2. Description of processes

Chapter two describes the reduction of unstressed Old Frisian vowels and other processes connected with this development. Detailed reconstructions in chapter two are needed:

• To provide evidence for the hypothesis in chapter four that Middle Frisian had phonologically contrasting tone contours, similar to the modern North Germanic languages Norwegian and Swedish;
• To formulate, calibrate and test the models of language change in chapter five.

The following processes are investigated:

• Degemination: § 2.2
• Open Syllable Lengthening: § 2.3
• Vowel Reduction: § 2.4
• Vowel Balance: § 2.5
• Vowel Harmony: § 2.6

Open Syllable Lengthening is one of the oldest processes and affects the root syllable quantity which, in turn, affects the process of Vowel Reduction. The same holds for the degemination of long consonants, a process contemporaneous with Vowel Reduction. Vowel Balance is revealed as a sub-pattern during the vowel reduction process where the syllable quantity structure is the leading force. Vowel Harmony relates to full vowels in unstressed syllables, but was partly lexicalised during the 15th century. Both Vowel Balance and Vowel Harmony reveal a great deal about the phonetics of both root and subsequent unstressed syllables in late mediaeval Frisian. All these processes are studied with material taken from the charters, in line with the interpretation outlined in § 1.3.

The processes regularly interfere, necessitating cross-references between paragraphs. For the feature of Vowel Balance it was necessary to choose a different order, as this plays a role in almost every paragraph. Vowel Balance as a general phonetic and phonological feature, as well as its appearance in Proto-Germanic, is discussed at the beginning of this chapter in section § 2.1. The Vowel Balance effect during the 15th century Vowel Reduction process is discussed later, in § 2.5. The treatment of degemination in § 2.2 helps reduce the need for back and cross-references.
2.1 Vowel Balance as a phonetic and phonological tendency in Germanic

Vowel Balance is a phenomenon where unstressed syllables that follow a long or heavy syllable are somehow more reduced than when they follow a short or light syllable. The word *somehow* is important in this context. The basic engine of Vowel Balance is a purely physiological feature. Lung pressure gradually falls during the act of speech. Producing intensity stress demands a boost of expiration. In the course of this act lung pressure falls, leaving less speech energy for subsequent sounds, until a new cycle of lung pressure build-up and expiration is started. Phonologically long syllables take more time than phonologically short ones. Long syllables therefore leave less speech energy for the following syllable. From this gradual quantitative difference it follows that the second syllable of a word with an initial long syllable is more vulnerable to reduction, be it qualitative (for example a more centralised realisation, for instance, [i] > [e]), or quantitative (apocope), than when the initial syllable is short.

The purely phonetic effect is for example observable in modern Dutch (Jongman & Sereno 1991, 296). The ending /ɔn/ in the long-rooted plural form *taken* [tɔkɔn] ‘tasks’ is on average 18% shorter than the same ending in the short-rooted *takken* [takɔn] ‘branches’. But speakers of Dutch do not perceive this difference to be an allophonic or allomorphic contrast.

An example of the qualitative impact of Vowel Balance is found in Old Swedish (Hofmann 1979, 74). In Old Swedish, the phonetic contrast between vowels following a long root and those following a short root became so profound that writers used it in their spelling. This marks the transition from a phonetic effect towards a phonological, or at least allophonic contrast:

<table>
<thead>
<tr>
<th></th>
<th>Modern Icelandic, no Vowel Balance</th>
<th>Old Swedish, with Vowel Balance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short root</td>
<td>nom. sg. faðir</td>
<td>faþir</td>
</tr>
<tr>
<td></td>
<td>acc. sg. föður</td>
<td>faþur</td>
</tr>
<tr>
<td>Long root</td>
<td>nom. sg. móðir</td>
<td>móþer</td>
</tr>
<tr>
<td></td>
<td>acc. sg. móður</td>
<td>móþor</td>
</tr>
</tbody>
</table>

Table 2.1: Phonologised Vowel Balance in Old Swedish; after a long root, the vowels /i/ and /u/ of the unstressed syllable are reduced to /e/ and /o/ in Old Swedish.

A stronger reduction of unstressed syllables following a long root could also lead to the complete disappearance of the unstressed vowel. Proto-Germanic i- and u-
roots tend to lose their ending in all Old West Germanic languages after a long root, but keep it after a short one.  

