Missaali

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Quo usque tandem abutere, Catilina, patiētia nostra? quā diu etiam furor iste tuus nos eludet? quem ad finē seſe effrēata iactabit audacia? Nihilne te nocſnum pſidium Palati, nihil urbis vigiliae, nihil timor populi, nihil concurſ⁹ bonorum omnium, nihil hic mūitiſſim⁹ habēdi senatus locus, nihil hor ora voltusqʒ moverunt? Patere tua ꝯſilia non sentis? ſtrictam iam hor omnium scientia teneri ꝯiurationem tuā non vides? Quid ꝓxia, q̄ superiore nocte egeris, ubi fueris, q̃s convocaveris, quid consilij ceperis, quem nostrum ignorare arbitraris?

The text in the previous page is the beginning of Marcus Tullius Cicero's *Oratio in catilinam primo* that has been used to set typographical speciments at least since the days of Gianbattista Bodoni (1740–1813). In modern fonts its text reads:

Quo usque tandem abutere, Catilina, patientia nostra? quam diu etiam furor iste tuus nos eludet? quem ad finem sese effrenata iactabit audacia? Nihilne te nocturnum praesidium Palati, nihil urbis vigiliae, nihil timor populi, nihil concursus bonorum omnium, nihil hic munitissimus habendi senatus locus, nihil horum ora voltusque moverunt? Patere tua consilia non sentis, constrictam iam horum omnium scientia teneri coniurationem tuam non vides? Quid proxima, quid superiore nocte egeris, ubi fueris, quos convocaveris, quid consilii ceperis, quem nostrum ignorare arbitraris?

C. D. Yonge [19] translated the paragraph as:

When, O Catiline, do you mean to cease abusing our patience? How long is that madness of yours still to mock us? When is there to be an end of that unbridled audacity of yours, swaggering about as it does now? Do not the nightly guards placed on the Palatine Hill—do not the watches posted throughout the city—does not the alarm of the people, and the union of all good men—does not the precaution taken of assembling the senate in this most defensible place—do not the looks and countenances of this venerable body here present, have any effect upon you? Do you not feel that your plans are detected? Do you not see that your conspiracy is already arrested and rendered powerless by the knowledge which every one here possesses of it? What is there that you did last night, what the night before—where is it that you were—who was there that you summoned to meet you—what design was there which was adopted by you, with which you think that any one of us is unacquainted?

The Short Version of Important Stuff

- 𝕸𝖎𝖑𝖑𝖆𝖆𝖑𝖎 is a free OpenType/CFF font with two application areas:

  1. as a Gothic display font; and
  2. for emulating late-medieval manuscripts.

- It should be used in a large size (18+ points).

- It is licensed under Open Font License (see the end of the document for details).

- It is a 15th century typeface. It contains a large number of symbols (see pages 24–25, 31, and 61–67) that are no longer in common use but it lacks many symbols (like Arabic numbers) that are essential for setting longer modern texts.

- It has a large number of OpenType features that control its behavior. See pages 11 and 39–44 for details.

- It is designed to be used with XeLaTeX. See pages 44–58 for details.

- 𝕸𝖎𝖑𝖑𝖆𝖆𝖑𝖎 works in recentish programs. Some old font renderers will mess up the spacing between letters. This happens at least in some old versions of MS Word. Newer programs shouldn't have problems. However, some care is necessary when using abbreviation symbols with XeLaTeX, see page 45 for details.

What's new in 𝔐𝔦𝔩𝔩𝔞𝔞𝔩𝔦 2.0?

- An improved syntax for abbreviations:

$$
\begin{array}{rcl}
\text{su[per]} & \Rightarrow & \textbf{ſuᵽ} \\
\text{[qui][bus]} & \Rightarrow & \textbf{q̓b꜕} \\
\text{r̃t} & \Rightarrow & \textbf{ĩt} \\
\text{[prop]'t} & \Rightarrow & \textbf{ᵱpt́} \\
\end{array}
$$

  The abbreviation syntax is detailed on pages 32–34.

- Added missing two-line initials by Ghotan. While most were added as character variants, three of them replace letters that I designed for the first version of the font, and I also redrew *Ä* and *Ö* initials to match Swedish manuscripts better.

  The old initials for them are available by turning on the font feature `ornm` in addition to `titl`.

- Changed the form of *Y*. The old *Y* is available with font feature `ornm`. The new form is basically a slightly enlarged lower case *y*.

- Added Ghotan's one line initials. They were taken mostly from *Psaltarium Upsalensis* that has an almost full set.

- Added some more ligatures and abbreviated characters.

- Added LaTeX package option `ManuscriptSpacing` that disables justification of columns and special punctuation space handling.

- Added better support for different colors in the LaTeX package.

Contents

1 Introduction

Missaali is a free unicode OpenType font that has two main purposes: it is a blackletter display font that can also be used to emulate late-Medieval formal manuscripts.

The letterforms are based on *Missale Aboense* [6] that Bartholomew Ghotan printed in Lübeck in 1488. It was the first book printed for Finland and was commissioned by Konrad Bitz who was at the time the bishop of Turku diocese. His aim was to harmonize the church services of the parishes of the diocese and the missal contains texts and instructions for all masses that are held over a year. The version 2.0 of the font adds also characters taken from other books printed by Ghotan, *Psalterium Upsalense* [7] and *Revelationes Sancti Birgitte* [2].

Ghotan followed the standard practice of the time and set the missal using *textura*, a type based on *textualis formata* that was the prevalent late-Medieval script in Germany for the most valuable manuscripts. Thirty years earlier Gutenberg had used the same script for his famous Bibles.

$$\mathfrak{ABCDEFGHIJKLMNOPQRSTUVWXYZ}$$
$$\mathfrak{abcdefghijklmnopqrzſstuvwxyz}$$

Figure 1: The basic alphabet. Capital letters *W*, *Y*, and *Z* do not occur in *Missale Aboense* so they have been made from scratch.

Missaali also has a number of large initials that are mostly set in the Lombardic style. This font includes the initials that were printed using leaden slugs among its symbols, but leaves out the large woodcuts as well as most of the hand-written ones.

Old printing inks spread more and more randomly than the modern ones. This means that two impressions created by the same slug are not identical. In the design I aimed for a look that is somewhat spread. Most corners are rounded and there are few sharp edges.

The set of symbols in the 15th century textura is very different from what we use nowadays. It retained many of the abbreviations that were in common use during middle ages while many modern symbols are missing. Most notably Ghotan didn't use number symbols preferring instead to either spell the numbers out or write them using Roman numberals. While I designed a few missing glyphs for the font, I decided against including numbers.[1] This means that Missaali is even less suitable for setting body texts of ordinary documents than blackletter in general. However, the limitation is not serious for the intended uses of the font.

Most of the symbols in the font cannot be found from modern keyboard layout charts. They can be accessed in several ways. The primary way for version 2.0 of Missaali is to use ligature substitutions (see pages 32–34) but the other way is to turn on a suitable combination of OpenType features that are present in the font. They may also be entered directly if the program used supports inputting arbitrary unicode code points. All symbols in the font have code points assigned to them, and those that are not present in the unicode standard are put into the private use area.[2] Where possible, I have put the symbols to the same places as *MUFI character recommendation 3.0*.[3] However, Missaali contains only a small part of the full recommendation and it has many symbols that are not present in it.

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[1]Largely because of lack of suitable samples for 15th century textura numbers.

[2]Some symbols have duplicates that are not assigned code points to make searching resulting text files easier. See page 61 for details.

[3]MUFI is the Medieval Unicode Font Initiative (`http://www.mufi.info`) whose purpose is to bring Medieval scribal symbols into unicode.

Figure 2: Two-line Lombardic initials. Several letters have alternate forms. These are taken from works printed by Bartholomew Ghotan except for *W* that I have not been able to find. The books are *Missale Aboense* (1488) and *Revelationes Sancti Birgitte* (1492). Note how Ghotan turned letters upside down to get another initials (for example, C ⇒ D, N ⇒ V). The variant form for *I* is based on a hand-written initial from *Missale Aboense* and it needs to be used in a very large size.

Figure 3: One-line Lombardic initials

OpenType

OpenType is a technology that combines two different approaches of creating fonts under one package: Microsoft's *true type* (OpenType/TT) and Adobe's *type 1* (OpenType/PS or OpenType/CFF) fonts. The PS technology is older and it originated in the 80s for defining digital fonts for printing. The true type fonts were designed primarily for high-quality screen fonts for Windows.

Missaali is a PS font that has been designed explicitly for printing and it is not very usable a screen font. The lack of numbers is one obstacle, but more seriously it is difficult to distinguish between strings of *m*, *n* and *u* letters in small size. It works best in a large size.

OpenType features OpenType fonts may contain a number of *features* that alter their behavior. The most common ones that are used with European languages are ligature substitutions where two individual characters are replaced by a glyph that contains both of them. For example, in textura the letters 'd' and 'o' are fused together when they occur as a pair:

$$ \mathfrak{d} + \mathfrak{o} = \mathfrak{do} $$

Different programs use different conventions for selecting features. For example, in Photoshop the features are specified in a well-hidden menu that's shown in figure 4.

Unfortunately many programs offer only a limited support for features.[4] In particular, they often allow the user to choose them from a predefined set of feature identifiers (called *tags*) and different programs have different sets of allowed tags.

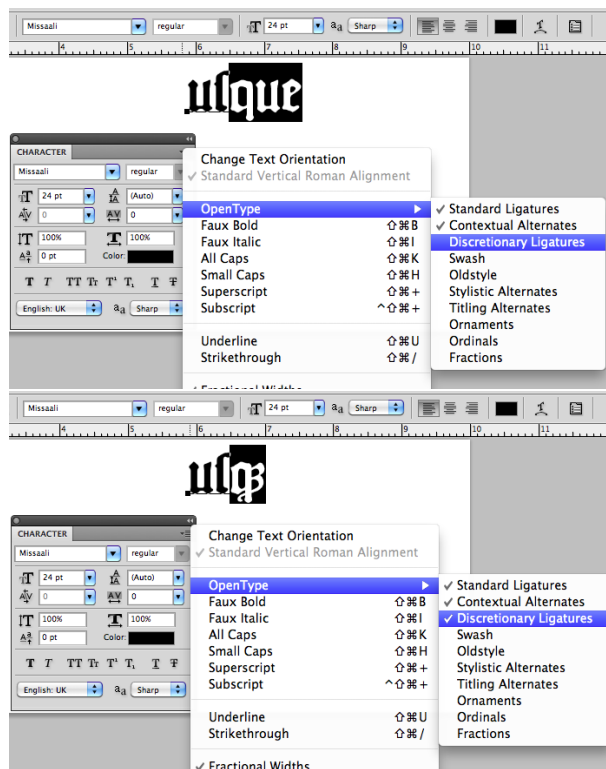[4]I myself use XeLaTeX that supports arbitrary combinations of features and Photoshop that doesn't.

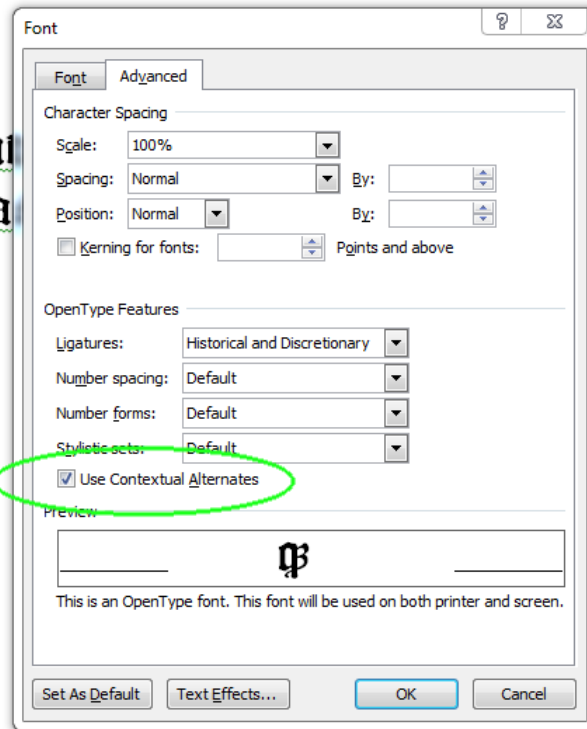Figure 4: Photoshop OpenType menu

Figure 5: MS Word 2010 font feature dialog where selecting 'Historical and Discretionary' option for ligatures turns on abbreviation for *que*. For proper working of the font you should always leave the 'use contextual alternates' mark selected.

For this reason Missaali implements most of the features with two different tags: as a stylistic set that can be used with MS Word and as a randomly selected unrelated tag that Photoshop recognizes. Figure 5 shows the advanced tab of Word 2010 that can be used to change the set of features in use.[5] Table 1 has a summary of all available features and they will be described in detail later.

