


# Abocensio

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**Q**uo usque tandem abutere/ Catilina/ patri-  
entia nostra? Quam diu etiam furor iste  
tuus nos eludet? Quem ad finem sese effrenata  
jactabit audacia? Nihilne te nocturnum praes  
sidium palatij/ nihil urbis vigiliae/ nihil timor  
populi/ nihil concursus bonorum omnium/ nihil hic  
minutissimum habendum senatus locus/ nihil horum  
ora volutantes moverunt? Patere tua consilia non  
sentis/ confutitatem horum omnium scientia te-  
neri coninnationem tuam non vides? Quid pro-  
xima/ quid superior nocte egeris/ ubi fueris/ quos  
convocaveris/ quid consilij ceperis/ quem nostrum  
ignoras 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 specimens 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 volutusque 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 [25] 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?

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### The Short Version of Important Stuff

- *Altecaris* is a free OpenType/CFF font intended for emulating late medieval manuscripts.
- It should be used in relatively large size (14+ 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 107–113) that are no longer in common use but it lacks many symbols that are nowadays in common use.
- It has a large number of OpenType features that control its behavior. See section 8 for details. The "Standard ligatures" (liga) and "Contextual alternates" (calt) features should be always turned on for proper function of the font.
- It is designed to be used with XeLaTeX. See section 5 for details.
- *Altecaris* 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 highlighted initials symbols with XeLaTeX, see section 3.2 for details.

- Abbreviate with brackets:

*eorum*  $\Rightarrow$  *eo[rum]*

- Add an abbreviation symbol over a letter by preceding it with tilde or single quote (use `\abtildes` to make tilde regular letter):

*ecc~ia*    *'tminus*  
ecc~ia    'tminus

- Place a letter as a superscript using a grave accent:

*iiii<sup>c</sup>*  
iiii<sup>c</sup>

- Use asterisk to prevent initial and final forms as needed:

*non*  $\Rightarrow$  *\*non\**  
non                    \*non\*

- Add red highlighting to capital letters by writing the letter three times on top of itself: first with text color, then with the highlight preceded by a slash, and finally in darker highlight color with two slashes:

*A*    */A*    *//A*     $\Rightarrow$     *A*  
A       /A       //A

With XeLaTeX you can use command `\abcapital` to add a highlighted capital.

- Enter Lombardic initials by surrounding the letter with '+' signs.

*A*  $\Rightarrow$  *+A+*

- Enter cursive initials by surrounding the letter with two '+' signs and use font size 5.5 times larger than the main body

*A*  $\Rightarrow$  *++A++*

- Prevent uneven line spacing in XeLaTeX with `\abl{line}`.

Table 1: A quick partial guide to special symbols

# Contents

<b>1</b>	<b>Introduction</b>	<b>7</b>
1.1	OpenType . . . . .	8
1.2	Open Font License v.1.1 . . . . .	8
1.3	Latex Project Public License version 1.3c . . . . .	12
1.4	Creative Commons Attribution 4.0 International License . . . . .	12
<b>2</b>	<b>Historical background</b>	<b>13</b>
2.1	Codex Aboensis . . . . .	13
2.2	King Magnus Eriksson . . . . .	18
2.3	Swedish laws . . . . .	18
2.4	The Black Book of Abo Cathedral . . . . .	23
<b>3</b>	<b>Typesetting Medieval Cursive</b>	<b>23</b>
3.1	Creating highlighted capitals . . . . .	26
3.2	Selecting correct forms of letters . . . . .	26
3.3	Lombard and cursive initials . . . . .	28
3.4	Numbers . . . . .	30
3.5	Punctuation . . . . .	32
3.6	Miscellaneous . . . . .	33
3.7	Making complete books . . . . .	33
<b>4</b>	<b>Abbreviations</b>	<b>34</b>
4.1	Abbreviation marks . . . . .	35
4.2	Abbreviation symbols . . . . .	36
4.3	Abbreviation superscripts . . . . .	39
4.4	Names . . . . .	39
<b>5</b>	<b>The LaTeX style</b>	<b>40</b>
5.1	Package options . . . . .	40
5.2	Selecting the font . . . . .	40
5.3	The Color Model . . . . .	40
5.4	Line spacing . . . . .	41
5.5	Capitals and Initials . . . . .	43
5.6	Numbers . . . . .	45
<b>6</b>	<b>Medieval Swedish Units</b>	<b>47</b>
6.1	Measuring silver and money . . . . .	47
6.2	Scale weights . . . . .	50
6.3	Besman weights . . . . .	52
6.4	Dry Volume . . . . .	54
6.5	Wet capacity . . . . .	63
6.6	Length measures . . . . .	65
6.7	Area . . . . .	67
6.8	Seed grain based units . . . . .	71
6.9	Length based units . . . . .	72
6.10	Counting units . . . . .	72

<b>7</b>	<b>LaTeX Command Reference</b>	<b>77</b>
7.1	General commands . . . . .	77
7.2	Color handling . . . . .	77
7.3	Capitals and initials . . . . .	78
7.4	Other . . . . .	80
7.5	Symbols . . . . .	83
<b>8</b>	<b>OpenType Features</b>	<b>83</b>
<b>9</b>	<b>Examples</b>	<b>86</b>
9.1	The accounts of Kalliala parish . . . . .	86
9.2	The account book of Olaf Nilsson Tawast . . . . .	86
9.3	Table of contents of <i>Konunx balker</i> . . . . .	88
9.4	The rules of noble service . . . . .	89
9.5	Excommunication of Sääksmäki peasants . . . . .	93
9.6	The charter of the Viborg town . . . . .	99
9.7	Privilege letter of Olof Nilsson Tawast . . . . .	101
9.8	Bishop Magnus Olai Tawast's admonition . . . . .	104
9.9	Cursive initials in The Black Book . . . . .	105
<b>10</b>	<b>List of Symbols</b>	<b>107</b>
<b>11</b>	<b>License</b>	<b>113</b>

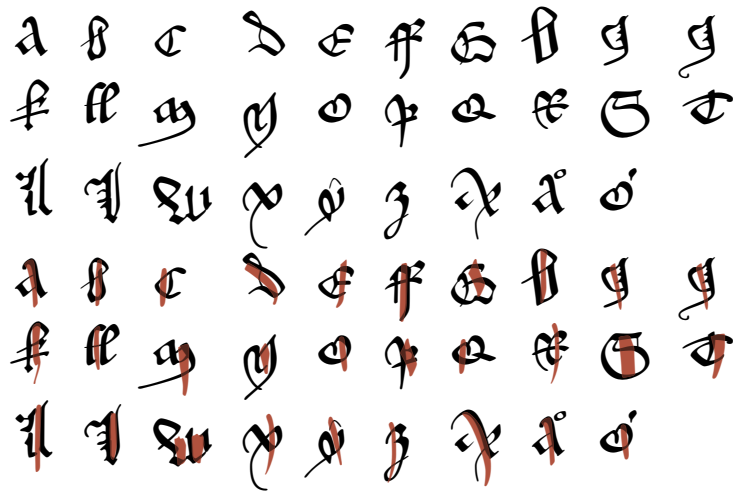


Table 2: The capital letters with and without red strikes



Table 3: The lower case alphabet. There are two symbols for *r* and *s*.

## 1 Introduction

*Abocursus* is a free unicode OpenType font that is intended for emulating late-medieval documents. The font is an example of a 15th century book cursive hand that was used in the Scandinavian countries. The main source for the glyphs is *Codex Aboensis* that is a richly-illustrated law book written in the 1430s. The font also includes a number of glyphs taken from other roughly contemporary manuscripts. The largest group of them are cursive initials taken from *The Black Book of Abo Cathedral* that was compiled around the end of the 15th century.

As medieval cursive is very difficult to read for modern readers, this font is not really suitable for any normal practical purposes. Instead, it is aimed for users who want to recreate medieval-looking documents with a computer.

Table 2 shows the basic capital letters of the font. Capitals in 15th century texts were often further marked by drawing a red strike over them. This font includes glyph variants for capitals that can be used to draw the struck capitals and those are enabled using OpenType features as described in section 3.1. Table 3 shows the basic forms of lower case letters. However, many letters have than one form: an initial form that is used when it starts a word, a final form if it ends a word, and possibly others to tie it to other cursive letters better.

The font has two sets of initials. The first ones are in the Lombardic style

and are taken from *Codex Aboensis*.<sup>1</sup> These are shown in table 4. These have two sets: one for letters written in single color and another for two-colored letters. Additionally, some of the capitals have variant forms, one simpler and one more complex one. These too are controlled with OpenType features and they are described in section 3.3.

The Lombardic initials are suitable when typesetting a medieval book, but normal medieval documents did not use them as a rule. For this reason *Aboensis* has another set of initials that are suitable for documentary use such as charters and deeds. These initials have been taken from *The Black Book of Abo Cathedral*,<sup>2</sup> that is a cartulary that was compiled in the late 15th century. These are shown in table 5. Note that these initials need a lot of manual adjustment when they are added to the text because they all should be positioned in a different way respective to the main block of text. Section 3.3 describes how they are enabled using OpenType Features and section 9.9 shows how they are used in *The Black Book*.

All images of original texts that are in this document are from digitized collections of *Riksarkivet* and *Kansallisarkisto*.

## 1.1 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.

Aboensis is a PS font that has been designed explicitly for printing and it is not very usable a screen font as many letters are practically indistinguishable in screen sizes.

**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 many fonts 'f' and 'l' are combined into 'fl'.

$$f + l = fl$$

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 1.

## 1.2 Open Font License v.1.1

*Aboensis* 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:

<sup>1</sup>With the exception of X, Y, Z, Ā, Ȧ and Ö that do not occur in the book.

<sup>2</sup>Except for X, Z, Ā, Ȧ, and Ö that do not occur in the text.





Table 4: The Lombardian initials, one color and two colors.

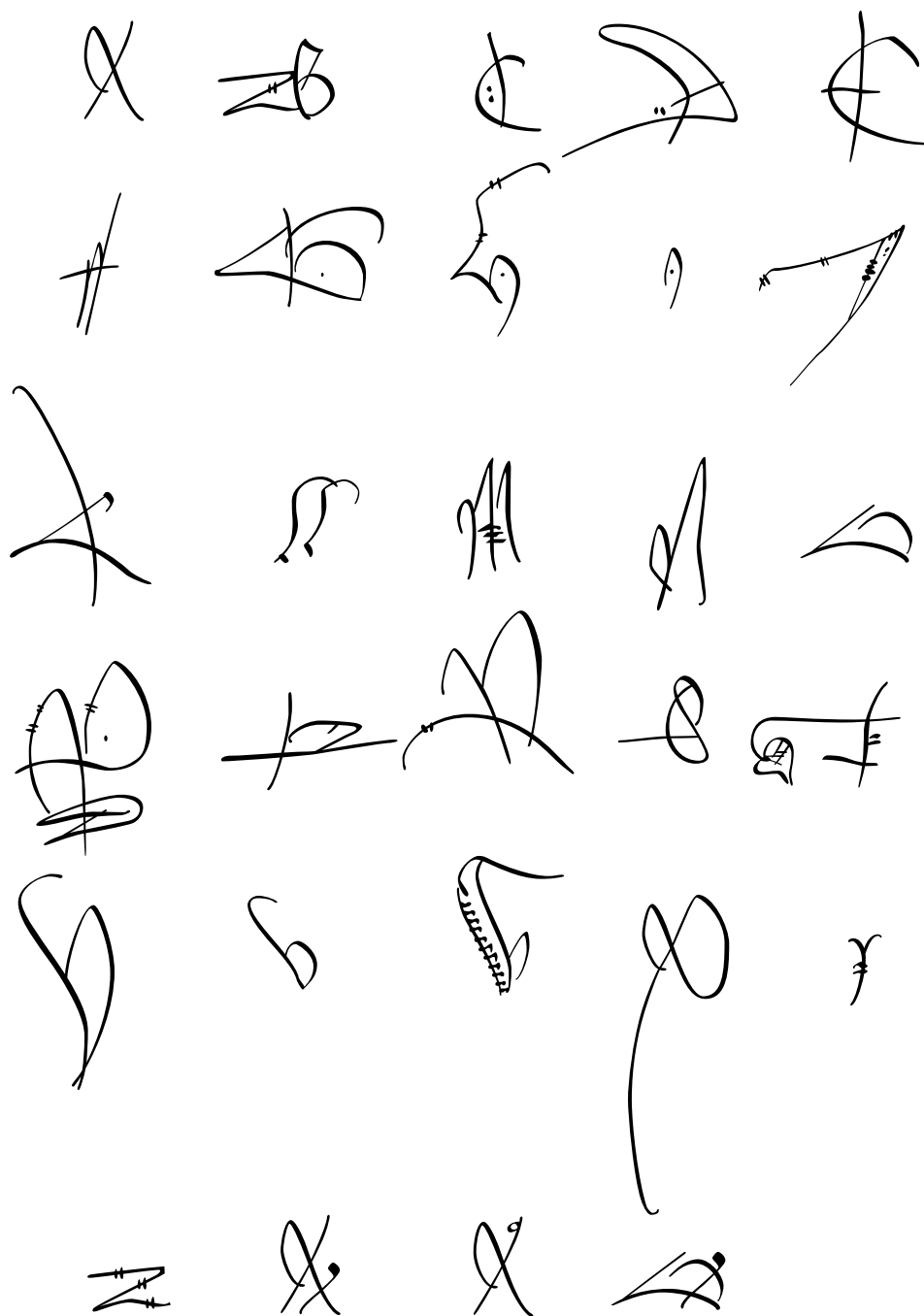


Table 5: The cursive initials. Three of the letters (*A*, *S*, and *W*) have variant forms. These should be used in sizes 5–6 times larger than the main body of text (the style file defaults to 5.5) and they need considerable amount of manual adjustment when positioned. Some of them extend far above baseline and some far below.

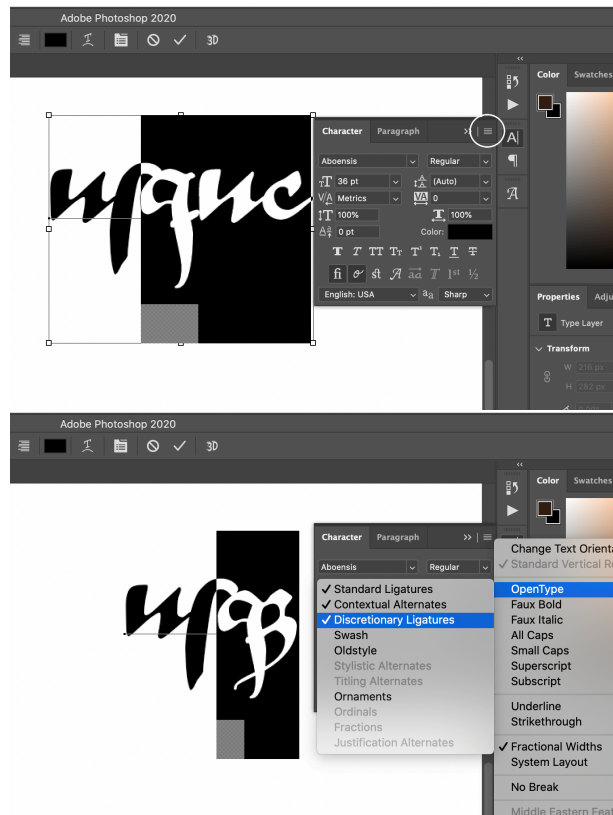


Figure 1: The OpenType menu in Photoshop

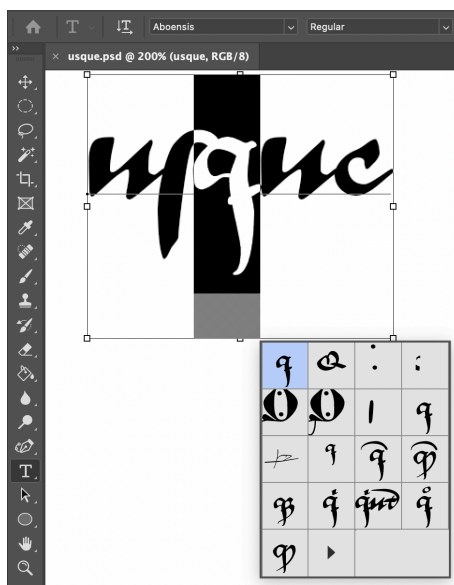


Figure 2: Selecting character variants in Photoshop

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## 2 Historical background

### 2.1 Codex Aboensis

The *Codex Aboensis* (*Cod. Holm. B 172*) is a richly-illustrated late-medieval book that is currently held in the Swedish National Archives. It is known also by the name *Codex Kalmar* as it was for a time stored in a school library in Chalmers before it was donated to the Archives in 1884.

The main content of the book is the *Law of the Realm of King Magnus Eriksson* that has been supplemented by the *Church Law of Uppland*, the *Manor Justice of Magnus Eriksson*, and the *Ledung code of Uppland* that decrees how the coastal fleet was organized.

The book is connected to Finland and the city Turku (*Abo* in Latin) in several ways. The most notable is that the book starts with an ecclesiastical calendar of the Turku diocese. The other is that it is known to have been in Finland for most of the 16th century.<sup>3</sup> However, the calendar is older than the bulk of the text and dates from the latter half of the 14th century with some modifications made around the beginning of the 1400s.

The most striking feature of the manuscript are the large illuminated initials that start almost every page. The images were drawn by the original scribe, and he likely drew himself in one of them. The folio 78v shows a man in tunic, red hose and red hat holding a speech scroll that declares him to be the master of books (figure 3). The page initials usually start mid-sentence.

Most but by no means all of the images are at least loosely related to the text where they occur. The figure 4 shows a few more samples.

- a. A fox preaching to geese from a transportable pulpit of the type that friars used. This is in a section that defines how the bishop should inspect a church that is suspected to have been desecrated.
- b. A cleric carrying a woman. This is not directly related to text that is about punishments for fighting in a tavern.
- c. A hare playing bagpipes. This is probably connected to the mention that a bride of a wedding may not donate wedding cloths to musicians but only to a church or a monastery.
- d. A man carrying an ale barrel while saying: "Now we drink". This is in a section that gives rules on gifts given on the morning after a wedding and it may refer to custom of drinking a toast when it happened.

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<sup>3</sup>Its front and back leaves also contain material written by the hand of Micael Agricola (1510–57) who was the main Lutheran reformer of Finland.



Figure 3: Possibly the scribe of *Codex Aboensis* himself. The speech scroll reads: *jak är een mesther i bokenä* which translates to *I am a master of books*. f.78v

- e. This and the next picture show probably scenes from the story of Ivan Lejonriddare, Ivan the Lion Knight who killed a dragon and befriended a lion that became his mount. The connection to the text is that the text describes complex inheritance cases and Ivan of the story was involved in one himself.

There have been differing opinions on where and when the manuscript was written. Paleographical details place it in the first half of the 15th century. The two main opinions have been Uppland in Sweden and Turku-Naantali region in Finland, both areas being proposed on linguistic basis.

The most recent paleographic analysis by Per-Axel Wiktorsson suggests that the main body of text was written by an anonymous scribe who was active in Stockholm between 1423–36. The scribe was connected to Bengt Jönsson Oxenstierna (c.1390– c.1450) who was one of the highest-ranking noblemen in Sweden, a Privy Council member who served as a co-regent in 1448. Wiktorsson's theory is that Bengt Jönsson commissioned the book in mid-1430s as a preparation for his bid to become the *lagman* (Lord Justice) of Uppland. He received the position in 1439.

The manuscript contains 123 parchment folios that are sandwiched between blocks of paper at front and end. First six parchment folios contain the calendar and the rest make up the legal text. The folios are 24 × 16.5 cm in size where the text area is 16.5 × 11.5 cm. There are 25–29 lines of text per page where 27 is the most common number. The pages in the front and at the end contain later writing. For example, the end contains astrological material written in hand of Micael Agricola (figure 7).

The *Realm of the Land* is written in a cursive script of the kind that was in wide use in Sweden around the time. The scribe used very clear and careful hand suitable for a high-profile manuscript or an important document.



(a) A fox preaching to geese, f.18v



(b) A cleric carrying a woman, f.30v



(c) A hare playing bagpipes, f.37v



(d) A man carrying an ale barrel. The speech scroll reads *wiliom wi dricka*, that is *now we drink*. f.38v



(e) Ivan Lejonriddaren kills a dragon, f.39r



(f) Ivan Lejonriddaren riding his lion, f.39v

Figure 4: Picture samples from *Codex Aboensis*.



Figure 5: A sales deed dated 1.7.1423 at Almarstäk castle. Wiktorsson identified it as being by the same scribe that copied *Codex Aboensis*, SDHK 20000.



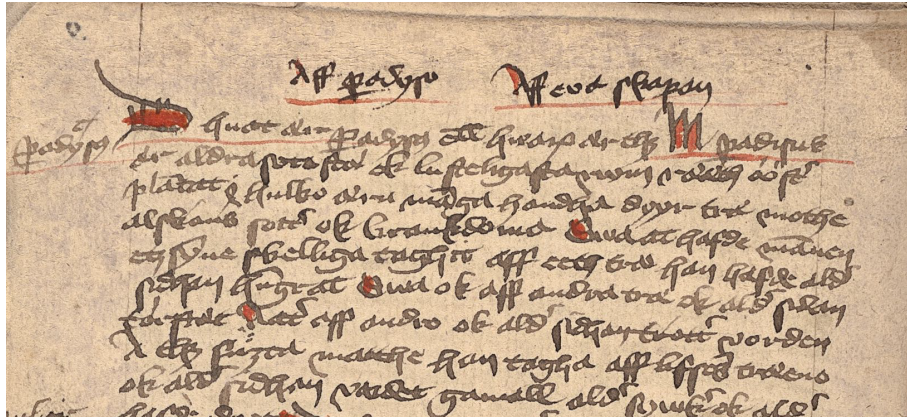


Figure 6: Sample from Jöns Budde's Book that shows a less clear cursive text from slightly later period c.1490 (Codex HS A 58, f.9v)

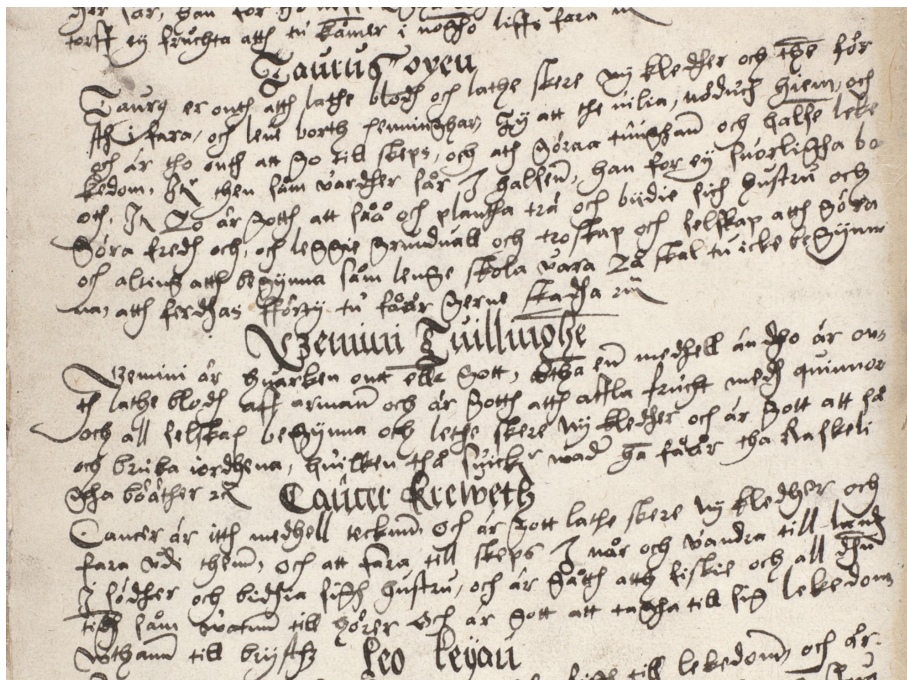


Figure 7: A part of an astrological text written by Michael Agricola on the end pages of Codex Aboensis (f14v)

## 2.2 King Magnus Eriksson

Magnus Eriksson was born in 1316. At the time the situation in Sweden was tense. King Birger Magnusson had fought a bitter civil war against his brothers Erik and Valdemar, Dukes of Södermanland and Finland, and now there was an uneasy peace. Magnus was the first son of Duke Erik and Ingeborg of Norway, who was the daughter of King Haakon Magnusson of Norway.

The truce was broken in 1317 when Birger captured his brothers during a celebration in Nyköping and had them killed. According to the *Eric Chronicle* they were starved to death. The supporters of the dukes raised a rebellion and forced Birger to exile to Denmark where he died in 1321. The 3-year old Magnus was elected as king at the Stones of Mora in 1319. A few months later he was declared the hereditary King of Norway after the death of his grandfather.

Magnus was crowned in 1331 after a 12-year regency and he became the longest-reigning King of Sweden before the currently reigning Karl XVI Gustav. His rule as a King of Norway didn't last as long. The Norwegian nobles were not enthusiastic about union of Norway and Sweden and after a series of revolts they came to a settlement in 1343 where Magnus abdicated the throne in favour of his younger son Haakon. Magnus continued to be the regent until Haakon came of age in 1355.

In Sweden Magnus started a legislative reform. In the 1330s he initiated his *Manor Justice*, the *The Law of the Realm* that was intended to become the unified law in the whole country was written in 1340s and in the next decade he followed it with *The Law of the Towns*. In practice these two law collections did not come to force immediately and some areas used their old laws for the next century.

In 1360 King Valdemar IV of Denmark attacked Magnus's lands and reconquered Scania that Magnus had held for a few decades. The next year he conquered the island of Gotland. The decisively lost war triggered a rebellion in Sweden that Magnus vanquished. A few of the rebels, led by Bo Jonsson Grip went to the court of Albrecht of Mecklenburg and offered the crown to him. With the support of the Hanseatic league Albrecht conquered central parts of Sweden and he was crowned a king in 1364.

After that there was a civil war between supporters of Magnus and Albrecht that lasted for almost eight years. Magnus himself was captured at the Battle of Gataskogen in 1365 and had to spend years in prison. In there was a peace agreement where Magnus agreed to leave the kingdom for Albrecht and to go to exile in Norway where he died in a shipwreck two years later in 1374.