<table>
<thead>
<tr>
<th></th>
<th>Old English</th>
<th>Old Frisian</th>
<th>Old Saxon</th>
<th>Old High German</th>
</tr>
</thead>
<tbody>
<tr>
<td>i-root, long</td>
<td>giest ‘guest’</td>
<td>jest</td>
<td>gast</td>
<td>gast</td>
</tr>
<tr>
<td>i-root, short</td>
<td>wine ‘friend’</td>
<td>wine</td>
<td>wini</td>
<td>wini</td>
</tr>
<tr>
<td>u-root, long</td>
<td>hodn ‘hand’</td>
<td>hodn / hand</td>
<td>hand</td>
<td>hant</td>
</tr>
<tr>
<td>u-root, short</td>
<td>sunu ‘son’</td>
<td>sunu / sone</td>
<td>sunu</td>
<td>fridu ‘peace’</td>
</tr>
</tbody>
</table>

Table 2.2: Vowel Balance effects in the retention of final vowels in Old West Germanic languages.

Traces of Vowel Balance are also visible in the structure of uncompounded words in Modern Frisian. About 32% of uncompounded Modern Frisian lemmas end in an unstressed word-final /a/, for example, sjippe ‘soap’. In the sub-group of words with a long root vowel, only 23% end in /a/, against 37% of the words with a short root vowel. This difference is statistically significant, thanks to the high number of lemmas in the selection.

The previously mentioned examples illustrate that Vowel Balance has been a common phonetic phenomenon in many Germanic languages. Phonologised Vowel Balance effects are absent in Modern West Germanic standard languages. For instance, these languages have no allophones or allomorphs guided by (historical) Vowel Balance. New Norwegian for example, has two different infinitive endings (-a and -e), based on historical root quantity.

The appearance of Vowel Balance based contrasts in unstressed syllables in a given language variant can be used to reveal qualitative aspects of the preceding syllables.

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37 The same unification of Vowel Balance and apocope under the header of one root quantity driven prosodic effect, is found in Smith 2007 (410).

38 These figures are based on a rough count using a morphologically annotated corpus of about 55,000 words (cf. Frisian Language Database: www.fla.knaw.nl/tdb). The word ‘rough’ implies that spelling modes have been taken as an indicator of vowel length. The contrast is restricted to vowel length. Other counts of dialectal material from the FAND database (1980/95) indicate that it is vowel length that matters most in Modern Frisian, rather than the syllable length, where syllable final consonants are included. However, this is a preliminary observation.
Section summary:

• As a phonetic phenomenon, Vowel Balance is ubiquitous in Germanic languages;

• In some varieties of Germanic it has achieved phonological status;

• Vowel Balance phenomena in unstressed syllables are indirect indicators of quantity in preceding root syllables.
2.2 Degemination
2.2.1 The Germanic context
In Proto-Germanic, there was a phonological contrast between short and long consonants, see graph 2.0 for a spectral diagram of a short and a long [t]. This feature has not survived in modern languages such as English, Standard High German, Dutch and Frisian.

Graph 2.0: Spectral diagrams of consonant length of [ita] (left) and [sɛtːa] (right). The continuous, white line marks the intensity contour, the dotted line marks the tone contour. The difference in consonantal length (a low in the intensity contour) is clearly observable. The diagrams are reconstructed realisations of Old Frisian *ita ‘to eat’ and *sett ‘to set’ by the author, using the program PRAAT, applying active second-language competence in Icelandic. Note the spontaneous Vowel Balance effect in the duration of the unstressed [a].

Phonetically long consonants are still found in southern High German dialects (König 2001, 149) and in North Germanic languages, except for Danish. In most cases, the feature of phonetically long consonants is integrated in the quantity structure of the word (cf. § 2.3.1). In Modern Icelandic for example, vowel quantity is redundant and controlled by consonantal length from a synchronic point of view. Only in Swiss dialects, do (semi-) minimal pairs with geminate and non-geminate consonants still exist. For example, from Wallisian (the High German dialects spoken in the Swiss canton of Valais/Wallis) *erlame /ɛr-la-meː/ ‘to lame’ and *lammer /lam-mɛr/ ‘lambs’.
2.2.2 The Frisian context

In Old Frisian, geminate consonants existed just as they did in other Old West Germanic languages. Boutkan (1996, 40) discusses the problem of geminate consonants in word-final position. In that position, gemination is not reflected in the spelling of Old Frisian. For example, *<mon> instead of **<monn> for reconstructed /mɔn:/ ‘man’. Boutkan deduces the existence of word-final geminate consonants in Riustringen Old Frisian from indirect evidence. An indicator of the existence of word-final geminate consonants in late mediaeval West Frisian is the lengthening of short vowels that precede geminate consonants in Old Frisian. This tendency can be particularly observed in northern West Frisian dialects, for example, Modern Frisian röt /rɔt/ ‘rat’ < Old Frisian rôt /ˈrɔt/ (Spenter 1968, 16).

