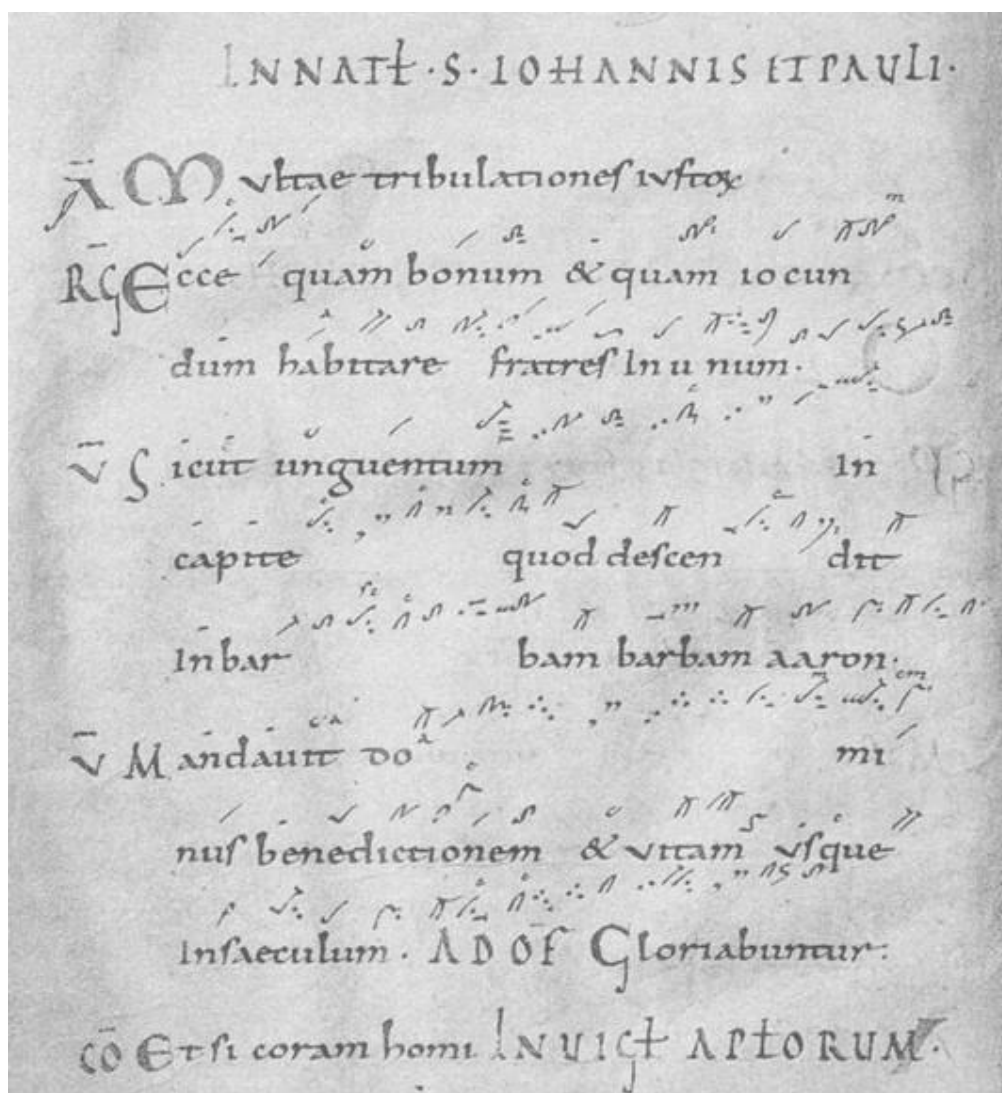


# TRANSCRIPTION OF GREGORIAN CHANT IN BRAILLE



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Amsterdam - 2002

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## Preface

This paper serves three different but related purposes:

1 It makes a proposal for the transcription in Braille of Gregorian chant based on the oldest (10th-century) manuscripts. With this proposal it tries to give a solution to the lack of uniformity for the transcription of Gregorian chant in Braille since Louis Braille himself. It is explained at length in the paragraphs 3.1 till 3.6, demonstrated in 4.4 and 4.5 and summarised in Appendix 4. The proposal is based on the oldest manuscripts, but is equally well fitted for all later manuscripts and editions.

2 It aims at a logical interpretation of 10th-century adiastematic neumes for blind and sighted people as well.

3 It gives a supplementary criticism on the modern interpretation of adiastematic neumes by the so called semiological movement in paragraphs 3.4, 3.6 and 3.7.

For a better understanding of this paper some basic knowledge of Gregorian chant is presupposed, although it is my conviction that with the intelligent use of the glossary everyone should be able to understand its content.

A Braille edition of this paper is available at the "Federatie van Nederlandse Blindenbibliotheken", Molenpad 2, 1016 GM, Amsterdam, the Netherlands. Also available from this address are the propers of the masses of Christmas, Easter, Ascension, Pentecost and the Requiem (in three different Braille transcriptions, see paragraph 3.8).

Geert Maessen, Amsterdam, September 2002

# 1 Introduction

## 1.1 Braille

Around 1830 Louis Braille (1809-1850) developed a script that would make it possible for blind people to read texts and music in a relatively simple way. This Braille script uses the sense of touch and can be read with the fingers.

The smallest unit of this writing, the Braille-cell has a fixed size, the size of a fingertip, about 6 mm wide and 10 mm high. Each Braille-cell is composed out of a combination of six possible dots in relief into thick paper. The six possible dots have a fixed position in the Braille-cell, arranged in two columns of three dots each, numbered from top to bottom and from left to right 1, 2, 3 and 4, 5, 6.

By the use or not use of the 6 dots there are 64 different possible combinations within the Braille-cell; thus there are 64 different Braille signs. With these 64 signs - no more no less - Braille does not only provide a code for all letters in the Roman alphabet, all punctuation marks and numbers, but it also provides a shorthand, other alphabets, and a code for all possible signs from modern blackprint music notation.

The basic Braille characters and their meaning:

⠁	⠃	⠉	⠇	⠑	⠋	⠏	⠎	⠊	⠚
a	b	c	d	e	f	g	h	i	j
⠅	⠍	⠓	⠗	⠕	⠙	⠞	⠟	⠠	⠡
k	l	m	n	o	p	q	r	s	t

⠠⠺ ⠠⠅ ⠠⠋ ⠠⠭ ⠠⠽ ⠠⠵  
 u v w x y z

⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠ ASCII  
 ⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠ International  
 1 2 3 4 5 6 7 8 9 0

- ⠠ number sign
- ⠠ capital sign (international)
- ⠠ capital sign (American)
- ⠠ dot
- ⠠ comma

## 1.2 Braille music notation

Braille music notation is very complicated. To start with it is not graphic and visual like modern blackprint music notation, but digital and tactile. Because of that the blind musician misses much visual support and an overall view.

In stead he has to build up an overall view in his head out of abstract symbols that are based on the one by one scanning of the Braille-cells. The Braille music script makes great demands upon memory and the ability to abstract. Before a piece can be performed it must be learned by heart.

A complicating factor is also the fact that the 64 Braille-signs are by far not enough for a one to one translation of the music signs. Most signs therefore have, according to context, different meanings. Sometimes combinations of four or more Braille-signs are needed to

translate one blackprint-sign. In this way one Braille-sign, in a combination with others, often has more than ten different meanings.

Finally there is the fact that even in the *New International Manual of Braille Music Notation* from 1996 there are still all kinds of national varieties. Besides this there are several areas from musical practise that are not, or hardly, mentioned in this handbook, which again leads to lack in uniformity.

The fundamental principles of Braille music notation rise unchanged from Louis Braille himself. The arrangements of the four top dots (1, 2, 4 and 5) define the note name and that of the lowest two (3 and 6) the note lengths.

Immediately in front of the note is an octave sign that indicates in which octave the note lies. Octave signs are left out where melodic leaps are smaller than an interval of a fourth. Leaps of a sixth or more are always indicated by an octave sign. With intervals of a fourth and fifth the sign is only necessary in case there is a change of octave.

Immediately preceding the octave sign are the possible accidentals (see the table below).

	c	d	e	f	g	a	b	rest
Whole notes	⠠	⠡	⠢	⠣	⠤	⠥	⠦	⠧
Half notes	⠠	⠡	⠢	⠣	⠤	⠥	⠦	⠧
Quarter notes	⠠	⠡	⠢	⠣	⠤	⠥	⠦	⠧
Eighth notes	⠠	⠡	⠢	⠣	⠤	⠥	⠦	⠧
	1	2	3	4	5	6	7	
Octave signs	⠠	⠡	⠢	⠣	⠤	⠥	⠦	



	sharp	flat	natural
Alterations	⠠	⠡	⠢

### 1.3 Gregorian chant and Braille

In principle Gregorian chant can be translated into Braille in the same way as any other music. But because in Gregorian chant there are no predetermined note lengths, the two lowest dots of the Braille-cell come free for other meanings. Also bar lengths are not predetermined in Gregorian chant and therefore the empty Braille-cell (the sign for the bar-line) can get another meaning.

Because Gregorian chant traditionally is sung in unison and is considered to be exclusively vocal, different other Braille signs can get other meanings as well. For example all interval-signs and four of the seven basic octave-signs become available. All of this offers the opportunity to reproduce in Braille what can be read in traditional notation of Gregorian chant.

There is no generally accepted system for writing Gregorian chant in Braille. The first attempt was by Louis Braille himself but was not published again after revision. After the international congress of Braille music of 1954 in Paris the unification of Oriental music and old liturgical music was not standardised.

## 2 Square notes and adiastematic neumes

### 2.1 Koos Clement

In 1979 Bettye Krolick succinctly described two systems for transcribing Gregorian chant (see Appendix 1). In the Netherlands another system exists due to Koos Clement. All these systems on the one hand are based on the general Braille music notation and on the other hand on the square notation as used for Gregorian chant since the Renaissance and which was given new life by the monks of Solesmes at the end of the 19th Century.

In Koos Clements system at least six square neumes are defined using dots 3 and 6 of the Braille-cell. Namely: pes or podatus (low-high), torculus (l-h-l), clivis (h-l), porrectus (h-l-h), climacus (h-l-l) and climacus-resupinus (h-l-l-h). Also the system supplies definitions for quilisma, liquescens, episema, ictus, keys and bar-lines. The empty Braille-cell is used to separate the music belonging to different words; and the hyphen (dots 3 and 6) to separate the music belonging to different syllables. (see 4.2 and Appendix 2).