## 2.3 Swedish laws

At the beginning of the 14th century there were several provincial law codes in effect in Sweden. The contents of nine of them are known completely or partially, but there may have been others that are not mentioned in sources. For example, it is not known what law code or codes were followed in Finland. There are a few references to the Hälsinge Law but there are also vague references to "laws and customs of the land" that may refer to local law codes. The codes were divided into two basic groups: *Göta Laws*<sup>4</sup> were followed in the Western provinces and

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<sup>4</sup>Including the Older and Younger Västgöta, the Östgöta, and the Småland Laws.

*Svea Laws*<sup>5</sup> of Eastern Sweden. The Scania Laws are nowadays usually grouped with the Danish medieval laws because Scania belonged to the Danish crown for almost the whole middle ages.

The development of the laws is not clear. It is probable that at least some of them existed orally before they were written down. The oldest legal manuscripts contain The Older Västgöta Law and they date to the early 13th century.

Magnus Eriksson's *The Laws of the Realm* contains 14 chapters that are called *balke*. The term translates literally to *beam*. Its etymology is not certain, but it may have been intended to convey the meaning of support.

### **Konungs balker – King's Beam**

The *Konungs balker* starts with laws about the election and coronation of the king as well as giving the text of the regnal oath that limited his powers. Then it describes the rules of the armed service for noblemen. The third main part of the *balke* gives rules on how king's court work. In addition to these main parts there are regulations on various matters. For example, the section 23 decrees that taverns should be established along the main roads of the kingdom and gives rules for their operation.

### **Gifto balken – Wedding Beam**

The *Gifto balken* establishes regulations on the marriage. It defines when an engagement and a marriage are legal and how dowry and morning gift<sup>6</sup> are given. It also establishes limits on the gifts and for the number of guests in a wedding. The limit on the guests were probably intended to prevent large gatherings that could be used as cover for mustering forces for a rebellion.

### **Ärffdha balker – Inheritance Beam**

The *Ärffdhe balker* is a short code that establishes rules for dividing the inheritance. The basic principles are that the inheritance goes to closest relatives and that a daughter inherits half as much as her brothers. A special emphasis is placed on ensuring that no one can inherit a person they have killed.

### **Jordha balker – Land Beam**

The *Jordha balker* is a long code giving rules on how land properties work. Land holdings were divided into two classes: *inherited* and *bought*. The general rule was that a person could freely sell land that they had bought, but inherited land needed to be first offered for the relatives to buy. The law also decreed that there needed to be a written sales for every land sale. The balk contains also regulations for tenant farmers who rented the land that they farmed.

### **Bygningah balker – Building Beam**

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<sup>5</sup>The Uppland, Dala, Västmanna, Hälsinge and Södermanna Laws.

<sup>6</sup>A gift given by the husband to his new wife on the first morning of their marriage.

The *Bygningah balke* contains mostly rules on how villages work: how the building plots are arranged and how common fields and meadows were divided between farms. Because each farm had a share on each field, the whole village had to coordinate their work. Other parts of the balk describe how servants are hired, how borders between villages are marked, and how mills and bridges are built, among a few other things.

### **Köpmala balker – Trade Beam**

The *Köpmala balker* is a short code that contains regulations on how trades are legally made. It establishes penalties for selling fake or stolen things as well as regulates how loans are given and guaranteed.

### **Thingmaala balker – Court Beam**

The *thing* was an assembly of men of a given area that functioned also as the court of justice. The *Thingmaala balker* decrees how courts are held. It starts by giving rules on how *lagmans* and judges are selected and then establishes how and when the *things* were held. Each district had three sessions each year (from Epiphany to Ash Wednesday, from June 17 to July 39, and from St Michael's day to the First Advent) and during the sessions the court sat on one day a week.

Sworn oaths were the integral part of court proceedings. For each possible dispute the rules said whether the plaintiff, the defendant, or the jury needed to swear the oath and how many men were necessary for it.<sup>7</sup> It was not allowed to counter an oath with another oath and no one was allowed to swear an oath alone but instead needed to find a number of co-swearers to go along him. Very simple cases needed only an oath of two men, serious cases needed 12.

The balk also establishes rules on how fines could be collected and decreed forced labour for those who couldn't pay them.

### **Edzöris balker – Peace Oath Beam**

The peace oaths were laws that gave special protection to different areas of life. They originated in Germany and the first mentions for them in Sweden come from the 12th century. They came to prominence during the reign of King Magnus Ladulås (reigned 1275–90). The penalty for breaking them was usually outlawry but doubling the normal fines was used for less serious offences. Because children and women couldn't be outlawed, they also could not be punished for breaking the peace oath.

The *Edzöris balker* gave protection to:

- Homes: attacking someone in his home broke the oath;
- Justice: exacting a revenge on the other participant of a trial after the case was settled in the court broke the oath as did participating in a blood feud;
- Women: raping a woman broke the oath;

---

<sup>7</sup>Men is literal here because women were not allowed to swear an oath at a *thing*.

- Church: wounding or killing people in church or who were traveling to or from church broke the oath;
- Court: wounding or killing people at court or who were traveling to or from it broke the oath.
- Mutilation: mutilating someone by cutting of their body parts broke the oath;
- Fieldwork: attacking someone who was working on fields carried a penalty of double fines but not outlawry.

Attempts were not criminalized under the beam. Trying to attack someone going to church but failing the attempt was explicitly said to not break the oath.

### **Högmalis balker – Capital Matters Beam**

The *Högmalis balker* lists crimes for which the sentence was death on a wheel for men or stoning for women.

The crimes were secret murder where the body was hidden, killing one's own child or parent, bigamy, killing someone with witchcraft or poison, armed rebellion, helping an invading foreign army, killing one's liege lord, and arsony.

The final paragraph of the law decrees that an attempt to harm someone with witchcraft or poison was punished by a fine of 40 marks.

### **Draapmala balker medh wiliä – Murder Beam**

There are two *balker* about killings. The *Draapmala balker medh wiliä* handles the cases where the killing was intentional. This has some overlap with the *Högmalis balker*.

In contrast to modern laws, the punishment for murder depended on when the criminal was caught if it was not a secret murder. If the criminal was caught within a day of the murder, then the punishment was death, but if captured later, then the punishment was a fine that was typically 40 marks but in some cases it could be smaller or larger. The fine was divided into three parts, one third going to the plaintiff, one third to the king, and one third to the parish. In case the fine was larger than 40 marks, the shares of king and the parish were capped at 13 marks 8 öres that corresponded to their share of the 40 marks.

Magnus Eriksson's *The Laws of the Realm* have still vestiges of old feuding culture. If a close relative of a murder victim killed the killer within one day of the murder, he could not get a death sentence even if caught immediately afterwards and he would need to pay only the king and the parish thirds of the fine.

The balk also gives rules on how an exiled killer can get a safe conduct to king's court and obtain reconciliation.

### **Draapmala balker medh wadha – Manslaughter Beam**

The *Draapmala balker medh wadha* considers accidental killings. It gives rules on when a killing is counted as accidental and specifies fines for different

causes of death. The general rule is that when the killer has taken some active action that causes death, the fine is 9 marks divided in three, and if the death is because the defendant has neglected to do something or if the victim was an active participant of whatever caused the death, then the fine is four and half marks.

### **Saramalä balker medh wiliä – Intentional Wounding Beam**

There are also two *balker* about woundings and *Saramalä balker medh wiliä* is about cases where someone intended to cause an injury. The balk lists different types of injuries and gives compensations and fines that needed to be paid for them. The compensation went fully to the injured party while the fine was divided in three parts just like the fines for murders were.

For example, cutting a hand away called for compensation of 12 marks and a fine of 20 marks. Cutting a thumb had a nine mark compensation and 12 mark fine.

### **Saramalä balker medh wadha – Accidental Wounding Beam**

The second wounding balk is about accidental woundings. It defines when an injury is an accident and enumerates the compensations. In general, the compensations were much smaller than for the intentional cases. For example, accidentally causing the loss of a thumb called for 12 öres compensation and 12 öres fines.

The *Saramalä balker medh wadha* considers accidental injuries.

### **Thiuffua balker – Thief Beam**

The *Thiuffa balker* decrees punishments for thieves. As with the case of murders, the punishment for thieves differed based on whether they were caught in act or later. A thief who stole property worth of half a mark or more who was caught in act would be hanged but if caught later the punishment would be a fine of 40 marks and they would need to pay the value of the goods. If the stolen property was worth between 3 and 4 öres the punishment was flogging and cutting of ears if caught in act or nine marks fine if not. If the value was between 2 and 3 öres, it was flogging and losing one ear or six marks fine, and smaller thefts if was flogging or a fine of three marks.

The balk also gives rules how home inspections could be made to find stolen goods and how someone who found lost property should act to avoid been accused of thievery.

### **Gardz rättir – Manor Justice**

The *Gards rättir* is a law for royal manors and the king's army and its last section permits the lords of the Privy Council to apply it also for their manors. In *Codex Aboensis* it comes in the middle of the *Law of the Realm* between *Konungs balker* and *Giffto balcken*. This was the earliest law that Magnus Eriksson enacted during his reign.

The law decrees punishments for various crimes. In contrast to the common law, violent crimes are punished by corporal punishment instead of fines. This is probably because soldiers and servants would not be able to pay fines.

**Kyrko balker – Church Beam** The *Kyrko balker* of provincial laws established the organization of parish churches in Sweden. They originated during time when canon law was not yet fully established. By Magnus Eriksson’s time the church was adamant that secular law should have nothing to do with any matters relating to the church. This is almost certainly the reason why Magnus didn’t include *Kyrko balker* in his laws. Instead, the old provincial law balks were used in conjunction with the new code.

*Codex Aboensis* contains the *Kyrko balker* of the Uppland law. In addition of decreeing how the parishes work, it also contains statutes about moral crimes.

**Ledung rules** The ledung institution was established near the end of the Viking age. Its aim was to organize a semi-permanent navy. Each province was responsible for providing a set number of ships and their crews and provisions when king called for it. By Magnus Eriksson’s time the custom was antiquated enough that he didn’t include it in the laws, but *Codex Aboensis* contains the ledung rules from the Uppland provincial law.

## 2.4 The Black Book of Abo Cathedral

The other main source for characters in *Aboensis* is *Registrum ecclesia Aboensis* or *The Black Book of Abo Cathedral* that is a cartulary originally compiled in the 1470s and new documents were appended to it until 1515. The oldest documents that were copied into it date from 1229 and the latest are from 1515. The most probable date for when it was started is 1474 when the chancellor of the diocese was reformed.

The first Swedish cartulary was the Uppsala Archdiocese *Registrum* that was started in 1344 and the cartularies of other dioceses followed its example.

The book is about the size of modern A4 the leaves being  $28.5 \times 21$  cm in size. There are 329 paper quarto folios<sup>8</sup> in it. The paper block is protected by two sheets of vellum that have been added to the front sometime after the reformation.

The *Black Book* contains copies of 727 documents that are arranged by the subject and not chronologically. The book starts with an index of the documents that were copied prior to 1486. Most of the documents relate to the possessions of the cathedral and their distribution between different *tables* of the chapter. When Reinhold Hausen published its contents in the early 20th century he moved the documents to chronological order to make searching for them easier.

## 3 Typesetting Medieval Cursive

This section gives a general view on using *Aboensis* to write medieval cursive, and the next section will give specific instructions of using the LaTeX style file *aboensis.sty*. As a general note I will use in the examples the letters *ā* and

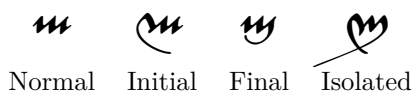
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<sup>8</sup>About 1/3 of the folios are left empty.

ö even though it would be more accurate to use æ and ø. The font itself uses same symbols for both.

Medieval cursive writing differs from modern computer-generated text in many ways. The most obvious differences are that many letters have multiple variant forms that occur in different positions, there are many abbreviations, and punctuation conventions are very different from modern. The *Alboensis* font is made with OpenType features that automatically choose the correct letter variant in most cases, but there are cases where manual adjustment is needed. Many of the adjustments are necessary because of limitations of OpenType engines as changing the set of active features often breaks the letter context that the automation relies on.

The first thing to note is that many letters have specific initial and final forms. The letter *m* has also an additional isolated form. The different forms of *m* are:

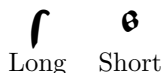


For example, the word *non* is written as:



These forms are selected using the `calt` feature and the feature should always be turned on with the font.

The two forms for letter *s* are usually called *long (f)* and *short s*. In gothic scripts the long *f* was used in initial and middle positions while the short *s* was used only in word-final positions:<sup>9</sup>



For example, the word *suspicious* is written with long *s* in first two places and short *s* at the end:



If an *s* occurred by itself, the Swedish texts usually wrote it with a long *s*. Some other areas preferred a short *s* for isolated forms.

A double *s* is written either with two long *s* or with the *ß* ligature.<sup>10</sup> The ligature is most often used at the end of the word:



The letter *r* has also two forms, straight and round:

<sup>9</sup>This differs from later Fraktur convention where the short *s* was used also at the end of syllables.

<sup>10</sup>Old Swedish often uses *z* in place of *e* after *h* and *s* so *ß* can also mean *se*.



r      z  
 Straight    Round

The general rule for them in Gothic scripts is that the round *r* is used after 'round' letters and the straight *r* in other positions. What counts as a round letter varies between scripts. In *Codex Aboensis* the round letters are *a*, *e*, *o*, and *w*. The scribe was inconsistent about the letter *h* and there are some places with round *r* after and others with straight *r*. The `calt` feature uses the round *r* with *h*.<sup>11</sup>

az ez oz az hz hr

A special feature in Swedish writing is that both *er* and *re* at the end of the word are written with the same *re*-ligature:

riddare    eller  
 riddare      eller

This usage is almost universal in *Codex Aboensis* and very common other Swedish texts, though many hands write the *re*-ligature as an superscript abbreviation mark:

riddar<sup>e</sup>    ell<sup>r</sup>  
 riddare      eller

During the middle ages the symbols *u* and *v* were still considered to be variant ways of writing the same letter. Both forms were used for the vowel and consonant and there was no standard rule for selecting between them. One reasonably common convention was that initial positions were written with *v* and other positions used *u*.<sup>12</sup>

universe    servus  
 universe      servus

The symbols *i* and *j* were also considered to be variant forms of the same letter. The most typical use was that *i* was the default form but *j* was used as in final positions and as the last letter in a sequence of *i* letters. The letter *y* was also used often for *ii*.

xiii    wii    wii    liiff    gudi  
 xiii      wii      wii      liiff      gudi

Gothic cursive tends to have the problem that sequences of *m*, *n*, *u* and *i* letters are quite unreadable. To make these more legible, the font adds a dot over *i* in a place where it is next to a minim. For example, the word *minimum* looks without and with dots like:

<sup>11</sup>Most Gothic scripts use round *r* after *u* and *p* but *Codex Aboensis* uses straight.

<sup>12</sup>A peculiar Swedish custom was to write *v* in the middle of a word as *ffu* as in *floffue*



Medieval scribes used many abbreviations in the texts. The most common abbreviation was to leave out a *m* or *n* and mark it by drawing a tilde over the previous letter:



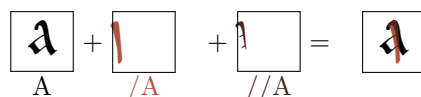
The tilde was also used to mark places where longer sequences of letters were left out. There were several standard sigla for abbreviating syllables. The abbreviations supported in *Aboensis* are described in section 4. Few further examples are:



Capital letters were used in a different way from modern. Proper nouns were generally not capitalized and even God was usually written lowercase. In *Codex Aboensis* capital letters are mostly used to mark beginning of paragraphs. In high-profile manuscripts capitals were often marked by drawing a red strike through them.

### 3.1 Creating highlighted capitals

The capital letters may have a highlight strike added to them. This is implemented by writing three letters on top of each other: first the capital itself, then a strike of the highlight color, and finally a partial strike on a darker highlight color that covers the parts of letters that are left under the strike. The two strikes are interpreted as zero-width variant characters whose glyphs lie over the previous character.



The most common medieval highlight color was red but *Codex Aboensis* contains also highlights in green. Figure 8 shows HTML hex code values for three colors. The red and blue are taken from *Missale Aboense* facsimile while the green is from the digitized version of *Codex Aboensis*. All values are in color space sRGB. These colors are also defined in the LaTeX style file, the details are in section 5.3.

### 3.2 Selecting correct forms of letters

*Aboensis* tries to automate selecting correct form a letter but that is not always possible. Many OpenType rendering engines break substitution context when the set of active features change. The most obvious problem that it causes is that letters in the middle of word get turned to initial forms. Using ligature







Color	Highlight	Dark highlight	xcolor name
Red	 B1523E	 4D231C	abred
Green	 62876E	 3F4D3C	abgreen
Blue	 455F9B	 202F4D	abblue

Figure 8: Predefined highlighting colors

substitutions for inserting special characters helps to avoid most of these problems. However, when parts of a word are in different colors, many font engines insert a context break there. This happens most often when a word starts with a highlighted capital letter. For example the *n* has the initial form in the following word:



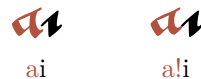
There are two special ligature substitutions with symbols *\** and *!*. Both of them are treated as zero-width letters when used next to a letter. We can add either of them between *I* and *n* to remove the initial form:



The difference between *\** and *!* is in how they tie surrounding letters together. Several of the letters have two forms, normal and tailed, where tailed is used to connect the letter to the next letters that have beaks at the left edge. For example, the letter *a* has the following forms:

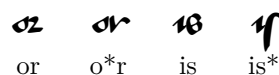


If there is a string *ai* where the letters belong to different contexts, then the *a* will have the wrong form and they do not tie together properly. Adding *!* to the same context as *a* solves the issue



In practice, it is rare for a situation to crop out where *!* is necessary and you can almost always use *\** to solve context breaking problems.

The asterisk and exclamation mark can also be used to change a round *r* to straight or short *s* to long if desired:






Conversely, a straight *r* or long *s* can be changed to round *r* or short *s* by adding *:* after them:

**I**ta nico sapientia tacto hancu hifundhens/  
 mika hancu oy fiddaz tucta fadenni/ cy  
 patafey ezottadhey/ hancu nra hifundhens

Figure 9: Sample for typical Lombardic initial use

br	bz	sa	sa
br	br:	sa	s:a

Abbreviation symbols can be added to symbols by prefixing them with `~`, `'`, and `/`. Not all combinations exists. Most lettes have one with a tilde, many have single quote ones but there are only a few with a slash.<sup>13</sup>

		
~d	't	/d

### 3.3 Lombard and cursive initials

The font has three sets of initials: two sets of Lombardian initials and one set of cursive initials. Lombardian initials were used in books and cursive initials were used for documents. All three sets can be accessed either using ligature substitutions or by turning on suitable opentype features, and there are also XeLaTeX macros for inserting them.

The kind of Lombardian initials that are included in the font were most often used as two-line initials in books, but they may also be used as three- or one-line size. Larger initials were usually more elaborate than these. Figure 9 shows a typical example for two-line initial use. A longer version of the text is in section 9.4.

**Simpler Lombardian initials** The simpler set of Lombardian initials is accessed by writing the capital between `+ signs` or by enabling the feature `ss03`:

  
 +M+  
 (or `ss03`)

**Swash Lombardian initials** The more complex Lombardian initials can be used either in one color or with two colors in the same way that capitals may be highlighted. The initial itself is written by adding a colon `:` before the closing plus and differently-colored parts are written using `/` in place of the colon:

<sup>13</sup>Note that the slash implements highlighting for capital letters.

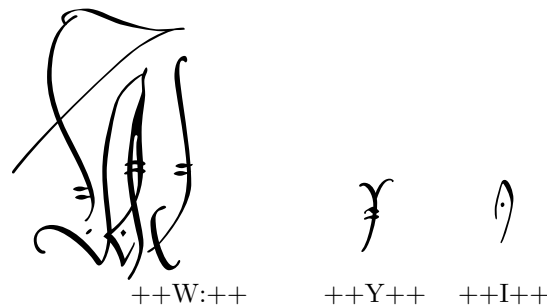
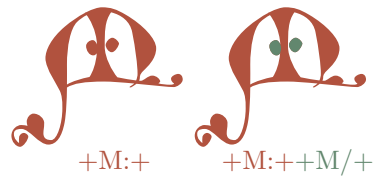


Figure 10: The difference between the largest and smallest cursive initials. The *W* is set hanging left outside of its box.



The one-colored swash initials can also be accessed by using two features: `ss03` and `swsh` at the same time. The second color can be accessed by adding the feature `ss04` in top of them.

**Cursive initials** In the 15th century Sweden, high-end books typically used Lombardic initials and large cursive initials were used in documents. Low-end books could have smaller cursive initials in them instead of Lombardic ones. The cursive initials in *Altempis* do not form a unified set as I based them<sup>14</sup> on historical examples and they were not all written by the same scribe in the same context. Some of them, like the alternate form for *W* are suitable for starting important charters while others like *Y* and *I* are very low-key. The initials are designed so that the stroke width looks about right when they are set in 5-6 times as big size of the main text.

The metrics for the initials are set on the assumption that the initials are set with a font size that is 5.5 times the size of the text body font. The initials will then be placed approximately like they were in the documents from where I got them. There are reference images in section 9.9. In practice, you will probably need to do a lot of manual adjustments to get them exactly where you want them and to ensure that they do not mess up the following lines of text too much.

The initials are set by either writing them in lower case and turning on the feature `ss03` or by writing them in upper case surrounded by two plus signs:

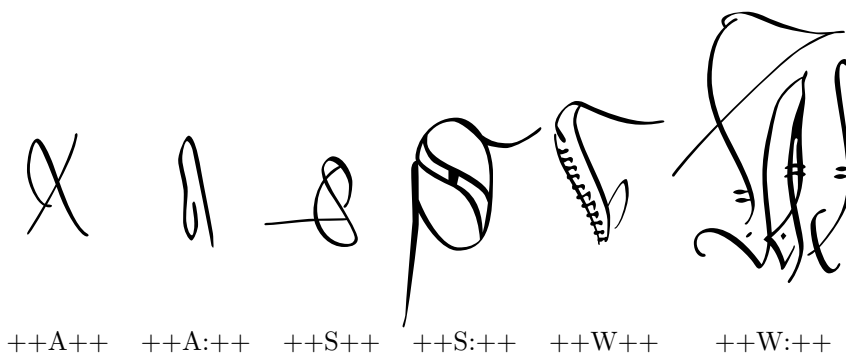


<sup>14</sup>Except for *X* that I designed myself and *Á*, *Ä*, and *Ö* where I modified the base initials.

Symbol	Value	Symbol	Value	Symbol	Value	
I		1			1/2	
V		5		5000		4 1/2
X		10		10 000		9 1/2
L		50		50 000		
C		100		100 000		
M		1000		1 000 000		

Table 6: Roman numerals

Three letters have variant forms that are activated by writing a colon : after the letter:



### 3.4 Numbers

Even though Arabic numerals were already known in the 15th century and are included in the font, the primary notation for numbers were still Roman numerals. There were several different conventions for using them and Aboensis gives some support for using them.

The basic principle was additive: different letters carried different numerical values that are shown in table 6 and the number was the total value of the letters. The numerals were written from largest to the smallest. For example,

$$164 = 100 + 50 + 10 + 4 = \text{CLXIII} = \text{clxiij}.$$

This basic form was used in medieval documents, but it was more common to combine addition with subtraction. Whenever there would be four identical symbols in a row, the three last of them would be replaced by the next larger numeral. The previous example would be written as:

$$164 = 100 + 50 + 10 + (5 - 1) = \text{CLXIV} = \text{clxiv}.$$

**Large numbers** There were several different ways to represent large numbers. Aboensis supports two of them. First, a line drawn above a number multiplied

1/3	tredjedel	τ
1/4	qvarter	q̄
1/6	setting	ƒ

Table 7: Common fractions in Swedish

its value by 1000. Some writers used the letter *m* with this notation, some used *ī*. For example:

$$\begin{aligned}
 12539 &= 10000 + 2000 + 500 + 3 + (10 - 1) \\
 &= \text{m̄} \text{uuu} \text{d} \text{xxx} \text{u} \\
 &= \text{m̄} \text{u} \text{d} \text{xxx} \text{u}
 \end{aligned}$$

A positional notation came in use with Roman numerals in late medieval times. There the hundreds and thousands would be marked by writing superscript *m* and *c* between parts of numbers. The previous example would look like:

$$12539 = 12000 + 500 + 3 + (10 - 1) = \text{m} \text{ij} \text{m} \text{v} \text{xxx} \text{u}$$

In France this notation extended to the numbers using the base of 20. For example, the number 220 could be written as:

$$220 = 11 \times 20 = \text{xx} \text{xx}$$

**Fractions** The modern fraction notation  $x/y$  was yet used. Instead, the denominator was written out. The denominators that were in common in everyday use were usually abbreviated as in table 7. The half was a special case that was marked by adding a stroke or a loop to a letter. For numbers less than ten the halves were marked:

1/2	z	5 1/2	yz
1 1/2	y	6 1/2	uy
2 1/2	uy	7 1/2	uyy
3 1/2	zu	8 1/2	zuz
4 1/2	z	9 1/2	zuz

The half-notation was used in combination of other fractions to represent other fractions. For example,

$$\begin{aligned}
 1/8 &= 1/2 \times 1/4 = \text{z} \text{q̄} \\
 3/12 &= (1 \ 1/2) \times 1/6 = \text{y} \text{f} .
 \end{aligned}$$

**Automatic Roman number conversion** Turning on the feature `onum` makes the font to convert numbers into Roman numerals. This feature works for numbers 1–999 999 and it uses the subtractive method and supports halves but not other fractions:

ⅴ	xliv	xxxvii
4.5	49	34552
<code>onum</code>	<code>onum</code>	<code>onum</code>

**Arabic numerals** The *Codex Aboensis* does not have Arabic numbers. However, the font has two sets of them. The default set that is close to modern forms of the symbols is taken from Hans Talhoffer’s 1459 fencing treatise *Alte Armatur und Ringkunst* (Ms.Thott.290.2, f.150v, Det Kgl. Bibliotek) while the other set is from a 15th century illuminated copy of Fibonacci’s *Liber Abaci* (C.Vari 529.52, f.3r, Biblioteca nazionale centrale di Firenze). The *Liber Abaci* numbers are entered using the `tnum` feature:

1234567890	1234567890
<code>-tnum</code>	<code>+tnum</code>

**Arabic fractions** After Arabic numbers came to use, Swedish sources started to use notation where a superscript *le* was added to a number to denote its basic fraction:

	2 <sup>le</sup>	3 <sup>le</sup>	4 <sup>le</sup>	5 <sup>le</sup>	6 <sup>le</sup>	7 <sup>le</sup>	8 <sup>le</sup>	9 <sup>le</sup>
	1/2	1/3	1/4	1/5	1/6	1/7	1/8	1/9
Unicode:	00BD	2153	00BC	2155	2159	2150	215B	2151

### 3.5 Punctuation

Medieval punctuation did not follow the modern conventions. Essentially they were used to mark pauses of various lengths in speech while reading them. *Codex Aboensis* uses three different symbols but if the difference between two of them is intended or accidental. The symbols are:

/	·	·
, or /	·	·
virgule	punctus	punctus

The virgule signifies a shorter pause than a punctus. It is not clear to me whether the two different heights of periods signify different lengths of pauses or if the scribe just put those on different levels by chance.

