

Demonstrating Significance of Rhythm in Gregorian Chant:

An analysis of Solesmes transcriptions of the Christmas Masses

Gregorian chant has been simplified over the years to conform to an idea of plainchant and originally had both complex melody and rhythm. Unfortunately, this complexity has led to controversy and confusion. Even in the *Graduale Triplex*, which presents the original neumes of medieval manuscripts beside the widely used transcriptions from Solesmes, “in order to avoid any confusion between neums [sic] or significative letters and rhythmic signs some of the latter had to be left out.”¹ The clivis with an episema, a symbol signifying two lengthened notes, avoids this problem because it is almost always drawn connected. It is also distinctive, looking in some scribes’ hands like a Greek π . Finally, it occurs often, so a statistical analysis of its use produces meaningful results. An analysis of this symbol in the original neumes of St. Gall shows that rhythm in Gregorian chant is richly notated. Focusing on the clivis written with an episema, the four Christmas Masses of the *Gradual* show that the rhythm of Solesmes transcriptions is not just incomplete and inaccurate but misleading and must be improved if we hope to achieve authentic performances today.

Medieval notation used neumes, symbols indicating the shape of a melody, to represent notes. A clivis is a simple neume indicating two notes, the second of which is lower than the first. It is written like an upside-down U, and it is found commonly

¹Solesmes, *Graduale Triplex* (Massachusetts: Paraclete Press, 1979), English foreword.

throughout the St. Gall manuscripts both with and without alterations. With alterations, it can give not only melodic information but also rhythmic information.

Adding an episema is one particular alteration medieval scribes made to a clivis. Another part of early neumatic notation, an episema is a horizontal mark thought to indicate lengthening. In some cases it can be very small, no more than a flourish on the end of a stroke, leaving historians to wonder whether the symbol was intended or if the scribe's pen slipped.² When it is added to the clivis, however, the episema is a clear horizontal line much like a modern tenuto mark. It perches atop the neume like a hat and is always written connected. The particular clarity of its structure makes the lengthened clivis neume a good candidate for study.



Fig. 1. A clivis with episema from the St. Gall manuscripts.³

Solesmes transcription of this rhythmic indication, an episema where it occurs above a clivis, is highly inconsistent. The meaning of the altered neume is well known. Even from only the Leon manuscript (copied above the staff in the *Graduale Triplex*), where two longer notes are drawn above each other in the place of the lengthened clivis, it is clear that a clivis with an episema means that both notes are lengthened equally, not just one.

² Cardine, *Semologie Gregorienne* (MA: Paraclete Press, 1982)

³ Solesmes, *Graduale Triplex*

Examples from the *Graduale Triplex*. The top neumes are from the Leon manuscripts, the middle is modern chant notation, and the bottom neumes are from St. Gall.

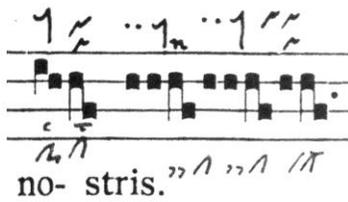


Fig. 2. On the last syllable of “nostris”, both manuscripts show two examples of a normal clivis, written as one neume, followed by a clivis with an episema, written in the Leon manuscript as two equally lengthened notes.⁴



Fig. 3. The last syllable of “eius” shows a clivis with an episema, written in the Leon manuscript as two equally lengthened notes.⁵

However, if it is reproduced at all, “the episema is printed on this [first] note alone in the rhythmic editions.”⁶ The Solesmes transcriptions examined here contain this error. In fact, the mistake of placing a modern episema over only the first note of the two-note neume is one of the few transcription practices that is completely consistent.

Episemas are sometimes also reproduced as dots in modern chant notation. Barring omission, there are three possibilities for transcription of a two-note neume: dotting only the first note, dotting only the second note, and dotting both of them. All three choices appear in the Solesmes transcription, and although the effect of elongating only the first or only the second note is very different to modern ears, there is no consistent pattern to explain the choice of one or the other. Meanwhile, the example of the Leon manuscripts suggests only the dotting of both notes is correct at all.

⁴ Solesmes, *Graduale Triplex*

⁵ Solesmes, *Graduale Triplex*

⁶ Cardine, *Semologie Gregorienne*.

Many other clear episemas in the manuscript are simply ignored. 24% of episemas on a clivis present in the St. Gall manuscript are omitted in the Solesmes transcription.