### 2.2 Martijn de Graaf Bierbrauwer

In 1979 the ongoing manuscript studies of Solesmes and its pupils (the so-called semiological movement) finally published the so-called *Graduale Triplex* (for an example see 4.3). This book contains, just like previous Graduals, the core of the oldest documented repertoire in square notation; almost a thousand chants.

What makes the *Graduale Triplex* so special is that above and below the square notes a second and third parallel notation is shown. Above the square notes are, when available, the tenth-century neumes from a manuscript from the North-French Laon. Beneath are the tenth-century neumes from the manuscript tradition of the monastery of St. Gall in Switzerland.

In these neumes all kinds of peculiarities about melody, rhythm, ornamentation, intonation and performance practice can be found which got lost in the later square notation.

Using Koos Clements system, Martijn de Graaf Bierbrauwer has worked out a Braille transcription for these additional neumes. He used his system to transcribe into Braille the Dutch translation (1993) of the two-part work *Il canto gregoriano* by Alberto Turco.

Parallel to the transcription in the Clement way De Graaf Bierbrauwer's coding adds, in principle, three lines to each fragment. The first line for the names of the adiaستمatic neumes. The second for the episema's, and the third for the additional neumatic letters. In principle with this transcription a Braille version of the *Graduale triplex* is possible (see 4.3).

## 2.3 Two remarks

There are however two important remarks to be made regarding this last option being practical.

Firstly, the additional St. Gall transcription makes the number of Braille-cells per Braille fragment more than twice as large as with the Clement method alone, which

leads to a consequent higher demand on the memory. The amount of information gained through the neumes may further seem to be just academic.

Secondly, not only the square neumes on which Clement bases his system but also the names of the neumes which De Graaf Bierbrauwer uses in his own transcriptions are of a much later date than the 10th century adiaستمatic neumes which his system tries to reflect.

At the earliest the square notation is a 12th century development of neumatic notation, whilst the names of the neumes represent 11th century concepts. Concepts which were applied to adiaستمatic neumes more than a hundred years after the introduction of these neumes themselves.

In contrast with this, the oldest and most precise completely preserved neume manuscripts, from which in the *Graduale Triplex* was copied, date from the beginning of the 10th century, whilst the adiaستمatic neumes as such date from the ninth century.

As a consequence of this the names of the neumes, as opposed to the neumes themselves are incomplete and often needlessly complicated. In handwritten neumes however there is a simple and obvious constructive relationship between e.g. "tractulus", "virga", "pes", "torculus", "torculus-resupinus" and (even worse) "torculus-resupinus-flexus" that is totally missing in the names and the concepts. The following neumes from these series actually become unnameable, but speak for themselves when the series is written down, as in the next table:

-	tractulus
/	virga
✓	pēs
∪	torculus
∪∪	torculus-resupinus
∪∪∪	torculus-resupinus-flexus
∪∪∪	?
∪∪∪	?
∪∪∪	?

A similar distortion happens in square notation even more and so also in Clements Braille version of it. In the old manuscripts for instance are various other neume-groups than in square notation. Furthermore there are e.g. not only different sorts of quilisma, but also different sorts of oriscus.

In order to simplify the translation of early neumes (and of the less rich square notation) into Braille it is therefore useful to begin with their internal structure. With this basic idea in mind I have tried to reach in the following section a readable solution.

## 3 Combination of (adiastematic) neumes and (square) notes

### 3.1 Lower and higher pitch

The use of horizontal lines, the staff, begins to be found in manuscripts of the 12th century and bar-lines were introduced in the 15th century. The early neumes appear without these later additions and essentially are a sketch of relative pitch. This is most obvious in the various neumes that have a kind of wave-form which represents different numbers of alternating low and high pitches (see the previous table).

The "tractulus" is a short horizontal stripe which represents a relatively low pitch. The "virga" is a right-leaning vertical stripe that represents a relatively high pitch. The written "pes", is a rounded combination of "tractulus" and "virga" and represents a low pitch immediately followed by a high one. The "torculus" represents a "pes" with added a "tractulus" for a lower pitch. And so on.

Many neumes thus have a wave form which represents a specific number of relatively high and low pitches. As the wave goes up than the melody rises, as the wave goes down than so does the melody.

Thus every melody can in principle be represented by a continuous wave-form build up from "tractuli" and "virgas". For reasons I will explain later, in Braille I propose to represent "tractulus" and "virga" as "whole" and "halve" notes, so respectively using dots 3 and 6, and dot 3. This applies not only to the elementary neumes themselves ("tractulus" and "virga") and the more simple neumes (as "pes" and "torculus") but also to combinations of

"tractulus" and "virga" in the "unnameable" more complex wave-forms.

The "exact" pitch (the note-name transcribed with the four upper dots of the Braille-cell) will be taken from square notation. This is possible because of the amazing fact that hundreds of manuscripts from the 10th to the 16th century seem to be copied from each other without even the smallest change in the melodies. The only difference there really is seems to be caused by the search for a more exact music notation.

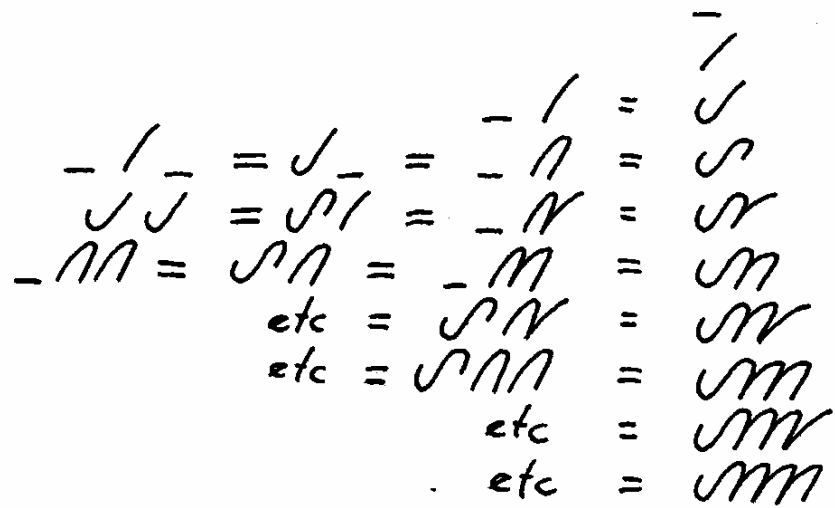
In the oldest manuscripts for several reasons the overall wave-form of a piece of chant will be broken down into smaller wave-forms or even elements of waves. This interruption can take place in four different ways which will be discussed in paragraphs 3.2 to 3.5.

### 3.2 Interrupted wave-motion and sketchy diastemation

The most obvious interruption of the continuous wave-form is due to the lifting and replacing of the pen (or the quill). Because of this the continuous wave becomes wave-fragments of one or more notes, or alternatively, which is the same, becomes various neumes, which themselves may or may not consist of interconnected notes.

Besides the wave-form of relative low and high pitches this is the second important structural idea of adiaستمatic neumes which, as in general Braille music notation, can easily be translated to the use or not use of the slur (which is dots 1-4). Using this sign makes notes interconnected and thus the wave going on. Not using this sign makes notes interrupted.

Sometimes a neume is clearly (as if deliberately) written higher or lower than the preceding one. This can happen from one neume to another, or inside a wave-form from one note to another. This phenomenon is called "sketchy diastemation". I propose that such a clearly higher written note should be preceded by dots 1-2, and a clearly lower note by dot 2.



### 3.3 Episema's

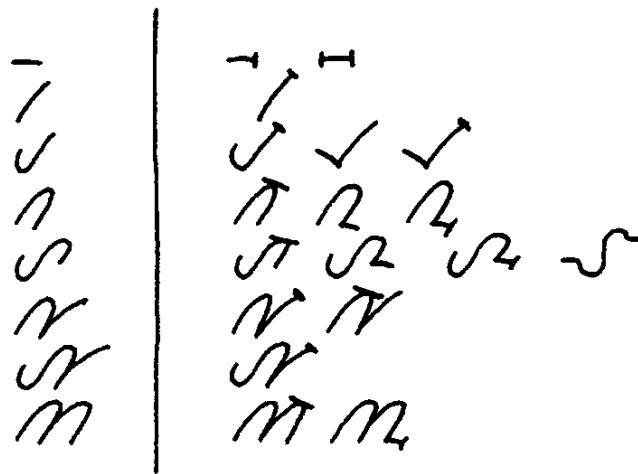
The second form of "interruption" (actually a distortion of the continuous wave-form) is made by episema's. As written, an episema is a small line attached square to a preceding note-form (mostly a "virga" or a "tractulus"), or, of a small square line attached to another episema. Episema's can be attached to elementary neumes as well as to complex ones.

In the continuous wave-form an episema is either a tangent to a curve of the wave, or a right angle in stead of a curve. In the first case the episema actually effects the



preceding "virga" and in the second case the preceding "tractulus". In both cases is assumed by the semiological movement that the episema covers the preceding as well as the following note.

I propose to represent the episema as an elongating dot (dot 3), and a double episema (two combined episema's or two separate episema's left and right of a "tractulus") as two consecutive elongating dots or as dots 2-3.



### 3.4 Special note-forms

The third "interruption" consists in the writing of particular note-forms. In adiastematic neumes separate notes can be represented not only as virga and tractulus but also as dot ("punctum"), comma ("strophæ"), "quilisma" and "oriscus". Besides there is the phenomenon of the so-called "liquiscent" neumes. In fact these particular note-forms are essentially to be seen as smaller waves inside the ongoing or interrupted wave-form.

Dot, comma and liquescent neumes, (not the liquescens itself) can be "episemised". In this case the dot will not stay recognizable as such and will in fact be changed into a tractulus. Quilisma and oriscus can only be episemised in a joined up way of writing.