The font has also some other punctuation symbols:

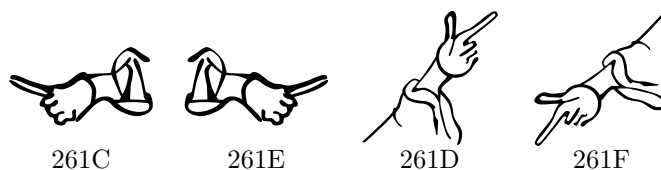
:	;	?	:	:	⚡
:	;	?	(	)	⚡



### 3.6 Miscellaneous

**Pointing fingers** The font has four pointing fingers that are based on two images taken from the *Nådendal Cloister's Book* (*Codex Holm. A 49*) that was written in the first half of the 15th century. Image from folio 76r provides a small finger that points left that is also mirror in the font and an image from folio 94v provides a large upwards pointing finger that is also mirrorer to point down.

The smaller finger can be used at a size approximately 5 times the font size and the larger finger at 7 times. The images can be accessed with their unicode values or with LaTeX macros defined for them:<sup>15</sup>



**Line end doodles** Many partial lines in *Codex Aboensis* are filled by drawing doodles with green ink. The font contains a selection of them that can be combined to form lines. These are placed into symbols that do not occur in medieval texts:



For example,



### 3.7 Making complete books

**Page numbers** Because medieval books were written by hand, they differed from modern books in several ways. In structure they were written on separate *quires*, each containing several sheets of parchment or paper that were folded to produce a booklet. Quires typically had four sheets that were folded to product 16 pages. A bookbinder took the written quires and bound them into one volume.

The books did not have title pages and instead the text started right from the top of the first page, though there might be some explanatory rubrics added to describe the nature of the work. If more than one text was written at the same time, the next would start immediately after the previous one ended.

Modern page numbering was not taken to use before the 17th century. Most medieval books are without page numbers. Those that have numbers generally use either quire, sheet, or folio numbering. In quire numbering each individual quire has its own number that is written on either its first or last page using Roman numerals or letters. These were added to help bookbinders to keep the quires in correct order.

<sup>15</sup>Macros `\ableftindex`, `\abrightindex`, `\abupindex`, and `\abdownindex`.

In sheet numbering the first page of each sheet has its own number but the other three pages are empty. This is usually combined with quire numbering where quires are marked with sequential letters and sheets within the quire with Roman numbers. For example, *B iv* would be the fourth sheet of the second quire.

Folio numbering extends the sheet numbering by putting the number on each folio, that is, each individual leaf of the book. In almost all cases the folio number is on the right hand side of the spread. In modern terms this means that all odd pages are numbered and even are not. Folio numbers also usually went by quires. Folio numbering was typically used only for books that needed an index.

When using LaTeX, the medieval page numbering conventions can be done using the package `foliono`.

**Individual manuscripts** Many medieval books were made by taking a number of existing manuscripts that had been written in different times by different people and binding them into one volume. This can be simulated by making each part of the book to have slightly different margins and font size, and by ensuring that separate manuscripts don't end up in the same quire. You can add a few empty pages between the texts to fill up the quires.

**Rulings** Most books were ruled before writing to ensure that lines were straight. The rulings should show us thin faint lines between the lines of text. The ruling patterns were different in different places and different times.

In very simple cases it is possible to produce rulings using LaTeX tables, though I have found that to be quite cumbersome. The `tabu` package contains useful functionality for it as it allows the user to specify the line colors easily.

Complex cases can be handled by creating a png image that contains the rulings and then adding it to the page using `\AddToShipoutPictureBG*` command of the `eso-pic` package.

## 4 Abbreviations

Medieval texts typically have many abbreviations. In the Swedish cursive writing of the 15th century three different ways of marking abbreviated words were used:

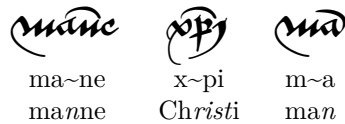
- a mark, usually a tilde ~ was added to the word at the place where letters were left off;
- a special symbol replaced a word or a part of it; and
- a letter was written above the word to mark the abbreviation.

In some cases it's debatable whether something is an abbreviation mark or symbol.

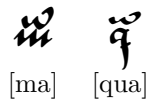
One area where abbreviations were used particularly often was in measurement units. Medieval Swedish units were such a confusing affair that they are discussed in detail in section 6.

## 4.1 Abbreviation marks

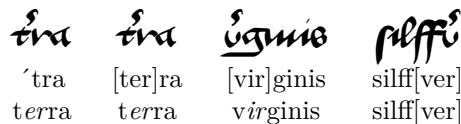
**Tilde** By far the most common abbreviation mark in use was the tilde. Most often it signified that a nasal consonant (*m* or *n*) was left out from the word, but it could also be used as a general mark showing that something was left out. When used at the end of a word it was drawn as a loop over the letter:



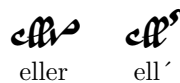
**A-abbreviation** Another abbreviation mark that occurs in *Codex Aboensis* is the *a*-abbreviation that is writing a squished *a* on top of a letter to signify that something containing an *a* is abbreviated. However, in the book it occurs only in one context: when writing the word *mark*. Another place where it is seen is in Latin manuscripts where it stands for *qua*. These two letters are the only ones in *Aboensis* that have the mark and it is accessed using ligature substitution instead of the accent syntax:



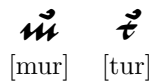
**R-abbreviation** Texts written in Sweden in the 15th century commonly used *r*-abbreviation mark in the form of a hooked *s*-shape that was placed over a letter to signify that something containing an *r* was removed. It was most commonly used for removing the *er* syllable. It occurs in *Codex Aboensis* in only a few places. In the font it is implemented as the acute accent. It can be put over most letters. The commonly used syllables *ter*, *ver*, and *vir* have also ligature substitutions defined for them.



Texts that used the *r*-abbreviation mark tended to use it also in places where *Aboensis* uses the *re*-ligature:



**Ur-abbreviation** A rare way to abbreviate *tur* and *mur* syllables was to write a sideways hook over the base letters. These are implemented as ligature substitutions:










**Loop** When the end of a word is left out, it is marked by drawing a loop after the last letter. In texts written in Latin the syllable is most often *is* but it has also other meanings. In Swedish texts this is particularly common with measurement units, and those will be described in section 6.

The loops are implemented as ligature substitutions. The basic *[is]* ligature draws a loop that attaches to a previous tailed character:

  
divin[is]

There are substitutions for adding loops for *c*, *d*, *g*, *r*, and *t*:

			
bro[der]	cru[cis]	caupun[gis]	hen[ges]
			
docto[res]	ter[ris]	men[tis]	

**Stroke** An additional stroke could be added to a letter to signify the abbreviation. In *Aboensis* there is only one such letter, *d*:

  
/d

In practice, Swedish texts used this symbol in abbreviations of measurement units *penning* and *pund*.

## 4.2 Abbreviation symbols

This section goes through the abbreviation symbols that are included in the font and that are activated with ligature substitutions. The symbols that are included among the loop-abbreviations of previous section could also be placed here.

**C** While *Codex Aboensis* does not use it, using a mirrored *c* that possibly had a cedilla attached to it was a common way to abbreviate the syllable *con*. It was typically used only at the beginning of the word, but occasionally it can be seen in the middle of a word:

  
[con]tra

**E** The Latin word *et* was often abbreviated with so called *Tironian et* symbol, that was named after its inventor Marcus Tullius Tiro who devised a stenograph system for Latin:

  
[et]




































[bet]		[Per]		[qui]	
[bus]		[per]		[quo]	
[con]		[pi]		[quod]	
[ei]		[por]		[quos]	
[eo]		[prae]		[rum]	
[et:]		[pre]		[sed]	
[et]		[pro]		[thet]	
[ger]		[qua]		[uer]	
[gre]		[quae]		[ver]	
[item]		[quam]		[vir]	
[mi]		*[que]		[us:]	
[par]		[que]		[us]	

Table 8: Abbreviation ligatures

Scribes often used it to mean *and* when writing in other languages.

A long form of the letter *z* was commonly used as suffix *-et* or *-ed* in Latin texts and it was also used when writing Swedish. This was most common after letters *b*, *h*, and *s*. As the *z* is placed in slightly different places after each of the letters, there are ligature substitutions with all of them in addition of having it by itself, and there is also one for the word *thet* that is very common in Swedish:

			
[et:]	ha[bet]	[thet]	[sed]

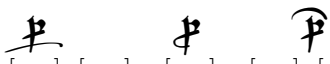
**G** An initial and medial form of the letter *g* combined with the *r*-abbreviation is treated as an abbreviation symbol in the font:

	
[gre]gorius	[ger]manus

**I** The loop that often but not always denotes *is*-suffix is described in the previous section. Other than that there is one abbreviation symbol for *i*. When making lists the symbol for *item* was commonly used with all languages:


[item]

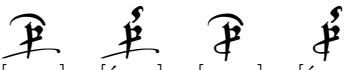
**P** There are three symbols for abbreviating syllables that start with *p*, and two of them have more than one meaning:

  
 [per], [par], [por]    [pro]    [pre], [prae]

There is also a capital version of *Per*:

  
 [Per]    [Per]/[Per]//[Per]

It is also possible to add abbreviation marks over *per* and *pro*

  
 [~per]    [ˈper]    [~pro]    [ˈpro]

**Q** Medieval Latin texts typically have a large number of abbreviation symbols defined for *q*. They don't occur in *Codex Aboensis*, but the font has several that have been added from various 15th century sources:<sup>16</sup>

  
 [que]    \*[que]    [quod]    [qui]    [quo]    [qua]    [quae]    [quam]    [quos]

The difference between the two *que* symbols is that the first one was used for the word *que* while the second was used for the suffix *-que*:


  
 us[que]

**R** The only abbreviation symbol for *r* in the font is the suffix *-rum*:

  
 [rum]

Cursive scripts typically used the rotunda *r* as a base for *rum* in all places, even in those that would normally have the straight *r*.

**U, V** There were two ways to abbreviate the Latin suffix *-us* depending on the grammatical case:

  
 Dative                      Other  
 suffix *us*                  suffix *us.*

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

  
 de[us]    omni[bus]    tri[bus]

<sup>16</sup>Note that different hands used some of these symbols with different meanings.

Name	Abbreviation	Name	Abbreviation
Anders		Marten	
Bertil		Nicolaus	
Eric		Nils	
Henric		Olof	
Jacob		Peder	
Johan		Per	
Laurentius (Lars)		Thomas	

Table 9: Common ways to abbreviate Swedish names

Note that *-bet* and *-bus* endings are the same and you need to determine which is which by the context:

ha[bet]    tri[bus]

A common way to mark the syllable *ver* was to draw the *r*-abbreviation with a long tail:

[uer]

A variant version for that was to add a *r*-abbreviation mark to the letter:

[ver]    [vir]

### 4.3 Abbreviation superscripts

Medieval scribes saved space by writing lettes as superscripts. In *Abocursus* there is an accent substitution with grave accent and also there are a few combinations that have ligature substitutions defined for them.

e'rik    p'/d    omni'[bus]    [ei]    [eo]    [mi]    [pi]    [qui]    [quo]

### 4.4 Names

It was very common in the 15th century to write common names in an abbreviated form. Table 9 shows the short forms of some of the Swedish male names. Women's names were written down with less frequency so there weren't corresponding standard abbreviations for them.

## 5 The LaTeX style

This section gives a functional overview of most of the commands in the `aboensis.sty` style file. The full command reference is in section 7.

All user-visible commands in the style file start with the prefix `\ab`. They can be roughly divided into five classes:

- selecting the font;
- color handling;
- typesetting capitals and initials;
- typesetting an even page with cursive; and
- typesetting symbols and abbreviations.

The style file is designed to be used together with XeLaTeX, `fontspec` and `xcolor`. It hasn't been tested on other systems and may or may not work on them.

### 5.1 Package options

The only selectable option in the style file is `Fibonacci`. Turning it on changes the Arabic numbers to have the shape taken from the Fibonacci manuscript C.Vari 529.52.

### 5.2 Selecting the font

There are two basic commands to turn on *Aboensis*:

- `\abcursivefamily`: this changes the font to Aboensis and color to the specified text color. In addition, it makes the tilde (`~`) and underscore (`_`) to be normal letters so that they can be used in text.
- `\aboensis{text}`: typesets `text` in Aboensis using the specified text color. Note that this does not make tilde and underscore normal letters.


Because the tilde `~` and underscore `_` are special characters in TeX, there is a command `\abtildes` that makes them letters so that they can be used for ligature substitutions and as line fillers. The `\abcursivefamily` calls it automatically but the rules for TeX catcode handling prevents `\aboensis` from doing the same.


### 5.3 The Color Model


The rubrics and highlighting macros work on the assumption that a three have been defined: text, primary rubrics and secondary rubrics. The text color defaults to black, primary rubrics to red, and secondary rubrics to green.

The `xcolor` is used to create darker versions of highlight colors to simulate the effect of text color showing through the highlight strike. This is done by mixing the highlight color with the text color using a user-settable mixing percentage to do it. The commands that are used to define and use colors are



Text color  
 Use: `\abtext{text}`  
 Set: `\absettextcolor{color}`  
 Default: black 000000  black

Primary rubrics color  
 Use: `\abrubic{text}`  
 Set: `\absetrubriccolor{color}`  
 Default: red B1523E  abred

Secondary rubrics color  
 Use: `\abotherrubic{text}`  
 Set: `\absetotherrubiccolor{color}`  
 Default: green 62876E  abgreen

`xcolor` color mixing percentages  
 Set: `\absetcolormixpercentage{value}`  
`\absetothercolormixpercentage{value}`  
 Default: 45

Figure 11: Colors and how they are defined

---

Set primary rubrics color  
`\abrubicred`  
`\abrubicgreen`  
`\abrubicblue`

Set secondary rubrics color  
`\abotherrubicred`  
`\abherrubicgreen`  
`\abherrubicblue`


Figure 12: Commands to use predefined colors

shown in figure 11. There are shortcut commands for using the three predefined rubrics color. They have the forms:

`\abrubicCOLOR` use COLOR for primary rubrics  
`\abotherrubicCOLOR` use COLOR for secondary rubrics

The complete set of these commands is in figure 12.

The `xcolor` color mixing combines two colors according to a mixing percentage that tells how much of the first color is taken into the mix:

 +  =   
 abred 45% black

The color mixing percentage is set with the command `\absetcolormixpercentage`. Figure 13 shows how the mixing percentage affects the predefined colors against black and dark brown text colors.

## 5.4 Line spacing

One feature in cursive text is that the descenders of letters on a line often overlap the ascenders of the next line. XeLaTeX really does not want to do that, which

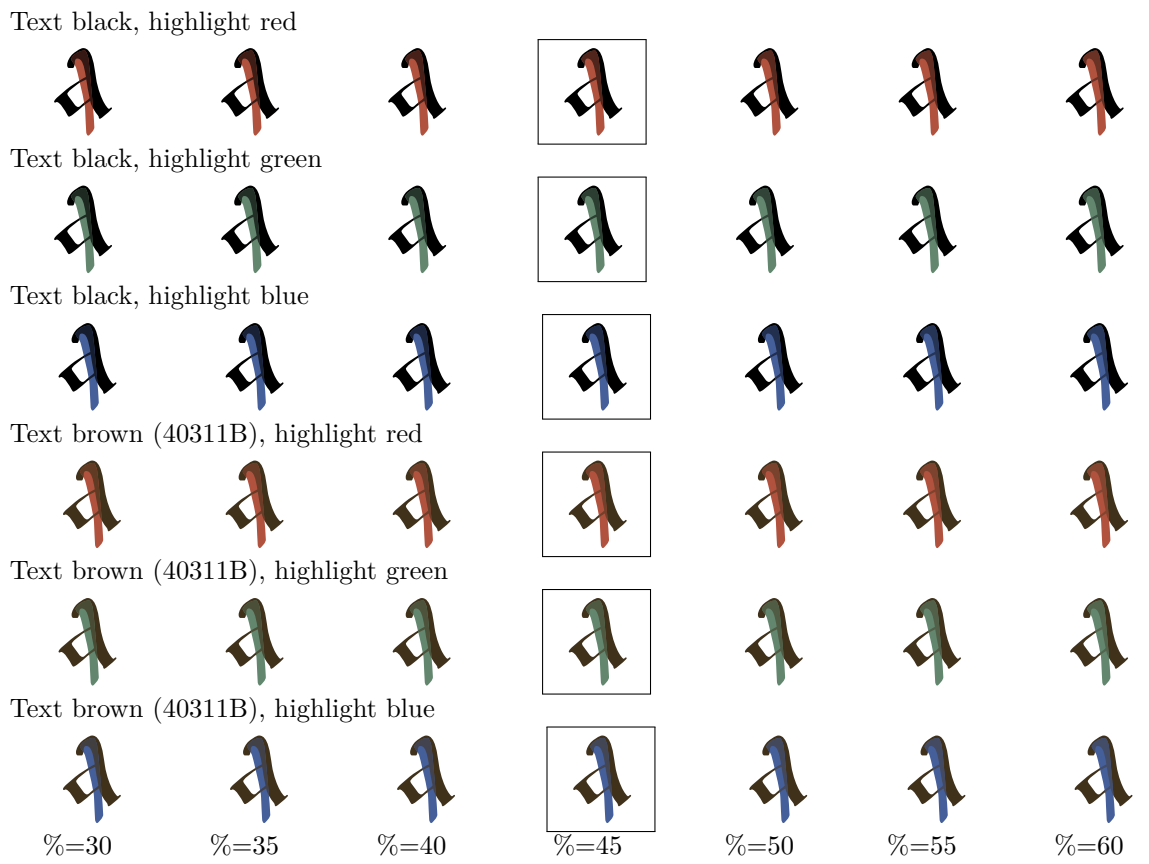
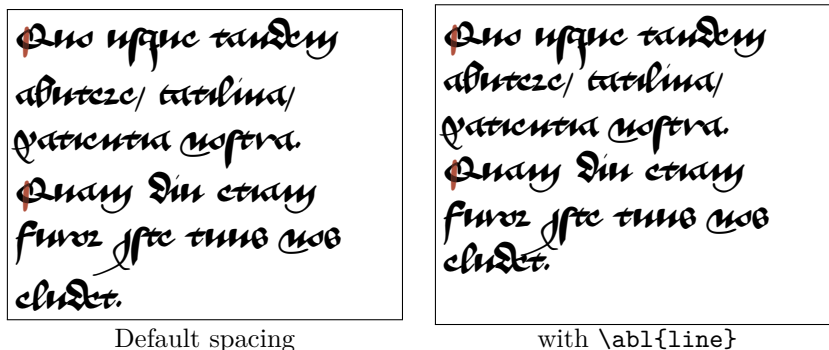


Figure 13: xcolor highlighted capitals with different color mix percentages

causes uneven line spacing unless the line spacing is large. To combat this `aboensis.sty` has a command `\abl` that sets one line of text. It sets its argument in a horizontal box and then smashes it to remove its vertical metrics. This forces the line spacing to be completely even.





The right hand side is created using:

```
\raggedright
\fontsize{16}{17}\fontspec{Aboensis}
\abl{\abcapital{Q}uo usque tandem}
\abl{abutere, catilina,}
\abl{patientia nostra. }
\abl{\abcapital{Q}uam diu etiam}
\abl{furor jste tuus nos}
\abl{eludet.}
```

## 5.5 Capitals and Initials

There are two commands to set highlighted capitals, one for both rubrics color:


  
`\abcapital{A}`    `\abcapitalother{A}`

**Lombardic initials** Adding a Lombardic initial is a bit more complex as there are two different shapes for all letters and the swash shape can have two colors. The swash initials are entered using ligature substitutions `S:`.

To add two-line high initials in rubric colors you use:







		
<code>\abinitial{A}</code>	<code>\abinitial{A:}</code>	<code>\abinitialtwo{A}</code>
		
<code>\abinitialother{A}</code>	<code>\abinitialother{A:}</code>	<code>\abinitialothertwo{A}</code>



Figure 14: Commands to scale and kern Lombardic initials

However, there are also additional commands that can be used to add small variety to initial size and position.<sup>17</sup> This is useful when there are many copies of the same initial on the same spread and you do not want them to be exactly the same. The commands are listed in figure 14 They have the form:

`\abinitwpos{letter}{scale}{x}{y}`

Here the argument `scale` adds an additional scaling factor to the letter so that the final size is  $2.2 \times \text{scale}$ , `x` is the amount of horizontal space that the letter is moved and `y` is the same for vertical space. Note that LaTeX's rules for adding space are occasionally arcane so you may need to do a lot manual tweaking to get the letters positioned right. For example:



The Lombardic initials are set hanging down from the baseline, so you need to reserve space for them from the next line. To help do that there is a command `\abindent` that inserts space that is as wide as the previously set initial. The `\abstartchapter` macros use it automate setting the space.

**Cursive initials** There are two commands for using cursive initials. One sets the initial in the default position scaled 5.5 times the text size, and the other lets you to adjust scaling and positioning. Some letters set out nicely without adjustment, but others need to have space added on the following row or rows.

<sup>17</sup>You can add more variety by using initials from the font `Missaali` (<https://ctan.org/pkg/missaali>). Most of its Lombardic initials are suitable for use in.



`\abcursiveinitial{S}`    `\abcursiveinitialwithpos{S}{1.2}{-5mm}{2mm}`

The arguments of the second command are:

`\abcursiveinitialwithpos{letter}{scale}{horizontal pos}{vertical pos}`

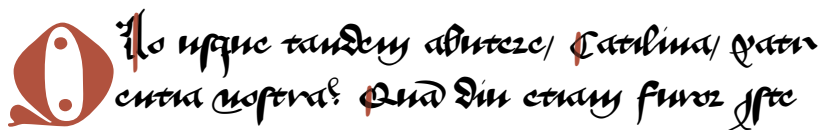
They are the same as with the positioned Lombardic initial commands.

**Chapter start macros** For every Lombardic initial command there is a corresponding command that sets the initial as a chapter start initial. There are no corresponding commands for cursive initials because they have so varied shapes.

The commands for the primary rubrics color are shown in figure 15. The commands for the secondary rubrics color have the same form but they add the string `\other` after `\chapter` in the command name. For example,

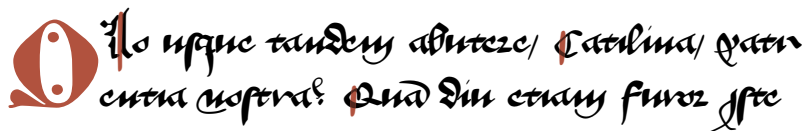
`\abstartchapter` becomes `\abstartchapterother`

In the basic form the commands set the initial and two first lines of the text. For example, the Cicero quote from the beginning of the document is set as:



`\abstartchapter{Q}{\abcapital{U}o usque tandem abutere, \abcapital{C}atilina, pati-}{entia nostra? \abcapital{Q}u-a diu etiam furor jste}`

As with the case of commands for Lombardic initials



`\abstartchapterwithpos{Q}{0.85}{0pt}{2mm}{\abcapital{U}o usque tandem abutere, \abcapital{C}atilina, pati-}{entia nostra? \abcapital{Q}u-a diu etiam furor jste}`

## 5.6 Numbers

There are two commands that help writing Roman numerals. The command `\abroman` takes as its argument a number that is either an integer or an integer and a half, and formats it as a Roman numeral using the subtractive method. This works for numbers between one half and a million.



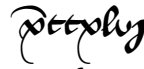
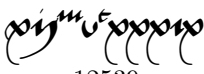
          
`\abroman{9.5}`    `\abroman{24}`    `\abroman{10245.5}`




Figure 15: Chapter start macros with primary rubrics color


The second number command uses the positional numbering:

  
12539  
`\abromanother{12}{5}{39}`

The command `\abothernum{number}` changes the number glyphs to the alterate number shapes:

  
`\abothernum{1234567890}`

## 6 Medieval Swedish Units

The Aboensis font contains many abbreviations for measurement units that were used in texts written in medieval Sweden. There was no one coherent system but instead many different ones that in some cases used completely different units altogether. To make the confusion worse, the different measuring systems used the same names for units of different sizes and the reader must know from the context what is the intended value. For example, the symbol  (coming from Latin *libra*) was used both for a *skålpund* of approximately 350 grams and for *besmanspund* of 6–12 kg. This section is not an in-depth explanation of the different systems, but it shows some systems that were used somewhere in the realm.

Establishing exact modern equivalents to medieval units has proven to be very difficult. Systematic conversion tables between units are practically nonexistent until the mid 16th century so they postdate the medieval period. Sources are conflicting and different researchers have gotten very different results when examining them. The figures given here mostly correspond to the situation in the early 16th century. My two main sources for them are Sam Jansson's *Mått, mäl och vikt i Sverige till 1500-talets mitt* [6] and Kurt Melander's *Muistiinpanoja Suomen mitta- ja painosuhteista 15-sataluvun loppupuolella ja seuraavan vuosisadan alulla* [10], both very old sources. I have augmented them with some newer sources and by examining Finnish 16th century bailiff's records [23] myself. It is very likely that there are errors and misunderstandings in the figures.

