
<tr>
<td><strong>In Nativitate Domini,</strong></td>
<td><strong>Dominus dixit</strong></td>
<td>introit</td>
<td>110-112</td>
</tr>
<tr>
<td><strong>Ad Primam Missam in nocte</strong></td>
<td><strong>Tecum principium</strong></td>
<td>gradual</td>
<td>113-116</td>
</tr>
<tr>
<td>(The Nativity of Our Lord,</td>
<td><strong>Dominus dixit</strong></td>
<td>alleluia</td>
<td>115-116</td>
</tr>
<tr>
<td>Midnight Mass)</td>
<td><strong>Laetentur caeli</strong></td>
<td>offertory</td>
<td>117</td>
</tr>
<tr>
<td></td>
<td><strong>In splendoribus</strong></td>
<td>communion</td>
<td>118</td>
</tr>
<tr>
<td><strong>In Nativitate Domini,</strong></td>
<td><strong>Lux fulgebit</strong></td>
<td>introit</td>
<td>119-121</td>
</tr>
<tr>
<td><strong>Ad Secundum Missam in aurora</strong></td>
<td><strong>Benedictus qui venit</strong></td>
<td>gradual</td>
<td>122-125</td>
</tr>
<tr>
<td>(The Nativity of Our Lord</td>
<td><strong>Dominus regnavit</strong></td>
<td>alleluia</td>
<td>124-125</td>
</tr>
<tr>
<td>The Mass at Dawn)</td>
<td><strong>Deus firmavit</strong></td>
<td>offertory</td>
<td>126</td>
</tr>
<tr>
<td></td>
<td><strong>Exulta filia Sion</strong></td>
<td>communion</td>
<td>127</td>
</tr>
<tr>
<td><strong>In Nativitate Domini,</strong></td>
<td><strong>Puer natus</strong></td>
<td>introit</td>
<td>128-130</td>
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<tr>
<td><strong>Missam in die Nativitatis Domini</strong></td>
<td><strong>Viderunt omnes</strong></td>
<td>gradual</td>
<td>131-134</td>
</tr>
<tr>
<td>(The Nativity of Our Lord</td>
<td><strong>Dies sanctificatus</strong></td>
<td>alleluia</td>
<td>133-134</td>
</tr>
<tr>
<td>The Mass of the Day)</td>
<td><strong>Tui sunt caeli</strong></td>
<td>offertory</td>
<td>135</td>
</tr>
<tr>
<td></td>
<td><strong>Viderunt omnes</strong></td>
<td>communion</td>
<td>136</td>
</tr>
<tr>
<td><strong>In festo S. Stephani protomart.</strong></td>
<td><strong>Sederunt principes</strong></td>
<td>introit</td>
<td>137-139</td>
</tr>
<tr>
<td>(St. Stephen, the First Martyr)</td>
<td><strong>Sederunt principes</strong></td>
<td>gradual</td>
<td>140-141</td>
</tr>
<tr>
<td></td>
<td><strong>Video caelos</strong></td>
<td>alleluia</td>
<td>142-143</td>
</tr>
<tr>
<td></td>
<td><strong>Elegerunt Apostoli</strong></td>
<td>offertory</td>
<td>144</td>
</tr>
<tr>
<td></td>
<td><strong>Video caelos</strong></td>
<td>communion</td>
<td>145</td>
</tr>
</tbody>
</table>

*(continued)*

**Figure 5.4:** The 50 chants from the Medicean Gradual used as a sample for analysis. The “item #” column refers to the sequential numbering of individual items in the facsimile edition of the Medicean Gradual.
**Figure 5.4:** continued.