With the dots, comma's (and tractuli) it is almost always the mutual grouping that is of importance. I propose to represent the mutual grouping of the separate notes or neumes with the double dot (dots 2-5). Although conventions could be developed to forego the use of the double dot in obvious cases.

separate note-forms

compound neumes  
(some examples)

<i>punct</i>	.	/.	℞.	..V.	∴	∴
<i>komma</i>	>	'''	℞,	,''	,∴	
<i>quilisma</i>	w ww	w ww	-w' -wT	-wS	-wV	
<i>oriscus</i>	~ ~ ~	~. ~. ~.	℞ S	℞. -S	℞. ℞.	℞=
<i>liquescens</i>		ρ ρ	ρ ρ	ρ ρ	ρ ''')	ρ

### 3.4.1 Dot (punctum) and comma (strophæ)

Dots mostly appear grouped with other dots: in ascending or descending straight lines, as an equilateral triangle ("trigon", with the middle dot at the top) and in combination with other note-forms.

In case a neume consists of more than three notes and all notes are dots, than the highest note (and that is never the first) can be followed by dot 2 in Braille (indicating its "sketchy diastematic" highest pitch).

Comma's are often grouped at the same height in order to represent a particular sort of note repetition. In a compound neume an initial comma is always placed lower than the following notes.

I propose to represent dot and comma as eighth and quarter notes, thus respectively without using dots 3 and 6, and with use of dot 6.

### 3.4.2 Quilisma and oriscus

Quilisma and oriscus appear considerably less often and are always surrounded by other note-forms. There are two sorts of quilisma's, the two and the three toothed. In both cases one can speak of a small wave with upward pointing teeth, usually followed by an attached virga (actually the third or fourth "tooth").

The oriscus is also a small wave but as opposed to the quilisma never exists out of only downward bended (hollow or "conVex") arches. The upward bended arch (round or "concAve") is of even more importance. There are three versions: round-hollow (concAve-conVex),

hollow-round (conVex-concAve) and round (concAve).  
(see the table below)

The round-hollow version often begins with a virga and often ends with a dot. With virga and dot it is called "pressus maior". With dot, without virga but sometimes with a preceding "clivis" it is called "pressus minor". A round-hollow oriscus with a virga but without a dot is called "virga strata".

The second version: hollow-round, is often connected to an immediately following upward pointing virga and is then called "pes quassus".

The third version: round, appears only by itself but then always in a rising compound neume, for example: dot-oriscus-virga and in this combination is called "salicus".

From mediaeval sources quilisma and oriscus are known as ornament neumes and I therefore propose to represent them as such in Braille, that is by the relevant sign preceding the note concerned. The note itself is then printed in Braille as an "eighth" note (without dots 3 and 6).

⠆	hollow-hollow	⠆	hollow-hollow-hollow
⠆	round-hollow	⠆	hollow-round
⠆	round	⠆	liquescence

### 3.4.3 Liquescent neumes

The term "liquescent neume" refers to neumes with a backward curling graphic. The curl (the "liquescens") is always at the end of the neume concerned.

Investigations of comparative handwriting point out that it is not always clear if the curl itself is also a note, or whether it consists of one or more sling-notes (glissandi).

For example the second note of a "pes", i.e. the "virga", can instead of pointing up to the right, be written a little shorter and somewhat curling back to the left. Here it is sometimes questionable if there really is a "second" note. This is reflected in the contradicting names for this neume; "liquescent pes" and "liquescent tractulus".

Again name-giving is here problematic. From the point of view of the written neumes two names are possible that, according to their definitions should be different. By definition a pes (two connected notes, the first being lower than the second) is not a tractulus (one, relatively low note).

The semiological distinction between a "diminished liquescent pes" and an "augmented liquescent tractulus" seems nonsense to me, because in adiastematic neume script this distinction simply cannot be made. The same ambiguity applies to many other neumes. So, graphically, an "augmented liquescent pes" has the same form as a "diminished liquescent torculus".

It seems to me that the familiar phenomenon of the "initio debilis" introduced by the semiological movement, is just as dubious. The "initio debilis" is a construction concluded from the comparison of early adiastematic with later diastematic manuscripts stating that in certain neumes the first note should be very weak because of the fact that it exists in the earlier and does not exist in the later manuscripts. This phenomenon however is not demonstrable in adiastematic sources alone and the

difference between an ordinary pes and a pes initio debilis simply doesn't exist there.

If these sorts of ideas are at all meaningful they point to the transitional period between adiaSTEMatic and diastematic manuscripts at the earliest and have nothing to do with the original meaning of the neumes. Indeed it seems to me that it just concerns 20th century constructions. More meaningful is the semiological hypothesis that liquescent neumes are concerned with the pronunciation of consonants.

I think that the ambiguous concepts of liquescents and initio debili draw too much weight on the hypothesis that, in spite of the ever changing music notation, the music itself remained "exactly" the same. Probably it didn't, and I think that the small inconsistencies are a reflection of the slow change in style, just as with the disappearance of other ornament neumes. This seems more likely when we consider the fact that the very successful reconstructions of Solesmes from the late 19th century onward bridge a gap in the living tradition of some 300 years since the Renaissance and are in fact inspired by a 19th century romantic ideal of choir singing.

Although all note-forms (except perhaps the quilisma) can be made liquescent it happens relatively infrequently. It occurs about as often as the oriscus, the least used note-form. Seeing a comma as a liquescent dot or liquescent tractulus, which seems reasonable, would increase this frequency.

I propose to represent the liquescent note itself (the liquescens) as an eighth note, preceded by a special sign (dots 2-6). When there actually is no liquescent note this

sign follows directly after the preceding note without the slur (dots 1-4).

### 3.5 Additional letters

Finally (the fourth "interruption" of the continuous wave) the adiaematic neumes are characterized by all sorts of added letters, above, in between, or below the neumes (see frontispiece).

Some of them have a melodic significance such as the e, the i and the s; respectively "equaliter", "iusum" and "sursum", so to say the same, lower and higher. Others have a rhythmic or expressive significance such as the c and the t (in fact a Greek tau); respectively "celeriter" and "tenete", meaning fast and slow (hold).

The various manuscripts differ rather in the quantity, the position, the sort of letters and the kind of abbreviations. It is obvious that the additional letters should be transposed into Braille in the same way as letters occurring in modern blackprint music. In Braille additional neumatic letters should therefore be put between the word sign (dots 3-4-5) and the abbreviation dot (dot 3) at the place where they occur.

There are however a few exceptions. Some letters can be written in various ways. For example it is possible to extend the under curve of the c over a number of neumes, and so the crosspiece of the tau. The obvious thing to do is to transpose this into Braille just like the printed dynamic signs in modern sheet music.

So, where an extended c starts, one should transpose: "word sign", "c", and "(two) abbreviation dot(s)". Where

the letter ends the word sign should be followed by the "lowered c" and one abbreviation dot. It must be realised however that the usual meaning "crescendo", and the equivalent graphic signs are not known in manuscripts of Gregorian chant.

Furthermore there are e.g. different forms of the letter p, "parvum", meaning (a) small (interval). These could be numbered, as De Graaf Bierbrauwer does.

The manuscript Laon 239 also contains special abbreviation signs. These so called Tyronic signs stem from late antiquity and are hardly deciphered. They have a logic of their own which stands apart from adiaستمatic neumes. Indeed the manuscript of Laon is the only one which uses them. However special codes could be developed there as well.

Because confusion in Gregorian chant is hardly possible I would finally propose not to start again with an octave-sign after a letter or Tyronic sign, except when needed according to the original rules (see 1.2).

## 3.6 Differences between neumes and notes

### 3.6.1 Braille transcription and square notation

As has already been stated it is important to realise that in adiaستمatic neumatic notation no pitches are available. Only a suggestive sketch of the melodic outline is given there. The pitches have to be taken from later diastematic sources from the 11th century onward, e.g. from the square notation in the *Graduale Triplex*.



In fact the only novelty of diastematic notation compared with adiastrumatic is (by definition) the availability of clear pitches. For the rest a lot of nuances got lost. So for the most accurate transcription of Gregorian chant only the pitches have to be taken from diastematic sources, and all the rest should be taken from the much older adiastrumatic ones.

Along with the general sketch to transpose adiastrumatic neumatic information into Braille, as given in the previous paragraphs, I would like to use Clements method for the separation of the music of different words and syllables. Respectively by spaces (no dots) and hyphens (dots 3-6). Because key and ictus have no parallel in old neume manuscripts they can be left out. The general Braille music code will continue to be used for names of notes, octave-signs and accidentals.

Although pause-signs do not appear in old manuscripts they are important for phrasing. Contrary to Clement I would just join with general music notation and translate "pausa maior", "minor" and "minima" as respectively whole, halve and quarter rest. But because in Braille the notation of Gregorian chant has had its own history, I keep the existing Braille for them: dots 3-4-5-6, dots 3-4-6 and dots 3-4, respectively.

For the rest I have tried to use general Braille music notation where possible. So according to the semiological movement the separate note-forms tractulus, virga, stropa and punctum, have a decreasing duration. Although relations between them are relative and not absolute and the difference between tractulus and virga particularly is not always clear, it seems obvious that these note-forms

should be represented by whole, halve, quarter and eighth notes respectively.

Instead of the durational relationship 8, 4, 2, 1, the semiological movement is inclined to interpret the relationship as 4, 3, 2, 1, in which than the virga (3) has the average duration.

Also quilisma and oriscus have due to mediaeval sources similarities with certain ornaments in modern music. Therefore the signs for quilisma (thrill) and oriscus (turn) have some resemblance with those used in the general Braille music code.

### 3.6.2 Handwriting and square notation

Using the method outlined above, a combined transcription can be made which shifts out the ballast and retains the necessary information. By comparison, this method is 20 to 30% lengthier than Clement's, whilst De Graaf Bierbrauwer's method is about 120 to 160% lengthier. As will be clear Clement's method gives not all the available information, whilst the combined method does.

What does get lost in the combined method is the grouping of the diastematic square neumes, which is replaced by the much more relevant grouping of adiastrumatic St. Gall neumes. Also typical square notation ingredients like ictus, mora voci and such like, disappear, which could however be added if needed.

In the combined transcription it is furthermore important to offer solutions where strict combination is not possible. This combination is of course not possible when there is no parallel between adiastrumatic neumes and

diastematic notes. Generally speaking there are only two such cases; 1. missing neumes and 2. missing notes,

### 3.6.2.1 Missing neumes

In a number of places in the *Graduale Triplex*, the St. Gall neumes are missing (as they are in the copied manuscript). This happens mainly at final cadences and other supposedly known passages. Occasionally it concerns a specific neume or a part of it.