### 6.1 Measuring silver and money

Money and precious metals were measured using same units. However, the sizes of the units were different as silver coins were significantly lighter than the weight units that bore the same names. So medieval sources tend to be quite clear on whether they mean coins or weight when speaking about valuable metals.

 *Mark, markka*

The *mark* was a unit that was used to measure precious metals, silver and gold. Its weight in Sweden was typically a bit over 200 grams. For example, in the 1320s the *mark* of Stockholm was 207 g while the *mark* of Skara was 213 g. Both were smaller than the Avignose *mark* from France

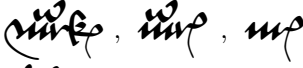


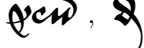
	<i>mark</i>	<i>öre</i>	<i>örtug</i>	<i>penning</i>	Metric	Symbol
<i>mark, markka</i>	1	8	24	192	207.2 g	
<i>öre, äyri</i>		1	3	24	25.9 g	
<i>örtug, äyriytyinen</i>			1	8	8.6 g	
<i>penning, penni</i>				1	1.07 g	

Table 10: Stockholm 14th century silver weights

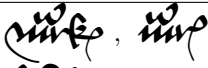


	<i>mark</i>	<i>lod</i>	<i>quintin</i>	Metric	Symbol
<i>mark, markka</i>	1	16	64	207.2 g	
<i>lod, luoti</i>		1	4	12.95 g	
<i>quintin, kvintiini</i>			1	3.23 g	

Table 11: *Lod* division for Stockholm silver weights.

that was 234 g. Traditionally a *mark* was divided into *öres* and *örtugs* but in the late medieval times division into *lods* and *quintins* came also to use. In some areas the weights of gold and silver *marks* were different.

Up to the beginning of the 16th century *mark* was usually written so that the *a* was written over the *m* in an open-topped form. The symbol often ended with a loop. This font contains three versions of the *mark* sign.

*Mark* was a pure weight measure until 1522 when first coins of that denomination were struck. A silver *mark* coin of Gustav I weighed only 11 grams, or about 1/20 of the nominal weight. Around that time a new symbol was introduced that was a simplified letter *m* followed with a double-loop. Aboensis does not have that symbol because all the contemporary examples that I have found have used significantly different hands.

[mark]		<code>\abmark</code>
[mark:]		<code>\abmarc</code>
[mark::]		<code>\abmk</code>

### *Öre, äyri*

The *öre* was an eight of a *mark* or a bit over 25 grams. Like *mark* it too was used purely as a weight measure during the Middle Ages. First *öre* coins were struck in 1522 and they weighed 3.3 grams, or slightly over 13% of the nominal weight.

[ore]		<code>\abore</code>
-------	---	---------------------



### örtug, Örtug, äyrityinen

The *örtug* as a unit goes back to the Viking times and there were three *örtugs* in each *öre*, meaning that it weighed a bit over 8 grams. During the medieval times *örtug* was the largest coin that was minted. The oldest *örtug* coins were struck by king Albrecht von Mecklenburg in the 1360s and they weighed between 1.1 – 1.5 grams. Texts written in Latin could use *solidus* to denote *örtugs* but *solidus* had also other meanings.

[ortug]  \abortug


### penning, penni

The *penning* was the smallest weight unit used for precious metals. There were eight *penning* in an *örtug* and 24 in an *öre*, which puts the weight in a bit over a gram.<sup>18</sup> *Penning* coins had a quite large variety in their weighs, going from 0.4 – 0.7 grams depending on the issuer. Text written in Latin often used *denarius* to denote *pennings*.

pe~n  \abpenning


### solidus

Latin texts written in Sweden used often old *solidus* as a translation for *örtug*. However, the same word could also be used for *schilling* coins struck in cities in Northern Germany.

so~l  \absolidus

### denarius

Latin texts used commonly *Denarius* as a translation for *penning*.

/d  \abdenarius

### lod, luoti

In later medieval times lighter units of scale weights started to be used also for silver and gold. However, the scale and mint units were usually not exactly the same size even though were close.

The *lod* divided *marks* into 16 parts, so a *lod* weighed a bit over 13 grams. There was no special abbreviation for it, but it was written with different spelling than nowadays.

lodh  \ablod

---

<sup>18</sup>However, in some regions there were 36 or 48 *pennings* in an *öre*.

	<i>skeppund</i>	<i>lispund</i>	<i>skålpund</i>	Metric	Symbol
<i>skeppund</i>	1	20	400	137 kg	
<i>lispund</i>		1	20	7.2 kg	
<i>(skål)pund</i>			1	360 g	

Table 12: Stockholm large scale weights in early 16th century

	<i>skålpund</i>	<i>lod</i>	<i>quintin</i>	Metric	Symbol
<i>(skål)pund</i>	1	32	128	450 g	
<i>lod</i>		1	4	14 g	
<i>quintin</i>			1	3.5 g	

Table 13: Stockholm small scale weights in early 16th century

### *Quintin, kvintiini*

A *quintin* was a fourth of a *lod* weighing about 3.25 grams.

[quintin] \abquintin

## 6.2 Scale weights

Expensive commodities such as spices and silk thread was measured using scales and the scale weight system. Cheap commodities were measured with counter-weight balance beams and they used different units. The basic unit for scale weights was *lispund* that could be divided either into *skålpunds* or *markpunds*.





### *Lispund, leiviskä, talentum livonicum*

The name *lispund* comes from *Livonian pound* which betrays the Baltic origins of the unit. Latin texts commonly used *talentum livonicum* for it. The *lispund* proper weighed 8.2 kg, but the same name was used for units of wildly different sizes, ranging from about 6.5 kg to 12 kg.

A *lispund* was divided into either 16 or 20 *punds* where 20 was the more common one.

The Stockholm *lispund* was perhaps the most important weight measurement unit in Sweden. It changed size at least once, in 1557, and it may have changed also in the first decade of the 16th century. Before 1557 it was about 7.2 kg in modern units. Figures 12 and 13 show how Stockholm scale weights are split into smaller units.



Perhaps the most common way of abbreviating *lispund* in the medieval times was: but many others were used.

lis[pund]		\ablispund
[lispund]		\ablispundtwo
l[pund]		\ablispundthree
[lispund:]		\ablispundfour

, , *Skeppund*, *kippunta*

A *skeppund* was the largest weight unit for most commodities. It was not used much with scale weights as most of the things measured with scales were so expensive that it was rare to have a full *skeppund* at one place. In some areas there was only one *skeppund* that was divided either to scale or to besmar units.






A scale *skeppund* had 20 *lispund*. In Stockholm weight that was about 137 kg during the first half of the 16th century.


skep[pund]		\abskeppund
[skeppund]		\abskeppundtwo

, , ,  *Skålpund*, *pund*, *naula*, *libra*

When *pund* is used as a weight measure without any other specifier, it likely denotes a *skålpund*. There were 16 or 20 *skålpund* to a *lispund* and it itself was divided into 32 *lods*. In some areas a *skålpund* was equal to two *marks* of silver weight and in the 17th century this division became universal over the realm. In Latin sources the unit is usually called *libra*.

A *skålpund* of Stockholm weight was approximately 450 grams before 1557.

[pund]		\pund
p~ud		\abpundtwo
~p		\abpundthree
[libra]		\ablibra
skaal[pund]		\abskaalpund

 *Lod*, *luoti*

There were 32 *lods* in a *skålpund*. Typically, a scale weight *lod* was slightly heavier than the precious metal *lod*. In early 16th century Stockholm weight a *lod* was about 14 grams.

lodh		\ablod
------	---	--------



Figure 16: A wooden *besman* from 1818. The wooden bulb hides a lead weight

	<i>läst</i>	<i>skeppund</i>	<i>pund</i>	<i>mark</i>	Metric	Symbol
<i>läst</i>	1	12	240	4800	1560 kg	<i>läst</i>
<i>skeppund</i>		1	20	400	130 kg	<i>skepp</i> , <i>skepl</i>
<i>besmanspund, pund</i>			1	20	6.54 kg	<i>st</i> , <i>pd</i> , <i>pnd</i>
<i>besmansmark, mark</i>				1	327 g	<i>märk</i> , <i>mär</i>

Table 14: Stockholm *besman* weights of early 16th century

### *quint* *Quintin, kvintiini*

There were 4 *quintins* in a *lod*. In the early 16th century Stockholm weight a *quintin* weighed about 3.5 g.

[quintin] *quint* \abquintin

### *markpund*, *vaakamarkka*

A medieval *markpund* was a division of *lispund*. This contrasts to post-medieval use where a *markpund* was the equivalent of *lispund* when weighing iron or copper.

In the areas where *markpund* was used, it was 1/20 *lispund*.

m[pund] *markpund* \abmarkpund  
 [ma][pund] *vaakamarkka* \abmarkpundtwo

## 6.3 Besman weights

A *besman* (*puntari* in Finnish) is a beam lever scale with a fixed counterweight. In medieval times they were usually made from wood with a lead weight in the end. When weighing things with them one finds the balance point on the lever and reads the mark at that point. Besmans are less precise than scales so it usually wasn't possible to measure smaller units than half a *mark* and the heavier the measured thing was, the less precision was available for the results.

### *läst* *Läst, lästi*



A *läst* was a large unit that was used to measure ship loads. Because of the

cargo aspect, it was used as a weight measure only for heavy commodities such as metals. For other products a *läst* was usually measured in barrels (*tunna*).

With metals a *läst* was typically 12 *skeppunds*, or around two metric tons depending on which particular *skeppund* was used.

The word *läst* was usually not abbreviated in texts.

läst  \ablast

,  *Skeppund, kippunta, talentum navale*

The *skeppund* was the largest Swedish weight unit (around 130–180 kg). Because of the large size it is typically used only for metals and when describing large stockpiles of commodities such as salted fish. In Latin sources it was often written as *talentum navale*.

A *skeppund* was usually divided into 20 *punds*, but there are some 14th century references for having 24 *pund skeppunds*.


skep[pund]  \abskeppund

[skeppund]  \abskeppundtwo

, , ,  *Besmanspund, pund, leiviskä*

The *besmanspund* (or shorter *pund*) was the besman weight equivalent of *lispund* but in some regions the name *lispund* was used for both. In many areas, for example in Stockholm, a *lispund* was reckoned to be a *besmanspund* and two *besmansmarks*.

In most areas *besmanspund* was lighter than the proper *lispund*. For example, in Stockholm it was about 6.5 kg. However, on the other end of the scales was the Porvoo *pund* that was about 13 kg for a while. The most common besman weight around Northern Baltic was Tallinn *lispund* that was used for trading and taxation in many areas, for example, in most of Finland. Most contemporary conversion tables state that the Tallinn *lispund* was equal to 25 Stockholm *besmansmark*, but some use more exact figure of  $24\frac{27}{40}$  *besmansmark*.

Confusingly many writers used the Latin abbreviation *libra* () for *besmanspunds* even though it was used also the much lighter *skålpund*.

[libra]  \abbesmanspund

[pund]  \abpund

[p~ud]  \abpundtwo

[~p]  \abpundthree

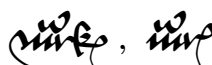
[~pp]  \abpundfour

Year	Scale / Besman
1490	8/7
1540	22/20
1557	21/20

Table 15: Weight ratios between Stockholm scale and besman on some years

Stockholm	6.5 kg	
Tallinn <i>lispund</i>	8.2 kg	25 Stockholm <i>besmansmark</i>
Turku town <i>leiviskä</i>	9.8 kg	30 Stockholm <i>besmansmark</i>
Turku castle tax <i>leiviskä</i>	8.2 kg	Tallinn <i>lispund</i>
Hollola <i>leiviskä</i>	9.2 kg	28 Stockholm <i>besmansmark</i>
Pohjanmaa <i>leiviskä</i>	9.5 kg	29 Stockholm <i>besmansmark</i>
Porvoo <i>leiviskä</i>	13 kg	2 Stockholm <i>besmanspund</i>
Raasepori <i>leiviskä</i>	9.8 kg	30 Stockholm <i>besmansmark</i>
Satakunta <i>leiviskä</i>	9.8 kg	30 Stockholm <i>besmansmark</i>
Turku castle <i>leiviskä</i>	6.8 or 6.5 kg	Four marks lighter than tax <i>leiviskä</i>

Table 16: Some different besman weights. Conversion ratios from various times of the 16th century, using contemporary rounding.

 *Besmansmark, mark, naula*

The basic unit for besman weights was *besmansmark* that was usually called simply *mark*. A *besmansmark* was typically about 50% heavier than the precious metal *mark* or approximately 330 g, but the size range goes around 300–400g.

The *besmansamark* was written the same way as the precious metal *mark*.

[mark]		<code>\abmark</code>
[mark:]		<code>\abmarc</code>
[mark::]		<code>\abmk</code>

## 6.4 Dry Volume

Old Swedish weight measurement systems are simple compared with the systems for measuring dry capacity by volume. The basic unit was *spann* in most parts of the whole realm, but its size and how it divided and combined into other units varied greatly.

Modern estimates on sizes of different units in different places at different times vary greatly so the figures given in tables should be taken with a large grain of salt. The figures are generally obtained by using conversion ratios that occur in old texts (typically tax accounts) from some known base. Sam Jansson gives the size of Stockholm's *spann* as 47 liters that he calculated from the size of a surviving Lübeck *schepel* (40.5 liters) measure from early 15th century and conversion rates Lübeck and Stockholm units given in a letter written in 1405.<sup>19</sup>

<sup>19</sup>Number 16524 in *Svenskt Diplomatariums huvudkartor över medeltidsbrev* (SDHK).

	<i>pund</i>	<i>tunna</i>	<i>spann</i>	<i>fjårding</i>	<i>fat</i>	Metric	Symbol
<i>pund</i>	1	$3\frac{1}{5}$	8	32	160	376 l	<i>p</i> , <i>p</i>
<i>tunna</i>		1	$2\frac{1}{2}$	10	50	117.5 l	<i>t</i>
<i>spann</i>			1	4	20	47 l	<i>s</i>
<i>fjårding</i>				1	5	11.75 l	<i>f</i>
<i>fat</i>					1	2.35 l	<i>f</i>
<i>skäppa</i>			$\frac{5}{12}$			19.6 l	<i>sk</i>

Table 17: Stockholm dry capacity units

	<i>pund</i>	<i>spann</i>	<i>fjårding</i>	<i>skåle</i>	Metric	Symbol
<i>pund</i>	1	5	20	120	450 l	<i>p</i>
<i>spann</i>		1	4	24	90 l	<i>s</i>
<i>fjårding</i>			1	6	22.5 l	<i>f</i>
<i>skåle</i>				1	3.15 l	<i>sk</i>

Table 18: Närke dry capacity units

In the tables I've generally used Jansson's figures. For those that I've calculated myself, I used Jansson's Stockholm *spann* as the fixed point. These results are different from many published values. For example, the size of a Häme *spann* is usually given as "about 90 liters", but my computation has it at only 66 liters. However, I am using a conversion rate that comes from over hundred years later than Jansson's figures for Stockholm's unit, so it is possible that something had changed in the mean time. The sizes of at least Pohjanmaa and Viipuri *spann* changed during the 16th century.

This section contains quite few tables for dry volume units from all over Sweden, with a heavy emphasis on the Finnish side. The ratios between units are probably mostly correct, but the modern equivalences may well not be.

### *fat* fat

The *fat* (bowl) was a Swedish measure that was used in the middle ages. Its size had a large variance, and it ranged from 20 *fat* in a Stockholm *spann* (2.35 liters) to a fifth of a *spann*. The Finnish crown accounts often used 'Stockholm *kappa*' in unit conversions when they meant Stockholm *fat*.

fat *fat* \abfat

### *f*, *fjårding* *fjårding*, *nelikko*, *neljännes*, *quartale modii*

A *fjårding* was a fourth of a *spann*. In Finland the unit was usually




	<i>pund</i>	<i>spann</i>	<i>fjårding</i>	Metric	Symbol
<i>pund</i>	1	12	48	360 l	
<i>spann</i>		1	4	30 l	
<i>fjårding</i>			1	7.5 l	

Table 19: Hälsingaland dry capacity units








	<i>pund</i>	<i>tön</i>	<i>spann</i>	<i>sättning</i>	Metric	Symbols
<i>pund</i>	1	$1\frac{1}{3}$	8	48	380 l	 , 
<i>tön</i>		1	6	36	360 l	
<i>spann</i>			1	6	60 l	
<i>sättning</i>				1	10 l	

Table 20: Uppland dry capacity units

called *nelikko* or *neljännes* but some areas used different names for it. For example, *vakka* was commonly used for  $\frac{1}{4}$  *spann* around Turku.

After the *tunna* replaced *pund* as the main large unit for dry capacity, both *fjårding* and *nelikko* switched to mean a quarter *tunna* instead of a quarter *spann*. But that didn't happen until mid-16th century.

~ffi  `\abfjarding`  
 fjard~ug  `\abfjardingtwo`

, , *kappe*, *kappa*

A *kappa* was a Finnish unit that was used in large parts of the country as the smallest unit of dry volume and it still survives: it is used to measure potatoes in marketplaces. The *kappa* was typically in the range of 3–5 liters in modern units and there were 16 to 24 of them in a *spann*.

The *kappa* is one of the oldests units attested in Finland, it first occurs in a letter written in 1334. In the 16th century *kappa* was written with either intial *k* or *c*. When the Finnish spelling got standardized in the early 17th century, the form *cappa* took over and was used for about 150 years until *kappa* returned around the end of the 19th century.

After the middle ages the name *kappa* was taken to Swedish as a loan word *kappe*.

cap[per]  `\abkappa`  
 kap[per]  `\abkappatwo`












	<i>lästi</i>	<i>punta</i>	<i>panni</i>	<i>karpio</i>	<i>nelikko</i>	<i>vakka</i>	Metric	Symbol
<i>lästi</i>	1	12	60	120	240	1440	3.96 m <sup>2</sup>	
<i>punta</i>		1	5	10	20	120	330 l	
<i>panni</i>			1	2	4	24	66 l	
<i>karpio</i>				1	2	12	33 l	
<i>nelikko</i>					1	6	16.5 l	
<i>vakka</i>						1	2.75 l	

Table 21: Hämeo dry capacity units. The size of *spann* is computed from 1540 accounts of Häme castle that gives a conversion rate of 5 Häme *spann* to 7 Stockholm *spann*.

### *karp, karpio*

A *karpio* was another specifically Finnish unit that occurs also in Swedish texts under the name *karp*. It was a half of a *spann* in size or approximately 30 liters.

Some Latin texts written in Finland use *modius* to mean a *karpio* instead of a *spann*.

*k[per]		<code>\abkarpio</code>
k		<code>\abkarpio</code>
mo~d		<code>\abmodius</code>

### *kolmannes, kylmita, oravainen*

The *kolmannes*, *kylmita* and *oravainen* were names for similar units that were used in Finland. As the name *kolmannes* tells, they all were thirds of something. The names *kolmannes* and *oravainen* were used in Savo to denote a third of a *karpio* so the size was somewhat over 10 liters. At Viipuri *kolmannes* and *kylmita* were used for a third of a *spann*, making them about 18 liters in size.

kol~m		<code>\abkolmannes</code>
kyl~m		<code>\abkylmita</code>

### *läst, lästi*

The *läst* was the largest unit for volume measurements as it was also for weight measurements. The *läst* could be counted in two different ways:

- *pundeläst*: a *läst* containing a specific number of *punds*, typically 12.
- *tunnaläst*: a *läst* containing a specific number of *tunnas*, usually 12 or 18.





	<i>pund</i>	<i>spann</i>	<i>vakka</i>	<i>kappa</i>	Metric	Symbol
<i>punta</i>	1	6	24	120	432 l	
<i>panni</i>		1	4	20	72 l	
<i>vakka/nelikko</i>			1	5	18 l	<i>vakka</i> , 
<i>kappa</i>				1	3.6 l	

Table 22: Varsinais-Suomi dry capacity computed using the conversion rate of 30 Turku *kappa* = 46 Stockholm *fat*.



As a *pund* was usually much greater unit than *tunna*, a *pundeläst* could be well over 10 times greater in volume than a *tunnaläst*.

läst  \ablast

 *skåle*





The *skåle* was the smallest unit of dry capacity measure in Närke and Västmanland. There 24 *skåle* in a *spann*.



skaale  \abskole

,  *pund, punta*

In most parts of Sweden the principal large unit for dry volume was the *pund*. The most typical *pund* contained eight *spann* but that too varied. Around *Närke* and *Häme* there were only five *spann* in a *pund*, and in most parts of Finland there were six. The areas with smallest *spanns* had 12 to a *pund*.

The Stockholm *pund* was about 380 liters in modern units.

[pund]  \pund  
p~ud  \abpundtwo  
~p  \abpundthree  
~pp  \abpundfour

,  *spann, panni, modius*

The size of the base unit *spann* varied greatly. In Hälsingaland it was only 30 liters while Närke used *spann* of over 90 liters. Perhaps the most common sizes were around 60 liters, but the capital Stockholm used only 47 liter ones.

Latin texts often used the term *modius* to denote the *spann*, but *modius* was used also for many different units in different parts.






	<i>punta</i>	<i>panni</i>	<i>karpio</i>	<i>kolmannes</i>	<i>kappa</i>	Metric	Symbol
<i>punta</i>	1	6	12	36	108	396 l	
<i>panni</i>		1	2	6	18	66 l	
<i>karpio</i>			1	3	9	33 l	
<i>kolmannes</i>				1	3	11 l	
<i>kappa</i>					1	3.7 l	

Table 23: Savo dry capacity units. Computed from equivalence where 1 Savo *kolmannes* =  $4\frac{2}{3}$  Stockholm *fat*.







	<i>punta</i>	<i>panni</i>	<i>karpio</i>	<i>kylmitta</i>	<i>vakka</i>	<i>kappa</i>	Metric	Symbol
<i>punta</i>	1	6	12	18	108	138	324 l	
<i>panni</i>		1	2	3	18	23	54 l	
<i>karpio</i>			1	$1\frac{1}{2}$	9		27 l	
<i>kylmitta</i>				1	6		18 l	
<i>vakka</i>					1		3 l	
<i>kappa</i>						1	2.35 l	

Table 24: Viipuri dry capacity. Computed from equivalence: Viipuri *spann* = 23 Stockholm *fat*. In the late 16th century the size of Viipuri *spann* changed several times, ranging from 23 *fat* to 26.

~sp  \absspann  
mo~d  \abmodius

### *säll, cribrum*

Västergötaland and Värmland used *säll* as the the larger unit than *skäppa* or *spann*. Later the unit fell out of use and was replaced by *tunna* that had the same size as *säll* in those areas.

saaldh  \absoll

### , *skäppa, modius*

In Västergötaland and Småland the base volume unit was not the *spann* but the *skäppa*. In these areas the Latin *modius* usually ment the *skäppa* instead of the *spann*. In size the *skäppa* was somewhat smaller than the *spann* with its size ranging from 18 to 23 liters.

The Stockholm *skäppa* was unusual in that it was not fully integrated in the complete system of measurements. It was reckoned to be  $\frac{5}{12}$  *spann*

	<i>läst</i>	<i>säll</i>	<i>skäppa</i>	<i>fjårding</i>	Metric	Symbol
<i>läst</i>	1	12	72	288	1.728 m <sup>3</sup>	<i>läst</i>
<i>säll/tunna</i>		1	6	24	144 l	<i>säll</i> , <i>t<sup>a</sup></i>
<i>skäppa</i>			1	4	24 l	<i>skäppa</i>
<i>fjårding</i>				1	6 l	<i>fj</i>

Table 25: Västergötaland dry capacity units

	<i>Lästi</i>	<i>Punta</i>	<i>Panni</i>	<i>Vakka</i>	Metric	Symbol
<i>Lästi</i>	1	12	96	960	4 m <sup>3</sup>	<i>läst</i>
<i>Punta</i>		1	8	80	336 l	<i>p<sup>a</sup></i> , <i>p</i>
<i>Panni</i>			1	10	42 l	<i>p</i>
<i>Vakka</i>				1	4.2 l	<i>vakka</i>

Table 26: Pohjanmaa dry capacity units. Computed from ratio 1 *panni* = 18 Stockholm *fat*

(about 19.6 liters) which meant that it did not divide any of the units exactly.

skäppa *skäppa* \abskappa  
mo~d *mod* \abmodius

### *f* *sättning*

Dalsland and Uppland areas divided their *spansns* into sixths *sättning* instead of fourths (*fjårding*). The size of a *sättning* was approximately 10 liters in modern units.

s\* *f* \absattung

### *t<sup>a</sup>*, *t<sup>o</sup>* *tunna*, *tynnyri*

The *tunna* (barrel) was a rare unit in that it had a separate abbreviation for the plural *tunnor*:

*t<sup>a</sup>* *t<sup>o</sup>*  
tunna (s) tunnor (pl)

In the oldest times it was primarily a measure for wet goods but slowly over the time it became used also for dry capacity. Mentions of dry *tunnas* are quite rare before the 15th century, then they became more common until by mid-16th century it is in very common use for grain.

	<i>Kesä</i> <i>kuorma</i>	<i>Talvi-</i> <i>kuorma</i>	<i>Dragu</i>	<i>Parmas</i>	Metric	Symbol
<i>Talvikuorma</i>	1	2	4	8	4.4 m <sup>3</sup>	<i>laf</i>
<i>Kesäkuorma</i>		1	2	4	2.2 m <sup>3</sup>	<i>soniazlaf</i>
<i>Dragu</i>				1	1.1 m <sup>3</sup>	<i>Dragu</i>
<i>Parmas</i>				1	0.55 m <sup>3</sup>	<i>pmas</i>

Table 27: Larger Häme straw measurements. Metric sizes are very rough approximations computed by assuming a *parmas* of 120 cm long straws with a 2.4 meter circumference.

With dry capacity a *tunna* ranged from 1.5 *spann* to 4 *spann*. In modern units its size was typically in the range 110–150 l. The size of *tunna* tended to increase over time and a late 16th century *tunna* is typically larger than a 15th century one. The *tunna* of the Stockholm castle was 2.5 Stockholm *spans* or about 120 liters.