<table>
<thead>
<tr>
<th>liturgical context</th>
<th>title</th>
<th>genre</th>
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<tbody>
<tr>
<td><em>In festo s. Ioannis Apostoli, &amp; Evang.</em></td>
<td><em>In medio Ecclesiae</em></td>
<td>introit</td>
<td>146-148</td>
</tr>
<tr>
<td>(St. John, the Apostle and Evangelist)</td>
<td><em>Exit sermo</em></td>
<td>gradual</td>
<td>149-150</td>
</tr>
<tr>
<td></td>
<td><em>Hic est</em></td>
<td>alleluia</td>
<td>151-152</td>
</tr>
<tr>
<td></td>
<td><em>Iustus ut palma</em></td>
<td>offertory</td>
<td>153</td>
</tr>
<tr>
<td></td>
<td><em>Exit sermo</em></td>
<td>communion</td>
<td>154</td>
</tr>
<tr>
<td><em>In festo SS. Innocentum</em></td>
<td><em>Ex ore infantium</em></td>
<td>introit</td>
<td>155-157</td>
</tr>
<tr>
<td>(Feast of the Holy Innocents)</td>
<td><em>Anima nostra</em></td>
<td>gradual</td>
<td>161-162</td>
</tr>
<tr>
<td></td>
<td><em>Laudate pueri</em></td>
<td>alleluia</td>
<td>163-164</td>
</tr>
<tr>
<td></td>
<td><em>Anima nostra</em></td>
<td>offertory</td>
<td>169</td>
</tr>
<tr>
<td></td>
<td><em>Vox in Rama</em></td>
<td>communion</td>
<td>170</td>
</tr>
<tr>
<td><em>In festo S. Thomae Episcopi &amp; mart.</em></td>
<td><em>Gaudeamus omnes</em></td>
<td>introit</td>
<td>171-173</td>
</tr>
<tr>
<td>(St. Thomas, Bishop and Martyr)</td>
<td><em>Ecce sacerdos</em></td>
<td>gradual</td>
<td>174-175</td>
</tr>
<tr>
<td></td>
<td><em>Ego sum</em></td>
<td>alleluia</td>
<td>176-177</td>
</tr>
<tr>
<td></td>
<td><em>Posuisti Domine</em></td>
<td>offertory</td>
<td>178</td>
</tr>
<tr>
<td></td>
<td><em>Ego sum</em></td>
<td>communion</td>
<td>179</td>
</tr>
<tr>
<td>Dominica infra Octavum Nativitatis</td>
<td><em>Dum medium</em></td>
<td>introit</td>
<td>180-182</td>
</tr>
<tr>
<td>Domini</td>
<td><em>Speciosus forma</em></td>
<td>gradual</td>
<td>183-184</td>
</tr>
<tr>
<td>(Sunday within the Octave of Christmas)</td>
<td><em>Dominus regnavit</em></td>
<td>alleluia</td>
<td>185-186</td>
</tr>
<tr>
<td></td>
<td><em>Deus firmavit</em></td>
<td>offertory</td>
<td>187</td>
</tr>
<tr>
<td></td>
<td><em>Tolle puerum</em></td>
<td>communion</td>
<td>188</td>
</tr>
<tr>
<td>Missa de Octava Nativitatis Domini</td>
<td><em>omitted; repeat of In Nativitate Domini, Ad Tertiam Missam in die Nativitatis Domini</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Within the Octave of the Nativity)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>In festo S. Silvestri, Papae</em></td>
<td><em>Sacerdotes tui</em></td>
<td>introit</td>
<td>198-200</td>
</tr>
<tr>
<td>&amp; Confessoris</td>
<td><em>Ecce sacerdos</em></td>
<td>gradual</td>
<td>201-202</td>
</tr>
<tr>
<td>(St. Sylvester, Pope and Confessor)</td>
<td><em>Invent David</em></td>
<td>alleluia</td>
<td>203-204</td>
</tr>
<tr>
<td></td>
<td><em>Invent David</em></td>
<td>offertory</td>
<td>205</td>
</tr>
<tr>
<td></td>
<td><em>Beatus servus</em></td>
<td>communion</td>
<td>206</td>
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</table>

(continued)
**Figure 5.4:** continued.