Open Font License v.1.1

𝕸𝖎𝖘𝖘𝖆𝖆𝖑𝖎 may be used and distributed under the conditions of the Open Font License v.1.1. The full text of the license is at the end of this document. It and answers to frequently asked questions about it are available at `http://scripts.sil.org/OFL`. The most important features of OFL are:

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[5]I have very little experience in using Word and I haven't debugged 𝕸𝖎𝖘𝖘𝖆𝖆𝖑𝖎 with it except to note that it doesn't work in the legacy document modes. So, if you have problems with Word start by ensuring that the document mode is at least Word 2010 and that the "use contextual alternates" checkbox is marked. Other than that I can't help.

Feature	All?	Tag	Alt.	Photoshop menu
Long *s* and rotunda *r*	×	`calt`	`calt`	Contextual alternates
Textura ligatures	×	`liga`	`liga`	Standard ligatures
Old æ and œ	×	`hist`	`swsh`	Swash
Ghotan's abbreviations		`dlig`	`dlig`	Discretionary ligatures
Scandinavian ligatures	×	`ss01`	`subs`	Subscript
Additional abbreviations		`ss02`	`ornm`	Ornaments
Alternate abbreviations		`ss03`	`frac`	Fractions
Abbreviation marks		`ss04`	`salt`	Stylistic alternates
Add tilde		`ss05`	—	
Add dieresis		`ss06`	—	
Add r-abbreviation		`ss07`	—	
Add shorter tilde		`ss08`	—	
Add a-abbreviation		`ss09`	`onum`	Oldstyle
Add ring		`ss10`	—	
Add diagonal slash		`ss11`	`sups`	Superscript
Add ur-abbreviation		`ss12`	—	
Add horizontal strike		`ss13`	—	
Add loop		`ss14`	—	
Use liturgical symbols		`ss15`	`smcp`	Small caps
Old Finnish ortography	×	`ss16`	`ordn`	Ordinals
Alternate punctuation	×	`ss17`	—	
Use po-ligature	×	`ss18`	—	
Alternate form for z	×	`ss19`	—	
Initial capitals		`ss20`	`titl`	Titling alternates
Add dot accent		`ss21`	—	
Alternate form for G	×	`ss22`	—	
Alternate initials		`ss23`	—	

Table 1: OpenType features. Those marked with × may be enabled for the whole document, the others should be turned on only for affected characters.

1. You may freely use the font in your documents, including embedding it in it.

2. You may freely give the font to whoever you want, but you should give the whole package (including the documentation files). You may also sell it as long as you comply with the few restrictions that are enumerated in the text of the license.

3. You may freely modify the font, but if you distribute the modified font you should give it a different name and release it under OFL.

Latex Project Public License version 1.3c

The documentation files and the LaTeX style file are distributed under the Latex Project Public License (LPPL version 1.3c). The exact conditions of the license are defined in the file `lppl.txt` that should been included in the font package but is also available at `http://www.latex-project.org/lppl.txt`.

The terms of LPPL are similar to those of the OFL. The short and incomplete version is:

1. You may freely use the files however you want.

2. You may freely distribute the package in its original form.

3. If you modify the files, you may distribute them but you must document what changes you have made in the files, make it clear that the changed version is not the original, and distribute either the original version or information on how it can be obtained with it.

2 Missale Aboense

Historical background   About 1000 years ago the area of modern Finland was essentially a sparsely-populated forest between Sweden and Novgorod. The inhabitants belonged to three tribes: *Suomalaiset* (Finns), *Hämäläiset* (Tavasts) and *Karjalaiset* (Karelians) that each had several subgroups. At the time the name 'Finland' meant only the South West part where Finns lived, and it took hundreds of years before the word acquired its modern sense and the term *Finn* came to encompass all people living in the area.

It is impossible to know exactly when Christianity first arrived in the area as there are no reliable written sources. The first surviving accounts about the history of Church in Finland seem to have been composed in the late 13th century and their historical value is not great. According to them and later medieval and early modern texts, King Eric IX of Sweden conducted a crusade to the land of Finns sometime around 1150 to baptize them and that he was accompanied by bishop Henry of Uppsala. The modern view is that Eric may have conducted a campaign in Finland—it is not certain—, but the aim was more to obtain tribute than to spread Christianity.

Archealogical evidence suggests that first Christians were baptized in the 6th century and that by Eric's time most people in South West Finland were already Christian while the people living inlands were still pagan. There were infuences from both Western and Eastern Churches, but Finland wasn't integrated with either, yet.

What happened in the mid 12th century was that the Swedish crown extended its rule over the Finns and during the next century also over the Tavasts. The area of Karelians was divided between Sweden and Novgorod with Novgorod getting the larger share.

The Legend of Saint Henry   The legend of Saint Henry dates from the late 13th century. According to it, Henry was an English clergyman who had moved to Sweden and became the bishop of Uppsala. He urged King Eric to go on to the crusade and joined the venture himself, baptizing the first Finns and then staying behind in Finland to organize the church when the king returned to Sweden.

The legend further tells that he was killed the next winter. The killer was a murderer who was enraged at Henry because he had imposed 'church discipline' on him in addition to the penalty that the law decreed from murder. The text doesn't detail the exact natures of either punishment, but at the time killers typically paid weregild to the family of the victim. The legend tells that the killer got a divine punishment for his deed: he put the bishop's cap on his head, and when he removed it, his whole scalp came off with it. This was considered to be the first miracle attributed with St Henry.

Figure 6: Hand-colored woodcut from the preface of *Missale Aboense* (reduced size). In the middle is Saint Henry treading on his killer Lalli. He is surrounded by bishop Konrad Bitz and dean Magnus Nicolai Särkilahti. Back left is the printer Bartholomew Ghotan. The identity of the priest back right is not certain, but he might be the proofreader, Daniel de Egher. The text starts: *Reverendus in cristo pater et dominus, dominus Conradus Bystz dei et apostolice sedis gratia praesul ecclesie Aboense.* — Reverend Father in Christ and Lord, Lord Konrad Bitz of the Apostolic See, bishop of the Turku diocese.

Later sources add details to the short legend. They make the mass baptism to happen at the spring of Kupittaa that nowadays lies inside the borders of the city of Turku, and also give the name of the killer and the place of the murder. The murder happened on the ice of Lake Köyliö and the killer was called Lalli.[6] They also give two alternate explanations for the motive: he either didn't want to pay tithes to the church or he got angry when Henry requested food from his farm. The divine retribution against Lalli was also extended, and the stories tell that he was eaten alive by mice on an island of Hiirijärvi lake.

Almost nothing is known about the historical bishop Henry. Even his whole existence is uncertain as it has proven impossible to identify him from contemporary sources. Whether he was a historical person or a completely invented saint is an open question. If he was real, it is very unlikely that he was a bishop at Uppsala because in that case he should have left a written trace of himself.

There is an alternative explanation for his origins. The English cardinal Nicolaus Albanus[7] was a papal legate in Scandinavia in early 1150s. His mission was to integrate the Scandinavian episcopal sees tighter with the Catholic church. It is possible that Henry was one of his assistants who stayed behind when Nicolaus returned to Rome. It is plausible but far from certain that he left Henry behind to organize the churches in Finland.

What is certain is that St. Henry's cult existed in the latter half of the 13th century and in 1300 or shortly before bones that were believed to belong to him were moved from the village of Nousiainen to the new Turku cathedral. Even though he was venerated as a saint in Finland and Sweden, he was never officially canonized by the Vatican.

Henry's skeleton vanished during the Great Northern War of 1700–21. It had been moved to a side chamber of the cathedral after the reformation, and Czar Peter I gave an order to send the bones to St. Petersburg. After that their whereabouts are unknown. Today only a small piece of tibia can certainly be attributed to him. It survived by being buried with Blessed Bishop Hemmingus (c.1290–1366). Hemmingus would probably have been canonized as a saint but the reformation stopped the process.

There is also a skull that was dated to the 12th century using radiocarbon dating that was found hidden inside the cathedral. It is possible that the person who hid it believed that it was Henry's skull. The skull is over 100 years older than the cathedral so it cannot belong to anyone whose first burial was inside it.

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[6]It is interesting to note that *Lalli* is a form of *Laurentius* so it is a Christian name, which speaks against those versions of the story that describe him as a pagan.

[7]Known also by his English name Nicholas Breakspear. He later became Pope Adrianus IV.

Turku diocese   It is not known for certain when the Turku diocese was really established, but it existed at the beginning of the 13th century. During the middle ages the diocese was a part of the archdiocese of Uppsala but it did not follow the same liturgical tradition. Instead, Turku diocese was heavyly influenced by the Dominican tradition starting from the time of bishop Thomas (c.1220–45) who belonged to the order. The influence was strengthened by the Dominican convent that was built in Turku in 1249.

Finland was far from the learned centers of Europe. While several dozens of Finnish clergymen studied in the continental universities over the years, most priests were trained at the Turku cathedral school and their education was not very deep and the church could not root out all old pagan traditions. There was a scriptorium that produced many illuminated manuscripts, but they couldn't write enough for all parishes in the diocese and imported books were excessively expensive.

In the 1480s bishop Konrad Bitz[8] and dean Magnus Nicolai Särkilahti[9] started a project to improve the literary situation of the parishes in the diocese. They started by organizing a group order for *Psalterium cum Canticis* that was printed by Bartholomew Ghotan, and next started to plan for a missal.

Bartholomäus Ghotan   Ghotan was the foremost authority on printing liturgical texts at the time. He had previously worked as a priest at Magdeburg where he learned about book printing and decided to start a new career. His clerical training made him an expert on the subject of liturgical books and he printed the very first missal, *Missale Praemonstratense* there in 1479.

Ghotan moved to Lübeck that had become the center of bookprinting in Northern Europe and continued to make liturgical books. In 1486 he was invited to Stockholm where he printed several books for Swedish dioceses, including *Missale Strengnense.* In 1487 he had a disagreement with the government led by regent Sten Sture and returned to Lübeck where he printed *Missale Aboense* the next year.

Bartholomew Ghotan continued printing books in Lübeck for several years before deciding to open a printing shop at Novgorod in 1493. His timing proved to be unfortunate as a short while later the conflict between the Hanseatic League and Czar Ivan the Great intensified and culminated in the desctruction of the Hansa office Peterhof. Ghotan vanishes from historical records and he probably died in Novgorod in 1494. Some suspect that he was killed in the disturbances but the real cause of death is unknowable.

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[8] A bishop between 1460–89.
[9] A dean in 1465–1489, then bishop 1489–1500.

Printing *Missale Aboense* It seems likely that the project for Turku missal was started during Ghotan's time in Stockholm. Even though Bitz was the official head of the project, the practical side was handled mostly by Magnus Nicolai. From the beginning Ghotan intended to print a multi-purpose book. The liturgy of Turku was close enough to the standard Dominican tradition that it would be possible to sell the book also to the order.

A manuscript for the book was prepared in Turku and it was sent to Daniel de Egher for review and corrections. He was a Dominican and the Professor of Holy Theology at the University of Paris. In his proofing he used as a source a Dominican missal printed in Venice in 1484, which explains how the feast days of several Hungarian saints ended up in a Finnish calendar. Though the text was checked, the quotations from the Bible have some small differences from the text of official version of the Latin *Vulgate* Bible.

The printing started in 1488. Ghotan apparently first printed the general Dominican missal and then he customized it for Turku by adding a prologue, a different calendar, and a section of texts specific to the diocese. The prologue was dated on August 17, 1488.

Copies were printed on both parchment and paper. The total size of the printing is not known but was probably in the range of 120–200. Twenty copies still exist and most are incomplete. Only one parchment copy is still in the original bindings. It is the copy of the Halikko parish that was stolen by Danes in 1509 and it is now at the Kongelike Biliotek in Copenhagen. Three complete parchment copies have been reconstructed from separated pages that had been torn out and used as covers for archival documents in the late 16th century. The rest sixteen books are incomplete copies printed on paper.

The book was printed in large folio size with large letters. There are four different text sizes in use:

- The main body of text that is approximately 26 points in modern terms;

- Smaller main body text approximately 22 points in size. This was set with the same line height as the main font;

- Small text in a simpler typeface (*textus preacissus*) of about 14 points; and

- Large text for the initial part of the mass (*Te igitur*) approximately 48 points in size.

The main text was printed with black ink with red captions, instructions, and initials. Ghotan used four different types of initials:

- Large woodcuts of initials;

17

Figure 7: Sample from *Missale Aboense* containing text in normal and small sizes, several abbreviations, and four initials. The red ones are two sizes of printed Lombardian initials while the two blue ones are drawn by hand. Note how the other initials are inside the text block but the flourished initial *I* in *In* is drawn completely in the gutter between the columns. Also note now the abbreviated rubric *Oratio* (☙⫶) is set at the right end of the first line of the section.

Figure 8: The smallest *Missale Aboense* font that is based on *textus preacissus* instead of *textus quadrata*.

Figure 9: A large woodcut initial and the start of the *Te igitur* in large font size. The initial is not colored in the facsimile reprint of *Missale* but it probably was hand-colored in many copies.

- Two lines high printed Lombardic initials;

- One line high printed Lombardic initials;

- Leaving a two or three-line square empty space for hand-drawn initials.

Many of the surviving copies have blue hand-drawn initials that are very close in style with each other, so it is likely that there was a workshop — probably in Lübeck — that initialed some of the copies before they were sent to their recipients.