[tunna] *t<sup>u</sup>* \abtunna  
[tunna] *t<sup>z</sup>* \abtunnor

*byn* *tön*

The *tön* or *thyn* was a large unit that was used instead of *pund* in early times in Uppland and neighbouring areas. It was later replaced by *pund*, but the last mentions of *tön* go to the late 16th century.

There were six *spann* in a *tön* so it was slightly smaller than a *pund*.

byn *byn* \abthyn

*vacka* *vakka*

A *vakka* was a Finnish unit that had very large variance in size. In some areas (for example, Häme and Viipuri) it was the smallest unit of dry volume at about three liters in size. However, in other areas it contained some multiples of *kappas*, typically four or five. For example, at Turku a *vakka* was used as a synonym for *nelikko* and it contained five *kappas*.

vacka *vacka* \abvakka

#### 6.4.1 Hay and straw

Measuring the volume of hay and straw stores was usually done using special units<sup>20</sup> The units and the ratios between them here are taken mostly from Finnish sources.

Translating the hay units to modern terms is almost impossible as they were vague already at the time and the way they were used varied a lot even in a small geographical area.

<sup>20</sup>However, there are occasional mentions of *punds* of hay in account books.

### *lass*, *kuorma*

The *lass* is the unit of hay and straw volume that occurs most often in medieval and early modern accounts. Its size is very difficult to determine exactly but generally it was as much hay that could be transported with one cart or sleigh. In many areas two different *lasses* were used at the same time: the larger winter *lass* (*vinterlass*, *talvikuorma*) and the smaller summer *lass* (*sommarlass*, *kesäkuorma*). Some sources also use the term tax *lass*, which probably meant the larger *vinterlass*.

A winter *lass* might be about 3–5 m<sup>3</sup> in size. In Finland a summer *lass* was often half of the size of a winter *lass*.

lass	<i>lass</i>	\ablass
vin[ter]lass	<i>vinterlass</i>	\abvinterlass
so~marlass	<i>sommarlass</i>	\absommarlass

### *parmas*, *parmas*

The *parmas* was a Finnish unit defined to be the amount of hay or straw that can be tied for transport using a cord of a given length. For example, at Viipuri it was a cord of 4 *famn* (a bit over 7 m) that is tied crosswise, while at Sääksmäki the cord was 8 *aln* (about 4 m) but it is not mentioned if the rope was crosswise or not.

In Finland a *talvikuorma* usually contained 8 *parmas* but some areas used 12 *parmas* per *kuorma*.

[par]mas	<i>parmas</i>	\abparmas
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### *fångh*, *fångh*, *ruko*

The *fångh* contained as much hay that a person could carry without tying the bundle up. A common computational ratio was that there would be four *ruko* in a *parmas*.

faangh	<i>fångh</i>	\abfangh
--------	--------------	----------

### *kärfve*, *kärve*, *kupo*

The *kärve* was reckoned to be as much hay that a person could carry under their arm. A common computation in Finland was that there was four *kupo* in a *ruko*.

kärfvue	<i>kärfve</i>	\abkarve
---------	---------------	----------

### *dragn*, *dragn*

The origins of the unit *dragn* are obscure. The word is originally Swedish but it is attested only in Finnish accounts before the 17th century.







	<i>Läst</i>	<i>Tunna</i>	<i>Fjårding</i>	<i>Ämbar</i>	<i>Kanna</i>	<i>Stop</i>	Metric	Symbol
<i>Läst</i>	1	12	48	144	576	1152	1410 l	
<i>Tunna</i>		1	4	8	48	96	117.5 l	
<i>Fjårding</i>			1	2	12	24	29.4 l	
<i>Ämbar</i>				1	6	12	14.7 l	
<i>Kanna</i>					1	2	2.4 l	
<i>Stop</i>						1	1.2 l	

Table 28: Wet capacity units based on the Rostock barrel

The *dragu* had a large variation in size. For example, the accounts of the Korsholma royal manor have it to be roughly the size of common *parmas* but around Viipuri a *dragu* was a synonym for *kesäkuorma*, or about four times the amount.

Some parts of Finland used two different *dragu*: winter and summer where a winter *dragu* was twice the size of the summer *dragu*.

dragu		<code>\abdragu</code>
v~iterdragu		<code>\abvinterdragu</code>
so~mardragu		<code>\absommardragu</code>

### *åm, aami*

Several areas in Finland used the *aami* to measure hay in addition of its use as a wet capacity measurement. It was generally used as a synonym to *parmas*.

aam		<code>\abaam</code>
-----	---	---------------------

## 6.5 Wet capacity

The units that were used to measure wet capacity were simpler than the dry capacity ones. Their sizes varied on different parts of the country, but the units themselves tended to be the same.

### *stop, tuoppi*

During the high middle ages the base unit for measuring wet goods in the Baltic areas was the *stop*. The name translates to a *tankard*. The size of a *stop* varied in different areas, in modern units it varied from somewhat under liter to over. The most common size of *stop* in the later middle ages was probably 1.2 liters that was one 1/96 of the Rostock *barrel*. In the 17th century it got standardized to 1.3 liters.

stope		<code>\abstop</code>
-------	---	----------------------

**q̄**, *kvarter, kortteli*

Later sources divide a *stop* into four *kvarters* but it is not certain if the unit was used already during the middle ages.

q~t   **q̄**   \abquarter

**ƒ**, *kanna* *kanna, kannu*

During the 15th century the *kanna* ("jug") replaced the *stop* as the base unit. There were two *stops* in a *kanna*, meaning that it ranged from a bit under two liters to almost three liters. The *kanna* that corresponded to the size of the Rostock barrel was 2.45 liters in size. The later standardization fixed *kanna* to 2.6 liters.

[kanna]   **ƒ**   \abkanna  
ka~na   *kanna*   \abkannatwo

**ṯ<sup>a</sup>**, **ṯ<sup>o</sup>** *tunna, tynnyri*

The primary large wet capacity measure was a *tunna* (barrel) from the earliest times. The most common barrel size in use around the Baltic sea was the Rostock barrel of 117.5 liters, but others were also in use.

In the middle ages a typical *tunna* contained 48 *kanna*, but during the 16th century it became common to use larger barrels and there are mentions of 50 or 52 *kanna tunnas*.

[tunna]   **ṯ<sup>a</sup>**   \abtunna  
[tunna]   **ṯ<sup>o</sup>**   \abtunnor

**ffj**, *fjarding* *fjarding, nelikko, neljännes*

A *fjarding* was the fourth of a *tunna* for wet capacity measurements so its size was about 30 liters. Note that while both *fjarding* and *kvarter* mean a *fourth*, they are units of very different sizes.

~ffi   **ffj**   \abfjarding  
fiärd~ug   *fjarding*   \abfjardingtwo

**ämbaz**, **ätting** *ämbaz, ätting, ämpäri*

A half of a *fjarding* was either *ätting* (en eighth) or *ämbaz* (a bucket) in different parts of the country. Its size was approximately 15 liters.

ämbaz   **ämbaz**   \ämbaz  
attu~g   **ätting**   \abotting



	<i>Båt</i>	<i>Åm</i>	<i>Kanna</i>	Metric	Symbol
<i>Båt</i>	1	3	180	440 l	<i>Baat</i>
<i>Åm, fat</i>		1	60	147 l	<i>aam, fat</i>
<i>Kanna</i>			1	2.4 l	<i>ƒ</i>

Table 29: Wet capacity units for blubber and wine

### *aam, fat* *ām, aami*

The *ām* was used to measure seal blubber. Later it became also a measure for wine. In that role it was a synonym for *fat*. The an *ām* was reckoned to be equal to 60 *kanna* (about 150 liters) in volume and for blubber 20 *lispund* in weight.

aam    *aam*    \abaam  
fat    *fat*    \abfat

### *Baat* *båt*

Wine and seal blubber trade used *båt* to measure large quantities. A *båt* contained three *ām*, or approximately 450 liters in volume. For blubber it was 60 *lispund* in weight.

baat    *Baat*    \abbaat

## 6.6 Length measures

The units of length were mostly same with same rations in the whole Sweden, but their exact sizes were different in different areas. It is possible to establish a few of them exactly as they were marked on the walls or doors of stone churches. For example, the door of Vadsbo church had marks for the *halvaln* of about 32 cm, which gives the length of Västergötland *aln* to be 64 cm. Three churches (Stånga, Havdhem and Hemse) all have markings for the Gotland *aln*. They are not exactly equal, 55.4 cm at Stånga and Hemse while 55.1 cm at Hemse, but they are close enough that we can reckon that the Gotland *aln* was a bit over 55 cm.

### *aly* *aln, kyynärä*

The basic length unit was *aln* (*kyynärä*) that corresponds to cubit. Its length varied between 47–65 cm in different areas. The Stockholm *aln* was one of the shortest with its 52.5 cm length.

aln    *aly*    \abaln

### *ƒ* *kvarter, kortteli*

The principal division of an *aln* was to divide it into four quarters of 12–16 cm. The Stockholm *kvarter* was 13.1 cm long.

Area	Modern
Gotland	55.4 cm
Götlunda	62.8 cm
Lund	55.7 cm
Stockholm "new"	52.5 cm
Stockholm "old "	55.5 cm
Vadstena	53.9 cm
Västergötland	64 cm
Öland	47 cm
Östergötland	59.4 cm

Table 30: *Aln* lengths that are known with some certainty.








	<i>Stång</i>	<i>Famn</i>	<i>Aln</i>	<i>Fot</i>	<i>Quarter</i>	<i>Tum</i>	Metric	Symbol
Stång	1	2	6	12	24	144	3.15 m	
Famn		1	3	6	12	72	1.58 m	
Aln			1	2	4	24	52.5 cm	
Fot				1	2	12	26.3 cm	
Quarter					1	6	13.1 cm	
Tum						1	2.2 cm	

Table 31: Stockholm length measures

q~t  \abquarter

### *fot*, *fot*, *jalka*

The foot (*fot*, *jalka*) was also used in Sweden, but was secondary compared with *aln* and *quarter* and some places used a *halvaln* instead. There were two *quarters* in a *fot* and two *fot* in an *aln*.

fot  \abfot  
halvaln  \abhalvaln

### *tum*, *tuuma*

The *tum* was the equivalent of inch and there were six *tum* in a *quarter* and 24 *tum* in an *aln*. The Stockholm *tum* was 2.2 cm long.

tum  \abtum

### *famn*, *syli*

The *famn* was the equivalent of a fathom. In most parts of Sweden there were three *aln* per *famn* but in Norrland each *famn* contained 3 1/2 *aln*.

ffa~pn  \abfamn

Unit	Modern
Västgötaland <i>mil</i>	~13 km
Småland <i>mil</i>	~7.5 km
Dalarland <i>mil</i>	~15 km
Finland <i>mil</i>	~6 km
<i>Vecka (sjömil)</i>	~7.5 km

Table 32: Long distance measurements

### *stång, tanko*

The *stång* corresponded to a rod. It was typically six *aln* long, but in parts of Östergötland and Småland also five *aln stång* was used and there are occasional records for eight *aln* lengths.

[stång]  \abstang

### *mil, rast, peninkulma*

The *mil* was a length measure with a vague length that varied a lot in different parts of Sweden. The old name for the unit was *rast* but that got superseded by *mil* during the middle ages. The *mil* in Finland corresponded to about 6 modern kilometers while the *mil* in Dalarland was almost three times that length with its 15 km distance. Before the country was surveyed it was not possible to measure long distances exactly so all measurements that are given in *mils* are approximations. Later *mil* was standardized to 18000 *aln* but that didn't happen until the 17th century.

mil  \abmil  
rast  \abrast

### *vecka, sjömil*

The *vika* or *vecka* was the marine equivalent of *mil* (hence, *sjömil* or sea *mil*). It too was vaguely defined, but it seems to have been approximately 7.5 km in modern terms.

vika  \abvika  
vecka  \abvecka

## 6.7 Area

During the medieval times there were two main reasons for measuring land: taxation and economical. The crown wanted to assess how much taxes a farm could or should pay, and a landowner (especially a noble one with many estates) wanted to know how much a farm could produce. Determining the exact land area in the modern sense was not necessary for either purpose.

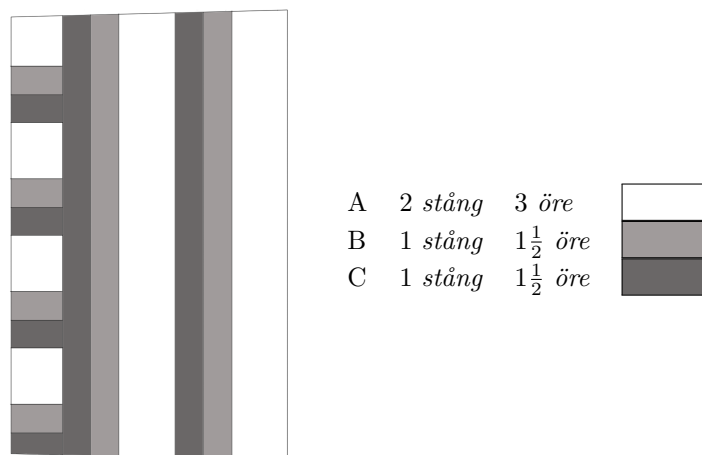


Figure 17: The *stång* division of a field in a village of 6 *öresland* and 4 *stång*.

The capacity to pay taxes was not completely determined by its size but also the land quality and opportunities for non-farming income such as fishing affected it. For this reason the medieval units for area are extremely vague and using them was highly subjective. There were some rough guidelines but they were not used as binding rules. For example, in the 16th century Hälsingaland a *spannland* was reckoned to be a square of field with eight *stång* sides or about 830 m<sup>2</sup>, but this assumed "good land".

In general, only fields and meadows were measured and the units can be roughly divided into three classes:

- units directly tied to the amount of taxes that should be paid (e.g. *marksländ*, *öresland*).
- units describing how much grain is sown in the field (*tunnland*, *spannland*)
- units tied to units of length (e.g. *stång*, *aln*)

Some units, like *pundsland* were used in two senses: they were both units for measuring seed grain and also abstract units for taxation.

### 6.7.1 Tax units

In the areas that used taxation based on land area, the basic principle was that each village had some amount of taxes assigned to it, and that tax was then allocated to individual farms by counting what proportion of the fields it owned.

For example, suppose that there was a village that had been assessed to be two *rök* in size. The crown assigned the taxed so that each *rök* had to pay a specific amount of taxes, so in this example the village would need to pay two tax units.

The *rök* would then be divided into smaller parts. In Upper Satakunta each *rök* had 12 *öresland*. Each village was allocated some number of *öres* out of the *rök*. Each farm of the village was allocated a number of *stångs*. The communal fields of the village were divided into thin strips and allocated to the farms

Area	Unit	Divides into
Varsinais-Suomi	<i>rök, savu</i>	32 <i>öresland</i>
Ala-Satakunta	<i>rök, savu</i>	12 <i>öresland</i>
Ylä-Satakunta	<i>krok, koukku</i>	12 <i>öresland</i>
Häme	<i>krok, koukku</i>	12 <i>öresland</i>
Länsi-Uusimaa	<i>skattemark, veromarkka</i>	18 <i>aln</i>
Itä-Uusimaa	<i>full skatte, täysvero</i>	18 <i>aln</i>
Kymenkartano	<i>full skatte, täysvero</i>	18 <i>aln</i>
Viipurin lääni	<i>full skatte, täysvero</i>	
Savo	<i>skatteskin, veronahka</i>	
Pohjanmaa	<i>pundsland, punnanala</i>	10 <i>spannland</i>
Åland	<i>marksland</i>	
	<i>rök</i>	
	<i>full skatte</i>	

Table 33: Land-area based taxation units in Finland according to [14]

in proportion to the *stångs* of the farms. The farm also had to pay taxes in proportion to its *stång* count. This is illustrated in figure 17. Typically each *stång* corresponded to 1–2 *öres*.

### *mårpaland*, *marksland*, *markanmaa*

*Marksland* was perhaps the oldest taxation unit in Sweden for agricultural areas. Originally it denoted an area that was supposed to pay one *mark* in taxes, but over time it became a computational unit. In Finnish side it was used only at Åland.

[mark]aland *mårpaland* \abmarksland  
 [mark::]al~ad *mupalad* \abmarkslandtwo

### *örpflad*, *öresland*, *äyrinmaa*

Originally *aboresland* was the amount of land supposed to pay an *öre* in taxes. Later it was used as a computational division for other units, such as *rök*, *krok*, *skattemark*, and *marksland*.

[ore]sl~ad *örpflad* \aboresland

### *örtugalad*, *örtugsland*, *aurtuanmaa*

An *ortugsland* was a further subdivision of an *öresland*.

[ortug]al~ad *örtugalad* \abortugsland

### *pennalad*, *penningsland*, *penninmaa*

The smallest subdivision of a *marksland* was *penningsland*. It was already so small that there are not that many mentions of it in sources.

	<i>bol</i>	<i>halvbol</i>	<i>fjårding</i>	<i>åtting</i>	Symbol
<i>bol</i>	1	2	4	8	<i>booll</i>
<i>halvbol</i>		1	2	4	<i>halffbooll</i>
<i>fjårding</i>			1	2	<i>ff</i>
<i>åtting</i>				1	<i>attung</i>

Table 34: The *bol* division of land

pe~nal~ad *penalad* \abpenningsland

*rök*, *rök*, *savu*

A *rök* (*smoke*) originally meant a single inhabited farm but it evolved into a general land measure for taxation. It kept the original meaning in most of Finland for the whole middle ages, but got the general meaning in Åland and Varsinais-Suomi.

*krok*, *krok*, *aura*

A *krok* was also a specific unit that evolved into general land measure. It means *a plough* and it is not certain whether it originally meant a single physical plough or the area that could be plowed with one team.

*skatteskin*, *skatteskin*, *veronahka*, *oravainen*

A *skatteskin* (*tax skin*) was a taxation unit for areas without strong agriculture. Originally it denoted an area that was responsible for paying a set amount of fur skins as taxes, but as agriculture improved it became another general land area measure. A *skatteskin* was also called *oravainen* (*little squirrel*) in Finnish, because the tax was usually assessed in winter squirrel skins.

*skattemark*, *skattemark*, *veromarkka*,

The *skattemark* was a unit that was used in two different senses. In some areas it was used like *marksland* but it was divided into *alns* instead of *öreslands*. In Pohjanmaa where agriculture was poorly developed it was a property assessment: for each *skattemark* of property there were in an area, the inhabitants had to collectively pay one silver mark of taxes.

skathe[mark] *skattemark* \abskattemark

*full skatte*, *full skatte*, *täysvero*

The *full skatte* was a similar unit as *marksland* but it was introduced later and to different parts of the country. In areas with established agriculture it was divided into *stångs* and *alns*, while in Savo it was divided into halves, quarters, and eighths.

*halv skatte*, *halv skatte*, *puolivero*

The *halv skatte* was a half of a *full skatte*.

### **booll**, *bol*

Like a *rök*, a *bol* originally meant one inhabited farm but it later became a general land measure. As a measure it was first divided into halves and quarters, but later it grew bigger and contained 20 *skattemark*. In Finland *bol* was used only in areas where the population was Swedish-speaking.

booll   **booll**   \abbol

### **halffbooll**, *halvbol*

A half of a *bol* was a *halvbol*.

halffbooll   **halffbooll**   \abhalvbol

### **ffj**, *fjårding*, *fjårding*

During the middle ages a *fjårding* was a fourth of a *bol* or a *full skatte*.

~ffi   **ffj**   \abfjarding  
fjard~ug   **fjårding**   \abfjardingt看

### **attug**, *otting*

An *otting* was a eighth of a *bol* or *full skatte*.

attu~g   **attug**   \abotting

## 6.8 Seed grain based units

Measuring the size of a field by the amount of seed grain that was sown to it was a common practice. However, the values were approximate because the amount depended on the grain. For example, rye was sown in a sparser pattern than barley and a farmer would use 30–50% more barley seeds than rye seeds on the same field.

The most common crop rotation schema in Finland for normal fields was that a half of farms fields were left fallow each year so a farmer with 20 *spannland* of land would sow 10 *spanns* each year.

### **þaland** *spannland*, *panninala*


A *spannland* corresponded to the size of a field that was sown with a *spann* of grain.

~spl~ad   **þaland**   \abspannland


### **þýlad** *pundland*, *punnanala*

A *pundland* corresponded to the size of a field that was sown with a *pund* of grain.

[pund]al~ad  \abpundland  
 p~udal~ad  \abpundlandtwo


 *tunnland, tynnyrinala*

The *tunnland* corresponded to the size of a field that was sown with a *tunna* of grain. The unit came to use when the *tunna* was introduced as a dry measure so it was rare before the 16th century.

 *thynia, thynia*


The unit *thynia* occurs in some 14th century Swedish documents. It denoted the amount of land that could be sown with a *thyn* of grain.

## 6.9 Length based units

 *stång, tanko*

When *stång* was used as a unit of area, it measured the width of a strip of field. It was also used as a computational unit of taxation as a measure of the general size of a farm without being tied to the actual area of the fields. As a computational unit there were usually 3 or 12–18 *stång* in a taxation unit in Finland.

[stång]  \abstang


 *aln, kynnärä*

The *aln* was used as an area measure in the same way as *stång*. It was both a real measurement of strip width and a computational unit for taxation.

aln  \abaln

## 6.10 Counting units

Some goods had separate units that were used for counting them.

 *ask, aski*

An *ask* was a small box made from wood or birch bark that was used when buying or selling small amounts of butter, honey, or similar substances.

 *boge, jousi*

The *boge* (a bow) was used to count men who were old enough to take part in hunting and it was perhaps the oldest unit of taxation in Finland. It is probable that it was originally used in a literal sense and every man who could draw a full-strength bow was counted. Later it was expanded to mean every men over a set age, often 14 or 15.

 *centener*

The name *centener* comes from Latin meaning 100, but for some obscure reason it was adopted to mean a group of 12 windowpanes in Sweden when glass windows started to be used.



Name	Amount	Symbol	Usage
<i>ask</i>	1	<i>af</i>	butter, honey
<i>boge</i>	1	<i>boge</i>	men
<i>bok</i>	24	<i>bok</i>	sheets of paper
<i>centener</i>	12	<i>centen</i>	windowpanes
<i>dussin</i>	12	<i>dussin</i>	merchandise
<i>gång</i>	4	<i>gaang</i>	horseshoes
<i>göpen</i>	inexact	<i>göpen</i>	small things held in a hand
<i>hundra</i>	100	<i>hundra</i>	anything
<i>kast</i>	4	<i>kast</i>	things held in hands (two in each)
<i>knippa</i>	various	<i>knippa</i>	things bound together
<i>krok</i>	1	<i>krok</i>	taxation unit (literal meaning <i>plough</i> )
<i>par</i>	2	<i>par</i>	anything
<i>mantal</i>	various	<i>mantal</i>	men
<i>näbbe</i>	1	<i>netle</i>	adults
<i>näveful</i>	inexact	<i>nävefull</i>	small things held in a hand
<i>rök</i>	1	<i>rök</i>	farms (for taxation)
<i>skock</i>	60	<i>skock</i>	merchandise
<i>släpp</i>	2–10	<i>släpp</i>	dogs
<i>storhundra</i>	120	<i>storhundra</i>	anything
<i>stycke</i>	1	<i>st</i>	anything
<i>tolft</i>	12	<i>tolft</i>	lumber
<i>tiogh</i>	10 or 20	<i>tiogh</i>	eggs, planks
<i>däcker</i>	10	<i>däcker</i>	furs, skins, sheets of parchment
<i>timber</i>	40	<i>tim</i>	furs

Table 35: Names for quantities

### **Duffin** *dussin, tusina*

A *dussin* (a dozen) as a counting term (12) came to Sweden from Germany and it was quite rare during the middle ages and did not gain widespread use until the early modern times. It was usually used when buying or selling individual goods.

### **gåang** *gång, kerta*

Horseshoes were counted in *gångs*. A *gång* had four shoes, enough to shoe one horse.

### **hundra** *hundra*

A *hundra* means literally 'a hundred' and it was used as a unit meaning 100. This was also called *lilla hundret*, meaning 'a small hundred'.

### **kast** *kast*

A *kast* was a unit that was used to count small things that could be carried in hand such as coins and nails. It usually denoted four items (two in both hands) but there were some exceptions. For example, in Jämtland a *kast* of nails was 5 nails: three in one hand and two in another.

### **knippa** *knippa, nippu*

A *knippa* is a bundle where many things have been tied together somehow. How many things there were in a *knippa* depended on what was being counted. For example, a *knippa* of brooms was 10 pieces, and a *knippa* of shingles was 100.

### **mantal** , *mantal, manttaali*

Under the old *mantal* system a number of men were grouped together and they were collectively responsible for some obligation. For example, equipping a ship for the fleet. The number of men in a *mantal* depended on area and the nature of obligation. In the 16th century a new *mantal* count was introduced that acted as an area measurement for taxation.

### **näbbe** , *näbbe, nokka*

A *näbbe* (*beak*) was a person who was considered adult for the purpose of certain taxes. In some areas all adults were included in the *näbbe* count, in other areas service folk were excluded.

### **nävefull** , *göpen näveful, göpen, koura*

The *näveful* was used when handling small things. It contained as much material that could be held in one closed hand. For example, in Finland it was common that a person who helped shearing sheep would receive as a salary a set number of *koura* of wool.

### **par** *par, pari*

A *par* is two of something. It was usually used to count things that come in pairs.

**skock** *skock, parvi*

Like a *dussin*, a *skock* was a unit that was imported from Germany in late middle ages. It denoted 60 pieces and it too was mostly used for merchandise.

**släpp** *släpp, ajue*

A *släpp* is a team of hunting dogs. You needed at least two dogs to have a *släpp* but there might be several.

**storhundra** *storhundra*

A *storhundra* translates literally to "a big hundred" and it meant 120 pieces.