Additionally, some dots are inserted in the printed edition where no episema or rhythmic marking existed before. However, as Cardine notes, “in the Middle Ages, the more important or evident a final cadence was, the less it was thought necessary to underline it with episemas”, so the addition of dots is a concession to modern singers less familiar with medieval traditions.⁷ Most added dotted notes are at the end of lines and phrases much like modern fermatas. The omission of episemas by Solesmes editors in the interior of chants is more puzzling, as “the copyist called attention to the median cadences in order to prevent them from being neglected.”⁸ Unfortunately, this is exactly what has happened in modern transcription -- the opposite of what scribes intended.

So what justification exists for the varying interpretations of episemas in Solesmes transcriptions? One possibility for the use of episemas in modern chant notation is to convey additional or different information from the familiar dotted note. However, an analysis will find that episemas should be considered primarily a rhythmic notation, not an accent.

The Christmas masses strongly indicate that episemas were not used as accents. If Gregorian chant used musical settings to enhance text, then we should find accents (episemas) placed mostly on strong syllables. Setting accents on weak syllables could distort the meaning of the text and become confusing. In fact, the clivis with an episema is found on accented syllables only 36% of the time. When single-syllable words (often not

⁷ Cardine, *Semologie Gregorienne*.

⁸ Cardine, *Semologie Gregorienne*.

accented in a sentence) are omitted, only 30% of occurrences are on an accented syllable. An overwhelming majority of episemas, 70%, are placed on weak syllables or single-syllable words. It is highly unlikely that these many unstressed syllables were sung as accents.

However, the distribution of episemas among syllables does not mean they were selectively placed on weak syllables. In fact, 63% of syllables in the words analysed are unstressed and 37% are stressed, so distribution of episemas simply reflects the distribution of accented syllables. Analysis of the Christmas masses shows no correlation between word accents and placement of episemas.

There remains the possibility that episemas were considered an accent and elongation only sometimes, if it made sense in context. Gregorian singers who were well versed in the musical traditions of the time would have recognized these appropriate contexts. While there is no way for us to know if this was the case, we can test to see if this distinction is borne out in the decision of the Solesmes editors – whether they chose dotted notes for neumes that would simply be lengthened but preserved the episemas for those that would be accented as well. Unfortunately, the data does not support this interpretation. Of episemas actually printed in the Solesmes transcription – those that are not shown as dotted notes – only 26% of them are on accented syllables. Since this is close to the 30% of original neumes on accented syllables, it shows no selective effort on the part of the Solesmes editors when placing episemas. It is unlikely the editors were attempting to show both accent and elongation.

There are no statistical grounds for the inconsistency in rhythmic transcription found in Solesmes editions of the Christmas masses. There is only one correlation for the translation of an episema: when two dotted notes are used to translate an episema, the neume is usually found before punctuation and on unaccented syllables. Since Latin accents usually occur on the second-to-last syllable of a word, these occurrences of unstressed episemas were likely the last syllable of a phrase or sentence. The Solesmes editors seem to have viewed the two dotted notes as a final neume and used them preferentially as a translation as the ends of sentences. However, this trend is only a tendency and not a rule. Even within the Christmas Masses, Solesmes transcriptions include instances of two dotted notes within sentences and of other translations of a final episema.

Neume is before a:

| | Colon : | Comma , | Period . | No punctuation | Total |
|--------------------------|------------|------------|------------|----------------|-------------|
| Dot on 1st note | 0% | 11% | 22% | 67% | 100% |
| Dot on 2nd note | 22% | 11% | 0% | 67% | 100% |
| Dot on both notes | 32% | 21% | 21% | 26% | 100% |
| Episema on 1st note | 5% | 10% | 8% | 77% | 100% |
| No marking | 16% | 0% | 12% | 72% | 100% |

Fig. 2. A table of occurrences by percentage of different transcriptions of an episema on a clivis.

An analysis of all occurrences in the Christmas Masses of a clivis with an episema showed no other correlation for the decision in Solesmes to print an episema, a dotted first note, a dotted second note, both notes dotted, or plain notes. Occurrences were sorted by whether they were on an accented syllable or not, and whether they were before a textual

comma, a colon, or a period or not (i.e. at the end of a phrase or sentence. Analysis does show that, of the episemas preserved in the Solemnes transcription, about half are written as modern episemas (51%), a quarter are written as two dotted notes (23%), and the rest are split evenly between the first note and second note dotted (9% each). The lack of meaningful correlation despite high variety of choice in the transcription of episemas suggests that the choice was performed at random among modern notations, rather than systematically, by the monks of Solesmes.