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<th>title</th>
<th>genre</th>
<th>item #</th>
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<tr>
<td><em>In circuncisione Domini &amp; Octava Nativitatis</em></td>
<td><em>omitted; repeat of In Nativitate Domini,</em></td>
<td></td>
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<tr>
<td>(The Circumcision of our Lord and Octave of the Nativity)</td>
<td><em>Ad Tertiam Missam in die Nativitatis Domini</em></td>
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<td></td>
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<tr>
<td><em>In Vigilia Ephiphaniae</em></td>
<td><em>omitted; repeat of Dominica infra Octavum</em></td>
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<tr>
<td>(Eve of the Epiphany)</td>
<td><em>Nativitas Domini</em></td>
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<tr>
<td><em>In Epiphania Domini</em></td>
<td>Ecce advenit</td>
<td>introit</td>
<td>229-231</td>
</tr>
<tr>
<td>(The Epiphany of our Lord)</td>
<td>Omnes de Saba</td>
<td>gradual</td>
<td>232-233</td>
</tr>
<tr>
<td></td>
<td>Vidimus stellam</td>
<td>alleluia</td>
<td>234-235</td>
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<tr>
<td></td>
<td>Reges Tharsis</td>
<td>offertory</td>
<td>236</td>
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<tr>
<td></td>
<td>Vidimus stellam</td>
<td>communion</td>
<td>237</td>
</tr>
<tr>
<td><em>Dominica infra Octava Ephiphaniae</em></td>
<td>In excelso</td>
<td>introit</td>
<td>238-240</td>
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<tr>
<td>(Sunday within the Octave of the Epiphany)</td>
<td>Benedictus Dominus</td>
<td>gradual</td>
<td>241-242</td>
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<td></td>
<td>Iubilate Deo</td>
<td>alleluia</td>
<td>243-244</td>
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<tr>
<td></td>
<td>Iubilate Deo</td>
<td>offertory</td>
<td>245</td>
</tr>
<tr>
<td></td>
<td>Fili, quid fecisti</td>
<td>communion</td>
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<tr>
<td><em>Dominica ii post Epiphaniam</em></td>
<td>Omnis terra</td>
<td>introit</td>
<td>247-249</td>
</tr>
<tr>
<td>(Second Sunday after Epiphany)</td>
<td>Misit Dominus</td>
<td>gradual</td>
<td>250-251</td>
</tr>
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<td>Laudate Dominum</td>
<td>alleluia</td>
<td>252-253</td>
</tr>
<tr>
<td></td>
<td>Iubilate Deo</td>
<td>offertory</td>
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<td>Dicit Dominus</td>
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<td><em>Dominica iii post Epiphaniam</em></td>
<td>Adorate Deum</td>
<td>introit</td>
<td>256-258</td>
</tr>
<tr>
<td>(Third Sunday after Epiphany)</td>
<td>Timebunt gentes</td>
<td>gradual</td>
<td>259-260</td>
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<td>Dominus regnavit</td>
<td>alleluia</td>
<td>261-262</td>
</tr>
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<td></td>
<td>Dextra Domini</td>
<td>offertory</td>
<td>263</td>
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<tr>
<td></td>
<td>Mirabantur</td>
<td>communion</td>
<td>264</td>
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</table>
Figure 5.5: The gradual *Benedictus qui venit* from the Medicean Gradual.
Figure 5.6: Example of an elongated cadential gesture from *Directorium chori*.
Figure 5.7. 1: An apparently anomalous use of the virga (second note of the line) from the introit *Puer natus est nobis* for Christmas Day in the Medicean Gradual. 2 and 3: new typesettings of the same chant appearing later in the edition, in which the virga in question has disappeared.
Figure 5.8: Transcription of the gradual *Benedictus qui venit* from the Medicean Gradual. (See Figure 5.5 for the original notation.)
Figure 5.9: An early example of the *Credo cardinale* from a gradual edited by Francis of Bruges (Venice: Giunta, 1499).
Figure 5.10: Transcription of part of the *Credo cardinale*. (See Figure 5.9 for the original notation).
Figure 5.11: Excerpt from the Medicean Gradual’s rendition of the *Credo cardinale*.
Figure 5.12: Transcription of excerpt from the Medicean Gradual’s rendition of the *Credo cardinale*. (See Figure 5.11 for original notation.)
Figure 5.13: Credo *In festis ad Libitum* from the Medicean Gradual.
Figure 5.14: Opening excerpt of the sequence *Lauda Sion* in the Medicean Gradual.
Figure 5.15: Respond from the Introit *Viri Galilei* in the Medicean Gradual.
Figure 5.16. Synoptic transcription of *Viri Galilei* (original notation in Figure 5.15), according to both a pseudo-mensural interpretation (PMI), as heard in Herreweghe’s recording, and the declamatory rhythmic interpretation (DRI).
CHAPTER 6

PROSODY AND RHYTHM IN THE EDITIO MEDICAEA (1614-15)

The previous chapter discussed the notation and rhythm of the Editio Medicaea or Medicean Gradual, and argued for a declamatory rhythmic interpretation. Assuming that such an interpretation is correct, this chapter gives a basic description of the text-setting practice and analyzes the relationship between textual prosody and musical rhythm in that long-delayed publication.

A representative sample of chants from the Medicean Gradual provides the material for analysis\(^1\) (see Figure 5.4). Liturgically speaking, these 50 chants form the repertoire of sung Mass propers from Christmas Eve to the third Sunday after Epiphany.

As with the analysis of Guidetti’s Directorium chori, a useful first step for the analysis of the Medicean Gradual sample will be to create an inventory of settings according to word length and accent type. Figure 6.1 presents an inventory of proparoxytone settings, along with atonic mono- and bisyllable settings. Figure 6.2 does the same for paroxytones, along with tonic mono- and bi-syllables. These inventories exclude prosodic concatenations, which will be dealt with below.

\(^1\) As in previous chapters, the ensuing analyses exclude words of Hebrew origin, such as alleluia, amen, and Ephraim, whose accentuation in a Latin context may be ambiguous.
The great majority of proparoxytones use the proparoxytone formula:

\[ b^{0-n}l\rightarrow s\rightarrow b^{1-n} \]  

(i.e., the first syllable bears a reduced long that may be preceded by some number of breves, the second syllable bears a single semibreve, and the last syllable bears one or more breves). This formula accommodates both syllabic settings, as in the word *húmerum* in Figure 6.3.1, as well as settings that are melismatic to varying degrees, for example the word *vocábitur* in the same figure. A small minority of proparoxytone settings do not use the formula, but use some combination of breves instead (e.g., *filius* in Figure 6.3.2). Since all that determines the presence or absence of the formula is a right descending stroke on the last pitch over the antepenultima, one may be tempted to interpret its absence as a possible printing error. This approach, however, runs the risk of glossing over any setting that does not fit the dominant paradigm, so it seems best to take the notation at face value and to allow for some flexibility in the system.²

Nearly all the paroxytones in the Medicean Gradual sample are set to breves only, with no use of other notes values (e.g., Figure 6.3.3; exceptions with regard to the full long are discussed below).