**stycke**, **st** *stycke, kappale*

A *stycke* simply means a piece. It was used in account books as a unit in cases where there was no special unit to use.

s~t **st** \abstycke

**timmer**, **timber** *timmer, timber, kiihtelys*

In Finland furs were divided into two basic classes by their value: *harmaanahka* (*greyskin*) and *valkonahka* (*whiteskin*). The cheaper greyskins, most important of whom was the squirrel, were counted using a 40 piece *kiihtelys* as the basic unit. In Swedish texts this is usually written either as *timmer* or *timmer*. However, Swedish texts written in Finland often use *timmer* also when counting whiteskins, and then it means 10 of them.

ti~m **tim** \abtimmer  
[timber] **timber** \abtimber

**däcker** *däcker, tikkuri*

The more valuable whiteskins (such as winter ermine and black fox) were counted using a 10 piece *tikkuri* as the unit in Finland. The word is a loan word from Swedish *däcker* and it was used for also large skins and sheets of parchment. As mentioned above, Swedish texts written in Finland often use *timmer* for *tikkuri* instead of *däcker* when speaking about whiteskins.

**tiogh** *tiogh, tiu*

Originally a *tiogh* computed in units of 10 and it was primarily used of planks. By the mid 16th century its meaning had changed to 20 pieces and it was most commonly used of eggs.

**tolft** *tolft, toltti*

A *tolft* (*toltti* in Finnish) meant 12 pieces and it was most often used of lumber: beams and planks.

Name	Amount	Symbol	Usage
<i>bast</i>	24	<i>bast</i>	eels and lampreys
<i>klove</i>	100-240	<i>floffue</i>	dried fish
<i>kärve</i>	12-16	<i>fuzue</i>	salmon
<i>rynkie</i>	300	<i>rynkie</i>	whitefish
<i>snesa</i>	20	<i>snes</i>	eels
<i>spide</i>	24	<i>spidh</i>	fish
<i>stig</i>	20	<i>stis</i>	fish
<i>stock</i>	30	<i>stis</i>	fish
<i>val</i>	80	<i>val</i>	herring
<i>vårda</i>	10	<i>vaardh</i>	dried fish

Table 36: Units for counting fish

### 6.10.1 Counting fish

There were particularly many different words for counting different kinds of fish. Large amounts of fish were usually counted in barrels, but for small amounts individual counts were used.

#### *bast* *bast*

The *bast* was used to count eels and lampreys and there were 24 fish per *bast*.

#### *floffue* *klove*, *pihti*

The *klove* was perhaps the most important unit for counting fish. It was used exclusively of dried fish and its size varied in different areas ranging from 100 to 240. It seems that in Stockholm there were 200 fish in a *klove*.

In Finland *klove* was called *pihti* and it was used also for counting sheets of birch bark. When counting small fish like vendace a *pihti* may have had up to 1000 fish.

#### *fuzue* *kärve*

A *kärve* was either 12 or 16 salmon.

#### *rynkie* *rynkie*

The *rynkie* was a unit that was used in Satakunta to count whitefish. A *rynkie* had 300 fish.

#### *snesa* *snesa*

The *snesa* was another unit for counting eels. There were 20 eels in a *snesa*.

**spide** *spide*

The *spide* was used in Gotland to count all kinds of fish. There were 24 fish in a *spide*.

**stig** *stig*

The *stig* was also used to count all kinds of fish. There were 20 fish in a *stig*.

**stock, joukko**

A *stock* was a group of 30 fish.

**val** *val, vaali*

The *val* was a unit of counting herrings. Each *val* had 80 herrings.

**vårda, nippu**

A *vårda* was a unit for dried fish (most often cods). A *vårda* usually had 10 or 12 fish. A *vårda* of lampreys typically had one more than other fish because one of them was used to tie the others.

## 7 LaTeX Command Reference

### 7.1 General commands

`\abcursivefamily`

Switch to **Aboensis** with the current size and set text color. This also makes ~ and \_ be normal letters.

`\aboensis{text}`

Sets `text` in Aboensis with set text color.

`\abtildes`

Change ~ and \_ to normal letters.

### 7.2 Color handling

`\abtext{text}`

Set `text` using the text color.

`\abrubic{text}`

Set `text` using the primary rubrics color.

`\abotherrubic{text}`

Set `text` using the secondary rubrics color.

`\abtorubic`

Change the color to the primary rubrics color.

`\abtootherrubic`

Change the color to the secondary rubrics color.

**\absettextcolor{color}**  
Set the text color to `color`.

**\absetrubriccolor{color}**  
Set the primary rubric color to `color`.

**\absetotherrubriccolor{color}**  
Set the secondary rubric color to `color`.

**\absetcolormixpercentage{percentage}**  
Set the primary rubrics color mix percentage to `percentage`.

**\absetothercolormixpercentage{percentage}**  
Set the secondary rubrics color mix percentage to `percentage`.

**\abrubicred**  
Set the primary rubrics color to red (default).

**\abrubicgreen**  
Set the primary rubrics color to green.

**\abrubicblue**  
Set the primary rubrics color to blue.

**\abotherrubicred**  
Set the secondary rubrics color to red.

**\abotherrubicgreen**  
Set the secondary rubrics color to green (default).

**\abotherrubicblue**  
Set the secondary rubrics color to blue.

### 7.3 Capitals and initials

**\abcapital{letter}**  
Add a two-colored capital letter with the primary rubrics color for highlighting.

**\abcapitalother{letter}**  
Add a two-colored capital letter with the secondary rubrics color for highlighting.

**\abinitial{letter}**  
Add a Lombardic initial letter in the primary rubrics color.

**\abinitialother{letter}**  
Add a Lombardic initial letter in the secondary rubrics color.

**\abinitialtwo{letter}**  
Add a two-colored Lombardic initial letter where main color is the primary rubrics color and the other color is the secondary rubrics color.

**\abinitialothertwo{letter}**  
Add a two-colored Lombardic initial letter where main color is the secondary rubrics color and the other color is the primary rubrics color.

**`\abinitwpos{letter}{scale}{xpos}{ypos}`**  
 Add a Lombardic initial letter that is scaled by `scale` and moved by `xpos` and `ypos`. The letter is in the primary rubrics color.

**`\abinitowpos{letter}{scale}{xpos}{ypos}`**  
 Add a Lombardic initial letter that is scaled by `scale` and moved by `xpos` and `ypos`. The letter is in the secondary rubrics color.

**`\abinittwowpos{letter}{scale}{xpos}{ypos}`**  
 Add a two-colored Lombardic initial scaled by `scale` and moved by `xpos` and `ypos`. The main color is the primary rubrics color and the other color is the secondary rubrics color.

**`\abinitotwowpos{letter}{scale}{xpos}{ypos}`**  
 Add a two-colored Lombardic initial scaled by `scale` and moved by `xpos` and `ypos`. The main color is the secondary rubrics color and the other color is the primary rubrics color.

**`\abcursiveinitial{letter}`**  
 Add a cursive initial `letter` using the text color.

**`\abcursiveinitialwithpos{letter}{scale}{xpos}{ypos}`**  
 Add a cursive initial letter scaled by `scale` and moved by `xpos` and `ypos`.

**`\abstartchapter{letter}lineline`**  
 Add a two-line chapter start Lombardic initial and the first two lines of text. The initial is in the primary rubrics color.

**`\abstartchapterother{letter}lineline`**  
 Add a two-line chapter start Lombardic initial and the first two lines of text. The initial is in the secondary rubrics color.

**`\abstartchaptertwo{letter}lineline`**  
 Add a two-line chapter start with a two-colored Lombardic initial where main color is the primary rubrics color and the other is the secondary rubrics color.

**`\abstartchapterothertwo{letter}lineline`**  
 Add a two-line chapter start with a two-colored Lombardic initial where main color is the secondary rubrics color and the other is the primary rubrics color.

**`\abstartchapterwithpos{letter}scalexposyposlineline`**  
 Add a two-line chapter start with a scaled and positioned Lombardic initial in the primary rubrics color.

**`\abstartchapterotherwithpos{letter}scalexposyposlineline`**  
 Add a two-line chapter start with a scaled and positioned Lombardic initial in the secondary rubrics color.

**`\abstartchaptertwowithpos{letter}scalexposyposlineline`**  
 Add a chapter start with a two-line two-color scaled and positioned Lombardic initial where the main color is the primary rubrics color and other color is the secondary rubrics color.

**`\abstartchapterothertwowithpos{letter}scalexposyposlineline`**

Add a chapter start with a two-line two-color scaled and positioned Lombardic initial where the main color is the secondary rubrics color and other color is the primary rubrics color.

## 7.4 Other

### Numbers

**`\abothernum{number}`**

Change the number glyphs in `number` to the alternate Arabic numbers.

**`\abroman{number}`**

Format `number` as a Roman numeral using the standard subtractive numerals. This works for numbers from one to million and halves are also supported.

**`\abromanother{thousands}{hundreds}{number}`**

Format a number as a Roman numeral using the alternative shema where thousands and hundreds are shown separately.

**`\abthousand`**

Add a thousands marker for the alternative Roman numeral encoding.

**`\abhundred`**

Add a hundreds marker for the alternative Roman numeral encoding.

**`\abthird`**

Add a Swedish symbol for one third.

**`\abfourth`**

Add a Swedish symbol for one fourth.

**`\absixth`**

Add a Swedish symbol for one sixth.

### Line handling

**`\abl{text}`**

Typeset `text` in one line while removing the height of letters. This is used to enforce even spacing between lines.

**`\abb{text}`**

Typeset `text` in one line while removing the height of letters. The difference between this and the previous one is that `\abl` automatically adds a newline after the line while `\abb` does not. This means that `\abb` is safe to use inside the `tabular` environment.

**`\abindent`**

Add space equal to the width of the last lombardic initial.



<code>\abaam</code>	<i>aaay</i>	<code>\abkarpiotwo</code>	<i>f</i>
<code>\abaln</code>	<i>aly</i>	<code>\abkarve</code>	<i>fiezffue</i>
<code>\abambar</code>	<i>ambaz</i>	<code>\abkolmannes</code>	<i>folny</i>
<code>\abbaat</code>	<i>baat</i>	<code>\abkylmitta</code>	<i>kyly</i>
<code>\abbesmanspund</code>	<i>bb</i>	<code>\ablass</code>	<i>las</i>
<code>\abbol</code>	<i>booll</i>	<code>\ablast</code>	<i>lyst</i>
<code>\abdacker</code>	<i>devo</i>	<code>\ablibra</code>	<i>bb</i>
<code>\abdenarius</code>	<i>d</i>	<code>\ablispund</code>	<i>lyp<sup>d</sup></i>
<code>\abdragu</code>	<i>dragu</i>	<code>\ablispundtwo</code>	<i>lyp<sup>d</sup></i>
<code>\abfamn</code>	<i>ffapn</i>	<code>\ablispundthree</code>	<i>lp<sup>d</sup></i>
<code>\abfangh</code>	<i>fangh</i>	<code>\ablispundfour</code>	<i>bb</i>
<code>\abfat</code>	<i>fat</i>	<code>\ablod</code>	<i>lodg</i>
<code>\abfjarding</code>	<i>ffj</i>	<code>\abmarc</code>	<i>mp</i>
<code>\abfjardingtwo</code>	<i>fjardng</i>	<code>\abmark</code>	<i>mp<sup>d</sup></i>
<code>\abfot</code>	<i>fot</i>	<code>\abmarkpund</code>	<i>mp<sup>d</sup></i>
<code>\abhalvaln</code>	<i>halvaly</i>	<code>\abmarkpundtwo</code>	<i>mp<sup>d</sup></i>
<code>\abhalvbol</code>	<i>halffbool</i>	<code>\abmarksland</code>	<i>mp<sup>d</sup>aland</i>
<code>\abkanna</code>	<i>fp</i>	<code>\abmarkslandtwo</code>	<i>mp<sup>d</sup>aland</i>
<code>\abkannatwo</code>	<i>kana</i>	<code>\abmil</code>	<i>mil</i>
<code>\abkappa</code>	<i>kapp</i>	<code>\abmk</code>	<i>mp</i>
<code>\abkappatwo</code>	<i>kapp</i>	<code>\abmodius</code>	<i>mod</i>
<code>\abkarpio</code>	<i>fp</i>	<code>\aboresland</code>	<i>orplad</i>

Table 37: Medieval unit commands 1/2




<code>\abore</code>		<code>\abskole</code>	
<code>\abortugsland</code>		<code>\absolidus</code>	
<code>\abortug</code>		<code>\absoll</code>	
<code>\abotting</code>		<code>\absommardragu</code>	
<code>\abparmas</code>		<code>\absommarlass</code>	
<code>\abpenningsland</code>		<code>\abspannland</code>	
<code>\abpenning</code>		<code>\abspann</code>	
<code>\abpundfour</code>		<code>\abstang</code>	
<code>\abpundland</code>		<code>\abstop</code>	
<code>\abpundlandtwo</code>		<code>\abstykke</code>	
<code>\abpund</code>		<code>\abthyn</code>	
<code>\abpundtwo</code>		<code>\abtimmer</code>	
<code>\abpundthree</code>		<code>\abtimmer</code>	
<code>\abquarter</code>		<code>\abtum</code>	
<code>\abquintin</code>		<code>\abtunna</code>	
<code>\abrast</code>		<code>\abtunnland</code>	
<code>\absattung</code>		<code>\abtunnor</code>	
<code>\abskaalpund</code>		<code>\abvakka</code>	
<code>\abskappa</code>		<code>\abvecka</code>	
<code>\abskattemark</code>		<code>\abvika</code>	
<code>\abskeppund</code>		<code>\abvinterdragu</code>	
<code>\abskeppundtwo</code>		<code>\abvinterlass</code>	

Table 38: Medieval unit commands 2/2

## 7.5 Symbols

The commands for setting medieval swedish measurement units are shown in tables 37 and 38. Other symbol commands are listed below.

`\abpara`

Add the paragraph start pillcrow symbol ¶ in the primary rubrics color.

`\abparaother`

Add the paragraph start pillcrow symbol ¶ in the secondary rubrics color.

`\abitem`

Add the 'item' symbol with text color.

`\ableftindex`

Add a finger pointing left.

`\abrightindex`

Add a finger pointing right.

`\abupindex`

Add a finger pointing up.

`\abdownindex`

Add a finger pointing down.

## 8 OpenType Features

The features in *Abecurio* are divided into two classes: those that should be always on and those that should be turned on only when necessary. The two features that are necessary for the proper function of the font are `calt` and `liga`. Most modern programs turn both of them on by default.

`aalt`

Access all alternates. This feature is used by some software to provide access to all letters to the user.

`calt`

The contextual alternate substitution. This changes the letter forms based on the surrounding context. In particular, this substitutes the correct forms of *r* and *s* as well as makes the letters tie together better. This feature should always be turned on.





`dlig`

Abbreviation ligature substitution. This feature substitutes parts of words by their abbreviations. In most cases you want to use the bracketed substitutions that are defined in `liga` and shown in table 8.



Function	Feature	Always on
List of all alternaties	<code>aalt</code>	
Contextual alternate forms	<code>calt</code>	×
Abbreviation ligatures	<code>dlig</code>	
Fractions	<code>frac</code>	
Initial forms	<code>init</code>	
Isolated forms	<code>isol</code>	
Standard ligatures	<code>liga</code>	×
Roman numbers	<code>onum</code>	
Capital letter highlight	<code>ss01</code>	
Capital letter highlight overlap	<code>ss02</code>	
Initial substitution	<code>ss03</code>	
Lombardic initial second color	<code>ss04</code>	
Swash Lombardic initial	<code>ss05</code>	
Superscript letters	<code>sup</code>	
Swash letters	<code>swsh</code>	
Alternate Arabic numbers	<code>tnum</code>	

Table 39: OpenType features

   
`-dlig`      `+dlig`

**frac**

Changes vulgar fractions into ordinals with the *le*-syntax:

   
`-frac`      `+frac`

**init**

Changes letters to their initial forms. This is done automatically by feature `calt`.

**isol**

Changes letters to their isolated forms. This is done automatically by feature `calt`.



**liga**

Enables the standard ligature substitution. This should be In this font it is used for two things:

- add ligatures in the the normal manner
- add special symbols as ligature substitutions in the way described in section 4.

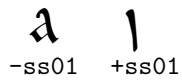
**onum**

Converts numbers into Roman numerals.

   
`-onum`      `+onum`

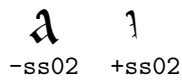
**ss01**

Changes a capital letter into a highlight strike through the letter.



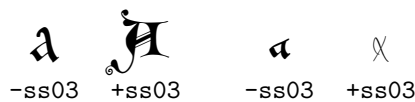
**ss02**

Changes a capital letter into the intersection of the letter and the highlight strike through it:



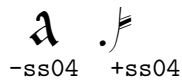
**ss03**

Changes a capital letter into a Lombardic initial and a lower case letter into a cursive initial. You may want to use the ligature substitutions +A+ and ++A++, instead.



**ss04**

Changes a capital letter into the second color of a Lombard initial.



**ss05**

Changes a capital letter into a swash Lombardic initial.



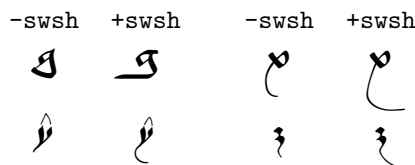
**sup**

Switches letters to superscripts:



**swsh**

Switches some letters to alternate forms.



tnum

Change Arabic numbers to the form used in the Fibonacci manuscript:

1234567890    1234567890  
-tnum                    +tnum

## 9 Examples

### 9.1 The accounts of Kalliala parish

In 1851 vicar Antero Warelius found the account book of the Church of St Olaf from a small niche in the church. The book is the only medieval account book of a parish that has survived in Finland and it contains entries from the period 1469–1524. The figure 18 is from a list of loans taken from the parish granary in 1480.

Anno domini MCDLXXX Concessa de granario ec *kalliala*  
Item Jacob Leyko        i *karp*  
Item Lauri Lukkari     1 span  
Item Kauppi-Kestin leski 1 span 1 *karp*  
Item Johan Kokkopoika   1 *karp*, Item Knuth Liuha i *karp*  
Item Nikolaus Sveniläst   1 *karp*  
Item Henrik Andersson Tyrvääst 1 *karp*  
Item Peder Michelsson 1 *karp*  
Item Olaus Kauppamies *ibidem* 1 *karp*  
Item Matheus Viljakalast 1 *karp*  
Item Nikolaus Marthensson Kykas 1 *karp*

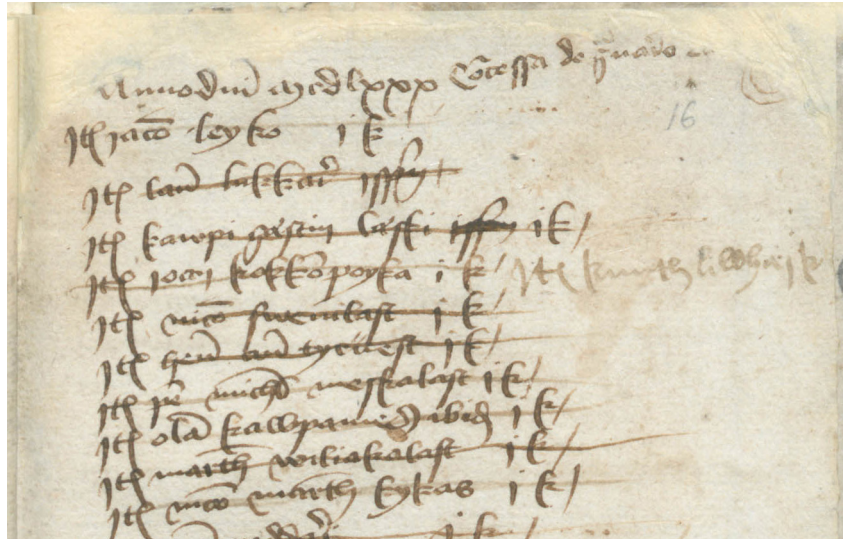
### 9.2 The account book of Olaf Nilsson Tawast

Olaf Nilsson (Tawast) (c. 1400–1460) belonged to the Finnish nobility and the base of his power was in Tavastia where he was first a judge from c. 1433 and the castellan of Häme Castle from 1455. He was the nephew of Bishop Magnus Olai (Tawast) of Åbo Diocese and a supporter of King Karl Knutsson (Bonde). Their patronage helped Olaf to greatly enlarge his holdings in Tavastia. His book of household accounts has survived.

Figure 19 has a snippet gives details of a land sale circa 1455.

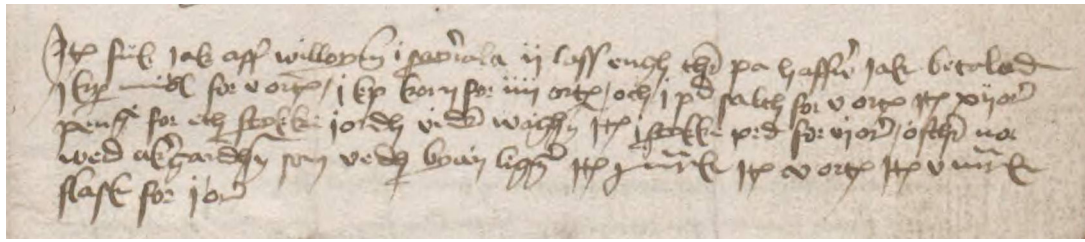
Jtem fik iak aff Willoyn j Sayriala ij las engh; ther pa hafwer iak betalat j *karp* miøl for v ortuger, j *karp* korn for iiij ortuger ok j pund salt for v ortuger, jtem xij öre peninga for j stykke jordh widher wæghen, jtem j stykke jordh for vj öre østher nor wedh aker gardhen, som wedh byen ligggher, jtem 1/2 mark, jtem v ørtuger, jtem v mark flæsk for j öre.

Item I received a 2 lass meadow from Willoyn of Sairiala; for which I paid 1 *karp* flour valued at 5 ortuger, 1 *karp* barley at 4 örtuger and 1 pund salt at 5 örtuger. Item 12 öre in coins for one piece of land next to road, item 1 piece of land for 6 öre to East of field that is next to the village, item 1/2 mark in coins, item 5 örtuger, item 5 marks of pork at 1 öre.



Annodum quodhoox Coressa de gharis et  
 Italo lesto 1 f/  
 Italo luttas 1 pay/  
 Italo kaly garyn latti 1 pay 1 karp/  
 Italo joan kottoposta 1 f/ Italo kumty luttas 1 f/  
 Italo unco pucnilape 1 f/  
 Italo hen and tyraest 1 f/  
 Italo vedp unchle mestalape 1 f/  
 Italo ola kalpanies ibid 1 f/  
 Italo maty anlakalape 1 f/  
 Italo unco matyhus tykas 1 f/

Figure 18: Year 1480 in Kalliala parish granary accounts. *Kallialan kirkontilit, Valtionarkisto, folio 16r.*



Jaf sik iak aff willest i samala i lass engh tiz pa haffu jaf betrad  
 Jaf iak for u ozt / i ep foru po: iij ozt / ozt / i p salte for u ozt / i p foru  
 for iij ozt och i p salte for u ozt. Jaf xij ozt yend for etj stikke  
 jorðh uðhr waghay. Jaf i stikke jorð for u ozt / ozt / uoz wed  
 afro gardhey for uedh threy ligghe Jaf i iij ozt / Jaf u ozt / Jaf  
 u iij ozt flast for i ozt

Figure 19: Snippet from accounts of Olaf Nilsson Tawast, c. 1455. *DF 3001*, *SDHK 43935*, *Riksarkivet codices C 38*, folio r2r

### 9.3 Table of contents of *Konunx balker*

Each chapter of *Codex Aboensis* starts with a table of contents of that chapter. Figure 20 shows the beginning of the *Konunx balker*.

Här byrias konungx balker ok tälías y honom flokkar fyra ok trätigh item

- ¶ Wm suerikis konungx rike kuilket i sik haffue siw biscops döme 1  
och nio lagmanz döme
- ¶ Offuer akth suerike ager ey konunglixlik krona och ei knongher 2  
wtan een wara
- ¶ Ey ma konungher minsca kronunnan räth firi androm konunghe 3
- ¶ Yn är til koningxrikit i suerike konungr wäliandhe och ey ärf- 4  
fuandhe
- ¶ Tesse ärä nonungx edha först ath han scal elsca gud och the helghä 5  
kirkio och agher edh syn suäria aa book och helgho doma

Here begins the Kings Beam that contains four and thirty items

- ¶ On the King's realm of Sweden that has seven diacoses and nine 1  
judicial districts
- ¶ There is only one king's crown and one king over the Sweden 2
- ¶ The king may not diminish the crown's income from later kings 3
- ¶ The kingship in Sweden is by election and not inherited 4
- ¶ This is the king's oath: to love God and the Holy Church and to 5  
swear by the Bible and holy relics



## 9.4 The rules of noble service

During the middle ages the borders of Swedish noble class were fluid. Being a noble was not yet officially hereditary but instead it was tied to service as a man-at-arms. In practice, powerful families had noble status from generation to generation but but the door was still open for a common peasant to rise to the ranks of nobles.

The core concept was that of *frälse* – freedom from paying taxes. This could be obtained by equipping a man-at-arms to serve in the king’s army. The men-at-arms were divided into *riddare* and *sven*, knights and squires.

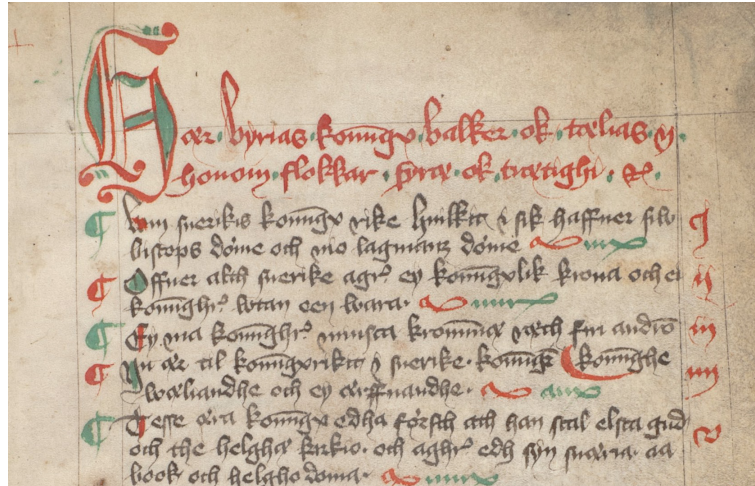
The *Konunx balker* lists the required equipment and establishes the dates of annual inspections of the nobles in the section 11.