The woodcut initials as well as the few woodcut illustrations were colored by hand, and some copies had also a bit of burnished gold added to illustrations.

3 Textura

In late medieval times different types of texts were written using different scripts. The most refined hand that was used for the most valuable — and usually religious — German manuscripts was *textualis formata* in its *textus quadrata* form. I will be calling it *textura* in this document. Since it was considered the highest form of writing, it was natural that Johannes Gutenberg modeled his Bible typefaces on it and Bartholomew Ghotan followed his example for his liturgical books.

Textura is a very angular script that has high contrast between parts of the letter. There are wide usually vertical strikes and thin usually diagonal hairlines. The letters are spaced closely together and while the word spaces are not very wide, they are wide enough to clearly distinguish the words.

Quick red fox jumped et cetera.

One of the distinguishing features of textura is that the letter *f* does not have a descender like it has in cursive Gothic scripts. Another feature is that the vertical strikes of lowercase letters have small quadrangles at their feet. This is most notable in the letter *m*.

Text body Textura was set in justified rectangular blocks. The text was set in continuous lines and there was no line break between paragraphs. A new paragraph was marked by either a colored initial or by the paragraph symbol. The last line was also justified if at all possible. Justification was done by a combination of increasing word spaces and by using abbreviations. When a word was split at the end of the line, the hyphen was often left out. For example, in figure 7 *leticia* has a hyphen but *hereditate* in the following row doesn't. When used, a hyphen is two short diagonal strokes.

Fusions When writing textura two adjacent bowls of letters were fused together into one stroke. Ghotan fused together the following combinations:

$$\text{be} \quad \text{bo} \quad \text{de} \quad \text{do} \quad \text{pe} \quad \text{ve}$$

The surprising thing is that Ghotan didn't use the *po* fusion systematically. It is used in some places of the text, but usually they are kept separate. He also fused together double *p*:

The surprising thing is that Ghotan didn't use the *po* fusion systematically. It

Letter variant forms Like all Gothic scripts, textura has two forms of the lower case letter *s*: 'short' ſ and 'long' ſ. It also has two forms of *r*: the 'straight' ſ and the 'round' ſ that is usually called *r*-rotunda.

Short *s* Long *s* Straight *r* Rotunda *r*

The rules for the use of long and short *s* became quite complex over centuries, but Ghotan followed the simple medieval rules: short *s* is used only if it is the last letter of the word and the long *s* is used in all other places.[10] For example, the Latin word *sanctus* was written as:

sanctus

The round *r* was used after letters whose right edge had a bowl except when the *r* was at the end of the word. In textura those letters were traditionally *b*, *d*, *h*, *o*, *p*, *v*, and *y*,[11] but Ghotan used a straight *r* after *h* and Missaali follows that convention. He also used rotunda *r* at the end of the word if the next to the last letter was not *u* or *v*:

soror quodra igitur

Ghotan wasn't completely consistent in his usage and you occasionally find a rotunda *r* in a place where you would expect a straight *r* or vice versa.

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[10] Missaali uses the opentype feature `calt` to automatically insert long *s* and *r*-rotunda in places where Ghotan would have used them. If you want to follow a later convention, you need to turn the feature off.

[11] Other Gothic scripts used different set of letters for *r*-rotunda selection.

The case of *u* and *i*   Textura had two other letters with variant forms. At the time *v* and *u* were considered to be the same letter and similarly for *i* and *j*. Ghotan used *u* and *v* interchangeably and there is no clear rule for which letter he selected except that *U* was used almost always for the capital letter. The capital *V* is quite rare in the text and it doesn't fit the other capitals so well.

$$\mathfrak{U} \quad \mathfrak{u} \quad \mathfrak{V} \quad \mathfrak{v}$$
$$\text{U} \qquad \text{u} \qquad \text{V} \qquad \text{v}$$

Symbols *i* and *j* were also considered to be forms of the same letter but their use was more consistent. Ghotan used *j* for the last letter in a sequence of *i*s. This occurred most often in Roman numerals:[12]

$$\mathfrak{i} \quad \mathfrak{ij} \quad \mathfrak{iij} \quad \mathfrak{iiij}$$

For an added complexity, some scribes used *ÿ* in place of *ij*. However, Ghotan didn't do that.

Punctuation   There were no strict rules for applying punctuation in the middle ages. Texts were usually read out loud and punctuation was used to mark out pauses of different lengths. In the body of text Ghotan used three different lengths of pauses and a question mark:

$$\colon \quad \cdot \quad . \quad \text{?}$$

Ghotan used a colon for a shortish pause and centered dot for where we would normally write an ordinary period. Both colon and dot were usually placed so that there was as much space on both sides of it. He used an ordinary period usually at the end of paragraphs. In several places he used also the virgule / or a vertical bar ∣ for punctuation.

The font has also few other medieval punctuation symbols that were in common use. They are placed in the positions of different-length dashes:

$$\therefore \quad \vdots \quad \vdots$$

[12]During medieval times both 'iv' and 'iiii' were used for number four. Likewise, nine was represented with both 'ix' and 'viiii'.

4 Latin Abbreviations

Medieval scribes used many abbreviation symbols and there were different abbreviation systems in different places and for different scripts. They were particularly prominent in monastic and academic texts, but also liturgical works had them. They fell slowly out of use with the increase of literacy when the writers could not rely on their non-specialist audience to understand them and also because many of the symbols were specifically tailored for Latin and did not have much use in vernacular texts. Early printed books used old abbreviations but they fell out of use in the 16th century. Some holdouts survived longer: using tilde to mark missing nasal consonants was relatively common even in the 17th century in some areas and the ampersand is still in use.

𝕸𝖎𝖘𝖘𝖆𝖑𝖎 contains a large set of abbreviations that can be be accessed in the font using two ways. In the original font release they were accessed through OpenType features, but release 2.0 added an option of entering them as ligature substitutions.

Bartholomew Ghotan used two different systems of abbreviations in *Missale Aboense*: one for the main body of text and another for the small 14 pt font. There is not much text in the small font and it isn't possible to reconstruct his full system from it,[13] but the system for the larger font is quite complete. Some of the symbols that he used were used in a different sense in different abbreviation systems. I will first describe the system that he used and then add to that some commonly-used symbols that are not found in *Missale*.

There are two basic ways to mark abbreviations: either by adding small marks over the letters to signify places where things are left out or to add new symbols to the running text.

Abbreviation marks

Ghotan used at least five semantically different abbreviation marks that were written over letters and a few of the symbols have also variant forms that are used over some specific letters. The basic marks are:

abbreviation	*a*-abbr.	*r*-abbr.	*ur*-abbr.	*o*-abbr.

Tilde The tilde is used in three different senses:

1. to denote that a nasal consonant (*m* or *n*) is left out;

2. over *p* and *q* it denotes syllables *prae* and *quae*; and

---

[13]However, the full system can be reconstructed from his *Revelationes Sancti Birgitte* that he printed in 1492.

Abbreviations with specific meanings

Symbol	Meaning	Feat	Entering	Notes
ℬ	bis	dlig	bis	occasionally general
ꝯ	con	dlig	con	
ꝫ	et	dlig	et	
ꝰ	etc	dlig	etc	et cetera
ꜧ	hoc	dlig	hoc	also general
ȝ	m	dlig	m	occasional final form
m̃	mur	dlig	mur	
℔	Per	dlig	Per	
ꝑ	per	dlig	per	occasionally *por*
p̃	prae	dlig	prae	also general
ꝓ	prae	dlig	præ	entered with æ-ligature
℔	Pro	dlig	Pro	
ꝓ	pro	dlig	pro	
q̃	quae	dlig	quae	
ꝙ̃	quam	dlig	quam	
ꝗ	que	dlig	que	
q́	qui	dlig	qui	
ꝙ̃	quid	dlig	quid	
ꝗ	quia	dlig	quia	
ꝗ	quo	dlig	quo	
q̊	quo	dlig	qvo	
ꝙ	quod	dlig	quod	
qꝺ	quod	dlig	qvod	
℞	Quod	dlig	Quod	
ꝗ	quoque	dlig	quoque	
ꝵ	rum	dlig	rum	
ℯ	se	dlig	se	
ℬ	sed	dlig	sed	also other syllables with *se*.
ꝷ	tur	dlig	tur	
ꝰ	us	dlig	us	
ȝ	us	dlig	vs	
û	ver	dlig	ver	occasionally *vir*

Table 2: Bartholomew Ghotan's specific abbreviations in 𝕸𝖎𝖘𝖘𝖆𝖑𝖎.

General abbreviations

Symbol	Example	Meaning	Feat	Notes
Tilde	ã	General	ss04	usually *m* or *n*
Dieresis	r̈	General	ss06	general abbreviation, an alternative to tilde
Dot	ḣ	General	ss21	general abbreviation, an alternative to tilde
Loop	ꝛ	General	ss14	general abbreviation, an alternative to tilde. The looped l (ɬ) is available also as `dlig` ligature *lum*.
Squashed *a*	g̃	A-abbr	ss09	Something with *a*
Tailed dot	r̃	R-abbr	ss07	Something with *r*
Ring	q̊	O-abbr	ss10	Something with *o*

Table 3: Bartholomew Ghotan's general abbreviations in 𝕸𝖆𝖎𝖘𝖘𝖆𝖆𝖑𝖎.

3. as a general abbreviation mark that is used when the abbreviation doesn't have a specific notation.

$$\text{omnes} \implies \text{om͂es}$$
$$\text{praesul} \implies \text{p͂sul}$$
$$\text{dominus} \implies \text{dñs}$$

Here the tilde is used in the first sense in *omnes*, the second in *praesul* and in the third in *dominus*. The mark has a different form over some letters such as *d* and *r*. Letters with ascenders use different conventions to represent the general abbreviation. In *h* and *b* it is replaced by a dot placed on the right side of the letter, in *l* it forms a loop at the right top, and in *S* it is a diagonal stroke:

$$\text{d̃ r̈ b̊ ḣ ꝛ 𝕾}$$

A-abbreviation The symbol for *a*-abbreviation is very close to the tilde but it has two strokes. It represents an *a* that is left open and squashed flat. It is used to signify that the abbreviated portion contains an *a* somewhere in it. For example,

$$\text{magna} \implies \text{mg̃a}$$
$$\text{psalmis} \implies \text{ps̃}$$

Alternate set of abbreviations

Symbol	Meaning	Feat	Entering	Notes
ƀ	bis	ss03	bis	occasionally general
ꝯ	con	ss03	con	
ꝫ	et	ss03	et	
ꝯ	et	ss03	*X*et	in middle of a word
ħ	hoc	ss03	hoc	
ſ	lum	ss03	lum	
m̃	mur	ss03	mur	
p̈	par	ss03	par	
ℙ	Per	ss03	Per	
ꝑ	per	ss03	per	
ꝓ	prae	ss03	prae	
ℙ	Pro	ss03	Pro	
ꝓ	pro	ss03	pro	
ꝓ	prop	ss03	prop	
q̃	qua	ss03	quaa	
q́	quae	ss03	quae	
ǫ	quam	ss03	quam	
q;	que	ss03	que	
q́	qui	ss03	qui	
q̊	quo	ss03	quo	
r̈	ris	ss03	ris	
ꝶ	rum	ss03	rum	
ẞ	sec	ss03	sec	also sed
ẞ	sed	ss03	sed	also sec
t̉	ter	ss03	ter	
t̃	tur	ss03	tur	
ů	uer	ss03	uer	
ꝯ	us	ss03	us	
v̂	ver	ss03	ver	

Table 4: Alternate set of abbreviations.

R-abbreviation A dot that ends in a short diagonal tail is used to signify that the abbreviated part contains a letter *r*. Ghotan used it most often for denoting the *er*-syllable. For example, *propter* could be use the *r*-abbreviation in two different ways:

$$\text{propter} \implies \text{propt}$$
$$\text{propter} \implies \text{propte}$$

The dot has a different form over *u* and *v* where it looks like a squished and turned tilde and in both cases it denotes the syllable *ver*:

$$\text{univerfitas} \implies \text{univfitas}$$

In the instructions for mass *ver* set in red denotes a versicle that the officiant sings and that is answered by the choir in response.

Ur-abbreviation Ghotan used a sideways hook over *t* and *m* to denote the syllables *tur* and *mur*:

$$\text{nocturnus} \implies \text{noctnus}$$

O-abbreviation The least used abbreviation mark in *Missale Aboense*[14] is a small ring that usually marks that something with an *o* has been left out. Ghotan used it in two different *q*-related abbreviations:

$$\text{q} \qquad \text{qz}$$
quo   quoque

Abbreviation glyphs

Ghotan had about a dozen special symbols for abbreviations that he then combined with abbreviation marks and ligatures to create a large amount of abbreviations for the text. By far the largest group is the symbols for Latin syllables starting with a *q* with the next largest being symbols for *p*. I will now go through his abbreviations in alphabetical order by the base symbol.

C The syllable for *con* is abbreviated with a turned *c* with a cedilla:

$$\text{contra} \implies \text{ɔtra}$$

This occurs almost exclusively in the first syllable.

_____

[14]That I have noticed.