In these cases the neumes are derived from comparable passages in the *Graduale Triplex* where St. Gall neumes do occur. Neumes can also be derived from square notation, but this happens exclusively in parts that do not occur in the old fond.

The particular passage will always be placed between special brackets consisting of dot 6 followed by dot 3, or, even better: 5-6 and 3 at the beginning and 6 and 2-3 at the end.

In some passages the oldest St. Gall manuscripts do not give neumes, but later ones do. In the *Graduale Triplex* these later neumes are put between square brackets. I propose to put these neumes into Braille within brackets consisting of dot 5 followed by dot 2, or, better: 5 followed by 1-3 at the beginning, and dots 3-6 followed by dot 2 at the end.

### 3.6.2.2 Missing notes

In a number of places in the *Graduale Triplex* it is the square notation that is missing, whereas the St. Gall

neumes are not. Often this concerns the so called "initio deblils", but also other and more extensive cases occur.

In all these instances the passage concerned has to be placed in special brackets consisting of dot 4 and dot 1, or, even better: 4-5 followed by dot 1 at the beginning of the relevant passage, and dot 4 followed by dots 1-2 at the end.

In one graduale, that I shall use further on as an example, many alleluia's and almost all offertoria notes as well as neumes of whole verses are missing. And with regard to older graduals and the old fond even all sorts of chants are missing. In these cases the passage concerned could be put between brackets consisting of dots 4-6 and dots 1-3, or, better: dots 4-5-6 followed by dots 1-3 at the beginning and dots 4-6 followed by dots 1-2-3 at the end.

### 3.6.2.3 Deviating pitches

#### 3.6.2.3.1 "Restitutions" from the *Beiträge zur Gregorianik*

The comparative studies of manuscripts by the semiological movement suggest that the pitch of certain notes from square notation should be changed in order to be more in accordance with the "original" repertoire.

Certain adiaSTEMATIC manuscripts may e.g. show an "equaliter" between two notes which may not have the same pitch in square notation. Also the so-called "sketchy diastemation" (the relative height of one neume to another), indicates in a number of places an obviously different pitch than given by the square notation.

In both cases the required pitch is often shown in 11th and 12th century southern diastematic manuscripts from Albi and Beneventum. For this reason these southern

manuscripts have become authoritative for the semiological movement. And as a result since 1996 they have published so-called "restitutions" of the proper of mass in their *Beiträge zur Gregorianik*.

### 3.6.2.3.2 Criticism of the "restitutions"

As concerned with the "original" repertoire which the "restitutions" try to reflect more accurately, the following five points must be considered.

Firstly the publications in the *Beiträge* are limited to the chants that are published in the *Graduale Triplex* (extra verses are even left out), which is essentially a result of the reforms of the so called second Vatican council halfway the 20th century. But especially the offertory verses are found in all old manuscripts up to the 12th century. In my opinion these verses are of major importance for the search of the original style of the repertoire.

Secondly the restitutions do not adapt square notation to 10th century neumes, while this was the most necessary thing to do according to their teacher Eugène Cardine. In fact this was the great merit of this man which inspired a new interpretation of Gregorian chant around the world.

As a consequence of this (thirdly) no new insights are given as about the interpretation of the ornament neumes. Indeed it seems that this is "not done", and that apart from some minor rhythmical adaptations in performance practice everything should stay the same.

Fourthly on average only one in 20 notes is changed in the restitutions; usually mi or si to fa or do, or vice versa.

And finally even these marginal adaptations can be criticized very seriously, because the semiological

argument for the "southern" manuscripts, also applies to the "northern ones" (in particular Klosterneuburg and Verdun). Just count how many times the northern manuscripts exclusively do right to the adiaستمatic way of writing a trigon, porrectus or salicus. Mostly this concerns also semi-tone.

The northern manuscripts are seen however by the semiologists as local characteristics which are not of great interest for the reconstruction of the repertoire, something I would want to contest.

From my point of view the restorations of the *Beiträge* are thus utter nonsense; what they give with one hand they take with the other.

The southern manuscripts are indeed more useful in the syllabic passages, but the northern ones are more useful for the more melismatic passages. There is also this remarkable fact that according to the extensive comparisons published by the monks of Solesmes halfway the 20th century in *Le Graduel Romain: Édition critique*, of all diastematic manuscripts that of Klosterneuburg is far most related to the adiaستمatic manuscripts of St. Gall (eliminating by the way a lot of the supposed "initio debili").

In my view first a thorough investigation into the meanings of the adiaستمatic neumes should be undertaken. Possibly this would in the end lead to something like a more "proper" note-image. The method of the semiological movement works upside down and makes less sense because they start with some rather special and later diastematic manuscripts that are supposed to give "the precise pitches", but in fact "prescribe" or "dictate" the meaning of the earlier adiaستمatic sources.

In expectation of this further research it seems wise not to alter the pitches of the square notation in the *Graduale Triplex*. In blackprint *Fluxus*, that attempts to be a combination of neumes and notes as well, that wasn't very obvious. There is no such problem however in the combined Braille transcription. In stead the friction between neumes and notes is only apparent in some places.

To illustrate the kind of corrections involved, in the example of the gradual "Ecce quam bonum" I do make corrections in the combined Braille transcription using both Southern and Northern sources. As far as the first verse is concerned only 11 notes from a total of 215 have been corrected.

In so far as these corrected notes are "new" they are placed between brackets, consisting of dot 4 followed by dot 1 (according to paragraph 3.6.2.2). In as far as just the pitches are changed they are placed between brackets consisting of dots 5–6 and dots 2–3, or, what would be better: 5-6 followed by 1-3 at the beginning, and 4-6 followed by 2-3 at the end.

### 3.7 Original and copy

This exposition is mainly based on the traditional script of St. Gall. In the *Graduale Triplex* however also Laon 239 is included. The limitation to the St. Gall texts though, is less serious than it might seem. By far and away most manuscripts are preserved of the St. Gall tradition, amongst which are the oldest and the most nuanced. Besides the researches of Solesmes halfway the 20th century, resulting

in different families of manuscripts, in fact show more similarities than differences between these families.

### 3.7.1 St. Gall and the rest of Europe; East and West

The adiastematic notations of the manuscript families from St. Gall, Laon, Chartres, "Mont-Renaud", Beneventum, Cluny, Dyon, Bologna and others show in fact all the same internal logic (which is explained in the above paragraphs), this logic differs however very much from for instance Byzantine and Jewish contemporary music notations.

In fact it would be better to speak of the "different" sorts of handwriting to the various Western schools than of the different sorts of notation. By consideration of all sorts of parallel details, it may even be concluded that all the different manuscripts have been copied from each other.

Nevertheless a comparison of all these original graphics could lead to a better understanding in the precise meaning of specific neumes and probably even in the style of the repertoire (see my forthcoming book *Notation and Inspiration, On the fixation of Gregorian Chant*).

### 3.7.2 *Graduale Triplex* and original

A comparable problem occurs with the *Graduale Triplex* itself. Even here reference should be made to the sources which were copied, because the copied neumes differ in many ways from those in the original manuscripts.

Thus the position of different neumes with respect to each other and with respect to the text (because of lack of



space) differs from the original in all sorts of places. Because of this particularly the so-called sketchy diastimation of the manuscripts has become unreliable.

Furthermore the writers hand betrays the fact that the copier was not the original writer.

Also one may wonder what influence the presence of precise pitches in the *Graduale Triplex* has on the interpretation of the additional neumes.

Furthermore and more generally in the *Graduale Triplex* the sequence of chants has been made completely chaotic; which makes a coordinated vision of the repertoire difficult.

Apart from this there are some mistakes and inaccuracies in the act of transcription.

Even so the *Graduale Triplex* is a good representation of what is to be found in the old manuscripts. It is my conviction that my proposal in this paper of transcribing Gregorian chant into Braille is similarly representative.

### 3.8 Shortened alternative transcriptions

The transcription method described above could be made 10% shorter, since mostly in the manuscripts notes are written interconnected and not separated, whilst in the described method the interconnection is indicated (using one Braille-cell) and the separation is not.

So the amount of Braille-cells could be approximately 10% less when in stead of indicating the interconnection of notes (with the slur; dots 1-4) the separation of notes would be indicated (with the formerly used group-sign; 2-5). The

grouping would only need indication when there could be confusion between grouping and interconnection.

Furthermore, by emphasizing the separation of notes, the link with the so-called "coupures" of Eugène Cardine would be more clear. These coupures are of essential importance for the (semiological) interpretation of Gregorian chant.

The information in both methods would be quite the same. So the choice is just a matter of clarity. On the one hand 10% less Braille-cells, on the other hand we have with the slur the possibility for indicating the position of the additional neumatic letters more precisely. Before the slur the letter would be connected with the preceding note, and after the slur with the following note.

In the shortened method notes which are brailled directly after each other are (if possible at all) always connected with each other in the neume-script. When this connection is impossible these notes are consequently grouped. So also the grouping of notes (mostly) won't need indication. And only with the separation mark (dots 2–5) in between two notes, the neumes are separated from each other.

In fact there are a number of note forms that cannot be connected at all to other note-forms, or can only be connected on one side to another note-form. In such cases no separation mark (dots 2-5) is necessary.

So the quilisma and the hollow-round oriscus can be joined to the following note, but never to the preceding, whereas the round-hollow oriscus can be joined to the preceding note and not to the following note. The round oriscus is always completely separate, just like dots and

comma's. The liquescence is always connected to the previous note but is never joined to anything following.

Only tractulus and virga can on both sides be connected to another note. When not connected, dots 2-5 are needed, when connected then not. When grouped this can be indicated with the two signs for "sketchy diastemation", since in the case of grouping there always is an indication for relative pitch and vice versa.

As far as I'm concerned this shortened method is only a theoretical option, and the "scientific" combined method as described in paragraphs 3.1 to 3.6 is preferable.

As I said in the preface the propers of the masses of Christmas, Easter, Ascension, Pentecost and the Requiem are available in three different Braille transcriptions. All three transcriptions are based on the *Graduale* and *Offertoriale Triplex*, that is to say that all relevant verses of the offertories (and those of graduals and alleluia's) are included.

The three available different transcriptions are not to be confused with the different transcriptions in paragraph 4 of this paper.