Hwilikin man som frelsth wil haffua. sith godhz huat heldlsz han är riddarä eller swen ängnin wiidhan taknom. skal haffua swa godgan hesth ath hã see wel werdhs fyrethige markea päningha. bätthre och ey weier och thz til örsäsadul wpgiörran hielm och fulwapn badhe til been och liiff, engho wudhan takno thz som een gadher man ma sik niedh wäria. Hwar attunda dagh epther Sancte peders dagh scal wapnäsün haff wäs i wpsala aff upsala biscofs döme. I westraros. aff westraros biskofs döme. I strengänes aff sudhermanna lande. I örabroo aff närikke. I lynköpinghe aff östergöthlandha, Kyndh, Thiwsth, widhboo, Ydhre. Twäthä. wistho grännä. Wisixö. I kalmrarum aff kalmarnna foghate. och öläidh i rydaholm. aff tyhäradh i falkinbergh. aff badhom hallandhum norrä och sudhrä. y skarum. Aff werstergöthlandhe oh dall y tiugwallun. aff wermalandhe. Kan thet swa wara ath nokor aff, bondhum wil frelsis man wardha. tha skal han sik redha innan then daghen badhe medh hästh och wapnum. swa ath the som wapnasynna skuld skudha a konungx wegna. Skundhe badhe mandö hans. frägt hans hesth. ok wipen swa och än han ma thz frelse wppe haldhä. medh godz som förra ez saght.

He who wants to have noble privileges for his properties, be he a knight or a squire, without forgetting anyone, should have a horse worth 40 marks in coins or more, but not less, and a war saddle, good helmet, armor for limbs and body and weapons with which a good man can defend himself.

Each year on the eight day after the Saint Peter’s day there is an inspection of arms in Uppsala for the whole diocese of Uppsala, in Västerås for the Västerås diocese, in Strängnäs for Södermanland, in Örebro för Närke, in Linköping for Östergötaland, Kinda, Tjust, Vedbo, Ydre, Gränna, Tveta, Vista and Visingö, in Chalmers for the Chalmers bailiff county and Öland, in Rydaholm for Tiohäräd, in Falkenberg for North and South Halland, in Skara for Västergötaland and Dal, in Tingvalla for Vermland.

If a peasant wants to become a noble man he much obtain a horse and weapons before that day so that those who inspect the arms for the king can check his manliness and fitness, his horse and weapons, and whether he can support his armed service with his properies.



**H**æz þyras konung balker of talias y  
 honum flokkar fyra of trætigh jor.

- ¶ Þu suezis konung rike hylket j þu hæffue j  
 þu bispops dome oth uio lagmanz dome v
- ¶ Offue alth suezis ags cy konungolik frona oth  
 cy konungolik aray ceu kara ij
- ¶ Þu ma konungolik minsta fronna rath fyr  
 andro konunghe iij
- ¶ Þu æz til konungolik j suezis konung walra  
 udhe oth cy ærffuandhe iiij
- ¶ Þesse æra konung edha forstj ath þay skal  
 elsa gud oth the helghe fruo. oth aghe edh  
 þu þærna aa book oth helghe doma. v

Figure 20: The beginning of table of contents of *Konungx balker*, *Codex Aboensis folio 22 r.*

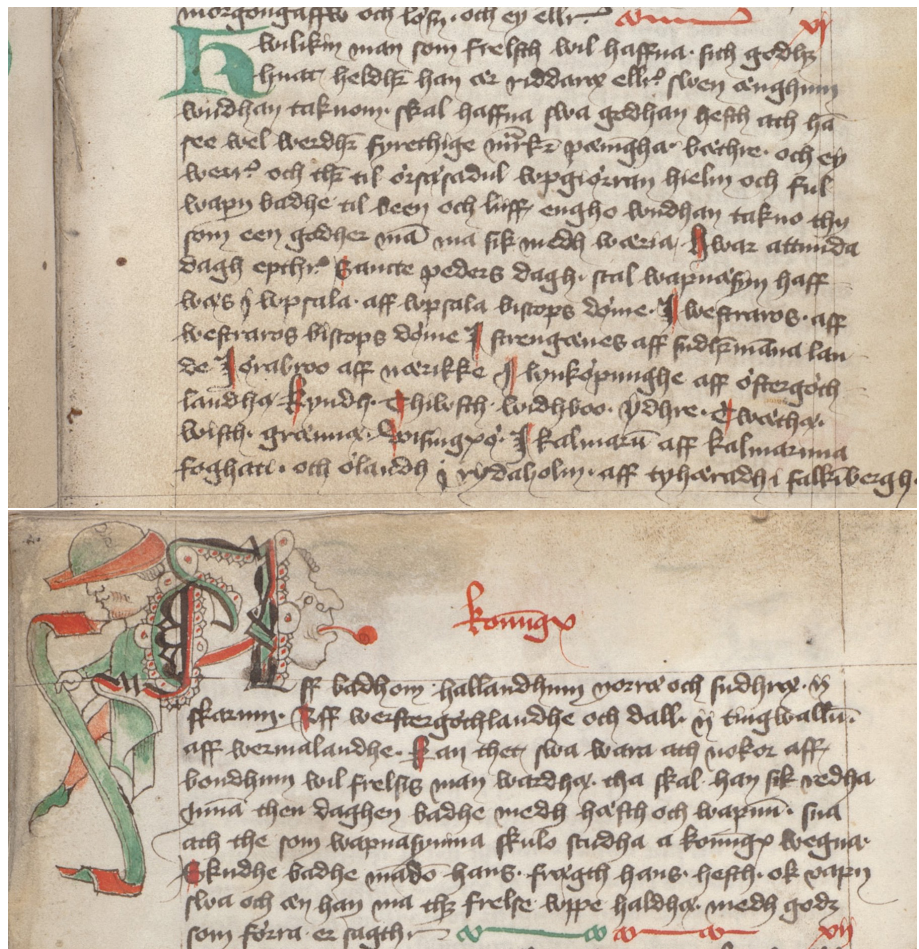


Figure 21: The rules of noble service in *Konungx balker* in *Codex aboensis*. Note how the initial of *aff* occurs in the middle of sentence.

**K**arlikin may son frelsth anl haffna. pth godh  
 hnat heldh; hay ez vaddara ellr pacy anghun  
 andhay takuoy. skal haffna pva godgay hesth atth had  
 see vel vordhs fyretthige vnrk vaxingha. barthv och cy  
 avns och thz til ozsasadul apgövray hielny och fullvaf  
 badhe til beey och lyff engho andhay takno thz son  
 ed godhs mauma sk medh avrna. **N**ar atnda dagh  
 epthv **S**ante veders dagh. skal vapnastu haff avns i  
 appala. aff upsala bystups dome. **I** aepvazos. aff ves  
 tra vob bystups dome **I** svevenganes aff sudhmanna  
 lande **I** ozabro aff narikke **I** linköpinghe aff öfver  
 göth landha skindh. **T**hristh. andhloo. vdrh. **T**avar  
 thv. anstho grænne. **S**upvo. **I** kalmarany aff kal  
 mauna foghate. och oladh i vrdaholny. aff thharadh  
 i fullvazgh. aff badhom hallandhu norve och sudhva.  
 p skazny. **A**ff vesvazgöth landhe och dall p tungavallin.  
 aff avrmalandhe. **F**ay thet pva avra atth voker aff  
 bondhny anl frelth may varda. tha skal hay sk  
 vedha muad thcy daghey badhe medh hesth och vapun.  
 pva atth the son vapnastuua skuld skindh a koming  
 avqua. **S**kundhe badhe maudo hans. fraght hans  
 hesth. ok avpey pva och ay hay ma thz frelse avpe hal  
 dhv. medh gods son fövra ez saght. **o—m—o**

Figure 22: The requirements of noble service in *Konungæ balker*, *Codex Aboensis* folio 27 r.

The King Kristofer's *The Laws of the Realm* from the 15th century have the same rules expressed in almost the same form. The enigmatic *Herra Martti*<sup>21</sup> translated Kirstofer's laws to Finnish in 1540s. His translation is typeset to *Alfocypio* in figure 23.

Ioca mies wapautta tacto hänen hyfuydhens, mikä hän on Riddari taicka Swenni, ei yctäken eroittadhen, hänen pitä hyfwydhens crvvnv palueluxen tekemen, ia idze pitämen nijn hyfwen hewoisen, että hän maxa 40 *marca* Ruotzin penningeitä, pareman ia ei pahe- man, sihen mös täydhet odhatt se rwmin että jalkain päällä, ei mitän eroittadhen, sen iälkin, quin hyfwä mies machta idzens wariella. Joca vuosi wijkon peräst Sant petarin päiven, pitä kilpein katzel- muxen olemen. Wpsalos caikest Wpsalon Pispan hijppacunnast; wästeråxes, wästråxen hijppacunnast; Stregnäisis Södermannin maal- da, Örebros, Närikäst, Jäneköpfungis, Östergöthin maalda, Kijnd, Tiust, widbro, Idra, Tveta, wistgräna, Wisingzöö, Kalmarisa, fogdi ia Ölandimaa, Ridbåholmis, Tijhan kihlacunda, falckenbäris, molemist Hållandeist, sekä pohia että Etelä, Skara wästergöthin maalda ia Dalast, Tingwallist, wärmlandis; Turgusa caickelda Suomenmalda. Jos nijn taita tapachtu että ioku talonpoiist tacto tulla wapadex nijn tule hän itzens walmista ennen tätä päiwä sekä hewoisen että odhain cansa. Nijn että ne quin kilpen cadzelmust pitä pitämen kuningan puolest, että he näkevet sekä henen miehudents woiman että hewoisen ia odhat ia ios hän woipi sen wapaudhen ylöspitä hyfwydhellä. Caicki pitä wapadhet miehet kilpein Cadzelmuxella tuleman, ia ioka mies nijn Riddarit quin Swennitkin heidhen harniskans pällens wetämen, ia idze cukin oman hewoisens pälle istuman, walmistettun hewoisen ia kilpein cansa quin io edhellä on sanottu.

## 9.5 Excommunication of Sääksmäki peasants

In late 1330s there was some sort of unrest in the Sääksmäki parish where a number of peasants refused to pay their tithes to their vicar Henrik Harmansson. The exact cause of the issue is not known, but the issue was important enough that Henrik himself traveled to Avignon in Spring 1340 and obtained a bull from Pope Benedictus XII that excommunicated the 25 peasants until they paid the tithes and a fine of three marks for each week that they refused to pay them.

This bull is the first document in the *Black Book* and it is one of the most famous medieval documents in Finland. In particular interest is the list of peasants that have caused a lot of speculation about their backgrounds and roles in the society. The scribe made an error when copying the document to the cartulary and accidentally left two lines out of it just after the list of names, jumping from *eiusdem ecclesie* to *eidem ecclesie*. Hausen filled the missing lines for his transcription from another cartulary.

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<sup>21</sup>Probably Martinus Olai, the priest of Stockholm's Finnish congregation but that is not certain.

**I**ota mies awaranta tecto hancu hysfudhens/ mita hancu oy  
**H**ddaz tucta **S**acuni/ cy ptafey czontadhey/ hancu pta  
 hysfudhens trumy walucluxey tefemey/ na dze ptafemey niny  
 hysfawey helowey/ etta hancu mapo po nuke **H**notin yengenta/  
 pazemay na cy pahemay/ phey nos tawdhet odhat se rannu  
 etta jalkain walla/ cy mitay czontadhey/ sey walfin/ quim hysfaw  
 mies machta dzens awaziella. **I**ota awos awfey yezast **S**ant  
 yezaziy wawey/ pta filpey kuzelmuxey olmey. **S**uppalos tan  
 fest **S**uppaloy **H**ppay hyspatimast/ awsteraþes/ awsteraþey hyspa  
 timast/ **S**eregnaþis **S**odermannu maalda/ **S**ezbro/ **H**azikest/  
**S**aneköpingis/ **S**terzgotthij maalda/ **H**ynd/ **H**ust/ **A**ddro/ **H**dra/  
**H**ueta/ **A**stgrana/ **S**usfingöo/ **S**almarisa/ foagy na **O**landimaa/  
**H**ddaholmis/ **H**uhay kihlatida/ falkendazis/ wolemist **S**allay  
 deyt/ sekä wohna etta **S**rela/ **S**kaza awstergotthij maalda na  
**S**alast/ **S**ingwallist/ **A**wzmlandis/ **H**urgusa tuctelda **S**uomen  
 maalda. **I**os niny tarta tapastu etta wku talouþoyt tecto tulla  
 awapadex niny tule hancu dzens walumista emey tarta wawäy sekä  
 helowey etta odhain tansa. **I**nny etta ne quim filpey adzelmust  
 pta ptafemey funingay wolest/ etta he walewet sekä hancu  
 miehudenis awimay etta helowey na odhat na wos hancu awosy sey  
 awapandhey plöppitay hysfawdella. **C**arch pta awapadhet miehett  
 filpey **S**adzelmuþella tulemay/ na wota mies niny **H**ddazit quim  
**S**acuninkij hedhey haznistans walles awawemey/ na dze tufin  
 omay helowens walle yfemay/ walumistettuy helowey na filpey  
 tansa quim w edhella oy sanottu.

Figure 23: The same paragraph from the *Kunungx balkar* of the King Kristofer's *Laws of the Realm* in a 1540s Finnish translation of the law by Herra Martti (B 96, f.2r)

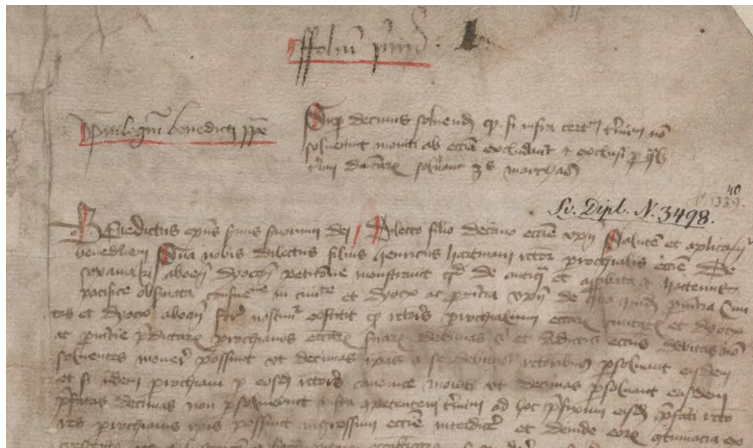


Figure 24: The beginning of an excommunication letter (DF 467, REA 99, *Registrum ecclesia Aboensis f.1r.*)

proletem benedicti ppe

**T**rip Decimis soluent q si infra tēp<sup>m</sup> tūi tūm  
no soluerint monitū ad ecclia excludant<sup>r</sup> & exiliū  
p q̄ tūi dōmōz soluant 3<sup>o</sup> mactūgao

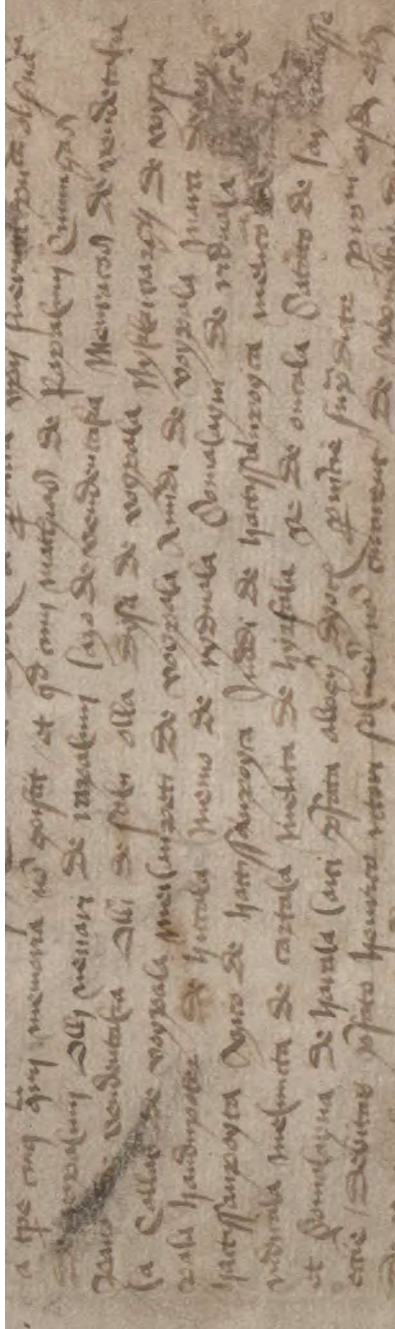
**B**enedictus epus primo firmorum dei dilecto filio decimo ecclie ipū **F**aluto et aplicitū  
benedictū **I**na nobis dilectus filius henricus hazmami rector profuialis ecclie De sexantū  
alioē dyoc<sup>e</sup> peticione monferunt qd de antiq̄ et appata et hactenus p̄cipite obfirmata  
conferre in tūi<sup>e</sup> et dyoc<sup>e</sup> ac p̄mota ipū de qua quidem p̄mota tūitas et dyoc<sup>e</sup> alioē fore  
uolunt existit q̄ rector<sup>e</sup> profuialium eccliaz tūitū<sup>e</sup> et dyoc<sup>e</sup> ac p̄mota p̄dictaz profuianos  
eccliaz suoz. Decimas sily et p̄dictis ecclis deditas no soluentes mouere possunt ut decimas  
ipsas a se deditas rectoribz p̄soluant eisdem et si idem profuiani p̄ eoz<sup>u</sup> rectoroz tonante  
monitū ut decimas p̄soluant eisdem p̄dictis decimas noy p̄soluerint infra p̄terentem tūi  
annū ad hoc p̄fixū eoz<sup>u</sup> p̄fate rectoroz profuiano ipso possunt ingressū ecclie inter  
dite et deinde eoz<sup>u</sup> communicatione extirpente/ eos a suscepcōne sacramentoz effectoz supe

Figure 25: The beginning of an excommunication letter (DF 467, REA 99, Registrum ecclesia Aboensis f.1r.)



Benedictus episcopus, seruus seruorum Dej, dilecto filio decano ecclesie Vpsalensis salutem et apostolicam benedictionem. Sua nobis dilectus filius Henricus Hartmanj, rector parrochialis ecclesie de Sexamæki, Aboensis dyocesis, petitione monstrauit, quod de antiqua et approbata et hactenus pacifice obseruata consuetudine in ciuitate et dyocesi ac prouincia Vpsalensi, de qua quidem prouincia ciuitas et dyocesis Aboensis fore noscuntur, exstitit, quod rectores parrochialium ecclesiarum ciuitatis et dyocesis ac prouincie predictarum parrochianos, ecclesiarum suarum decimas sibi et predictis ecclesiis debitas non soluentes, monere possunt, vt decimas ipsas a se debitas rectoribus persoluant eisdem; et, si iidem parrochiani per eosdem rectores canonice moniti, vt decimas persoluant, easdem prefatas decimas non persoluerint infra competentem terminum ad hoc prefixum, eisdem prefati rectores parrochianis ipsis possunt ingressum ecclesie interdicere et deinde, eorum contumacia excrescente, eos a suscepcione sacramentorum ecclesiasticorum suspendere;

Bishop Benedictus, servant of God's servants, presents the Dean of Uppsala church, his beloved son, with greetings and apostolic blessing. Or beloved son Henrik Hartmansson, vicar of Sääksmäki in Abo diocese has shown us with his petition that old, accepted and thus far peacefully followed custom of Uppsala province that was the origin of Abo province, district, and diocese, has been that the vicars of parish churches in the said province, district, and diocese, can urge their parishioners who do not pay their tithes to the their churches, to pay their said tithes to the said vicars. And if the said parishioners do not after the vicars remind them to pay the tithes according to the canon law, still do not pay the said tithes in due time, the said vicars can prohibit the said parishioners from entering the church and thus prevent them, when their defiance increases, from participating from ecclesiastical sacraments.



a tpe/ cuius dy/ memoria no exopta/ et qd tny matfuo de expalmy/ Cunyngas  
 de expalmy oſly uenaz de expalmy lago de venditafa ayenutas de venditafa dyuo  
 de venditafa oſly de ſalu olla dyſa de uospala Wyffruazg/ de uospala Callas de uospala/  
 melhampy de uospala/ amdy de uospala/ mazy de uospala/ Sandypoty de hataha memo  
 de vnduala Comalshy de vnduala hemre de hactyſſaypota dyto de hactyſſaypota  
 Gddy de hactyſſaypota/ melito de uindala melunta de tazala/ meltra de hysfala  
 pe de outala Garato de Raymanayſſe et Comalshy de hazala lany pſſata abocny dyot  
 pnyre ſupdyte/ pny<sup>m</sup> cnyſſe/ deſtuo pſſeto hemre cetozy ſelucez no

Figure 26: The list of excommunicated peasants (DF 467, REA 99, Registrum ecclesie Aboensis f.1r.)

a tempore, cuius contrarij memoria non existit, et quod, cum Mathias de Rapalum, Cuningas de Rapalum, Ollj Neuari de Rapalum, Lazo de Vendentaka, Menracas de Vende[n]taka, Pauo de Vendentaka, Olli de Salu, Olla Dysa de Voypala, Nykki Vargh de Voypala, Callas de Voypala, Meilanpeti de Voypala, Anundi de Voypala, Marci de Voypala, Handupoter de Hiccala, Memo de Ryduala, Somalayni de Riduala, Henric de Hactissanpoyca, Azico de Hactissænpoysca, Juddi de Hactissænpoysca, Melico de Iudicala, Meluncta de Cartala, Melita de Hyrfala, Ye de Oncala, Satato de Laynamæsse et Somalayna de Harala, laici prefata Aboensis dyocesis prouincie supradicte, parrochiani eiusdem ecclesie [ ...] debitas prefato henrico retori soluere non

## 9.6 The charter of the Viborg town

The Viborg Castle was built at the site of an old Karelian trading center starting from 1293. It is possible that there was an older wooden fortification in the site. During the next century the settlement to the South East of the castle grew up to be a town. King Eric Pomeranian (1381–1459, reigned in Sweden 1396–1434, 1434–1439) issued a charter of privileges to the town in 1403.

Wy Eric, meth Gudz nadh Swerikes, Danmarks, Norghes, Wendes oc Godes konung oc hertugh i Pomeran, kunnogt gyørom thet meth thætte wart opne breff allom mannom swa the nu ære som the hær æpter komme scule, at wy hafwom ont oc gifuet ware borgher, som bygge oc bo i war kyøpstadh Wyborgh, stadz ræt æpter thy som stadz boghene i Upsalom utwyser. Thy forbyuthom wy allom warom foghedom oc æmbetzmannon oc allom androm e ho the hælzt æren, at hindre thom i naghre made hær amot, swa frampt the wyliu wart hylle hafue oc war hefnd fly. In euidenciam premissorum secretum nostrum presentibus duximus appendendum. Datum in castro nostro Wyborgh, anno Domini m<sup>o</sup>cd<sup>o</sup>tertio, dominica infra octauam assumptionis virginis gloriose.

We Eric, by God's Grace the King of Sweden, Denmark, Norway, Wends and Goths and Duke of Pomerania, proclaim with this open letter to all people, both those who are no alive and those who will come later, that we have granted and bestowed those of our burghers who live in the town of Viborg the same town rights as the charter of the Uppsala town decrees. Thus we forbid all our bailifs and officials and everyone else, whoever they may be, from preventing them in any way against this letter if they want to enjoy our favor and avoid our punishments. Dated in our castle Viborg AD 1403 on the Sunday following the Assumption of the Glorious Virgin.



## 9.7 Privilege letter of Olof Nilsson Tawast

In addition to the account book of Olof Nilsson Tawast (example 9.2 also one privilege letter of his has survived.

A rebellion against King Karl Knutsson broke out in 1457 and he was forced to take exile in Danzig. Archbishop Jöns Bengtsson (Oxenstierna) and Erik Axelsson (Tott) were named regents. At that point Olof Nilsson swapped sides and pledged support to Erik Axelsson. As a reward Erik extended Olof's noble privileges to several properties that he had bought from peasants of Tavastia.

For alle the thettæ breff höræ eller see kænnēs och kvndgör jak Eric Akselsson, riddare och Sverges rikes forstondare pa thennæ tid, at for throskap och wilioghe thyænæsth ærlighen och wælboren man thennæ breffuisare hær Olaff Tawasth, riddare, hafuer longelige och throlighe beuisth Swerges rike och æn fframdēlis beuisa skal oc vil saa lenghe Gudi tekkis at han maa liffue, tha hafuer jak pa wærdogaste fadhers och herres her Jönis, erkebiscops j Vpsala, och mene rikesens raadz wægnæ vnth oc giffuid honom och hans rættthom ærffuingom ffriheth oc frælse pa nogor godz, som konungh Karl vnthe honom at köpæ aff skatta bönder, som ær ved viij kroka j Tawastaland, och saa mygyn jord, som görs j halff mark aff j skatten, liggændis j Pemar sokn j Mariaworeby. Pa thennæ forscriffnæ godz giffuer oc wnder jak fornempdom her Olaff oc hans rætttho ærffuingo saa dana ffrihet oc frælsse, som andra goda friborna oc frælssis mæn her j biscops dömed och ower alt riked nivta oc aff aldher nvtid hafua, och vil jak throlige ther til hiælpæ, ath for:da hær Olaff skal faa stadfæstelse pa thennæ frihet oc frælse aff then högborna herren och försten, som mene rikesens raad och jnbyggære j Swerge vordda endræktelige væliænde och stadfæstænde sik til konungh och fvldmæktoghan herræ over Sverigis rike. Til meræ visso lather jak witherligd hengæ mith jncigle vid thetta breff, som ær scriffuid oc vtgiffuid aarom epter Gudz börd mcldvij jn profesto beate Margarete.