E Missaali uses the Tironian *et* symbol in place of an ampersand. The symbol was named so after its inventor Marcus Tullius Tiro who was Cicero's scribe.

$$\text{⁊}$$
et

Ghotan used the symbol only for the word *et* and it does not occur as a part of longer words even though many scribes used it that way. Also, it was relatively common that scribes used the *et* symbol as a shorthand for *and* also when writing in languages other than Latin.

M There are no special symbols for abbreviating syllables containing *m* but Ghotan occasionally set *z* in place of *m*, mimicking the custom of scribes to write the *m* sideways if it didn't otherwise fit. This form is used only at the end of the word and it is quite rare. For example, in one place *alligatam* is written as:

$$\text{alligataʒ}$$

In manuscripts this form was used almost exclusively at the end of a line, but Ghotan used it also in the middle of line in places where the word was followed by punctuation.

P Three symbols based on *p* occur in *Missale*. Two of them are very common and they correspond with syllables *per* and *pro* while the 'squirrel tailed' *prae* is uncommon as the syllable is usually represented by *p* tilde. Two of the symbols have capital letter versions:

Per/Por	per/por	Pro	pro	prae

There's a ligature for *pro* and *p*. For example, the word *prophete* is often abbreviated as:

$$\text{prophete} \implies \text{pᵖhe}$$

Q There are three different abbreviation symbols based on the letter *q* and they are combined with abbreviation marks to create more. In addition to the three that Ghotan used, I added a fourth symbol as a ligature even though Ghotan set it with two separate slugs of type.[15] The *q*-based symbols are:

que	quod	quo	quia

---

[15]Handling ligatures in OpenType features is a bit simpler than handling separate glyphs.

Here *quia* is my addition and Ghotan used ordinary *q* and *r* rotunda to set it. The composed *q*-based abbreviations are:

$$\tilde{q} \qquad \mathring{q} \qquad \tilde{q} \qquad \acute{q} \qquad \mathring{\varphi} \qquad \tilde{\varphi} \qquad \tilde{\varphi}$$

quae   quo   qua   qui   quoque   quam   quid

It is very easy to confuse *quae* with *qua* and *quam* with *quid* as in both cases the only difference is the shape of the tilde.

Ghotan had two different ways to abbreviate *quo* and *quod* and it is not clear to me how he chose which form to use:

$$quo \implies g/\mathring{q}$$
$$quod \implies \varphi/q\tilde{d}$$

Finally, Ghotan had an additional *q*-abbreviation that he did not use in *Missale Aboense* but that occurs in *Psaltarium Upsalense*:

$$\mathfrak{Q}$$
Quod

R   There are two *r*-based abbreviations but one of them occurs amost exclusively in the instructions for the mass:

$$\mathfrak{r} \qquad\qquad \mathfrak{R}$$
-rum   response

Both of them are essentially the same symbol that denotes the suffix *rum*, but one of them is based on the straight *r* and the other in small caps rotunda. A red response symbol is very common in the instructions, but it occurs in the text set in black in a handful of places where it means *respondit*. Ghotan did not use lower case *rum* rotunda and instead set the straight *rum* after all letters.

The straight *rum* was used also in some other abbreviations. For example, the Easter litany of saints uses it to ask each saint to pray for us:

$$ora \; pro \; nobis \implies \mathfrak{or}$$

S   The word *sed* is denoted by the eszet *ß* ligature:

$$sed \implies \mathfrak{ß}$$

In some places the same symbol is used also for other syllables starting with *se-*. It is notable that Ghotan did not use it to represent double *s* in any place.

He had also an *se* ligature that he occasionally used that I have decided to interpret as an abbreviation symbol as it is not used consistently:

$$se \implies \mathfrak{e}$$

29

U   There are two different symbols for the syllable *-us* that are used for different grammatical endings:

$$\mathfrak{z} \qquad \mathfrak{9}$$

Dative   Other
suffix *us*   suffix *us*.

The dative suffix **ȝ** occurs also in words that end in *-bus* even if they are in a different case.

$$\mathfrak{deus} \implies \mathfrak{de^9}$$
$$\mathfrak{omnibus} \implies \mathfrak{omnibȝ}$$
$$\mathfrak{tribus} \implies \mathfrak{tribȝ}$$

V   The only specific symbol based on *V* is used only to denote versicle and it is set in red in all places:

$$\mathfrak{v}$$

versicle

Other abbreviation symbols

Missaali has several abbreviation symbols that don't occur in *Missale Aboense* but that were in use when it was printed. These abbreviations are enabled using other OpenType features and are shown in table 5. Most of them represent the suffix *-um* that is denoted by adding a diagonal stroke to a base letter.

D   The syllable *dum* at the end of a word was occasionally abbreviated by adding a diagonal stroke to *d*:

$$\mathfrak{d}$$

dum

M   The syllable *mum* was abbreviated in the same way by adding a diagonal stroke:

$$\mathfrak{m}$$

mum

N   The syllable *num* was abbreviated in the same way by adding a diagonal stroke:

$$\mathfrak{n}$$

num

Abbreviations with specific meanings

Symbol	Meaning	Feat	Entering	Notes
ꝺ	dum	ss02	dum	
ſ	is	ss02	is	
ꝳ	mum	ss02	mum	
ꝴ	num	ss02	num	
p̈	par	ss02	par	
q;	que	ss02	que	
q̈	que	ss02	qve	
ꝛ	rum	ss02	rum	rum rotunda
ꝑ	sunt	ss02	sunt	
ſ	sm	ss02	sm	

Table 5: Other abbreviation symbols

P Adding a dieresis on top of *p* was a common way to represent *par*. It is a bit surprising that it does not occur in *Missale Aboense*.

$$p̈$$
par

Q The syllable *que* could be abbreviated in many different ways. Missaali contains two additional ways in addition to Ghotan's convention shown on page 28. Simpler gothic scripts as well as early books printed in the roman type often used a semicolon after *q* for the syllable, and some abbreviation conventions (including Ghotan's one for small size script) used a diaresis over *q*:

$$q;\qquad q̈$$
que   *que*

R Ghotan didn't use rotunda version of *rum* except for the response[16] but it was in a common use at the time.

$$ꝛ$$
rum

---

[16]See page 29.

S   There are three additional symbols based on the long *s*. The syllable *is* adds a loop to it, *sm* a high horizontal stroke, and *sunt* a diagonal stroke:

$$ʃ \qquad ʄ \qquad ʄ$$
$$\textit{is} \qquad \textit{sm} \qquad \textit{sunt}$$

5   Ligature syntax for special characters

The version 2.0 of 𝔐𝔞𝔦𝔩𝔩𝔞𝔞𝔩𝔦 adds a way of accessing special characters as a ligature substitutions.

Alternate character selection   Alternative variants of characters are accessed by adding a colon after them. Most of the variants are in the two-line initials and will be explained in the next section. A few of them are for normal characters:

$$𝕲 \Rightarrow 𝕲 \quad 𝔪 \Rightarrow ȝ \quad 𝔯 \Rightarrow ɹ \quad ȝ \Rightarrow ȝ$$
$$\text{G} \Rightarrow \text{G:} \quad \text{m} \Rightarrow \text{m:} \quad \text{r} \Rightarrow \text{r:} \quad \text{z} \Rightarrow \text{z:}$$
$$ã \Rightarrow å̃ \quad æ̃ \Rightarrow å̃ \quad õ \Rightarrow o̊ \quad œ̃ \Rightarrow o̊$$
$$\text{ä} \Rightarrow \text{ä:} \quad \text{æ} \Rightarrow \text{æ:} \quad \text{ö} \Rightarrow \text{ö:} \quad \text{œ} \Rightarrow \text{œ:}$$

Lombardic initials   The Lombardic initials are written by surrounding them with a plus sign. The two line initials are written with capital letters and one line initials with lower case ones. Alternate letter forms are written with one or more colons after the letter. For example:

$$\text{+S+} \qquad \text{+S:+} \qquad \text{+s+}$$

The full set of initials is shown in figure 10.

Abbreviation symbols   The abbreviation symbols are written inside brackets. In case there is more than one way to abbreviate a given string, that marked by adding one or more colons to the abbreviated string. In a few cases one symbol has more than one way to enter it:

$$ꝓ \qquad p̈ \qquad ꝑ$$
$$\text{[par]} \quad \text{[par:]} \quad \text{[per]}$$

The *us* suffix abbreviation can also have a period added to it:

Two-line initials

+A+	+A:+	+B+	+C+	+D+	+D:+	+D::+	+E+
+E:+	+F+	+G+	+H+	+I+	+I:+	+J+	+K+
+L+	+M+	+M:+	+M::+	+N+	+N;+	+O+	+P+
+Q+	+Q:+	+Q::+	+R+	+S+	+S:+	+S::+	+S:::+
+T+	+U+	+U:	+V+	+V:+	+W+	+X+	+X:+
+Y+	+Z+	+Å+	+Ä+	+Ö+	+R:+		

One-line initials

+a+	+b+	+c+	+d+	+d:+	+e+	+f+	+g+
+h+	+i+	+j+	+k+	+l+	+m+	+n+	+o+
+p+	+q+	+r+	+s+s	+t+	+u+	+v+	+w+
+x+	+y+	+z+	+å+	+ä+	+ö+		

Figure 10: Ligature substitutions for initials

33

$$\text{᾿}$$

[us.]

The basic abbreviation ligatures are shown in figure 6.

Abbreviation marks

The abbreviation marks are handled by writing an accent mark before the character. In theory, this should work automatically with unicode combining characters and no special handling from font is necessary, but in practice I have had trouble getting them to work with LaTeX[17] so I added the explicit ligature substitutions. This also allowed me to use some letters that are not technically accents for the substitutions. The different abbreviation marks map to accents (and other characters) as follows:

⌒	،	∼∼	،	،
∼	´	⌢	'	,
asciitilde	acute	asciicircumflex	grave	quotesingle

··	°	;	/
"	°	;	/
quotedouble	degree	semicolon	slash

For example:

om̃es   propͭ   noꝑ   apͬce
o~mes   prop´t   no;b   ap/lce

Some characters have a wider tilde available for them. That is accessed by using two tildes as a the prefix:

w̃   w̃
~w   ~~w

Abbreviation marks can be combined with abbreviation symbols by entering the mark as the first character inside the brackets. For example:

p̃   p̊   q̊
[~per]   [´prae]   [°que]

---

[17]And I use LaTeX almost exclusively.

Abbreviation ligature substitutions

[bis]	⇒	ƀ	[por]	⇒	℔	[quod]	⇒	ꝙ
[con]	⇒	ꝛ	[prae]	⇒	p̃	[quod:]	⇒	ꝗꝺ
[con:]	⇒	ꝯ	[prae:]	⇒	ꝓ	[quoque]	⇒	q̊
[dum]	⇒	ꝺ	[pro]	⇒	ꝓ	[ris]	⇒	r̈
[et]	⇒	⁊	[Pro]	⇒	ꝓ	[rum]	⇒	ꝝ
[et:]	⇒	ꝯ	[prop]	⇒	ꝓ	[r:um]	⇒	ꝝ
[etc]	⇒	ꝛ̃	[qua]	⇒	q̈̃	[se]	⇒	ꝭ
[hic]	⇒	ħ	[qua:]	⇒	q̈	[sec]	⇒	ꞩ
[hoc]	⇒	ħ	[quae]	⇒	q̃	[sed]	⇒	ꞩ
[is]	⇒	ſ	[quam]	⇒	ꝓ̃	[sm]	⇒	ſ
[lum]	⇒	ſ	[que]	⇒	ꝙ	[sunt]	⇒	ꝼ
[mum]	⇒	ꝳ	[que:]	⇒	q̈̃	[ter]	⇒	ꞇ
[mur]	⇒	m̃	[qui]	⇒	q́	[tur]	⇒	ꞇ̆
[num]	⇒	ꝴ	[quia]	⇒	ꝗ	[uer]	⇒	ů
[par]	⇒	ꝓ	[quid]	⇒	q̃	[us]	⇒	ꝰ
[par:]	⇒	p̈	[quo]	⇒	ꝗ	[us:]	⇒	ȝ
[per]	⇒	ꝑ	[quo:]	⇒	q̊	[ver]	⇒	v̂
[Per]	⇒	ꝓ						

Table 6: Abbreviations as ligature subsitutions

35

ꝛ̃	ꝛ̃	ꝛ̃	ꝛ̊	ꝛ̃	ꝛ̈	ꝛ̃	ꝛ̃
[´con]	[‘con]	[;con]	[°con]	[’con]	[”con]	[~con]	[⌢con]
℔	℔	℔	℔	℔	℔	℔	℔
[´per]	[‘per]	[;per]	[°per]	[’per]	[”per]	[~per]	[⌢per]
ꝑ	ꝑ	ꝑ	ꝑ	ꝑ	ꝑ	ꝑ	ꝑ
[´prae]	[‘prae]	[;prae]	[°prae]	[’prae]	[”prae]	[~prae]	[⌢prae]
ꝓ	ꝓ	ꝓ	ꝓ	ꝓ	ꝓ	ꝓ	ꝓ
[´pro]	[‘pro]	[;pro]	[°pro]	[’pro]	[”pro]	[~pro]	[⌢pro]
ꝓ	ꝓ	ꝓ	ꝓ	ꝓ	ꝓ	ꝓ	ꝓ
[´prop]	[‘prop]	[;prop]	[°prop]	[’prop]	[”prop]	[~prop]	[⌢prop]
ꝗ	ꝗ	ꝗ	ꝗ	ꝗ	ꝗ	ꝗ	ꝗ
[´que]	[‘que]	[;que]	[°que]	[’que]	[”que]	[~que]	[⌢que]
ꝗ	ꝗ	ꝗ	ꝗ	ꝗ	ꝗ	ꝗ	ꝗ
[´quo]	[‘quo]	[;quo]	[°quo]	[’quo]	[”quo]	[~quo]	[⌢quo]
ꝙ	ꝙ	ꝙ	ꝙ	ꝙ	ꝙ	ꝙ	ꝙ
[´quod]	[‘quod]	[;quod]	[°quod]	[’quod]	[”quod]	[~quod]	[⌢quod]
ꝝ	ꝝ	ꝝ	ꝝ	ꝝ	ꝝ	ꝝ	ꝝ
[´rum]	[‘rum]	[;rum]	[°rum]	[’rum]	[”rum]	[~rum]	[⌢rum]
ꝛ	ꝛ	ꝛ					
[´r:um]	[~r:um]	[⌢r:um]					

Table 7: Abbreviation marks added to abbreviation symbols

6 Old Finnish Ortography

Missaali has support for typesetting Finnish using late 17th century ortographical conventions. It is anachronistic as textura was no longer in use at the time as it had been replaced by swabacher and fraktur during the 16th century.