A comparison of similar groups of neumes supports the statistical analysis. In places, a clivis with an episema is treated differently within the same word. It is even treated differently when it reoccurs within the same syllable. (Fig. 1 and 2):

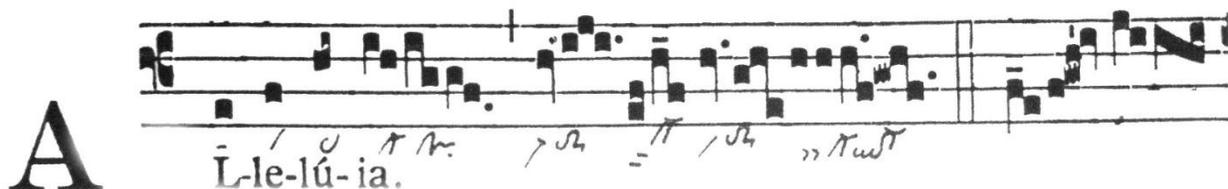


Figure 1: “Alleluia” from the Missam in Die in the Graduale Triplex. The first episema on a clivis is not reproduced, the second is written as an episema on the first note, and the third is written with a dot on the first note.

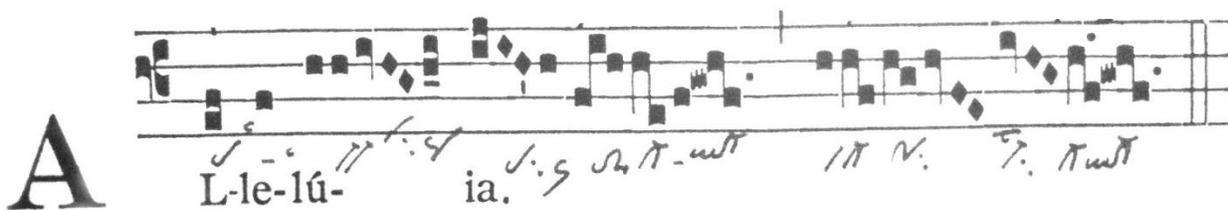


Figure 2: “Alleluia” from the Missam in Aurora in the Graduale Triplex. The first and second episemas on a clivis are not reproduced, and the third is written as a dot on the first note. Although transcribed differently, the second and third episemas are identical in every way, including preceding neumes.

This inconsistency supports the theory that Solesmes transcriptions did not follow a particular rule, but depended on the particular editor's preference or whim.

The abundance of rhythmic indications in the original neumes of the Christmas Masses is a testament to the importance of rhythm to early scribes. Despite inconsistent modern editions, careful analysis of the original neumes continues to yield useful information for performers who seek an authentic interpretation. Without a much larger-scale analysis, it is impossible to deduce meaning in the varied Solesmes interpretations of the episema, but if the Christmas Masses are representative of the entire gradual, such effort is misdirected. This preliminary analysis suggests a more productive path toward rhythmic accuracy is simply to start afresh.