To all who hear or see this letter I, Eric Akselsson, knight and at the time regent of the Swedish Realm, tell and make known that for loyalty and willing service that the beloved and high-born man, the recipient of this letter, Sir Olaff Tawast, knight, has long shown to the Swedish realm and will continue to show for so long as God wills him live, have I with the worthy Father and Lord, Sir Jöns, Archbishop of Uppsala, and the advice of the Council of the Realm given him and his lawful heirs freedom and privileges for several farmsteads that King Karl let him to buy from tax farmers that make 8 ploughs in Tavastia and to so much land that pays a half mark in taxes that is in Mariavuori village in the Paimio parish. For these named farmsteads I give the named Sir Olaff and his lawful heirs those freedoms and privileges that other good freeborn and privileged men here in bishop's diocese and all over the realm have and have always enjoyed, and I will truthfully help to ensure that Sir Olaf shall recive these freedoms and privileges when the high-born men and lords as the Council of the Realm and the inhabitants of



Figure 28: Privilege letter of Olof Tawast 1457. *DF3038, SDHK 27022*

Sweden elect and set the King and allmighty Lord of the Swedish Realm. For further proof I will attach my seal to this letter that is written and given in Year of the Lord mcdlvii on the Feast of St Margarete.

þz alle the tþtra breff þóza ellr þe þéne og fundgór þaf eít afþels viddar og þezt vites  
þezþendur þa tþena rd/ at þez tþroftap og andghe tþraunþtþ þrlighe og andlode ma tþena  
breffþur þaz Olaff Talaftþ viddar/ þafur langelge og tþrolighe þemþt þezt vife/ og  
þy þrandel þemþa þal at vil þa langhe gnd tþtþe at þa ma lifne/ tþa þafur þaf þa  
andgagþe þidþez og þezre/ þz þois/ eþþþþþþ þz þois og þene vifeþne maþ þezþur/  
vntþ at gþþnd þo<sup>m</sup> og þans vntþe vþþþngþ þþþþþþ at þvþe þa vþþþ gþd/ þny þemþþ  
þal vntþe þo<sup>m</sup> at þþþþ af þtara þóndr þny vþ ved vny þroka þ Talapþalid/ Og þa vntþþ  
gþd/ þny gþze þ þallþ vntþe af þ þtard/ þþþþþþ þ þemþ þþþ þ maþþþþþþþ/ þa tþena þz  
þþþþþ gþd/ gþþur at andr þaf þþþþþþþ þz Olaff at þans vntþe vþþþngþ þa þana  
þþþþ at þvþþe/ þny andra gþda þvþþna at þvþþe maþ þz þ þþþþ þómed og andr alt vntþ  
vnta at af allþz vntþ þafur og vil þaf tþrolighe tþz til þvþþþ/ atþ þezda þaz Olaff þal þa  
þvþþþþþ þa tþena þþþþ at þvþþe af tþþ þþþþna þezid og þezte/ þ þene vifeþne maþ  
og þþþþþþ þ þezþe vþþþa endþþþþþþe vþþþþe/ og þvþþþþþe þþ til þemþþ og þvþþþþ  
þþþþ þaz andr vntþ vntþ. Þal maþþ vþþþ þaf andþþþþþ þezþe vntþ þþþþe vþ tþetra  
breff þz vþ þþþþþ at vþþþþþ andr þþþ gþdþóid vntþþ þ þþþþ þþ vntþþþþþþ.

Figure 29: Privilege letter of Olof Tawast 1457. DF3080, SDHK 27022

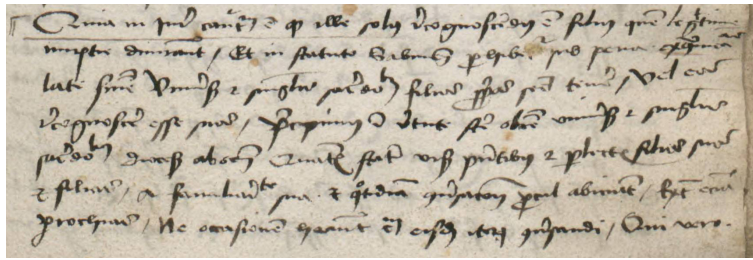


Figure 30: Bishop Magnus Olai Tawast's admonition *DF1423*

## 9.8 Bishop Magnus Olai Tawast's admonition

The copy book of Bishop Magnus Olai Tawast (c. 1370-1452) has survived. Sometime circa 1430 he reissued an order that a previous Bishop of Abo, Blessed Hemming had issued 80 years earlier that prohibited priests to keep their children in their households or to permit them reside on vicarages. This order was later copied into the personal copy book of Bishop Magnus Nicolai Särkilahti.

Quia in iure cautum est, quod ille solus recognoscendus est filius, quem nupcie demonstrant, et in statutis Sabinensibus prohibetur sub pena excommunicationis late vniuersis et singulis sacerdotibus filios proprios secum tenere uel eos recognoscere esse suos, precipimus in virtute sancte obediencie vniuersis et singulis sacerdotibus dyocesis Aboensis, quatenus statim, visis presentibus et perlectis, filios suos et filias a familiaritate sua et cotidiana conuersacione procul abiciant, eciam extra parrochias, ne occasionem habeant cum eis iterum conuersandj.

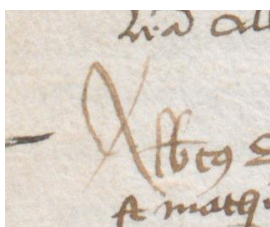


Quia in iuramento dicitur quod ille solus recognoscendus  
 est filius qui iure legitime demeruerunt/ Et in statutis  
 Sabiniensis prohibetur sub pena excommunicationis late  
 unius et singulis sacerdotibus filios ipsos secum tenere  
 vel eos recognoscere esse suos/ precipimus dicitur ut  
 obedimus unius et singulis sacerdotibus diocesis alios Quare  
 statim usque gradibus et plebanis filios suos et filias/ a fam  
 ularum sua et quodam ratione penitus abiciant/ etiam extra  
 parochias/ ne occasionem habeant tunc eis nec suscipiendi

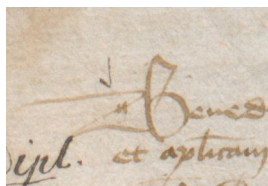
Figure 31: Beginning of Blessed Hemming's order to priest as given in Magnus Nicolai's copybook (DF 1423, DF 563)

### 9.9 Cursive initials in The Black Book

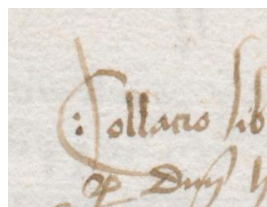
This section shows a bit of the context for the cursive initials that were taken from *The Black Book of Åbo Cathedral* to show how they were positioned among the text. The Y is not actually a initial, but it was the only capital Y that I could find from the book.



A



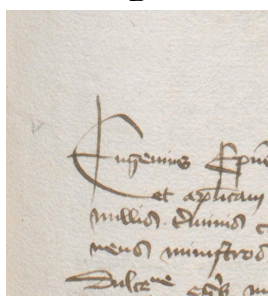
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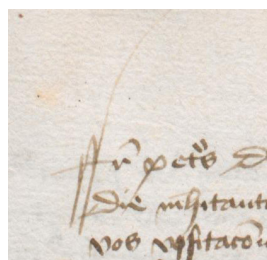
C



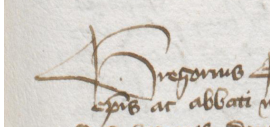
D



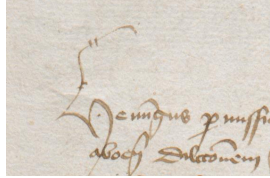
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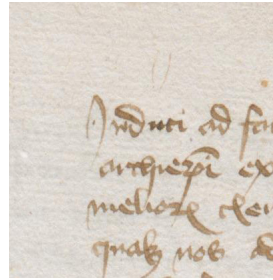
F



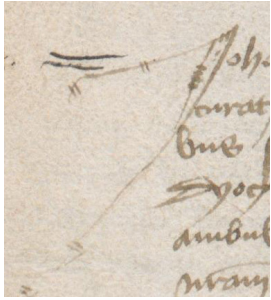
G



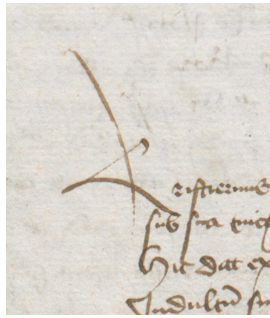
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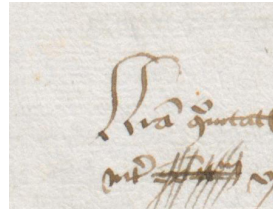
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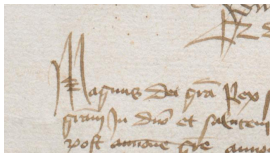
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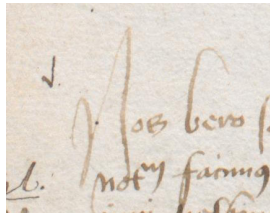
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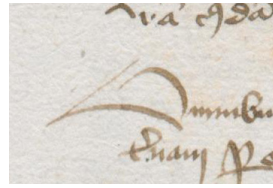
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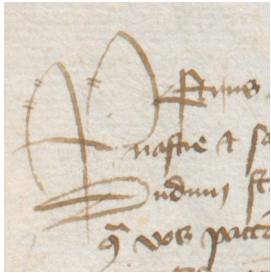
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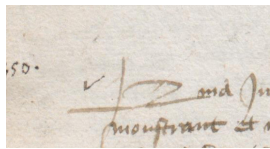
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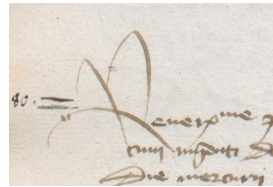
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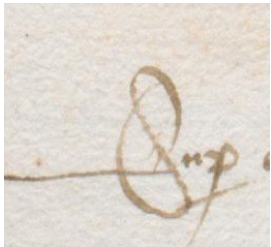
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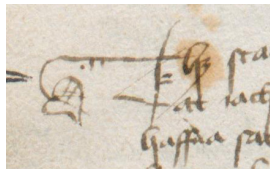
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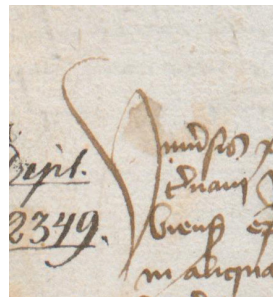
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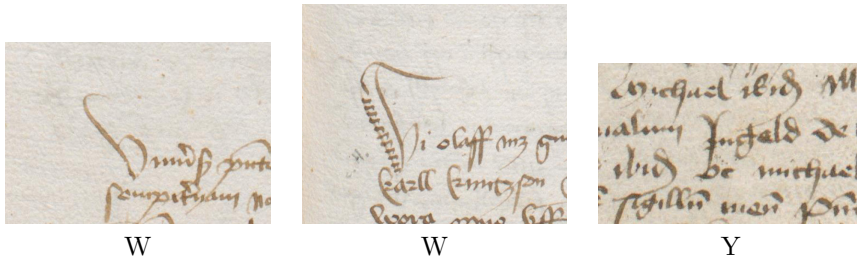
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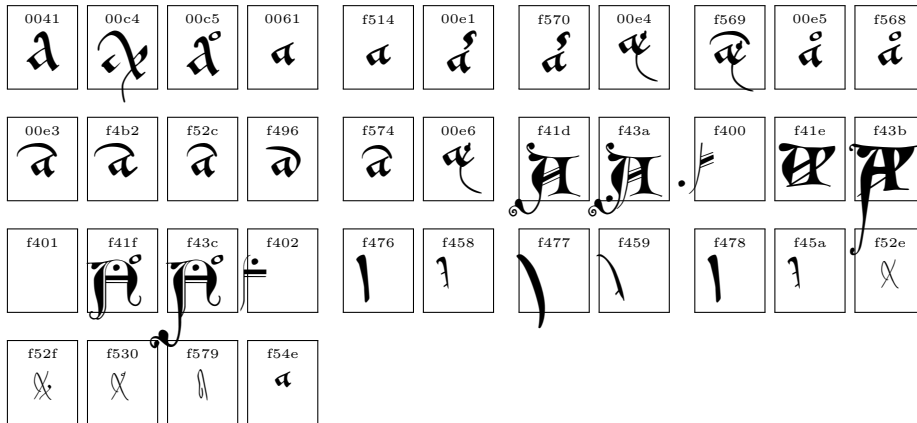
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W

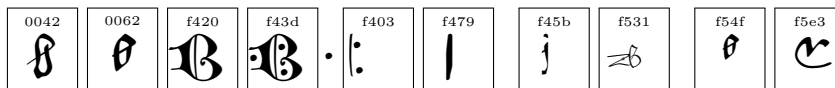
Y

## 10 List of Symbols

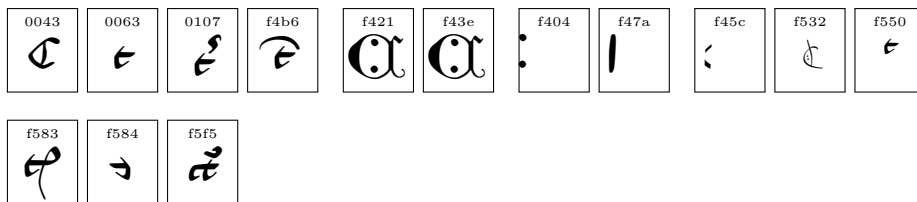
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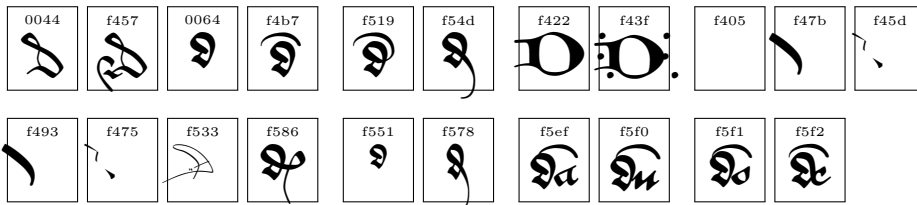
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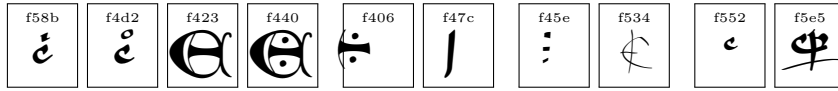
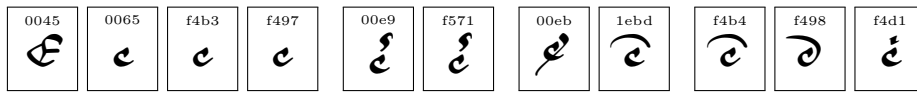
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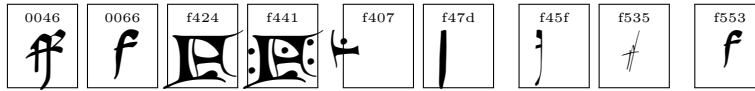
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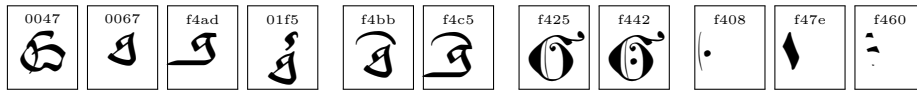
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**F**



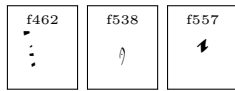
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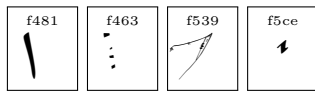
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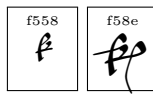


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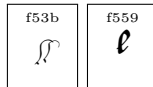


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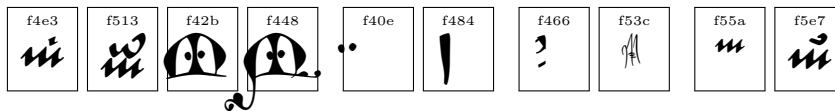
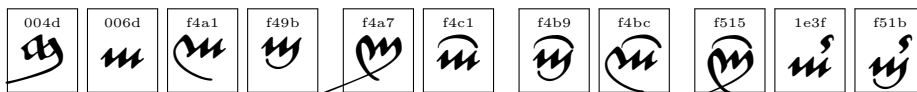




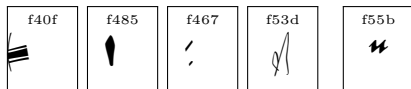
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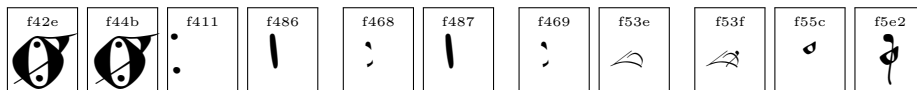
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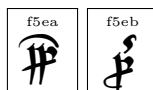
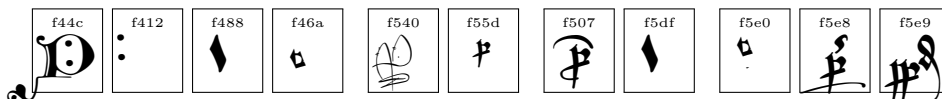
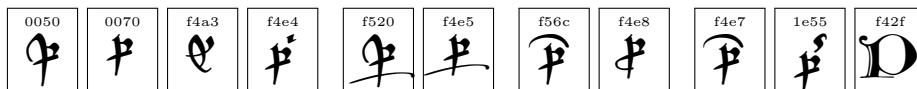
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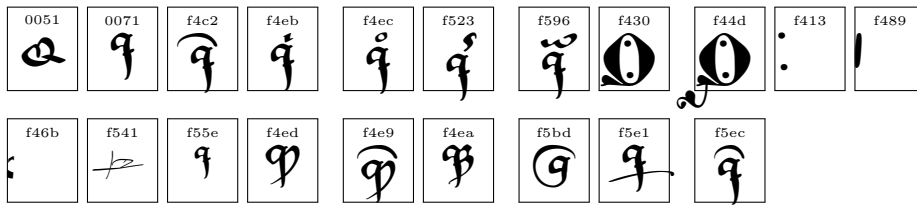
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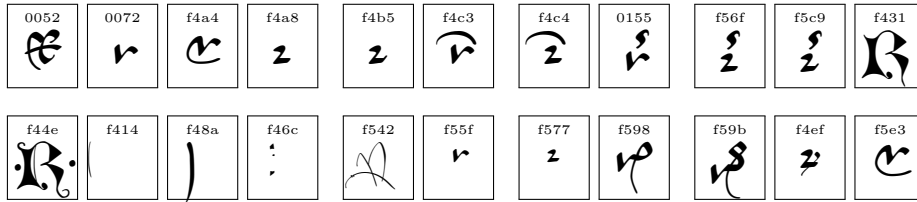
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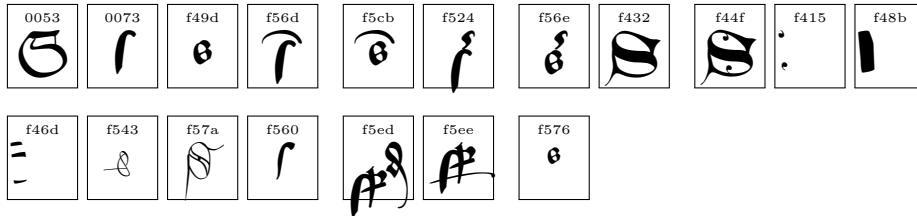
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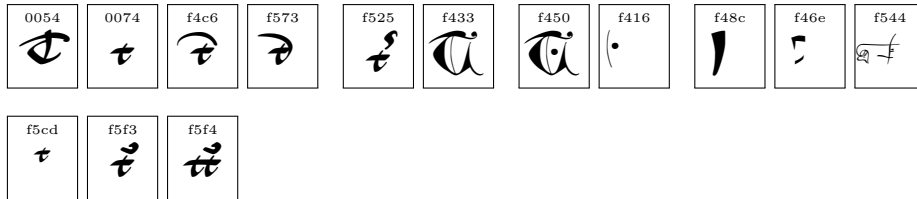
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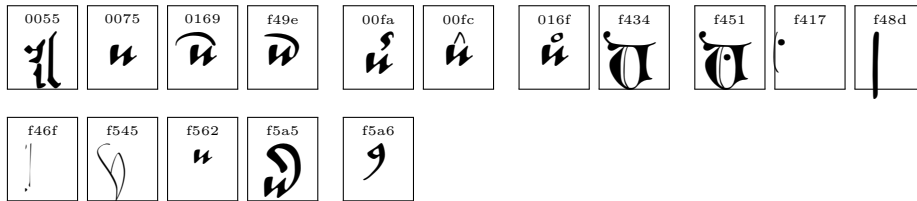
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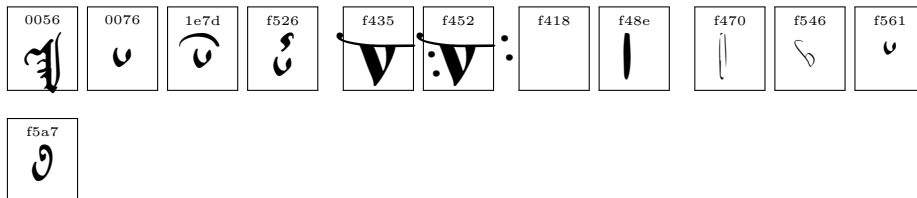
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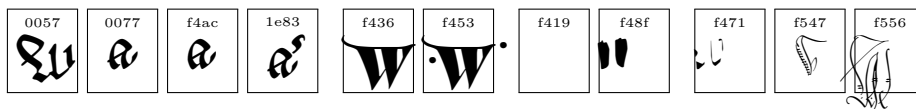
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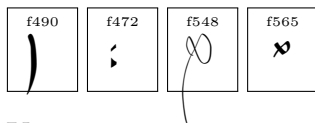
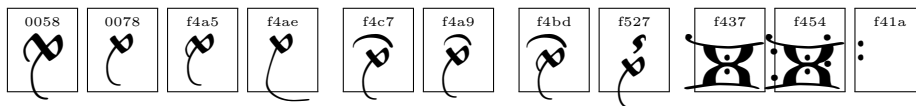
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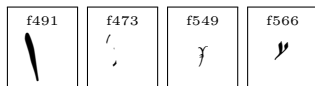
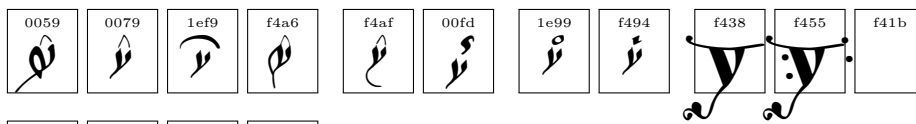
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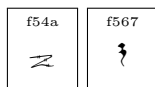
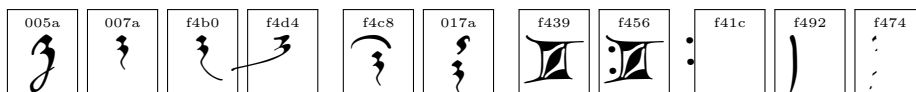
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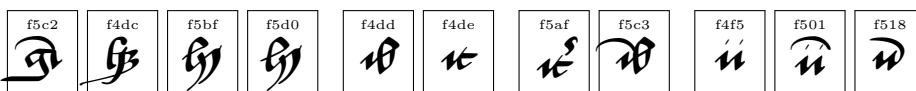
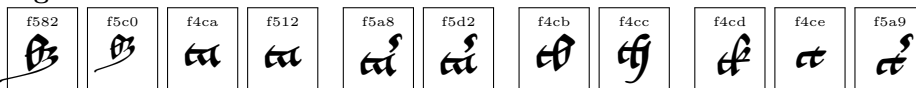
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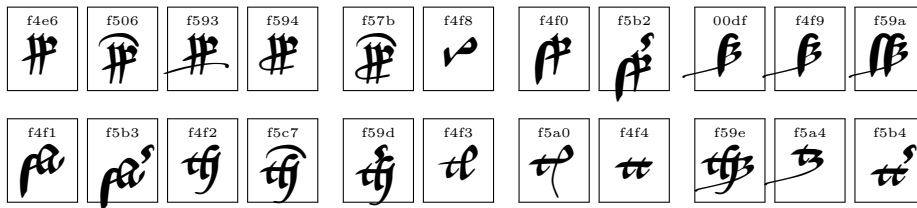


Z



Ligatures

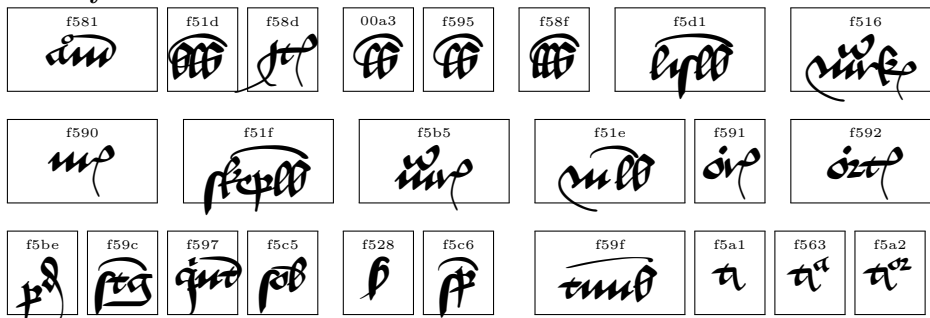




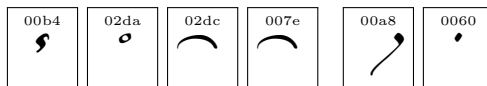
### Numbers



### Unit symbols

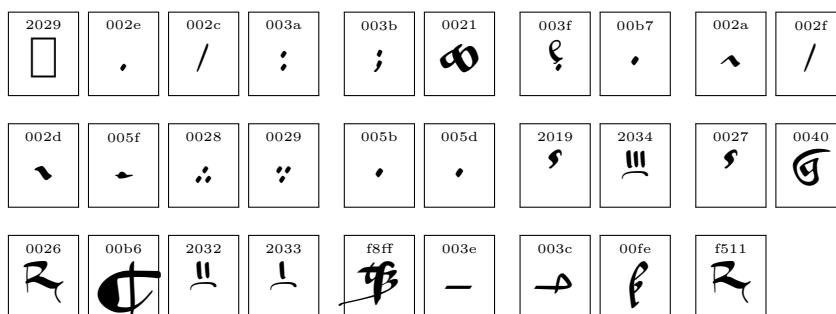


### Accents



### Other





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**Figure 19**

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**Figure 24, 26, 30, cursive samples on pages 105–107**

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