On the basis of Guidetti’s example, one might expect to see secondary accents treated with the reduced long in the Medicean Gradual as well. However, in a major departure from their forerunner, Anerio and Soriano do not highlight secondary accents by means of rhythmic notation. This holds true for all long words with secondaries, both paroxytones and proparoxytones. One possible exception within the sample appears in...

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² Recall, too, that Guidetti consistently set the proparoxytone *ípsius* without the formula nine separate times.
the Introit for Epiphany (see Figure 6.3.4). The four-syllable paroxytone dòminátor appears to be set to l-s-b-b. Such a setting would be consistent with Guidettian practice, but here it stands out as an anomaly. Alternative interpretations include L-b-b-b and b-b-b-b (if one assumes that the virga on dò- is an error). In the absence of compelling reasons to accept either of these alternatives, one is left with the initial interpretation of l-s-b-b.

The foregoing example highlights a qualitative difference between the Directorium chori and the Medicean Gradual. While the innovative and explicit notational system devised by Guidetti leaves no room for ambiguity, the traditional square notation of the Medicean Gradual, subtly modified to indicate declamatory rhythm, gives rise to a small number of potentially ambiguous situations in which one must make a judgment call. Such situations are few enough, however, that they do not pose a challenge to the overwhelming consistency of the edition as a whole.

Other settings requiring sensitive judgment involve cases in which the full long seems to be called for. Most appearances of the full long occur as the first or second note of a chant section, or as the second last note of a section (see Figure 6.4). One cannot be absolutely certain that these virgas represent full longs rather than reduced longs or even errors, but the full-long interpretation is bolstered by the similarity of the resultant readings to analagous and unambiguous readings in the Directorium chori. In other words, the almost exclusive appearance of full longs at the beginnings or ends of sections in the Directorium chori suggests that the virgas appearing in similar positions in the Medicean Gradual should also be read as full longs. Even without the precedent provided by
Guidetti, a reduced-long reading would seem stylistically improbable. If the first note in the example cited above were read as a reduced long, the following syllable should bear a single square (to be read as a semibreve) instead of a two-note neume as it does. Similarly, if the second-to-last note in the example were a reduced long, the subsequent final note (a semibreve), would end the section very abruptly. The use of the full long to open and/or close sections accounts for all but two appearances of $L$ in the inventories (Figures 6.1 and 6.2). Full longs perform introductory and cadential functions and do not seem to reflect the prosody of the text.

The two exceptional appearances of the full long just mentioned stand out as truly problematic. The first, over *advénit*, occurs in Figure 6.5. The correct reading seems to be $b-bbL-b$, but if so, it violates the norms for full-long usage established elsewhere in the edition. The alternatives are no more attractive: the correct reading may be $b-bbl-s$, in which case the word takes part in a prosodic concatenation, namely $[3+4]p$; or it may be an error, in which case an all-breve setting would be indicated, $b-bbb-b$. The intervening barline between *advénit* and *dóminátor* argues against concatenation, and there is no external evidence to suggest it may be an error. The conditions surrounding the second exception, over *stantem* in the Communion *Video caelos* (item 145 in the facsimile edition), are very similar, and lead to the same conclusion that one must accept a full-long reading.

In the Medicean Gradual just as in the *Directorium chori*, the rhythmic setting creates a number of prosodic concatenations. Without the clear example set by Guidetti,
the identification of these would be less secure (i.e., one would be left to doubt the
validity of l-s sequences over non-proparoxytones). Figure 6.6 presents an overview of
prosodic concatenations found in the sample from the Medicean Gradual, and Figure 6.7
shows an example of each type. Most follow the pattern of a bisyllable or paroxytone
(up to five syllables) followed by a monosyllable, forming a proparoxytonic rhythmic
profile. In the Directorium chori sample, [2+1]pp is the only type of concatenation
conforming to this pattern. In that sample, concatenations involving a monosyllable and a
paroxytone tend to place the monosyllable first rather than last. Also in Guidetti’s work,
one finds concatenations involving three words, but in the Medicean Gradual sample
concatenations are restricted to two words. Concatenations are less frequent and less
varied in the Medicean Gradual, but some interesting types not found in Guidetti do
appear (see Figures 6.7.6 and 6.7.7). Figure 6.6.5 (Ecce sacérdos) has been interpreted
here as a concatenation (i.e., the virga is read as a reduced long), but it is equally plausible
to read the virga as a full long. Either interpretation is satisfactory and consistent with
the rest of the edition.

This last example underscores once again the potential for ambiguity arising from
the notational system adopted by the editors of the Medicean Gradual. While in most
cases the context clarifies whether to read a virga as a reduced or full long, in a few
instances it does not. Ambiguous cases, however, are very few in number and do not
appreciably affect statistical analyses performed on the entire sample.