Finnish was not a written language when *Missale Aboense* was printed. Latin was the educated language, and everyday matters were written in Swedish or German. Surviving Finnish texts are few and almost all are translations of prayers.

The first long texts in Finnish were written by Mikael Agricola in the 16th century. He was the reformer of Finland and he translated the New Testament and large parts of the Old to Finnish.[18] His texts are very difficult to read nowadays, as he based his ortography on Latin, Swedish, and German, all languages very different from Finnish. Over time it became evident that the written language should be systematized. This happened with the 1642 Bible translation, *Se Coco Pyhä Ramatu*. This translation fixed the way Finnish was written for 150 years, and there were only small changes until the early 19th century.

Missaali has an OpenType feature (`ss16`, `ordn`) that implements a number of contextual substitutions for cases where the 1642 Bible systematically used characters that are different from modern Finnish.

K The most complex phoneme in 1642 was *K*. Mikael Agricola had eight different ways to represent it in different contexts, and the translators cut it down to five. The rules for its use were:

1. In most cases it is written with *c*: canſa, catco;

2. Before a front vowel (*e, i, y, ä, ö*) it is *k*: käpy, kijre;

3. Double *k* is written *ck*: facko, tacki;

4. Combination *ks* is written with *x*: yxi, luxi;

5. After letters *n* and *l* it is replaced by *g*: langa, jalga;

There were a few combinations where these rules were not always followed. If a word started with *Sk*, it was occasionally written with *k* even if the next letter was a back vowel: Skåne, Skoulu. Some writers continued the medieval tradition of using *q* in front of the diftong *ui*: quin, quinga.

---

[18]Later in his career he was helped by other reformers, most notably Paavali Juusten, and it is often difficult to determine who translated which part of the text.

S The short **ₛ** was used according to the word-final convention, so it was short only at the end of the word or at the end of the first part of a compound word. This is the default behavior of Missaali but it differs from the 19th century black letter conventions.

Marking the double *s* was inconsistent and a text might use different ways to the same word in different parts of the text. The three options were:

1. using the eszet ligature: **kiẞa**;

2. using the long **ſ** for both: **kiſſa**; or

3. using only one long **ſ**: **kiſa**.

The combination *ts* was usually written using the *tz* ligature. Missaali does not have it in its set of characters, but the feature still replaces *ts* with *tz*: **catze**, **ꝛuotzi**.

Ä and Ö The letters *ä* and *ö* were written with *æ* and *œ* ligatures, except that the *e* was written over the original letter: **a̋**, **ő**. The modern convention of using two dots gained prevalence in the early decades of the 19th century.

Consonant softening It was mentioned above that *k* was replaced with *g* in combinations *nk* and *lk*. The letters *t* and *p* were similarly softened in some contexts:

1. Combinations *lt* and *nt* were written as *ld* and *nd*: **culda**, **lindu**; and

2. The combination *mp* was written *mb*: **ombi**.

V* and *W The letter *v* is never used when setting Finnish in black letter and a *w* is always used in its place, even in names: **caswi**, **Waala**, **Olawi**. However, if the name is in a different language, it is written as in the original language: **Verdun**, **ꝛiviera**.

Comma A virgule was used instead of a comma: ⁄.

Sound length In principle the sound length was marked the same way as in modern Finnish, that is, a long sound is written with a doubled letter, but its use was inconsistent. Missaali does not try to alter the sound lengths, but if you want to emulate the 17th century conventions by hand, you can follow the following three rules:

1. if the sound length changes the meaning of the word, then it is marked. For example, **tuli** and **tuuli** are always written with the correct vowel length;

2. a long vowel that occurs in the first syllable is always marked: **pããllã**.

3. otherwise, if there is no possibility of confusion, the sound is often written with only one letter. For example, **wijſaẍ** instead of **wijſaaẍ** and **puhtaẍ** instead of **puhtaaẍ**.[19]

7   OpenType Features

This section describes the OpenType features of Missaali. Many of the features have secondary names and these names do not usually correspond with the standard behavior of those features. This is because this font is intended for special uses and there are no standard tags for describing its behaviors. Abusing the existing standard tags is the only way to get the features to work in programs that do not support arbitrary tags.

Most of the features mentioned here are not necessary anymore with the ligature syntax introduced in **Missaali** 2.0 but they are left in the font so that documents written using earlier versions of the font still work. See section 5.

The features implementing abbreviation marks have two additional names defined for them. This is because of how the current version of the `fontspec` package of XeLaTeX works. The problem is that turning features on and off blocks the contexts of contextual substitutions, which means that the rules for *r*-rotunda do not work correctly. I had to split the abbreviation mark features into two because of this, one feature that adds the symbols to everything except *r* and another that adds it just to *r*. See page 45 for details.

aalt — **All alternatives**   This tag maps all letters to all variant forms and abbreviations that make use of the symbol. This is a special feature that is supported by many programs.

calt — **Contextual alternatives**   The `calt` tag defines the substitution rules for long *s* and rotunda *r*. The tag implements the rules in the form that Bartholomew Ghotan used them that differ from the standard rules of later typography. This feature should be turned on unless you specifically want to follow more modern conventions.

---

[19]The final *i* is missing from both words as the most writers used the Turku dialect and the dialect has lost it from the transitive suffix.

$$\text{𝔐issaali} \quad \text{𝔐iſſaali}$$

-calt	+calt

There is a duplicate version of the short *s* glyph in the font that you can use if you want to insert one in the middle of a word without turning `calt` off. It is at the position `U+F509`, and similarly there is a straight *r* at `U+F4EB`.

Some old versions of MS Word provide only partial support for `calt`: they substitute the characters but do not change the spacing within the word, so a long *s* is shown with the spacing of a short *s*.

dlig — **Ghotan's abbreviations**   Most of Bartholomew Ghotan's abbreviations for Latin are enabled with `dlig`. The table 2 on page 24 contains a list of them.

$$\text{que, hoc, urbis} \quad \text{q̃, h̃, urb̃}$$

-dlig	+dlig

hist, swsh — **Historical forms**   This form changes the *æ*, *œ*, *ä*, and *ö* characters to medieval forms where *e* is set over the top of *a* or *o*.

$$\text{ä, æ, ö, œ} \quad \text{å̇, å̇, ȯ̊, ȯ̊}$$

-hist	+hist

liga — **Standard ligatures**   The feature `liga` implements the standard ligature substitution. This implements the fusion of bowls of adjacent letters as well as several substitutions for *f* and long *s*. This should usually be turned on for the whole document. The abbreviation ligature syntax is also handled with `liga`.

$$\text{Deus} \quad \text{Deus}$$

-liga	+liga

ss01, subs — **Scandinavian vowel ligatures**   Nordic texts often used fused vowels to denote either long vowels or diphtongs. These fusions are not present in *Missale Aboense*, but I added them to the font:

$$\text{aa, ao} \quad \text{ꜳ, ꜵ}$$

-ss01	+ss01

ss02, `ornm` — Additional abbreviations This feature enables some abbreviations that are not in *Missale Aboense*. The details are shown in table 5.

mum, ſm, que   m⸫, ſ, q;
-ss02   +ss02

This feature also converts some letters that were changed in font version 2.0 back to the forms that they had in version 1.0.

ss03, `frac` — Alternate abbreviations This set works like `dlig` but it uses a different abbreviations for some letter combinations.

que, con, habet   q;, ꝯ, hab3
-ss03   +ss03

ss04, `salt`, `lt04`, `lr04` — Generic abbreviations This feature adds a generic abbreviation symbol on the top of a letter or ligature. For most of the letters it uses a tilde, but some letters use something different.

a, h, l, w, r, ꝺ   ã, h̃, l̃, w̃, r̃,ꝺ̃
-ss04   +ss04

ss05, `lt05`, `lr05` — Tilde Adds a tilde on top of most letters.

a, n, q, r   ã, ñ, q̃, r̃
-ss05   +ss05

ss06, `lt06`, `lr06` — Dieresis Adds a dieresis on top of most letters.

a, ξ, r, 3   ä, ξ̈, r̈, 3̈
-ss06   +ss06

ss07, `lt07`, `lr07` — R-abbreviation Adds an *r*-abbreviation over most letters. Note that in this font the acute accent is used to mark the *r*-abbreviation tailed dot.

a, e, t   ȧ, ė, ṫ
-ss07   +ss07

ss08, lt08, lr08 — Shorter tilde Adds a shorter tilde over most letters. Ghotan used this occasionally in places where a normal tilde would have not fit well, most often over *i*. In this font this is implemented as a grave accent:

è, ì, u é, í, ú
−ss08   +ss08

Note that in case of letters where the normal tilde is already short, it uses the same symbol as ss05

ss09, onum, lt09, lr09 — A-abbreviation Adds a squashed open *a* that looks like a two-part tilde over most letters. This marks that something containing an *a* has been abbreviated out:

g, s, q g̃, s̃, q̃
−ss09   +ss09

This mark is implemented as the circumflex accent.

ss10, lt10, lr10 — O-abbreviation Adds a ring over most letters. This denotes that something containing an *o* is abbreviated out. This is implemented as the ring accent.

q, u q̊, ů
−ss10 +ss10

ss11, sups — Um-abbreviation This feature adds a diagonal slash to some letters that is in most contexts used for abbreviating *um*. The only one of these that occurs in *Missale Aboense* is straight *rum*.

k, v, r, R̃ k, v, r, ʒ
−ss11   +ss11

As you can see from the example, this feature turns capital *R* into *rum* rotunda.

ss12, lt10, lr10 — Ur-abbreviation Adds a hook that denotes *ur* over most letters. This is implemented as the caron accent.

m, t m̌, ť
−ss12 +ss12

ss13 — **Horizontal strike**   Adds a horizontal stroke to some letters.

$$\text{ƙ, ꝑ, ꝗ}\quad\text{ƙ, ꝑ, ꝗ}$$
-ss13   +ss13

ss14 — **Loop**   Adds a loop to some letters.

$$\text{s l o}\quad\text{ſ ľ ơ}$$
-ss14   +ss14

ss15, smcp — **Liturgical symbols**   Changes some of the letters into liturgical symbols used in *Missale Aboense.*

$$\text{. r v ẜ}\quad\text{�֍ ℞ ꝧ ꝟ}$$
-ss15   +ss15

ss16, ordn, ofin — **Old Finnish ortography**   This changes text to correspond to syntactic conventions that were in use in late 17th century Finnish texts (the so-called *1642 Bible Translation* ortograhpy).[20]

Input	Kuinka pitkälle aijot sinä, Catilina, käyttää väärin meidän kärsivällisyyttämme? Kuinka kauvan luulet sinä vielä voivasi hurjuudessasi pitää meitä pilkkana? Mihin määrään saakka kohoo sinun rajaton röyhkeytesi?
+ss16	**Cuinga pitkålle aijot sinå/ Catilina/ kåyttåå wåårin meidån kårsiwålli-syyttåmme⁊ Cuinga cauwan luulet sinå wielå woiwasi hurjuudellasi pi-tåå meitå pilckana⁊ Mihin måå-råån saacka cohoo sinun rajaton röyhkeytesi⁊**

ss17 — **Alternate punctuation**   Replaces comma by colon, period by centered period and the exclamation sign by period.

$$\text{, . \textperiodcentered}\quad\text{: \textperiodcentered .}$$
-ss17   +ss17

---

[20]The Finnish translation of *In Catalinam* in the following example is by K. Laurila [14].

ss18 — Fuse po   Enables the *po* fusion.

$$\text{po} \qquad \text{po}$$
-ss18   +ss18

ss19 — Alternative z   Use alternative form for *z*.

$$\text{z} \qquad \text{z}$$
-ss19   +ss19

ss20, `titl` — Initials   Turn capital letters into Lombardic initials

$$\text{ABC} \quad \text{ABC}$$
-ss20   +ss20

ss21, `lt21`, `lr21` — Dotaccent   Adds a dot to most letters.

$$\text{b o v} \quad \text{ḃ ȯ v̇}$$
-ss21   +ss21

ss22 — Alternate G   Use alternative form for *G*.

$$\text{G} \qquad \text{G}$$
-ss22   +ss22

ss23 — Alternate initials   Changes some of the Lombardic initials into their alternate forms:

$$\text{ADS} \quad \text{ADS}$$
-ss23   +ss23

8   LaTeX interface

The file `missaali.sty` defines the package `missaali` that contains a number of convenience environments and macros for using the font together with XeLaTeX. All features of the font are available with the system, but accessing some of them is a bit cumbersome. This is partly because of how `fontspec` works and partly because the TeX typesetting algorihms are intended for modern typesetting conventions.