The first transcription of the five masses is a "performance friendly" transcription. It is a performance friendly shortening of the "scientific" transcription. That is to say that all doublings due to the friction between neumes and notes (see paragraph 3.6) are left out. Because the "exact" pitches of the different chants are given with the four upper dots of the Braille-cell, also all neumatic letters (see paragraph 3.5) concerning pitch are left out, since for performance practice this information is of no importance.

The second transcription is that as described in paragraphs 3.1 to 3.6, and summarised in Appendix 4. This

is the so called "scientific" transcription, i.e. the combined transcription with all the information that can be found in the manuscripts, including the friction between neumes and notes, as well as all neumatic letters concerning pitch. So with this transcription blind people can make a throughout study of the contents of the old manuscripts as well.

The third transcription is the shortened transcription as explained above in this paragraph. That means that it is the same as the second, although some 10% shorter. As I said above the second transcription is preferable, but that insight I gained only after I finished the transcription of all five masses in the three different ways.

## 4 The gradual "Ecce quam bonum"

### 4.1 Introduction

In manuscripts from the 9th to the 12th century as well as in the editions from before the second Vatican Council (halfway the 20th century), the gradual "Ecce quam bonum" appears on the 26th of June, the feast of the martyrs John and Paul. Because of their faith, the two holy brothers, who lived at the court of Constantine the Great, were beheaded. After his death, by order of the emperor Julian the Apostate, they were executed in their own home in Rome in 361. The gradual is given in these sources also for the 22nd Sunday after Pentecost.

With the renewal of the liturgy since the second Vatican Council the feast of John and Paul disappeared, as well as the "Sundays after Pentecost". In the new *Graduale Romanum* (1974) and in the *Graduale Triplex* (1979),

which is based on it, the gradual is to be found on the 28th "Sunday through the year" (p.351) and given as optional in 5 other places (pages 516, 548, 648, 652 and 863).

Since the renewal of the liturgy the text of the gradual is less evidently associated with the readings of the day. The text consists of 2 (or 3) of the 4/(5) verses of Psalm 132/(133) and reads: "Behold, how good and how pleasant it is for brethren to dwell together in unity! It is like the precious ointment upon the head, that ran down upon the beard, even Aaron's beard: for the Lord commanded the blessing, even life for evermore".

As an illustration of the explained method of transcription, this first mode gradual is given here, since almost all aspects of neume-notation are involved. The ambitus of a twelfth furthermore asks for all three in Gregorian chant possible octave-signs. Besides all early manuscripts give two verses with this gradual, while modern editions give only one.

Apart from the Braille versions following the methods of Koos Clement, Martijn de Graaf Bierbrauwer and myself, I give a fourth one. This version is the same as the third, except that no information from square notation is included; thus there are no note-names, keys, pause-signs, octave-signs and so on. Every note is represented using all four of the dots 1, 2, 4, and 5. What remains is the exact information given in adiaستمatic neumes.

4.2 "Ecce quam bonum" with square notes  
 (Koos Clement) *Liber Usualis*, pp. 901-902

Grad.  
 1.  

 C- ce \* quam bónum, et quam jucún- dum  
 habi- tá- re frá- tres in ú- num! √. Sic-  
 ut unguéntum in cápi- te  
 quod descén- dit in bár- bam,  
 bár- bam \* A- a- ron.

{ ecce \* quam bonum,

et quam iucundum



4.3 "Ecce quam bonum" with St. Gall-neumes  
(Martijn de Graaf Bierbrauwer)  
*Graduale Triplex*, pp. 351-352

GR. I  
MRBCKS

Ps. 132, 1. V. 2

**E** C- ce \* quam bonum, et quam iu-cún-  
dum ha-bi-tá-re fra-tres in u-num!  
V. Sic-ut unguéntum  
in cá-pi-te, quod de-scén-dit in  
bar-bam, bar-bam A-a-ron.  
+X.2 Mandavit

L 132
C 122



{ecce \*

⠠⠑⠞⠙⠑⠐⠑⠎⠑⠎⠗⠑⠑  
⠠⠑⠞⠙⠑⠐⠑⠎⠑⠎⠗⠑⠑⠠⠑⠞⠙⠑⠐⠑⠎⠑⠎⠗⠑⠑⠠⠑⠞⠙⠑⠐⠑⠎⠑⠎⠗⠑⠑⠠⠑⠞⠙⠑⠐⠑⠎⠑⠎⠗⠑⠑  
⠠⠑⠞⠙⠑⠐⠑⠎⠑⠎⠗⠑⠑⠠⠑⠞⠙⠑⠐⠑⠎⠑⠎⠗⠑⠑⠠⠑⠞⠙⠑⠐⠑⠎⠑⠎⠗⠑⠑  
⠠⠑⠞⠙⠑⠐⠑⠎⠑⠎⠗⠑⠑⠠⠑⠞⠙⠑⠐⠑⠎⠑⠎⠗⠑⠑  
⠠⠑⠞⠙⠑⠐⠑⠎⠑⠎⠗⠑⠑⠠⠑⠞⠙⠑⠐⠑⠎⠑⠎⠗⠑⠑

quam bonum,

⠠⠑⠞⠙⠑⠐⠑⠎⠑⠎⠗⠑⠑  
⠠⠑⠞⠙⠑⠐⠑⠎⠑⠎⠗⠑⠑  
⠠⠑⠞⠙⠑⠐⠑⠎⠑⠎⠗⠑⠑  
⠠⠑⠞⠙⠑⠐⠑⠎⠑⠎⠗⠑⠑  
⠠⠑⠞⠙⠑⠐⠑⠎⠑⠎⠗⠑⠑

et quam iucundum

⠠⠑⠞⠙⠑⠐⠑⠎⠑⠎⠗⠑⠑  
⠠⠑⠞⠙⠑⠐⠑⠎⠑⠎⠗⠑⠑⠠⠑⠞⠙⠑⠐⠑⠎⠑⠎⠗⠑⠑⠠⠑⠞⠙⠑⠐⠑⠎⠑⠎⠗⠑⠑  
⠠⠑⠞⠙⠑⠐⠑⠎⠑⠎⠗⠑⠑⠠⠑⠞⠙⠑⠐⠑⠎⠑⠎⠗⠑⠑⠠⠑⠞⠙⠑⠐⠑⠎⠑⠎⠗⠑⠑  
⠠⠑⠞⠙⠑⠐⠑⠎⠑⠎⠗⠑⠑⠠⠑⠞⠙⠑⠐⠑⠎⠑⠎⠗⠑⠑  
⠠⠑⠞⠙⠑⠐⠑⠎⠑⠎⠗⠑⠑⠠⠑⠞⠙⠑⠐⠑⠎⠑⠎⠗⠑⠑

habitare fratres

⠠⠑⠞⠙⠑⠐⠑⠎⠑⠎⠗⠑⠑  
⠠⠑⠞⠙⠑⠐⠑⠎⠑⠎⠗⠑⠑⠠⠑⠞⠙⠑⠐⠑⠎⠑⠎⠗⠑⠑⠠⠑⠞⠙⠑⠐⠑⠎⠑⠎⠗⠑⠑  
⠠⠑⠞⠙⠑⠐⠑⠎⠑⠎⠗⠑⠑⠠⠑⠞⠙⠑⠐⠑⠎⠑⠎⠗⠑⠑⠠⠑⠞⠙⠑⠐⠑⠎⠑⠎⠗⠑⠑  
⠠⠑⠞⠙⠑⠐⠑⠎⠑⠎⠗⠑⠑⠠⠑⠞⠙⠑⠐⠑⠎⠑⠎⠗⠑⠑  
⠠⠑⠞⠙⠑⠐⠑⠎⠑⠎⠗⠑⠑









GR  
I

Ec- ce\* quam bonum, et quam  
iucún- dum habi-tá-re fra- tres  
in u- num! V1. Si-cut un-  
quéntum in cápi-  
te quod descén- dit in  
bar- bam, barbam Aa- ron.  
V2. Mandávit  
Dó- mi-nus  
bene-dic-ti- ó-nem, et vi- tam  
usque in saéculum.



usque in saeculum.

The Braille representation of 'usque in saeculum.' is as follows:  
 Line 1: u s q u e i n s a e c u l u m .  
 Line 2: u s q u e i n s a e c u l u m .  
 Line 3: u s q u e i n s a e c u l u m .  
 Line 4: u s q u e i n s a e c u l u m .  
 Line 5: u s q u e i n s a e c u l u m .

#### 4.5 "Ecce quam bonum" exclusively using St. Gall neumes *Cantatorium, f122*

{ ecce quam bonum

The Braille representation of '{ ecce quam bonum' is as follows:  
 Line 1: { e c c e q u a m b o n u m  
 Line 2: { e c c e q u a m b o n u m  
 Line 3: { e c c e q u a m b o n u m  
 Line 4: { e c c e q u a m b o n u m

& quam iocundum

The Braille representation of '& quam iocundum' is as follows:  
 Line 1: & q u a m i o c u n d u m  
 Line 2: & q u a m i o c u n d u m  
 Line 3: & q u a m i o c u n d u m  
 Line 4: & q u a m i o c u n d u m

habitare fratres in unum.

The Braille representation of 'habitare fratres in unum.' is as follows:  
 Line 1: h a b i t a r e f r a t r e s i n u n u m .  
 Line 2: h a b i t a r e f r a t r e s i n u n u m .  
 Line 3: h a b i t a r e f r a t r e s i n u n u m .  
 Line 4: h a b i t a r e f r a t r e s i n u n u m .  
 Line 5: h a b i t a r e f r a t r e s i n u n u m .



Ec- ce quam bonum &

quam iocun- dum habi- tare fratres

in u- num

V Sicut unguentum in

capite quod descen- dit

in bar- bam barbaram

aaron

V Mandavit do- mi-

nus benedictionem & vitam usque

in saeculum







# Appendix

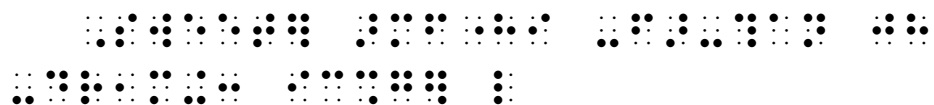


1. The two Krolick methods  
(Krolick 1979, pp. 140-141 and 144-146)

I. Sight Method.

This format for vocal music was devised as a means of putting text and melody as close together as possible. A single syllable, word, or very short group of words alternate with one or more notes within each paragraph. A space indicates a change from literary to music braille and vice versa. Since some uncapitalized words can appear to be music, they are usually preceded by a hyphen; hyphens also link groups of words in order to avoid leaving a space between them. Notes are not preceded by octave signs unless necessary according to the original rules [see par. 1.3]. One note is sung with each syllable of text unless slurs link the notes or hyphens separate them. The following excerpt from a folk song is in four-four time.