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3 This pattern may be expressed schematically as [Np+1]pp, where N = {2,3,4,5}.
While the foregoing descriptions of text underlay focus on specific examples, a more global perspective can be gained by calculating average syllable durations, sorted according to word length and accent type. Figures 6.8 and 6.9 present the results of this calculation, the former for proparoxytones and atonic mono- and bisyllables, the latter for paroxytones and tonic mono- and bisyllables. In most instances, the average syllable durations closely reflect the prosody of the text. Tonic monosyllables tend to outlast their atonic counterparts. Although the purportedly unstressed first syllables of atonic bisyllables do tend to outlast second syllables by a ratio of nearly two to one, that ratio jumps to nearly three to one in tonic bisyllables.

In proparoxytones, marked agogic contrast exists between the syllable with primary stress and the unstressed syllables surrounding it. For example, the primary stress in 4pp words averages 4.66 tempora, and the unstressed syllables preceding and succeeding it average 1.22 and 0.55 tempora respectively. Similar figures obtain for proparoxytones of other lengths. The very short averages of post-tonic syllables reflects the prevalence of the proparoxytone formula \( b^{o-n}l-s-b^{l-n} \) in which those syllables receive a single semibreve. Syllables with secondary stress also tend to outlast their unstressed neighbors, but much more moderately (e.g., 1.39 to 1.00 tempora in 5pp words). This trend is not borne out by the single instance of an 8pp word \( (\text{justificâtiónibus}) \), in which the first five syllables are set to a single breve, but naturally one case is too slim a sample upon which to base a conclusion and does not modify the overall trend.
In paroxytones, the average durations of syllables with primary stress are also significantly greater than those of unstressed syllables. In the 82 cases of 4p words, syllables with secondary stress moderately outlast unstressed syllables, and the single case of a 6p word shows a more marked contrast in that regard. The trend does not hold for the secondaries of 5p words, however, but these are relatively few in number.

In all words of three or more syllables, final syllables tend to be a little longer than other unstressed syllables, since many of these words end with a short melisma. In terms of duration, the treatment of final syllables seems to fall somewhere between stressed and non-final unstressed syllables; they are moderately elongated, not because of their accent (they have no accent), but by virtue of their position at the ends of words.

Notwithstanding the subtleties of exceptional cases and final syllables, these calculations of average syllable durations give the impression that syllable duration correlates significantly with syllable stress. In other words, stressed syllables are likely to outlast unstressed ones by a substantial margin. Confirmation of this impression may be sought in a more formal statistical test, namely an ANOVA (analysis of variance) with a post-hoc test. From the ANOVA Table in Figure 6.10, one may infer that syllable stress does have a robust and significant effect on syllable duration ($p < 0.0001$). The Means Table below that, however, suggests that the effect derives from the difference between primaries (mean duration of 3.65 tempora) and all other syllables, and not from any difference between secondary and tertiary syllables, which both average 1.41

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4 See Chapter 4, fn. 6 for an explanation and discussion of this statistical procedure.
tempora. The post-hoc Scheffé’s test confirms that idea: primaries are significantly longer than both secondaries and tertiaries ($p < 0.0001$ in both bases), but secondaries are virtually identical to tertiaries in terms of duration ($p > 0.9999$). As with the *Directorium chori* sample, a two-level hierarchy emerges in the Medicean Gradual sample, but with a critical difference: whereas in Guidetti’s work secondaries are basically indistinguishable from primaries in terms of duration, in Anerio’s and Soriano’s work secondaries are indistinguishable from tertiaries. In the midst of their many similarities, this completely opposite treatment of secondaries stands out as a key difference between the text-setting practices of the two editions.
<p>| | | | | | | | |</p>
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<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>1a</td>
<td>b(^{1-8})</td>
<td>b(^{0.6}) L</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2a</td>
<td>b(^{1-6}) - b(^{1-6})</td>
<td>32</td>
<td></td>
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<td>3pp</td>
<td>b(^{0-13}) l - s - b(^{1-11})</td>
<td>210</td>
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<td>b(^{2-9}) - b - b(^{1-5})</td>
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<td>4pp</td>
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<td>b(^{1-2}) - b(^{3,9}) - b(^{1-4}) - b(^{1-4})</td>
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<td>5pp</td>
<td>b(^{1,3}) - b - b(^{0-6}) l - s - b(^{1,6})</td>
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<td>b - b(^{1-2}) - b - b(^{3-4}) l - s - b(^{1-3})</td>
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<tr>
<td></td>
<td>b - b - b - b(^{3,11}) - b - b(^{1,2})</td>
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</tr>
<tr>
<td>8pp</td>
<td>b - b - b - b - b(^{7}) l - s - b(^{2})</td>
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</tbody>
</table>

**Key:**

/ primary stress  \
L full long  
\ secondary stress  
l reduced long  
˘ tertiary stress  
b breve  
p paroxytone  
s semibreve  
pp proparoxytone  
| superscripts | # of breves  
| dash (-) | syllable boundary  