44

Problem	Solution
Short s in place of ſ	Move *s* inside the macro:
`concurs\msabbr{us}`	`concur\msabbr{sus}`
Straight *r* after initial	Use `\rotundar{}`
`\msparinitial{P}ro`	`\msparinitial{P}\rotundar{}o`
Straight *r* after abbreviation	Move *r* inside macro
`\msabbr{per}ry c\mstdr{u}ru`	`\msabbr{perr}y c\mstdr{ur}u`
Missing mark over *r*	Use the *r* versions of macros
`m\mstd{r}is co\mstd{r}s`	`m\rmstd{r}is c\rmstd{or}s`

Figure 11: Solving the LaTeX `fontspec` problems.

The problem with `fontspec` contexts *Note! Most of these problems can be avoided by using ligature substitutions for abbreviations. However, they can still crop up, for example, when using different colors for letters.*

Missaali has contextual substitutions where different forms of letters are substituted based on where in the word they occur. The most important of these are the rotunda *r* and the long *s*. The current version of `fontspec`[21] has the problem that the feature boundaries break the substitution contexts. This happens with abbreviation symbols as well as when using colored initials. For example, here are three different ways to write *usque*:[22]

usque	`usque`
us	`us\msabbr{que}`
u	`u\msabbr{sque}`

Here the middle line has short *s* because `fontspec` broke the context at the point where the abbreviation starts so it thinks that the *s* is occurring at the end of the word. The last line has the correct long *s* because it is moved inside the `\msabbr{}` command so it belongs to the same context. Since *s* does not have any

---

[21]Version 2.7i in Texlive 2021

[22]Command `\msabbr{}` is a macro that enables the abbreviation ligatures defined by `dlig`.

abbreviation marks defined for it and *sed* is the only abbreviation ligature starting with it, moving it inside the macros don't cause any problems.

However, doing the same for *r* does cause problems because it has abbreviation marks. Moving *r* to the same context will force both symbols to have the same mark. The solution that Missaali uses is to define two additional features for each abbreviation mark feature, one that abbreviates only *r* and another for all other letters:

- `ssXX` — the base feature that adds abbreviation symbol to all letters;

- `ltXX` — adds abbreviation to all letters except *r*

- `lrXX` — adds abbreviation only to *r*.

For example, the behavior of the standard abbreviation macros is:

$$\text{ʊꝛ} \qquad \text{ʊ̃ꝛ̃} \qquad \text{ʊ̃ꝛ} \qquad \text{ʊꝛ̃}$$

Normal   ss04   lt04   lr04

The package has two versions of for all abbreviation marks, one using the `ltXX` feature and another using `lrXX`.

Typesetting Textura Blocks

Textura was usually set using two justified columns with only 24–26 characters per line, though late 15th century saw rise of using only wide column especially in secular books. Automatic typesetting algorithms, including the one used by TeX, work very poorly with justified short lines. It is necessary to help the algorithm by selecting suitable line break points and hyphenating words by hand. Using abbreviations makes setting the lines a bit easier, but the cost is that the modern audience will not understand them.

The style file defines three environments: `mstextura`, `mstexturablocks`, and `mstexturablock` for setting the text. The first sets complete two-column pages in Missaali, the second sets two-column Missaali that is intended to fit inside one page that may contain also modern typography, and the last sets one column of text that is intended to fit inside one page.

The environments make the following changes to the ordinary TeX layout:

1. they turn on the `\obeylines` so that LaTeX will force a line break at newlines of the text;

2. they add infinitely stretchable glue to the word space to force justification; and

3. they add space also to the left side of punctuation symbols.

4. they change ~ and ^ to be ordinary characters so that they can be used for ligature substitutions.

When `\obeylines` is in effect, LaTeX doesn't hyphenate any words automatically so all hyphenations have to be added by hand.

When setting text with Missaali, I've used the following approach:

1. Set the font and textura block sizes.

2. Set the beginning of the text by placing possible rubrics in red at the start as well as the two first lines that contain the initial.

3. Go down through the text block adding line breaks to good places if XeLaTeX puts them in ugly places.

4. Further adjust the text by adding hyphenation points manually as well as abbreviation symbols.

5. If the text ends with a partial line, go back few lines altering them so that the last line is also full.

Using the manuscript spacing   While printed textura was almost universally justified, manuscripts were not. Version 2.0 adds option `ManuscriptSpacing` that prevents the automatic justification from happening.

Defining Font and Block Sizes

There are four parameters that alter the layout of textura blocks.

- font size (default 18 pt);

- text block width (default 6.4 cm);

- text block height (default 34 lines); and

- width of the gutter between columns (default 1 cm).

The first two affect all three textura environments, the third only `mstextura` and the last affects environments with two columns. Each parameter has a macro for defining its value, and there is a combined macro for setting the first three at one time. See figure 12 for examples.

47

Nihilne te nocturnum præsidium Palati, nihil urbis vigiliae, nihil timor populi, nihil concurs⁹ bonorum omnium, nihil

```
\mssetfontsize{22}
\mssetblockwidth{7.70cm}
\begin{mstexturablock}
  Nihilne te noc\msabbr{tur}num \msabbr{prae}sidium
  Palati, nihil urbis vigiliae,
  nihil timor populi, nihil con-
  cur\msabbr{sus} bonorum omnium, nihil
\end{mstexturablock}
```

Nihilne te nocturnum præsidium Palati, nihil urbis vigiliae, nihil timor populi, nihil concurs⁹ bonorum omnium, nihil

```
\mssetfontsize{18}
\mssetblockwidth{6.40cm}
\begin{mstexturablock}
  Nihilne te noc\msabbr{tur}num \msabbr{prae}sidium
  Palati, nihil urbis vigiliae,
  nihil timor populi, nihil con-
  cur\msabbr{sus} bonorum omnium, nihil
\end{mstexturablock}
```

Figure 12: Examples of text size macros

`\mssetfontsize{size in points}`   This sets the font size. This is implemented as an independent variable because it is used for calculating the height of the text block.

`\mssetblockwidth{width as a dimension}`   This sets the width of the textura block to a given dimension.

`\mssetblocklines{number of lines}`   This sets how many lines of text there are on each page of the `mstextura` environment. The height of the text block is calculated by multiplying the number of lines with the font size.

`\mssetgutterwidth{width as a dimension}`   This sets the gutter width between the columns to its argument.

`\mssetsizes{font size}{block width}{block lines}`   This sets the font size, text block width, and the number of lines on a page in one call.

Initials

The style file contains macros for setting the two size of intials in different colors as well as for creating two-line chapter beginnings.

There are three predefined colors:

Red	Green	Blue
55e47	62876e	455f9b

The red and blue correspond to the inks used in *Missale Aboense* while the green matches the ink used in *Codex Aboensis* that is a 1430s manuscript.[23].

The two-line initials are created with four commands that have the same forms. They all set the initials hanging down so if you use them directly, you need to ensure that there is enough space underneath.

`\mschapterinitial{initial}`

Sets a red two-line chapter initial. For letters that have alternate forms, you can add colons to access them.

---

[23]In the sRGB color space

`\mschapterinitial{M}`   `\mschapterinitial{M:}`   `\mschapterinitial{M::}`

`\mschapterinitialblue{initial}`

Sets a blue two-line chapter initial.

`\mschapterinitialgreen{initial}`

Sets a green two-line chapter initial.

`\mschapterinitialwithcolor{initial}color`

Sets a two-line chapter initial with a specified color.

`\mschapterinitialwithcolor{A}{ff00ff}`

`\msparinitial{initial}`

Sets a one line high red Lombardic initial.

`\msparinitialblue{initial}`

Sets a one line high blueLombardic initial.

`\msparinitialgreen{initial}`

Sets a one line high green Lombardic initial.

`\msparinitialwithcolor{initial}{color}`

Sets a one line high green Lombardic initial in a specified color:

`\msparinitialwithcolor{M}{ff00ff}`

Uo usque tandem abu-tere: Catilina: patiẽtia nostra? q̃ diu etiã furor iste

```
\msstartchapter{Q}{Uo usque tandem abu-}{%
  tere, Catilina, pati\mstdacc{e}{en}tia}
  nostra? \msabbr{quam} diu  eti\mstdacc{a}{am} furor iste
```
(a)

Uo usque tandem abu-tere: Catilina: patiẽtia nostra? q̃ diu etiã furor iste

```
\msstartchapterblue{Q}{Uo usque tandem abu-}{%
  tere,Catilina,pati\mstdacc{e}{en}tia}
  nostra? \msabbr{quam} diu  eti\mstdacc{a}{am} furor iste
```
(b)

Egnante illus- Lectio trissimo rege sancto Erico in Svecia: venerabilis

```
\msstartchapterwithrubric{Lectio}{R}{%
  Egnante illus-\ }{trissimo rege sancto}
  Erico in Svecia, venerabilis
```
(c)

De vita sancto henrici ep̃i
Egnante illus- Lectio trissimo rege sancto Erico in Svecia: venerabilis

```
\msrubric{De vita sancto henrici e\mstdacc{p}{piscop}i}
\msstartchapterwithrubricgreen{Lectio}{R}{%
  Egnante illus-\ }{trissimo rege sancto}
  Erico in Svecia, venerabilis
```
(d)

Figure 13: Examples for chapter start macros

`\msstartchapter{initial}{first line}{second line}`

This sets a two-line `initial` in red, and then the contents of the `first line` and the `second line` to its right indented by the proper abount. This is shown in figure 13a.

`\msstartchapterblue{initial}{first line}{second line}`

This sets a two-line `initial` in blue, and then the contents of the `first line` and the `second line` to its right indented by the proper abount. This is shown in figure 13b.

`\msstartchaptergreen{initial}{first line}{second line}`

This sets a two-line `initial` in green, and then the contents of the `first line` and the `second line` to its right indented by the proper abount.

`\msstartchapterwithcolor{initial}{first line}{second line}{color}`

Sets a two-line chapter start like the previous macros but with a specifid initial color.

`\msstartchapterwithrubric{rubric}{initial}{first}{second}`

This sets a two-line `initial` in red, and the contents of the `first line` and at its end the `rubric` in red. The second line is set as in the previous commands. See figure 13c.

`\msstartchapterwithrubricblue{rubric}{initial}{first}{second}`

As previous, but sets the `initial` in blue and `rubric` in red.

`\msstartchapterwithrubricgreen{rubric}{initial}{first}{second}`

This sets a two-line `initial` in green, and the contents of the `first line` and at its end the `rubric` in red. The second line is set as in the previous commands. See figure 13d. That figure also shows how to add a rubric in red in front above the chapter start using the command `\msrubric`.

```
\msstartchapterwithrubricandcolors{r}{i}{f}{s}{color1}{color2}
```

This sets a chapter start with a partial line rubric in two colors: `color1` is the color of the initial and the rubric is in `color2`.

Alternate initial I   The macro `\initialI` sets the tall version of initial I in blue into the margin or gutter using a very large size. As the letter is not in the text block, the next line doesn't have to indented. If the line has a partial rubric on it, then the text has to be entered with macros `\mspartialrubric` and `\mspartialline`. For example, the blue initial on page 69 is created with:

```
\mspartialrubric{Incognit\msabbr{\msrubric{us}}}
\mspartialline{\initialI{}N taberna qu\mstdacc{a}{an}do }
  sumus: non curam{us} {quid} sit
```

The `\mspartialrubric` and `\mspartialline` have to be always used as a pair where rubric is first and the line is next.

Abbreviations

NOTE! With 𝕸𝖎𝖘𝖘𝖆𝖆𝖑𝖎 *2.0 it is better to use ligature substitutions to handle abbreviations! The old way of using them is still in the font, but you shouldn't use it for new texts.*

There are two different ways how abbreviations are handled in `missaali.sty`. The abbreviations with specific meanings are handled as ligatures while abbreviation marks are simple letter substitutions. There are three different commands for ligature substitutions and each abbreviation mark has four different commands defined for it.