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|----------------|-----------|-------|-----|-----|--|-----|--|-----|-----|--|-----|--|-----|-----|--|--|--|--|-----|-----|
| | | rum | Yes | | | | | | | | | | | | | | | | | |
| | meo | o | Yes | | | Yes | | | Yes | | Yes | | Yes | | | | | | Yes | |
| | meis | me | Yes | Yes | | | | | | | Yes | | | | | | | | | |
| | ponam | nam | Yes | | | | | | | | | | | | | | | | | |
| | | nam | Yes | | | Yes | | | | | | | | | | | | | | Yes |
| | inimícos | í | Yes | | | | | | | | | | | | | | | | | |
| | | cos | Yes | Yes | | | | | | | | | | | | | | | | |
| | tuos | os | Yes | | | Yes | | | | | | | | | | | | | | Yes |
| | scabéllum | bel | Yes | Yes | | | | | | | | | | | | | | | | |
| | | lum | Yes | | | | | Yes | | | | | | | | | | | | |
| "Alleluia" | Alleluia | le | Yes | Yes | | | | | | | | | | | | | | | | Yes |
| | | ia | Yes | | | | | | | | | | | | | | | | | Yes |
| | hódie | ho | Yes | Yes | | | | | | | | | | | | | | | | Yes |
| | | ho | Yes | Yes | | | | | | | | | | | | | | | | Yes |
| "Laetentur" | terra | ter | Yes | | | | | | | | | | | | | | | | | |
| | Dómini | mi | Yes | | | | | | | | | | Yes | | | | | | | |
| | | ni | Yes | | | Yes | | | | | | | Yes | | | | | | | Yes |
| | quóniam | quó | Yes | | | | | | | | | | | | | | | | | Yes |
| "Lux fulgebit" | non | non | Yes | Yes | | | | | | | | | | | | | | | | |
| | finis | nis | Yes | | | | | Yes | | | | | | Yes | | | | | Yes | Yes |
| "Benedictus" | qui | qui | Yes | Yes | | | | | | | | | | | | | | | | |
| | venit | nit | Yes | | | | | Yes | | | | | | | | | | | | |
| | Dóminus | nus | Yes | | | | | Yes | | | | | Yes | | | | | | | |
| | Dómino | no | Yes | | | | | | Yes | | | | | | | | | | | Yes |
| | factum | fa | Yes | | | | | | | | | | | | | | | | | Yes |
| | est | est | Yes | Yes | | | | | | | | | | | | | | | | Yes |
| | mirábile | ra | Yes | | | | | | | | | | | | | | | | | Yes |
| | | ra | Yes | | | | | | | | | | | | | | | | | |
| | nostris | stris | Yes | | | | | Yes | | | | | | | | | | | | |
| "Alleluia" | Alleluia | ia | Yes | | | | | | | | | | | | | | | | | Yes |
| | | ia | Yes | | | | | | | | | | | | | | | | | Yes |
| | | ia | Yes | | | Yes | | | | | | | | | | | | | | Yes |
| | Dóminus | mi | Yes | | | | | | | | | | | | | | | | | |
| | regnavit | vit | Yes | | | | | Yes | | | | | Yes | | | | | | | |

| | | | | | | | | | |
|----------------------|------------|----------|-----|-----|-----|-----|-----|-----|-----|
| "Deus enim" | parata | ta | Yes | Yes | | | | Yes | |
| | sedes | se | Yes | Yes | | | | Yes | |
| | | se | Yes | Yes | | | | Yes | |
| | tua | tu | Yes | Yes | | Yes | | | |
| "Exulta" | | a | Yes | Yes | | | | | |
| | Ierusalem | lem | Yes | | Yes | | Yes | | |
| | venit | nit | Yes | | Yes | | | | |
| | sanctus | | Yes | Yes | | Yes | | | |
| Missam in Die | mundi | di | Yes | | Yes | | Yes | | |
| | "Puer" | humerum | me | Yes | Yes | | | | |
| | | eius | ius | Yes | | Yes | | Yes | |
| | | eius | ius | Yes | | Yes | Yes | | |
| consilii | | li | Yes | Yes | | | | | |
| "Viderunt omnes" | fecit | cit | Yes | | Yes | | Yes | Yes | |
| | fines | nes | Yes | Yes | | | | | |
| | terrae | ter | Yes | | | | | | |
| | | rae | Yes | | | | | Yes | |
| | | rae | Yes | | Yes | | | | |
| | salutare | ta | Yes | Yes | | | | Yes | |
| | | re | Yes | Yes | | | | Yes | |
| | Dei | De | Yes | Yes | | | | Yes | |
| | | De | Yes | | | | | | |
| | nostri | nos | Yes | | | | Yes | | |
| "Alleluia" | | tri | Yes | | Yes | | Yes | Yes | |
| | omnis | mnis | Yes | Yes | | | | Yes | |
| | salutare | ta | Yes | | | | | | |
| | suum | su | Yes | | | | Yes | | |
| | Alleluia | ia | Yes | Yes | | | Yes | | |
| | | ia | Yes | Yes | | | Yes | Yes | |
| | | ia | Yes | | Yes | | Yes | | |
| | venite | ve | Yes | | Yes | | | | |
| | "Tui sunt" | eius | ius | Yes | | Yes | | | Yes |
| | | fundasti | sti | Yes | | Yes | | Yes | |

| | | | | | | | | |
|------------------|----------|-----|-----|-----|-----|--|-----|-----|
| "Viderunt omnes" | iustitia | sti | Yes | Yes | | | | |
| | tuae | ae | Yes | | Yes | | Yes | Yes |
| | terrae | rae | Yes | Yes | | | | |
| | Dei | De | Yes | Yes | | | | |

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