**Figure 6.1:** Inventory of proparoxytone settings, plus atonic mono- and bisyllables, in the Medicean Gradual sample. The rightmost column indicates the number of occurrences for each type of setting. This inventory does not include prosodic concatenations.
<table>
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<td></td>
<td></td>
</tr>
<tr>
<td>3p</td>
<td>b(^{1-4}) - b(^{1-13}) - b(^{1-6})</td>
<td>125</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>b(^{1-3}) b(^{0-2}) L - b</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>L - b - b</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4p</td>
<td>b(^{1-3}) - b(^{1-2}) - b(^{1-10}) - b(^{1-4})</td>
<td>58</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>L - b(^{1-2}) - b(^{1-3}) - b(^{1-2})</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>l - s - b - b</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5p</td>
<td>b(^{1-2}) - b - b - b(^{2-4}) - b(^{1-2})</td>
<td>11</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6p</td>
<td>b(^3) - b - b(^3) - b - b(^3) - b</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Key:**
- `/` primary stress
- `\` secondary stress
- `˘` tertiary stress
- `p` paroxytone
- `pp` proparoxytone
- `L` full long
- `l` reduced long
- `b` breve
- `s` semibreve
- `# of breves`
- `superscripts`
- `dash (-)` syllable boundary

**Figure 6.2:** Inventory of paroxytone settings, plus tonic mono- and bisyllables, in the Medicean Gradual sample. The rightmost column indicates the number of occurrences for each type of setting. This inventory does not include prosodic concatenations.
Figure 6.3: Examples of word settings in the Medicean Gradual sample. 1 (húmerum and vocábitur): typical syllabic and melismatic settings of proparoxytones, respectively. 2 (fílius): atypical, non-formulaic setting of a proparoxytone. 3 (Sàcerdótes): typical, melismatic setting of a paroxytone. 4 (dòminátor): anomalous setting of a paroxytone, in which the secondary accent receives a reduced long.
(Bènedíctus qui venit in nómine Dómini: Deus Dóminus, et illúxit nobis.)

**Figure 6.4:** Further examples of word settings in the Medicean Gradual sample: typical use of the full long as the first note of a phrase and as the second-to-last note of a phrase.

(Ecce advénit dòminátor Dóminus, . . . )

**Figure 6.5:** An exceptional, mid-phrase use of the full long (over advénit).
<table>
<thead>
<tr>
<th>concatenation</th>
<th>regularized expression</th>
<th># of cases</th>
<th>example phrase</th>
</tr>
</thead>
<tbody>
<tr>
<td>[2+1]pp</td>
<td>b₁⁵ 1 - s ~ b₁²</td>
<td>7</td>
<td>natus est      (Fig. 6.7.1)</td>
</tr>
<tr>
<td>[3p+1]pp</td>
<td>b₁² b₁⁻³ 1 - s ~ b₁⁻⁵</td>
<td>11</td>
<td>praeçínxit se  (Fig. 6.7.2)</td>
</tr>
<tr>
<td>[4p+1]pp</td>
<td>b - b - b 1 - s ~ b</td>
<td>1</td>
<td>pèrsecúti sunt (Fig. 6.7.3)</td>
</tr>
<tr>
<td>[5p+1]pp</td>
<td>b - b - b - b 1 - s ~ b</td>
<td>1</td>
<td>immàculáti in  (Fig. 6.7.4)</td>
</tr>
<tr>
<td>[2+3p]p</td>
<td>b₁ - s ~ b³ - b - b</td>
<td>1</td>
<td>ecce sacérdos  (Fig. 6.7.5)</td>
</tr>
<tr>
<td>[2+4p]p</td>
<td>b³ 1 - s ~ b - b - b⁴ - b</td>
<td>1</td>
<td>quare frèmuérunt (Fig. 6.7.6)</td>
</tr>
<tr>
<td>[4p+3pp]pp</td>
<td>b - b - 1 - s ~ 1 - s - b</td>
<td>1</td>
<td>côñfitéri Dómino (Fig. 6.7.7)</td>
</tr>
</tbody>
</table>

**Figure 6.6:** Overview of prosodic concatenations in the Medicean Gradual sample.
Figure 6.7: Examples of prosodic concatenation in the Medicean Gradual sample. The fifth entry (Ecce sacérdos) may be an example of a full long (L) setting rather than a concatenation.
Figure 6.7: continued.

5 Ecce sacerdos 174/1
(Ecce sacérdos)

6 Quare fremuerunt 111/1
(Quare frèmuérunt)

7 confiteri Domino: 147/1
(confitéri Dómino)
<table>
<thead>
<tr>
<th>word</th>
<th>N</th>
<th>(\text{~} )</th>
<th>(\text{/} )</th>
<th>(\text{-} )</th>
<th>(\text{-} )</th>
<th>(\text{~} )</th>
<th>(\text{-} )</th>
<th>(\text{~} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>1a</td>
<td>153</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.53</td>
</tr>
<tr>
<td>2a</td>
<td>33</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.17</td>
<td>1.29</td>
</tr>
<tr>
<td>3pp</td>
<td>210</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4.38</td>
<td>0.52</td>
</tr>
<tr>
<td>4pp</td>
<td>56</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.22</td>
<td>4.66</td>
</tr>
<tr>
<td>5pp</td>
<td>18</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.39</td>
<td>1.00</td>
</tr>
<tr>
<td>6pp</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.00</td>
<td>1.20</td>
</tr>
<tr>
<td>8pp</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>avg.</td>
<td>476</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.00</td>
<td>1.00</td>
</tr>
</tbody>
</table>