Different commands for the abbreviation marks are needed because otherwise r-rotunda would not work correctly. Thus, there is a command that puts the mark over all letters except for r, and one that puts it only on r. This makes it possible to put r inside the abbreviation context to get a correct form for it. There are also two variants on whether an additional unabbreviated text is added also to the pdf using the actual text mechanism. This makes it easier to search text on advanced pdf viewers. The commands for abbreviation marks are shown in table 8.

The commands are named systematically so that if the base name of the macro is `X`, then the commands have the form:

1. `\X`: adds the mark to all other letters except for r, does not add the actual text to the pdf.

2. `\rX`: adds the mark only to r, does not add the actual text to the pdf.

Command	Marks r	Actual text	Sample	Code
Generic abbreviation				
\mstd			õ2	\mstd{or}
\mstdacc		×		
\rmstd	×		o2̈	\rmstd{or}
\rmstdacc	×	×		
A-abbreviation				
\mstda			õ2	\mstda{or}
\mstdaacc		×		
\rmstda	×		o2̃	\rmstda{or}
\rmstdaacc	×	×		
R-abbreviation				
\mstdr			ȯ2	\mstdr{or}
\mstdracc		×		
\rmstdr	×		o2̇	\rmstdr{or}
\rmstdracc	×	×		
O-abbreviation				
\mstdo			o̊2	\mstdo{or}
\mstdoacc		×		
\rmstdo	×		o2̊	\rmstdo{or}
\rmstdoacc	×	×		
Specifically tilde				
\mstdt			õ2	\mstdt{or}
\mstdtacc		×		
\rmstdt	×		o2̃	\rmstdt{or}
\rmstdtacc	×	×		
Short tilde accent				
\mstdst			ó2	\mstdst{or}
\mstdstacc		×		
\rmstdst	×		o2́	\rmstdst{or}
\rmstdstacc	×	×		
Specifically dieresis				
\mstdd			ö2	\mstdd{or}
\mstddacc		×		
\rmstdd	×		o2̈	\rmstdd{or}
\rmstdacc	×	×		
Diagonal stroke				
\mstddg			Sr	\mstddg{Sr}
\mstddgacc		×		
\rmstddg	×		Sr	\rmstddg{Sr}
\rmstdgacc	×	×		

Table 8: LaTeX commands for abbreviation marks

3. `\Xacc`: adds the mark to all other letters except for *r*, adds the second argument as the actual text to the pdf; and

4. `\Xacc`: adds the mark only to *r*, adds the second argument as the actual text to the pdf.

Other macros

There are several additional macros for accessing other symbols of the font.

`\msmanualspacing`

Turns on the manually-adjusted spacing for text. See page 46.

`\msaltpunctuation`

Switches to use alternate punctuation marks.

`\msinit{letter}`

Inserts a Lombardic initial using the current size and color.

`\msinita{letter}`

Inserts an alternate form of a Lombardic initial using the current size and color.

`\msrubric{text}`

Inserts `text` in red.

`\msrubricblue{text}`

Inserts `text` in blue.

`\msrubricgreen{text}`

Inserts `text` in green.

`\mspara`

Inserts a red paragraph symbol.

`\mstdl{character}`
Turns on the liturgical variants of the symbols. Namely, it turns r to the response symbol, v and V to two different versicle symbols, and the period to the cross.

`\rotundar`

Inserts a forced r-rotunda to a place where ordinary contextual substitution rules would place a straight r.

`\straighr`

Inserts a forced straight r in a place where the contextual substitution rules would place a r-rotunda.

`\shorts`

Inserts a forced short s in a place where the contextual substitution rules would place a long s.

`\longs`

Inserts a forced long s in a place where the contextual substitution fules would place a short s.

`\msnoliga{text}`

Turns off the standard ligature substitution for its argument.

`\mspartialrubric{text}`

Sets `text` at the right end of the current line in red. This has to be used together with `\mspartialline` and in the correct order with rubric coming before the line.

It is usually simpler to use `\msrubric` directly to make a line with rubrics at the end. The use case for `\mspartialrubric` and `\mspartialline` commands is

when you want to make text that has some deliberate issues with spacinb between the texts of different colors.

\mspartialrubricblue{text}

As above but in blue.

\mspartialrubricgreen{text}

As above but in green.

\mspartialrubricwithcolor{text}{color}

Sets a partial rubric in given `color`.

\mspartialline{text}

Sets a partial line of `text` with a rubric after it. The rubric needs to be set with one of the `\mspartialrubric` commands just before it.

Package options

When `missaali.sty` is inlcuded in the document, there are some package-level options available:

OldAE   Use old variant forms for $\ddot{a}$ and $\ddot{o}$ where there is a small e letter in place of dieresis (`hist`).

ManuscriptSpacing   Do not force column justification and instead typeset ragged lines.

AltG   Use variant form of G (`ss22`).

AltZ   Use variant form of Z (`ss19`).

FusePo   Use fused *po*-ligature.

OldFinnish   Use 1642 Finnish ortographic conventions (`ss16`).

After setting the options, you can change to Missaali using the command `\mstexturafamily`. This command also changes the `\emph` command to use red color for emphasis instead of italics and sets paragraph indentation to zero.

Style Definition Macros

There are several style definition options for enabling some features. This should be placed before the `\fontspec` command or the macro or environment that calls it.

`\MsNormalStyle`   Revert back to the standard style, cancels the effect of other style definition macros.

`\MsAltAEStyle`   Changes the *æ* and *œ* ligatures to the form where the *e* is set above the letter instead of being fused into it. This also converts *ä* and *ö* to the same form.

`\MsAltPunctuationStyle`   Changes the comma, the period, and the explanation mark to symbols that Ghotan used in *Missale Aboense* for similar purposes. His punctuation conventions don't match the modern usage so this only a convenient approximation.

`\MsAltZStyle`   Changes the shape of the lower case *z* to a slightly different form.

`\MsAltGStyle`   Changes the shape of the upper case *G* to a different form.

`\MsOldFinnishStyle`   Turns on the emulation for late 17th century Finnish ortography.

`\MsPoFusionStyle`   Enables the **po** fusion ligature for *po*.

9   How This Font Was Made

I started the work by looking through the reproduction of *Missale Aboense* searching for good examples for all different symbols that were used there. Next, I scanned the symbols in and created a separate 1000x1000 pixel image for each, making sure to not alter their relative sizes.

At this point I also consulted Derolez [5], Cappelli [3], and various internet sources trying to identify the various abbreviation symbols. A very successful strategy was to search the internet for words next to the abbreviated part as in most cases the results would contain a page with the full text of the section. I ended on many different pages and didn't keep track on what I used.

The first phase of making the actual font was to draw the glyphs based on the scanned images. I did the tracing by hand as my experiences with automatic tracing haven't been very encouraging. I used Glyphs for making the font as it has a good support for OpenType features and it is much easier to use than FontForge. The version that I used (1.4.2 (554)) had an annoying bug where it occasionally deleted the undo history, but on the whole it is the best of all font editors that I've tried.[24]

After making the basic alphabet and the basic ligatures, I turned to creating the missing letters *W, Y*, and *Z*. The *Z* is essentially an enlarged *z* while the other two letters are based on *U*.[25]

The next step was to run the `checkOutlines` script of the *Adobe FDK* took suite to check that the glyphs were valid. Most weren't and had to be fixed. At this point I also created the BlueValues and stem width arrays that are used for hinting the letters. However, I didn't pay very much attention for them as textura shouldn't be used at font sizes where hinting is needed.

Creating glyphs with abbreviation marks was a large task, but Glyphs has a good support for them so it wasn't as overwhelming as it would have been with TypeTool that I have used for my previous fonts.

Because there isn't any existing font with exactly the same initials that Ghotan used, I decided to add them to the font also. Again, some of them were missing and had to be created from scratch. The initial *X* is enlarged from a half-size initial, *Y* is based on *U*, *Z* is a mirrored alternate form of *S*, and *W* is a rotated *M*. Rotated initials were relatively common in incunabulas. Ghotan himself used a rotated *C* in place of a *D* in several places, and I've seen a text where the typesetter used a rotated *Q* for a *D*.

I created the features using a combination of copy-pasting and a few auxiliary scripts. I found out the `fontspec` problem with contextual substitutions by accident and the result was that I had to almost triple the number of features so that all would work correctly with XeLaTeX.

The anachronistic Old Finnish feature was originally made for the font Fraktuura that is based on late 19th century newspaper fraktur fonts. That font is still unpublished as it needs one more editing pass before it is ready for wider audience.

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[24]The version 2.0 of the font was made with Glyphs (3.0.2).

[25]For version 2.0 of the font I replaced *Y* by an enlarged *y* because Ghotan didn't use specific capital *Y* in any of the books that he printed

The last major change for the font was a complete renaming of most of the glyphs. I didn't follow the recommended conventions for glyph names from the start as I wasn't aware of how important they really are for pdf usability. At this point I also created a large number of duplicate glyphs so that one copy has no code point assigned to it and the other has. This makes it possible to use the one without the point in software that supports the relevant features and so get searchable pdfs, while making the symbol available also in software with no support for that feature, though, with the cost that the typeset file might not be searchable.

The very final step was to run the *autohint* tool of the *Adobe FDK* to create the font hints. The tool gave a number of suggestions how the glyphs could be changed for better hinting. I followed some but not all of the suggestions as hinting is not so important for a large-size font as it is for body text fonts.

The version 2.0 of the font was a drawn out process where I first occasionally added a new symbol that I missed when using the font. Then I found out that *Kungliga biblioteket* had digitized copies of Ghotan's other books available for download, so I started to hunt for missing letters from there. I managed to find quite a few initials that I added to font. There are still a couple initial variants that I didn't add because they were small modifications of *M* and *Q* and there were already a lot of those.

When I was making the font *Aboensis*[26] that is based on a 15th century Swedish cursive book hand, I realized that using font features to access abbreviation symbols did not work for it because there were far too many issues with context breaks within words. I came up with the idea of using ligature substitutions for accessing abbreviations. This worked so well in practice, that I ported the same functionality to *Missaali*.

10   Symbols in Missaali

There is a dilemma in creating OpenType fonts that have symbols that are not included in Unicode: whether to assign code points from the private use area to them or not and rely completely on OpenType features to access them. The advantage of assigning code points is that then the symbols can be used in programs that don't support the features by entering them via Character Map or some similar utility program.

The disadvantage is that using the private use area breaks the search functionality of most if not all pdf viewers. If the fusion ꝺꝋ is placed into the private use area, then searching for *door* does not work because the viewer doesn't recognize the fusion as the letters *d* and *o*.

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[26]*Aboensis* is still unreleased but I hope to get it out in 2021.

I resolved this dilemma by making two identical copies of a number of symbols: one that has a code point and thus can be entered with Character Map and one that hasn't that can be searched. The ꝏ-fusion that is automatically created as a ligature substitution can be found with search but the one entered with Character Map cannot.

I added duplicates for symbols that are substituted into text using features `calt`, `liga`, `dlig`, and `ss01`. The long *s* and rotunda *r* are there even though they have actual unicode code points because not all viewers can recognize that they are variants of the respective letters.

A

0041	0061	00C4	00C5	00C6	00E0	00E1	00E2
00E3	00E4	00E5	00E6	01CE	01E3	01FD	0227
A733	A735	A737	A738	A73D	EFE1	EFE2	EFE5
EFE7	EFE8	EFEF	EFF1	EFFF	F400	F401	F402
F403	F404	F405	F406	F407	F408	F409	F40A
F40B	F40C	F40D	F40E	F40F	F410	F411	F412
F413	F414	F415	F416	F417	F418	F419	F41A
F41B	F41C	F41D	F41E	F41F	F420	F421	F422
F423	F424	F425	F42E	F42F	F430	F431	F432
F433	F434	F435	F606	F607	F659	F608	F609
F637	F638	F639					

B

0042	0062	F436	F437	F438	F439	F43A	F43B
F43C	F43D	F43E	F43F	F440	F441	F442	F443
F444	F445	F446	F447	F655	F60A	F63A	

C

0043	0063	0107	0109	010B	010D	A76F	F448
F449	F44A	F44B	F44C	F44D	F44E	F44F	F450
F451	F452	F539	F60B	F63B			

D

0044	0064	010F	1E0B	1EBD	A771	F1A6	F453
F454	F455	F456	F457	F458	F459	F45A	F45B
F45C	F45D	F45E	F45F	F460	F461	F462	F463
F464	F465	F466	F467	F468	F469	F46A	F60C
F60D	F633	F63C	F654				

E

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F158	F46B	F53B	F60E	F62F	F63D		