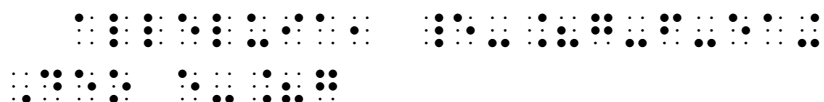
Example:



The text is "Sweeter far than dreaming" [using shorthand and American capital sign]. There is one note per syllable until the last word. The slur indicates that the first syllable of "dreaming" is sung to the eighth notes A and F-sharp. The final character is the sign for a bar line.

When the sight method is used for chant music, a hyphen in the music indicates a change of syllable in the text.

Example:



In the example above, the text is "Alleluia, Deo." Symbols of chant notation in the music portion include the *ictus* ⠠⠠⠠, ⠠⠠ which doubles the value of the note D, and a breath mark ⠠⠠.

In the following example, each word is divided into syllables, and each syllable is followed immediately by its note.

Example:



The text is "Et Angelus." As can be seen from the examples, there are variations in this format, but the major characteristic, the alternation of words and music on the same line, is retained.



## II. Chant Notation

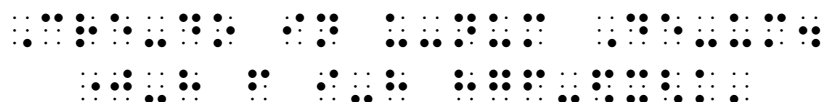
Chant notation refers to sacred vocal music known as chants, canticles, plainsong, psalm tones, etc. Some of these are written entirely in modern notation, a few have been transcribed from square notes or neumatic print notation, and most have standard notes and rhythmic values combined with features retained from the older notation such as reciting notes, breath signs, and no time signature. [...]

Square notes or neumes are written as specific pitches in braille, although the singer is free to transpose and sing within his voice range. Eighth notes represent the basic rhythmic unit. This unit is never divided, and if it is to be lengthened, an additional sign (such as dot 1, which means to double the note) appears in braille. In neumatic notation, dots 3 and 6 in the same cell as a note name do not indicate rhythmic value. Instead, dot 3 indicates that a pitch is the first note of a neume, dot 6 identifies a liquescent note, and dots 3-6 indicate a *quilisma*. It can be determined by context whether the above meanings apply or whether dots 3 and 6 are rhythmic value indications. A rest sign indicates the modern notation of rhythm with quarter, half, and whole notes, since breath or bar line signs are used in place of rests in neumatic notation. [...]

Many forms of chant music have no time signature. In this case, a space in the braille music line often indicates the end of a word rather than the end of a measure. The correlation of words with melody may follow modern practice using slurs (page 179) or it may depend on hyphens (dots 3-6). A hyphen in the braille music line indicates a change of syllable in the text. Notes not

separated by either a hyphen or a space are sung to one syllable. The text may also be hyphenated to show syllabic divisions of words.

Example:



In the above example the first syllable of "Deum" is sung on three notes. Each space in the music line indicates the end of a word, not the end of a measure. This example illustrates chant music that is a combination of round notation and special symbols for chant music. The eighth note (which is used as the basic rhythmic unit for chant notation) appears in this example along with hyphens in the music line. Spacing is at the end of each word. The eighth rest, however, indicates round notes in print, so dot 6 in the braille character just before the eighth rest shows that the note E is a quarter note, not a liquescent note [...].

[In the actual dictionary Krolick mentions especially signs for recitation formulae, and besides  $\text{⠠⠠}$ , for the pressus (this sign replaces the second unison note);  $\text{⠠⠠⠠}$ , to indicate the end of a neume, and the three breathsigns  $\text{⠠⠠⠠}$ ,  $\text{⠠⠠⠠⠠}$  and  $\text{⠠⠠⠠⠠⠠}$ , (small, bigger, whole)]

## 2. Clement's method

As outlined by De Graaf Bierbrauwer

Gregorian chant: vocal music sung in unison. Part of the Catholic Liturgy of the Mass and the Office, known to us from square notation (small square notes) which is in fact a simplification of neumatic-notation (signs and swirls above the text). In principle all notes in Gregorian chant have the same length but acquire a rhythmical nuance from an informed reading of the neums.

Method: Since all notes in Gregorian chant are of equal length they can be represented in Braille as eighth-notes. Particular groupings of notes can be represented by means of Braille-cells for whole, halve, quarter and eighth notes.

New signs for note-groups such as are found in square notation:

⠠⠠	low-high (pes or podatus) (e.g. do-re)
⠠⠡	high-low (clivis) (e.g. do-si)
⠠⠡⠠⠠	high-low-high (porrectus) (e.g. do-si-do)
⠠⠠⠡	low-high-low (torculus)
⠠⠡⠡⠡	high-low-lower (climacus)
⠠⠡⠡⠡⠠	high-low-lower-high (climacus-resupinus)
⠠⠠	portamento or a passing note from low to high (quilisma)
⠠⠠	decorative note, or grace-note (liquescence)

## do - keys

- ⠠⠠⠠⠠⠠ on the fourth line (the upper)
- ⠠⠠⠠⠠⠠ on the third line
- ⠠⠠⠠⠠⠠ on the second line (seldom)

## fa - keys

- ⠠⠠⠠⠠⠠ on the fourth line (seldom)
- ⠠⠠⠠⠠⠠ on the third line
- ⠠⠠⠠⠠⠠ on the second line

The keys do not represent absolute pitch. In Braille I have based pitches of the do-key on C in the fourth octave and of the fa-key on F of the third.

## Other signs:

- ⠠ light accent on the following note (ictus)
- ⠠ broadening on the following note (episema)
- ⠠ lengthening dot

## Phrase-marks (pauses)

- ⠠ minima
- ⠠ minor
- ⠠ major
- ⠠⠠ finalis
- ⠠ used after a solo introduction and marks the beginning of the chant for the choir or the people (asterisk)

- ⠠ ⠠ the flat and the natural sign.
- The flat sign is cancelled after:
  - after a natural
  - after a new word
  - at the start of a new line.

### Recitatives:

⠠ placed before a syllable indicates that a change of pitch takes place on that syllable. The change of pitch will be noticeable from the melody of the psalmtone.

### Accents within a syllable:

- ⠠ with vowel a in syllable
- ⠠ with vowel e
- ⠠ with vowel i
- ⠠ with vowel o
- ⠠ with vowel u
- ⠠⠠ with vowel y

Gregorian chant has no bar-lines. Empty Braille-cells define the end of each word, the hyphen-sign is used to separate syllables.

### Sections:

- The text consists of a single line of words.
- The music starts after two empty Braille-cells. Key and stave are defined at the beginning of the music of the first section. The music of every further section begins only with the octave-sign.

Example: Kyrie I, Tempore Paschali (Lux et origo) X.s.  
*Graduale Romanum* (1974), p. 710

I. Paastijd

MODUS VIII

801

Kyrie

TRACTULUS

PES

VIRGA

CLIMACUS

ASTERISK

ICTUS

PUNCT

HALF-SLOT

EPISEMA

PORRECTUS (FLEXUS)

TORCULUS

PAUSA MINIMA

(CUSTOS)

Y-ri-e e-lé-i-son. bis Chri-ste

QUILISMA

e-lé-i-son. bis KÝ-ri-e e-lé-i-son.

P. MINOR P. MAJOR

Ký-ri-e e-lé-i-son.

FA-SLEUTEL

LIQUESCENS

The image shows a musical score for the Kyrie I, Tempore Paschali, from the Graduale Romanum (1974), page 710. The score is written on three staves. The first staff begins with a large 'K' and the text 'Y-ri-e e-lé-i-son. bis Chri-ste'. The second staff continues with 'e-lé-i-son. bis KÝ-ri-e e-lé-i-son.' and the third staff with 'Ký-ri-e e-lé-i-son.'. The score is annotated with various neumes and their names: TRACTULUS, PES, VIRGA, CLIMACUS, ASTERISK, ICTUS, PUNCT, HALF-SLOT, EPISEMA, PORRECTUS (FLEXUS), TORCULUS, PAUSA MINIMA, and (CUSTOS). The first staff is also labeled 'MODUS VIII' and '801'. The second staff has 'QUILISMA' and 'P. MINOR P. MAJOR' annotations. The third staff has 'FA-SLEUTEL' and 'LIQUESCENS' annotations. The title 'I. Paastijd' is written above the first staff, and 'Kyrie' is written above the second staff.



### 3. De Graaf Bierbrauwer's method.

#### Parallel notation of Martijn de Graaf Bierbrauwer

Transcription in sections:

First line: chant text

Second line: matching music in Braille using Clement's method.

Third line: abbreviated neume-names, parallel to the music in Braille (using tracking dots):

bs = bistrofa	t = tractulus
bv = bivirga	tc = torculus
c = clivis	ts = tristrofa
k = climacus	tv = trivirga
l = liquescens	u = uncinus
o = oriscus	v = virga
p = pes	vs = virga strata
pc = porrectus	y = epiphonus
pcf = porrectus flexus	z = cephalicus
po = pes stratus	∴ = ancus
pq = pes quassus	∴ = punctum
ps = pes subbipunctis	∴ = quilisma
∴ ∴ = pressus maior	∴ ∴ = quilisma pes
∴ ∴ = pressus minor	∴ = strofa
r = resupinus	∴ = trigon
sa = salicus	
sc = scandicus	
scf = scandicus flexus	



∴ in front of for example torculus = initio debilis

Fourth line: abbreviation of articulation (with tracking dots)

∴ = episema 1st note

∴ = “ 2nd note

∴ = “ 3rd note

∴∴ = in the case of, for example, torculus, all notes are articulated

[for the 4th, 5th, 6th and 7th note: ∴, ∴, ∴ and ∴]

Fifth line: abbreviations of neumatic letters (with tracking dots)

a (altius) = higher (St. Gall)

a (augere) = broaden (Laon)

c (celeriter) = quick

h (humiliter) = lower (Laon)

i (iusum/inferius) = lower

m (mediocriter) = not too much

n (nectum) = closely linked (Laon)

p (parvum) = a little, small interval

sj = subjice (lower, Laon)

st (statim) = closely linked

t (tenere) = broaden

x (expectare) = wait

s = sursum = up (looks like a small v)

#### 4. Maessen's method

##### The so-called combined transcription

In this combined transcription the pitches are derived from square notation and the neumatic information from adiaSTEMATIC St. Gall neumes. These two ingredients can also be found (although written under each other) in the *Graduale Triplex* and some other books.