**Key:**
- \(\text{a} \) = atonic
- pp = proparoxytone
- 1 2 3 . . . = number of syllables
- N = number of occurrences in sample
- \(\text{~} \) = primary stress
- \(\text{-} \) = secondary stress
- \(\text{~} \) = tertiary stress

**Figure 6.8:** Average syllable durations of proparoxytones, and of atonic mono- and bisyllables (Medicean Gradual sample).
<table>
<thead>
<tr>
<th>word</th>
<th>N</th>
<th>\</th>
<th>\</th>
<th>/</th>
<th>/</th>
</tr>
</thead>
<tbody>
<tr>
<td>1t</td>
<td>137</td>
<td>\</td>
<td>\</td>
<td>/</td>
<td>/</td>
</tr>
<tr>
<td>2t</td>
<td>435</td>
<td>\</td>
<td>\</td>
<td>/</td>
<td>/</td>
</tr>
<tr>
<td>3p</td>
<td>141</td>
<td>\</td>
<td>\</td>
<td>/</td>
<td>/</td>
</tr>
<tr>
<td>4p</td>
<td>82</td>
<td>\</td>
<td>\</td>
<td>/</td>
<td>/</td>
</tr>
<tr>
<td>5p</td>
<td>12</td>
<td>\</td>
<td>\</td>
<td>/</td>
<td>/</td>
</tr>
<tr>
<td>6p</td>
<td>1</td>
<td>\</td>
<td>\</td>
<td>/</td>
<td>/</td>
</tr>
<tr>
<td>avg.</td>
<td>808</td>
<td>\</td>
<td>\</td>
<td>/</td>
<td>/</td>
</tr>
</tbody>
</table>

**Key:**
- t: tonic
- p: paroxytone
- 1 2 3 . . .: number of syllables
- N: number of occurrences in sample
- \: primary stress
- /: number of occurrences in sample
- \: secondary stress
- \: tertiary stress

**Figure 6.9:** Average syllable durations of paroxytones, and of tonic mono- and bisyllables (Medicean Gradual sample).
ANOVA Table for syllable duration

<table>
<thead>
<tr>
<th></th>
<th>syllable stress</th>
<th>Residual</th>
</tr>
</thead>
<tbody>
<tr>
<td>DF</td>
<td>2</td>
<td>3022</td>
</tr>
<tr>
<td>Sum of Squares</td>
<td>3520.18</td>
<td>12040.53</td>
</tr>
<tr>
<td>Mean Square</td>
<td>1760.09</td>
<td>3.98</td>
</tr>
<tr>
<td>F-Value</td>
<td>441.76</td>
<td></td>
</tr>
<tr>
<td>P-Value</td>
<td>&lt;0.0001</td>
<td></td>
</tr>
<tr>
<td>Lambda</td>
<td>883.52</td>
<td></td>
</tr>
<tr>
<td>Power</td>
<td>1.00</td>
<td></td>
</tr>
</tbody>
</table>

Means Table for syllable duration
Effect: syllable stress

<table>
<thead>
<tr>
<th></th>
<th>Count</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Std. Err.</th>
</tr>
</thead>
<tbody>
<tr>
<td>primary</td>
<td>1096</td>
<td>3.65</td>
<td>2.46</td>
<td>0.07</td>
</tr>
<tr>
<td>secondary</td>
<td>121</td>
<td>1.41</td>
<td>0.66</td>
<td>0.06</td>
</tr>
<tr>
<td>tertiary</td>
<td>1808</td>
<td>1.41</td>
<td>1.72</td>
<td>0.04</td>
</tr>
</tbody>
</table>

Scheffé’s test for syllable duration
Effect: syllable stress
Significance Level: 5%

<table>
<thead>
<tr>
<th></th>
<th>Mean Diff.</th>
<th>Crit. Diff</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>primary, secondary</td>
<td>2.244</td>
<td>.468</td>
<td>&lt;.0001  S</td>
</tr>
<tr>
<td>primary, tertiary</td>
<td>2.244</td>
<td>.187</td>
<td>&lt;.0001  S</td>
</tr>
<tr>
<td>secondary, tertiary</td>
<td>7.542E-5</td>
<td>.459</td>
<td>&gt;.9999</td>
</tr>
</tbody>
</table>

Figure 6.10: Results for a one-way ANOVA (analysis of variance) with Scheffé’s post-hoc test, comparing differences in mean duration of primary, secondary, and tertiary syllables (Medicean Gradual sample).
CONCLUSION

Through a variety of discussions and analyses, this dissertation synthesized traditional and systematic musicological approaches, resulting in a diverse collection of observations and insights. The concluding comments that follow seek to highlight the main findings of this work, to reflect on their wider implications for music scholarship, and to suggest directions for future research.