F | 0046 | 0066 | EECB | FB00 | FB01 | FB02 | F60F | F63E

G | 0047 | 0067 | 011D | 0121 | 01E7 | 01F5 | F42D | F46C
F46D | F46E | F46F | F610 | F63F

H | 0048 | 0068 | F53D | F611 | F640

I | 0049 | 0069 | 00EC | 00ED | 00EE | 00EF | 0129 | 0131
0133 | A76D | F470 | F612 | F613 | F641

J | 004A | 006A | 0135 | 01F0 | 0237 | E554 | F471 | F472
F473 | F474 | F614 | F642

K | 004B | 006B | A740 | A741 | A742 | A743 | F615 | F643

L | 004C | 006C | A772 | F616 | F644

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
N

004E	006E	00F1	0144	0148	01F9	A774	F47D
F47E	F47F	F618	F630	F646			

O

004F	006F	00D6	00F2	00F3	00F4	00F5	00F6
0153	01D2	022F	A74D	A74F	EBE5	F426	F427
F428	F429	F42A	F42B	F42C	F480	F481	F482
F483	F484	F485	F486	F487	F488	F489	F48A
F619	F62D	F61A	F647	F648			

P

0050	0070	1E55	1E57	A750	A751	A752	A753
A755	EED6	EED7	F48B	F48C	F48D	F48E	F48F
F490	F491	F492	F493	F494	F495	F496	F497
F498	F499	F49A	F49B	F49C	F49D	F49E	F49F
F4A0	F4A1	F4A2	F4A3	F657	F4A4	F4A5	F4A6
F4A7	F4A8	F4A9	F4AA	F4AB	F4AC	F4AD	F4AE
F4AF	F4B0	F4B1	F4B2	F4B3	F4B4	F4B5	F4B6

P (continued)

F4B7	F4B8	F4B9	F4BA	F4BB	F658	F4BC	F4BD
F4BE	F4BF	F4C0	F4C1	F4C2	F4C3	F4C4	F4C5
F4C6	F4C7	F4C8	F4C9	F4CA	F61B	F649	

Q

0051	0071	A757	A759	E8B3	E8BF	F4CB	F4CC
F4CD	F4CE	F4CF	F4D0	F4D1	F4D2	F4D3	F4D4
F4D5	F4D6	F4D7	F4D8	F4D9	F4DA	F4DB	F4DC
F4DD	F4DE	F4DF	F4E0	F4E1	F4E2	F4E3	F4E4
F4E5	F4E6	F4E7	F4E8	F4E9	F4EA	F61C	F631
F635	F64A						

R

0052	0072	0155	0159	1E59	211E	A75B	A75D
A775	F4EB	F4EC	F4ED	F4EE	F4EF	F4F0	F4F1
F4F2	F4F3	F4F4	F4F5	F4F6	F4F7	F4F8	F4F9
F4FA	F4FB	F4FC	F4FD	F4FE	F4FF	F500	F501
F502	F503	F504	F505	F506	F507	F508	F61D
F65C	F64B						

S

0053	0073	00DF	015D	017F	EBA2	EBA3	EBA6
F475	F509	F50A	F50B	F53C	FB05	F61E	F61F
F65A	F6fB	F64C					

T

0054	0074	0165	1E6B	1E97	F50C	F50D	F50E
F53A	F620	F64D					

U

0055	0075	00DC	00F9	00FA	00FB	00FC	0169
016F	01D4	A770	F510	F511	F621	F632	F64E

V

0056	0076	1E7D	2123	A75F	F512	F513	F514
F515	F516	F517	F518	F519	F51A	F51B	F51C
F51D	F51E	F51F	F520	F521	F522	F622	F62B
F64F							

W

0057	0077	0175	1E81	1E83	1E85	1E87	1E98
F523	F524	F525	F623	F650			

X

0058	0078	1E8B	1E8D	F526	F527	F528	F529
X	x	ẋ	ẍ	x	x	x	x

F52A	F52B	F627	F62C	F624	F651		
x	x	☒	☒	☒	☒		

Y

0059	0079	00FD	00FF	0177	1E8F	1E99	1EF3
Y	y	ý	ÿ	ỹ	ẏ	ẙ	ỳ

1EF9	F52C	F628	F625	F652			
ỹ	y	y	y	y			

Z

005A	007A	017A	017C	017E	01EF	1E91	F50F
Z	z	ź	ż	ž	ǯ	ẑ	z

F52D	F52E	F52F	F530	F531	F532	F533	F534
z	z	z	z	z	z	z	z

F535	F536	F537	F538	F529	F629	F626	F653
z	z	z	z	z	z	z	z

Other symbols

0021	0026	002A	002C	002D	002E	002F	003A
˙	⁊	✠	,	⸗	◆	/	⁝

003B	003F	005C	0060	007C	00A8	00AF	00B4
⁏	⸮	\	ˋ	|	¨	¯	´

00B7	00B6	02C6	02C7	02D9	02DA	02DC	2012
·	¶	ˆ	ˇ	˙	˚	˜	⁑

2013	2014						
⁘	⁙						

11 Examples

This section has two longish examples of how medieval latin text can be set using Missaali. The first example is a page containing one poem and parts of two others, and the second is the first half of the Legend of St. Henry.

The complete poem is Quintus Horatius Flaccus's *Integer vitae* [17], from his first book of Odes. The text has divided opinions on whether it is Horace intended it to be taken as a serious exultation of honest life or a satire of such poems. The text has been a popular students' song since Friedrich Flemming composed a melody for it in the early 19th century.

The first partial poem are three verses from *Estuans intrinsecus* by The Archpoet. He was a poet who was active around the mid-12th century and was somehow associated with Rainald of Dassel, Archbischop of Cologne. *Estuans intrinsecus* was very popular during the middle ages and it survives on over 30 manuscripts, including the famous *Carmina Burana* [18]. The verses in this sample belong to the *Meum est propositum* segment of the poem.

The final partial poem is a snippet from *In taberna* that is also from *Carmina Burana.*

The second example contains first five of the nine lections of the legend of Saint Henry. They contain the *vita* or the biography of the saint as well as the first of the miracles attributed to him. The text follows the critical edition by Tuomas Heikkilä [8] that is based on a large number of surviving manuscripts.

Q Horatius ſl carmina p̃o

Nteger vitae ſcele= xxij
leriſque pur⁹ non eget
mauris iaculis neq? arcu nec
venenatis gravida ſagittis:
Fuſce: pharetra: ſive p ſyrtis
iter aeſtuoſas ſive factur⁹ per
in hoſpitalem caucaſum vel q̃
loca fabuloſus lambit hyda=
ſpes· Namq? me ſilva lupus
in ſabina: dum meam canto
lalagen et ultra terminũ cu=
ris vagor expeditis: fugit in
ermem: q̃le portentum neq?
militaris daunias latis alit
aeſculetiſnec Jubae tell⁹ ge=
nerat: leonum arida nutrix·
Pone me pigris ubi nulla
campis arbor aeſtiva recreat
aura: quod latus mundi ne=
bulae maluſque Juppiter
urget: pone ſub curru nimi=
um propinqui ſolis in terra
domibz negata: dulce riden=
tem lalagen amabo: dulce lo=
quentem· Archipoeta
Eum eſt propoſitum
in taberna mori: ubi vina pro
xima morientis ori· tunc can=

tabunt letius angelox chori:
ſit deus propitius iſti potatori·
Poculis accenditur animi
lucerna: cor imbutum necta=
re volat ad ſuperna· michi
ſapit dulcius vinum de taber=
na: quam quod aqua miſcuit
praeſulis picerna· Tales ver=
ſus facio: quale vinum bibo:
nichil poſſum facĕe niſi ſũp=
to cibo: nichil valent p̃itus:
que ieiunus ſcribo: Naſonem
poſt calices carmine preibo·
N taberna quãdo Incognit⁹
ſumus: non curamus quid ſit
humus: ſed ad ludum prpera=
mus: cui ſemper inſudamus:
mus: quid agatur in taberna
: ubi nummus eſt pincerna:
hoc eſt opus: ut queratur:
ſed quid loquar audiatur·
Quidam ludunt: quidam
bibũt: quidam indiſcrete vi=
vunt: ſed in ludo qui moran=
tur: ex his quidam denudan=
tur: quidam ibi veſtiuntur:
quidam ſaccis induuntur: ibi
nullus timet mortem: ſed
pro Baccho mittunt ſortem·

Egnante illuſ⸗ **Lectio** triſſimo rege ſancto Erico in Suecia: venerabilis pontifex beatus Henricus: in Anglia oriūd⁹: conſpicuus vite ſanctiate et moꝛ honeſtate pꝛeclarus: Upſalenſem rege⸗ bat eccleſiam · Quibus quaſi duobus magnis luminaribʒ populus terre ilius: ad veri dei noticiam ⁊ cultum magis magisꝗ illuſtrabatur iugiſ ac infoꝛmabatur · Sanctus autem rex inſignem ponti⸗ ficem: vita: moꝛibus et eccle⸗ ſiaſtice dignitatis culmine pꝛepollentem: intimi amoꝛis complectebatur affectu ⁊ ſue ſpecialis fāiliaritatis gratia pluꝛimum honoꝛabat · Felix patria: ꝗ divina maieſtas conceſſerat talium ac tantoꝝ rectoꝝ eodem tempoꝛe mode⸗ ramine gubernari · Non erat tunc foꝛmidini: ut regnum in ſe diviſum deſolaretur: dum ad gloꝛiam dei: et iuſtū tran⸗ quillumque regimen ſub⸗ ditoꝛum capita populoꝛum tam concoꝛditè convenerunt ·

Edificabatur illo **Lectio** in tēpoꝛe eccleſia creſ⸗ cens in timoꝛe dei: rectifica⸗ bantur leges: quas ſimplex antiꝗtas vel minus recte con⸗ diderat vel obliquaverat per⸗ verſitas malignoꝛum · Stude⸗ bat paci ⁊ iuſticie ſubditoꝝ: lupi rapaces dentes venena⸗ tos in inſontes acuere non audebant: cum rex ſedens in ſolio intuitu ſuo ōīe malum diſſiparet et bonus paſtoꝛ vi⸗ rilit vigilaret ſuper cuſtodiā gregis ſui ⁋ Cum vero plebs Finlandie: tunc ceca et cru⸗ delis gentilitas: habitantibʒ in Suecia gravia dampna frequenter inferret: ſanctus rex Ericus: aſſumpto ſecum ab eccleſia Upſalenſi beato Henrico collecto exercitu: contra nominis Chriſti et po⸗ puli ſui inimicos expedicionē dirigit · Quibʒ potenter fidei Chriſti et ſuo ſubiugatis do⸗ minio: baptizatis pluꝛimis et fundatis in partibus illis eccleſiis: ad Sueciam cum gloꝛioſa victoꝛia remeavit ·

Eatus autē Hen⸗ **Lēo** ricus vinee domini cul⸗ toꝛem ⁊ cuſtodem ſe divinit⁹ conſtitutum conſiderans: ad irrigandum ymbꝛe celeſtis

doctrine nouellas neophitoꝛ plantulas et ad coꝛroboran= dum dei cultum in partibus illis audacter remanſit: non metuens ſe q̃buſlibet aduerſis exponere: ut poſſet gloꝛiam dei dilatare · Ꝺ quantus fidei feruoꝛ: quantus ardoꝛ diuini amoꝛis altare auꝛeū coꝛdis deuotiſſimi põtificis accende= rat: q̃: poſtpoſitis opulencijs rerum et amicoꝛum ſolacijs et Upſalenſis pꝛeſulatus ſce ſublimi : pꝛo paucarum et pauperum ouium ſaluacione multis ſe moꝛtis periculis exponebat · Illus imitacione paſtoꝛis: q̃ relictis nonagita nouem ouibus in deſerto uni= cam errantem ſollicite req̃= uit et inuentã ad ouile ꝑpꝛijs impoſitã hūeris repoꝛtauit ·

Cum v edificacioĩ Leo et confirmacioni Fin= landenſis eccleſie pꝛudenter z fideliter inſudaret: accidit: ut homicidam q̃ndam ob ipſius facinoꝛis iɱanitatem eccle= ſiaſtica diſciplina vellet coꝛ= rigere : ne facilitas nimia venie incentiuum delinquendi pꝛeberet · ꝙ ſalutis remedium infelix vir ille ſanguinum contempſit et in ſue vertit

dampnacionis augmentum: odio habens ſe ſalubꝛiter arguentem · In miniſtrum itaꝗ iuſticie z in ſue ſalutis zelatoꝛem funeſtus inſiluit: ipſumꝗ crudeliter trucidauit Sic ſacredos domini : acc= eptabilis hoſtia diuinis ob= lata conſpectibus: occumbens ꝑ iuſticia: templum ſuperne Jheruſalem cū glſi palma triumphi feliciter introiuit ·

Oſtmodum ille Lectio ſceleſt⁹ occiſoꝛ: tollens de capite ſancti põtificis bir= retum: ꝙ geſtare ꝑſueverat: impoſuit ſuo capiti: et re= greſſus domum: de commiſſo flagicio ſe iactans ꝙ urſum pꝛoſtraſſet: p hoc ſignificans occiſionem ſancti viri: leta= batur cum male feciſſet: et exultabat in rebus peſſimis · Dum autem birretum: quod in ſuo poſuerat capite : amovere temptaret: cutis et caro birreto coheſerunt: et illa inſimul a teſta capitis amovebat: congrua pꝛofecto divine ulcionis vindicta: ut tali pena miſerabiliter toꝛ= queretur: q̃ non eſt veritus chriſtum domini truculenter impetere et occiſum ſpoliare ·

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