Note-values in Gregorian chant are not prescribed thus in the Braille transcription the two lowest positions in the Braille-cell, positions 3 and 6 can have other meanings. These two positions will be used to define the basic neumatic forms:

	c	d	e	f	g	a	b
tractulus	⠠	⠡	⠢	⠣	⠤	⠥	⠦
virga	⠠	⠡	⠢	⠣	⠤	⠥	⠦
comma (stropha)	⠠	⠡	⠢	⠣	⠤	⠥	⠦
dot (punctum)	⠠	⠡	⠢	⠣	⠤	⠥	⠦

Tractulus and virga can be found in the St. Gall manuscripts as two separate strokes, or conjoint as one written symbol. If the latter, a join is made between the two Braille-cells using a “tie”: ⠠⠠.

The four basic neume-forms, as well as most of the others, can appear grouped together. In this case the “group-sign”, ⠠ is placed between them.

Transcribed music belonging to different syllables will be separated by a “hyphen” ⠠⠨.

Transcribed music belonging to different words will be separated by an empty Braille-cell.

Besides the four basic neumatic forms in St. Gall manuscripts, there are six other forms. These will be transcribed as:

	c	d	e	f	g	a	b
2-toothed quilisma	⠠⠠⠠	⠠⠠⠠⠠	⠠⠠⠠	⠠⠠⠠	⠠⠠⠠	⠠⠠⠠	⠠⠠⠠
3-toothed quilisma	⠠⠠⠠	⠠⠠⠠	⠠⠠⠠	⠠⠠⠠	⠠⠠⠠	⠠⠠⠠	⠠⠠⠠
round-hollow oriscus	⠠⠠⠠	⠠⠠⠠	⠠⠠⠠	⠠⠠⠠	⠠⠠⠠	⠠⠠⠠	⠠⠠⠠
hollow-round oriscus	⠠⠠⠠	⠠⠠⠠	⠠⠠⠠	⠠⠠⠠	⠠⠠⠠	⠠⠠⠠	⠠⠠⠠
round oriscus	⠠⠠⠠	⠠⠠⠠	⠠⠠⠠	⠠⠠⠠	⠠⠠⠠	⠠⠠⠠	⠠⠠⠠
liquescence	⠠⠠⠠	⠠⠠⠠	⠠⠠⠠	⠠⠠⠠	⠠⠠⠠	⠠⠠⠠	⠠⠠⠠

These six subsidiary neume-forms can be found connected to others or found grouped with others. With the liquescence, the actual note of the liquescence may not exist, in which case this neume is only represented by the sign ⠠⠨, so without a note-name.

Only three octave-signs have to be used for Gregorian chant. These will be transcribed as usual (⠠⠨, ⠠⠨⠠ and ⠠⠨⠠⠨) and are of course placed immediately before the name of the note.

Almost all neumes can be episimised. This is written as a short stroke attached to the neume and indicates a

lengthening of the duration of the neume. The episema will be transcribed as ∴, after the note concerned. An episema may be itself episemised, which will be transcribed as ∴∴ or ∴∴∴.

In St. Gall script, and in others, individual letters are written above, below and between the neums. These “neumatic” letters have specific meanings as for details of pitch, tempo and expression. The letters will be transcribed as such and placed between word-sign ∴ and the abbreviation-dot ∴ at the place at which they occur. After transcribing such a letter an octave-sign is not needed, except according the original rules.

The phenomenon of “sketchy diastemation” also occurs in St. Gall manuscripts. This is transcribed as:

- ∴ in front of a clearly written higher note.
- ∴ in front of a clearly written lower note.

Pause-signs etc. can be borrowed from square notation and transcribed in the usual way.

Between square notes and St. Gall-neumes four inconsistencies can occur. The differences will be placed between special brackets:

1. If, in a certain passage of music there are neumes but no square notes, the pitches may be taken from comparable passages elsewhere in square notation, or from diastematic manuscripts. The passage concerned is then placed between brackets ∴∴ and ∴∴ or better ∴∴ and ∴∴.

2. If in a certain passage St. Gall neumes are missing where there are square notes, the neumes may be taken from a comparable passage elsewhere, or from a comparable passage from square notation itself. The passage concerned will then be placed between brackets [ ] or better between brackets [ ] and [ ] .

The neumes can also be taken from another St. Gall manuscript, in which case the passage is placed between brackets [ ] and [ ] or better [ ] and [ ] .

3. Sometimes both square notes and St. Gall neumes are missing. In this case the relevant passage is placed between brackets [ ] and [ ] or better [ ] and [ ] .

4. Finally square notes can, in accordance with old manuscripts, be changed in pitch. The relevant note (or notes) is placed then between brackets [ ] and [ ] , or better [ ] and [ ] .

## Glossary

- 1st mode: mode with base-note Re and reciting note La.
- a: altius; neumatic letter meaning “higher”.
- abbreviating dot: dot 3 in Braille transcriptions of music after abbreviations of text. Dots 2-5-6 represent the usual dot at the end of a sentence in literary texts.
- accidentals: signs which higher or lower the pitch of a note (sharp, flat and natural).
- additional letters: see neumatic letters.
- adiaستمatic notation: music notation in which pitch is not fixed exactly. Adiaستمatic neume manuscripts only indicate if the following pitch is higher, lower (or the equally high), but do not indicate how much.
- Albi: Paris, Bibliothèque National MS lat. 776; gradual of St. Michel de Gaillac near Albi; diastematic manuscript without staves from before 1079.
- alleluia(‘s): Hebrew: for “praise the Lord”; chant(s) before the gospel reading in the Mass.
- ambitus: the musical range of a piece; the distance between the highest and lowest notes.
- antiphonale: book of chants for the Office of the church.
- augmented liquescence: A liquescence where the neume concerned seems to represent an extra note.
- b: bene; a neumatic letter meaning “good” (adjective).
- base-note: the note on which the chant is based, where it has its cadences and end.
- Beiträge zur Gregorianik: the periodical of the German semiological movement. Regensburg from 1985.

- Beneventum: Biblioteca Capitulara MS 34 (formerly VI. 34); gradual from Beneventum; diastematic neumes on staves from around 1100.
- blackprint: print for the sighted (referring to the black ink on white paper), in contrast to Braille relief script for the blind.
- Braille: a script developed by Louis Braille (1809-1852) enabling blind people to read with their fingers.
- Braille-cell: the smallest carrier of meaning in Braille-script. Consists of a combination of 6 possible dots (in relief) on thick paper.
- Braille-section: a logical unity within Braille transcription representing a phrase in blackprint music.
- Byzantine music notation: music notation in which instead of the actual pitch the distance to the preceding note is given.
- c: celeriter; neumatic letter, meaning “quick”.
- cantatorium: chantbook containing chants for the soloist in the Mass (gradual, alleluia and tractus)
- Cantatorium: St. Gall, Stiftsbibliothek MS 359; cantatorium from St. Gall; adiastrumatic neumes from the beginning of the 10th century.
- Cardine, Eugène: (1905-1988) founder of the semiological movement, especially through his “Semiologia Gregoriana” (Rome, 1968).
- Chartres: Chartres, Bibliothèque municipale MS 47; gradual from Bretagne (St. Sauveur /Redon); adiastrumatic neumes from the 10th century, lost in WW II but preserved in photocopy
- climacus: neume consisting of a virga (high note) with two or more falling puncta and/or tractuli.

- climacus-resupinus: a neume consisting of a climacus with a final rising virga.
- clivis: a neume consisting of a high note with a following conjoined low note.
- combined transcription: a method of transcribing adiastematic St Gall neumes in combination with the pitches of (diastematic) square notation into Braille.
- comma (stropha): a neume in the form of a comma, probably implying one note; possibly the same as a liquescent punctum or tractulus.
- coupures: definite places in the on-going wave-form of the neumes where the neumes are interrupted and where Cardine thus beliefs a momentary articulation is represented.
- diastematic notation: music notation in which pitch is determined “exactly” by means of lines or letters for the different pitches.
- Dijon: Montpellier, MS H 159 de la Bibliothèque de l’École de Médecine; diastematic manuscript with letters and adiastematic neumes. Gradual/tonarium of St. Benigne de Dijon, from the beginning of the 11th century. One of the most important sources for the *Graduale Romanum* (1908).
- diminished liquescence: a form of liquescence in which the neume concerned seems to have a note missing.
- duodecime: an interval of an octave and a fifth.
- e: equaliter; neume letter meaning the same/equal (pitch).
- Einsiedeln: Einsiedeln, Stiftsbibliothek MS 121; gradual from Einsiedeln, 10th century adiastematic St. Gall neumes.



- episema: a horizontal line above one or more square notes, or a small cross-stroke on an a diastematic neume. In both cases it implies a broadening of the note concerned.
- f: frangor; neumatic letter meaning “with veiled voice”.
- Fluxus: an alternative notation in black on white musical texts in which St. Gall neumes are placed on a stave.
- gradual: 1. richly decorated chant, sung between readings during the Mass. 2. book, containing the chants for the Mass, named after the most prestigious chant of the Mass.
- Graduale Romanum: book containing chants of the (Roman) Mass. Published twice in the 20th century; in 1908 and then, after Vatican II and the consequent renewal of the liturgy, in 1974.
- Graduale Triplex: a reproduction of 1974 Graduale Romanum in 1979, with above square notation neumes copied from Laon 239 and beneath square notation neumes copied from the most important St. Gall manuscripts.
- Gregorian chant: the monophonic songs of the Roman Catholic service, as unified under Pippin the Short and Charlemagne and preserved in manuscripts of the 9th to the 12th century.
- grouping-sign: dots 2-5 in the combined Braille transcription, implying that the neumes to its right and left are not connected but belong to each other.
- Hartker: St. Gall, Stiftsbibliothek MSS 390/391; antiphonal from St. Gall containing adiastematic neumes from around 1000.