The first main chapter revisited the venerable but still open question of the relationship between prosodic and melodic accent in medieval plainchant. The analyses suggested that a subtly positive correspondence between those two parameters is present only in syllabic pitches, and that the relationship becomes ambivalent within melismas. Given the specificity of the repertoire sample, and given the inherent complexity of perceiving melodic accent, this work cannot claim to have brought the century-old debate to a definitive conclusion, but rather to have added to it a carefully reasoned and, insofar as possible, objectively derived view.

The historical narrative that followed demonstrated the centrality of plainchant reform to post-Tridentine musical reform as a whole. Although polyphony is usually emphasized as the locus of reforming activity, one can see that liturgical monophony also received a great deal of attention, both from the church hierarchy and from a cadre of
renowned church musicians, including Palestrina, Zoilo, Guidetti, Anerio, and Soriano, among others.

The remaining chapters turned to close inspection of two historically significant products of those reform efforts, namely the *Directorium chori* of 1582 and the *Editio Medicaea* of 1614-15. These chapters offered the first systematic descriptions of text-setting practice in those publications. Among the practices described was the joining, through rhythmic means, of two or three words as if they were a single longer word; the term “prosodic concatenation” was coined to describe this phenomenon. Statistical analyses confirmed what one might intuitively expect concerning the relationship between prosody and rhythm in these works: the duration of stressed syllables tends to be greater than that of unstressed syllables. This agogic contrast is achieved both through syllable placement (i.e., text underlay) and through a system of rhythmic signifiers. In the *Directorium chori*, syllables with secondary stress received a similar durational treatment to that of syllables with primary stress, whereas in the *Editio Medicaea*, secondaries received a durational treatment similar to that of tertiaries (unstressed syllables). The study of the *Directorium chori* took the additional step of comparing the sampled chants to concordant medieval versions found in the *Liber hymnarius*; a significant strengthening of the relationship between syllable stress and syllable duration occurs in the post-Tridentine *Directorium chori*, resulting from both text underlay and proportional rhythmic notation.
Whereas Guidetti’s system of proportional notation in the *Directorium chori* was explicit and unambiguous, Anerio’s and Soriano’s notation in the *Editio Medicaea* presented interpretive problems for later generations of musicians and scholars. In an apparent effort to prevent their largely traditional square notation from being read as if it were mensural notation (i.e., a pseudo-mensural reading, a phenomenon attested to by various contemporary theorists), they modified it in a manner that unwittingly obscured the correct rhythmic reading. The correct reading, here dubbed DRI for “declamatory rhythmic interpretation,” results in a rhythm—and in a relationship between prosody and rhythm—with many similarities to that of the *Directorium chori*.

This clarification of Medicean rhythm has potentially far-reaching implications for early music performance practice. Performances of the Medicean chants themselves can now be grounded in a firmer, surer understanding. Furthermore, one should carefully consider whether or not to perform the chanted incipits or *alternatim* portions of certain Mass movements in a declamatory rhythmic manner. To take a specific example, the chanted portions of Palestrina’s *alternatim* Masses for the Duke of Mantua might be performed according to the DRI, given the close connection between the composition of these Masses and his work on the reform of plainchant.

While a doctoral dissertation such as this represents some degree of comprehensiveness and closure, it also opens the way to a program of future research and writing. This study highlighted two historically important post-Tridentine chant editions, but they were by no means the only such editions. Additional work remains to
contextualize more thoroughly these two editions and to situate them within the chant reform movement as a whole. A critical edition of Guidetti’s *Directorium chori*, including both facsimiles and transcriptions, is needed. Further study of that work should include locating and perusing the chant manuscripts used by Guidetti in order to understand more fully the precise nature of his revisions. While a beautiful facsimile edition of the *Editio Medicaea* recently became available, a transcription according to the rhythmic interpretation presented here would now be welcome. These proposed new editions would aid musicians seeking to perform post-Tridentine plainchant more accurately. Finally, a natural outgrowth of this study would be to investigate the links between prosody and rhythm in the polyphony that is contemporary with the plainchant analyzed, and to compare text-setting approaches between the monophonic and polyphonic settings.

It is hoped that readers will find value not just in the observations and conclusions presented in this document, but also in the methodologies used. A high proportion of the thought and effort required to complete this project was spent on breaking new ground in terms of analytical methods, and the reader will likely perceive the theme of methodological rigor running through this dissertation as a subtext. Thus additional desired outcomes are to provoke the imaginations of other empirically oriented researchers toward expanding and refining the methods developed here, and to convince traditionally oriented musicologists of the usefulness of such methods. In this way,
perhaps a small step will be taken toward bridging the chasm that all too frequently exists between humanistic and scientific approaches to research.
BIBLIOGRAPHY