- hyphen: dots 3-6 in Braille music used to separate two consecutive syllables.
- i: inferius/iusum; neumatic letter meaning “lower”.
- ictus: a short vertical line under a note in the editions (in square notation) of Solesmes. Important for the rhythmic interpretation of chant as proposed by André Moquereau in the first half of the 20th C.
- initio debilis: weak first note of a neume.
- interrupted wave motion: interrupted ongoing wave-form of adiastematic neumes due to: 1. lifting of the pen or quill; 2. the occurrence of additional episema’s or 3. additional neumatic letters or 4. other note-forms
- Jewish music notation: music notation which for different melodic patterns uses abbreviations that need not be (in the diaspora) interpreted everywhere in the same way.
- key: in diastematic music notation with staves, a sign in front of a specific line of the staff, indicating pitch and relation of the different lines of the staff.
- Klosterneuburg: Graz, Universitätsbibliothek MS 807; gradual from Klosterneuburg, diastematic neumes on staves from the 12th century.
- l: levate; neumatic letter meaning “lift”.
- Laon: Laon, Bibliothèque municipale MS 239: gradual from the Laon region; adiastematic neumes from the beginning of the 10th century.
- liquescens: the last additional neume of a liquescent neume.
- liquescent: flowing, a graphic phenomenon mainly in diastematic neumes. A curl is seen at the end of a neume

which implies a flowing, “liquid” transition from one note to the other and from one syllable to the other.

- liturgical year: the division of the year according to sacred feast days. In the Catholic tradition there are four main periods: I. The circle around Christmas. This circle begins with the first Sunday of Advent (the beginning of the liturgical year) which is the fourth Sunday before Christmas. Christmas being always on the 25th of December, Epiphany always on January the 6th. The circle ends with Candlemas, which is always on the 2nd of February. II. The circle around Easter. This circle starts with Sunday Septuagesima (“70 days” before Easter, actually the 9th Sunday before Easter), followed by Sundays Sexagesima, Quinquagesima, Quadragesima (I, II, III and IV) and two Sundays Tempore Passionis. Easter itself is always on the first Sunday after the first full moon, after the spring equinox. Ascension is forty days after Easter. The Easter circle ends with Pentecost (Whitsun) which is 50 days after Easter. III. The time after Pentecost, from the first Sunday after Pentecost (Trinity) to the beginning of Advent. IV. The time after Epiphany, from the first Sunday after Epiphany to Septuagesima.
- liturgy: the arrangement of worship with attires, chants, rituals, etc.
- lowered c: Braille dots 2-5 used in the combined transcription to represent the end of the extended tail of letter c.
- m: mediocriter; neumatic letter meaning “average”.

- Mass: the most important service of the church consisting of readings, chants, the ritual memory of the last supper of Jesus Christ and the Communion.
- melismatic: passage in chant with many notes to a syllable.
- missal: book of the Mass containing chant-texts, readings and sometimes the music of the chants, as in Verdun.
- mode: a particular sort of musical scale developed by the church after Greek and Roman practice. Characterized by a base-note and a higher reciting-note, which also define the semitones of each piece. Traditionally 8 modes are recognised. I: Re with a fifth; II: Re with minor third; III: Mi with a fifth; IV: Mi with a fourth; V: Fa with a fifth; VI: Fa with major third; VII: So with a fifth; VIII: So with a fourth.
- Mont-Renaud: Codex in private collection; gradual/antiphonal of St. Eloi/ Noyon; adiastematic neumes of the 10th century.
- mora voci: “dying of the voice”; a dot placed after a square note implying a lengthening of that note; mostly used at (final) cadences.
- neumatic letters/ additional letters: letters in adiastematic manuscripts which indicate nuances of melody and rhythm.
- neumes: adiastematic or diastematic signs representing different notes.
- notation: a code on parchment or paper in graphic signs or in relief, representing music.

- octave-sign: a sign in Braille indicating in which octave a particular note is to be placed; the Braille sign is placed immediately before the note in the transcription.
- offertory: chant in the Mass, during the collection of the offerings.
- Office: the eight sacred divisions of the day: 1. Matins - is the first Office of the day in the early morning; 2. Laudes - at daybreak; 3. Prime - the first hour after daybreak; 4. Terce - the third hour; 5. Sext - the sixth hour; 6. Nones - the ninth hour; 7. Vespers - at dusk; 8. Compline - at sundown. Since the time of Benedict (ca. 480-547) the 150 O.T. Psalms have been the core of the Office and sung throughout of every week.
- oriscus: ornament neume in adiastematic manuscripts consisting of arches. There are three forms: 1. concave-convex (round-hollow); 2. convex-concave (hollow-round); 3. concave (round).
- ornament neumes: adiastematic neumes having particular ornamental meanings, especially quilisma, oriscus and liquesence.
- p: parvum; neumatic letter meaning “small” (interval).
- pausa maior: a vertical line covering the hole stave in square notation. Used mainly at the end of a sentence.
- pausa minima: a vertical line covering a quarter of the stave i.e. the upper line (in square notation). Indicates a short phrase.
- pausa minor: a vertical line covering half the stave ( the two middle lines only), in square notation. Used mostly at a comma in the text.
- pause-signs: see phrase-marks.

- pes: podatus (a foot); (a)diastematic neume representing two conjoined notes, a low one followed by a high one.
- pes initio debilis: a pes with a weak first note.
- pes quassus: “shocked foot”; a pes, the first part of which is a convex-concave (hollow-round) oriscus.
- phrase-marks: markings representing phrase-lengths; see: pausa maior; pausa minor and pausa minima.
- porrectus: (a)diastematic neume consisting of three notes conjoined, high-low-high.
- pressus maior: (a)diastematic neume consisting of three notes: virga + concave-convex (round-hollow) oriscus + punctum (strophæ or tractulus).
- pressus minor: (a)diastematic neume consisting of concave-convex (round-hollow) oriscus + punctum (strophæ or tractulus)
- proper of Mass: the chants of the Mass which change with the passing of the liturgical year and are proper to each feast day. Among these chants are the oldest and richest of the repertoire. It consists of the chants for introit, gradual, alleluia, tractus, offertory and communion.
- punctum: dot; adiastrumatic neume in the form of a dot designating one note; also a diastematic neume in the form of a diamant (in square notation).
- quilisma: (a)diastematic ornament neume, consisting of a small wave of 2 or 3 upward-pointing teeth (thus convex-convex quilisma, or convex-convex-convex quilisma).
- recitation: a text declaimed on a single note.
- reciting note: the most frequently occurring note of a chant; the note which is used for passages of recitation.

- restitutions: reconstructions of Gregorian chant by members of the Semilogical movement, usually only a few notes are added or changed in pitch.
- resupinus: a virga added (and grouped) to a neume.
- s: sursum; neumatic letter with the meaning “higher”.
- salicus: (a)diastematic neume consisting of 3 rising note forms; in the earliest manuscripts always: punctum (or tractulus) + oriscus + virga.
- semiology: “the knowledge of signs”; founded by Eugène Cardine; an interpretation, geared to performance, of old adiastematic manuscripts; the leading thought is that the meaning of the signs is very closely related to the meaning of sentences and words of Gregorian chant.
- sketchy diastemation: diastematic information found in adiastematic manuscripts by the actual sketch of the melodic outline; found principally in the manuscripts of Laon, Chartres and early Beneventum; occurs more or less in all adiastematic texts when a neume is clearly higher or lower written than its predecessor or successor, thus providing more precise melodic information.
- slur: dots 1-4; used in Braille transcriptions showing that the notes are written together in the adiastematic manuscripts.
- Solesmes: meant is the Benedictine monastery of St. Pierre at Solesmes near Sablé-sur-Sarthe; Gregorian chant was reconstructed here from the middle of the 19th century using mainly 11th and 12th century manuscripts resulting with Papal assent the Graduale Romanum of 1908.

- square notation: music notation developed from adiastematic neumes since the 12th century which from the Renaissance on was used for the notation of Gregorian chant, and was refined by the monks of Solesmes; characteristic for square notation are the square black note-forms placed on four horizontal lines.
- st: statim; neumatic letters meaning “following immediately”.
- St. Gall: meant is the monastery of St. Gall in Switzerland; depot of the most important 10th and 11th century manuscripts with adiastematic “St. Gall” neumes; like the Cantatorium, Hartker, and St. Gall 339, that together with Einsiedeln were partly copied in the Graduale Triplex.
- St. Gall 339: St. Gall, Stiftsbibliothek Codex 339; gradual from St. Gall, adiastematic neumes from the beginning of the 11th C.
- syllabic passage: passage in a chant where every syllable is given one note.
- t: tenere; neumatic letter meaning “hold back”, “retard”.
- tau: Greek letter t; neumatic letter meaning “retard”.
- tonarium: a book of chants in which the chants are not arranged according to the liturgical year but rather by mode and initial words.
- torculus: (a)diastematic neume consisting of three conjoined notes: low-high-low.
- torculus-resupinus: torculus + (higher) resupinus note.
- torculus-resupinus-flexus: torculus + resupinus + lower “bending down” note.



- tractulus: (a)diastematic neume designating a relatively low note, in adiastrumatic neumes written as a short horizontal line.
- trigon: (a)diastematic neume characteristically consisting of three dots arranged in a triangle, with the second dot on the highest position; sometimes the third dot is a tractulus or comma; sometimes there are more tractuli at the end and/or more dots at the beginning; it seems to be open for debate whether the dot with highest position also has the highest pitch.
- Tyronic signs: a largely undeciphered shorthand in the manuscript Laon 239, which goes back to Roman antiquity.
- Verdun: Verdun 759; missal of St. Vanne of Verdun; diastematic neumes on staves, from the beginning of the 13th century.
- verses: passages for a soloist in graduals, alleluia's, tractus and offertories.
- virga: (a)diastematic neume designating a relatively high note; in adiastrumatic neumes written as a vertical line leaning to the right.
- virga strata: adiastrumatic neume consisting of conjoined a virga and a concave-convex oriscus.
- wave-movement: the oscillating form of adiastrumatic neumes reflecting the up and down movement of the music.
- word-sign: dots 3-4-5; in Braille music transcription denotes that Braille-cells which follows it are to be read as words and not as music.
- x: expectare; neumatic letter with the meaning "wait".

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