Current Frisian dialects do not have geminate consonants in uncomounded words. Geminate consonants still existed in the dialect of Wangerooge, where they were noticed by Siebs (1901, 1383, section on Wangeroogic t). Siebs mentions this phenomenon only briefly and misses its phonological relevance. More precise phonetic observations were made by Otto Bremer (in a copy of Ehrentraut 1849, stored in the Landesarchiv in Kiel, Cb 122, nr 82:1). The page refers to the page in the aforementioned book. The bold form is the lemma where Bremer made his note:

- p. 365, fāt: fēt, PL. fytu (silbengrenze in dem t) ‘barrel’
- p. 390, schipper: sxþ-pȝ (deutlich geminiert) ‘boatman’

Versloot (1996) reconstructs the distribution of the geminates in the dialect of Wangerooge in the early 19th century, based on notes made by Ehrentraut between 1837 and 1841. An important innovation in the dialect of Wangerooge was that new geminate consonants arose in bisyllabic Old Frisian words with a short root.

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39 Schiermonnikoog dialect (= north-east) poot [pɔt] with lengthening. The Hindeloopen dialect pûr [pɔr] has a curious palatalisation. This palatalisation occurs also in other instances where northern dialects exhibit lengthening: Hindeloopen rût, pûl, Standard Modern Frisian rût, pûl. It is assumed that this is an alternative (indirect) reflex of former long consonants in the far south-west.

40 In a compound such as West Frisian bruûnettel ‘nettle’ a long [n] may be realised, but even there, it is not compulsory.
A.P. Versloot: *Mechanisms of Language Change*

vowel. This made the distribution of the geminate consonants in Wangeroogaic completely predictable, following on from the quantity of the root vowel. No minimal pairs in Wangeroogaic are discriminated by consonant length only. Versloot suggests that the dialect of Harlingerland (extinct since the 18th century) contained a distribution of geminate consonants similar to that in Wangeroogaic.

2.2.3 The West Frisian charters

The development of unstressed vowels following a long root syllable differs from the development of unstressed vowels which follow a short root syllable (§ 2.4). This is a manifestation of Vowel Balance (§ 2.1). When geminate consonants appear at the border of two syllables, the first half is commonly considered to be part of the rhyme, whereas the second half belongs to the onset of the next syllable:

/VC:V/ + syllabification → /VC-CV/.

A single consonant is syllabified to the onset of the second syllable, creating a short(er) root syllable:

/VCV/ + syllabification → /V-CV/

Evidence from Vowel Balance effects

Root quantity affects, for example, the reduction of subsequent unstressed vowels (Vowel Balance). This can provide information on root and subsequently consonant length. Map 2.14 in § 2.5.2 shows the manifestation of Vowel Balance in the north-eastern half of Fryslân until about 1460: Retention of <a> following short root syllables, but reduction to <e> following long root syllables. The early reduction of an unstressed /a/ in a word such as habbat ‘have (ind. pres. pl.)’ before 1430 implies that the consonant must still have been long at that time. This provides a datum post quem of ± 1430 for the process of degemination in West Frisian.

A negative clue is provided by the reduction of word-final -a after 1470. Historical geminate consonants no longer contribute to root quantity at that time (graph 2.19). This makes ± 1470 a datum ante quem for the degemination.

Evidence from consonant spelling

Another way to detect consonant degemination is the spelling of intervocalic consonants. In Old Frisian texts, such as the Riustringen texts and *Unia* group A-1

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41 Cf. § 2.3.1 for similar developments in some North Germanic dialects.
and A-2, phonetic single consonants are (mainly) written with a single consonant sign, irrespective of the quantity of the preceding vowel, matching Latin spelling practices:

- Old Frisian <wesa> ‘to be’ = [vɛza];
- Old Frisian <Fresena> ‘Frises’ (gen. pl.) = [freːzɔna].

Geminate consonants are written with a double consonant graph:

- Old Frisian <lesa> ‘to read’ = [lɛza];
- Old Frisian <lessa> ‘less’ = [lɛsːa].

A similar situation is found in Old Dutch and Old Saxon. Open Syllable Lengthening was generally applied in Middle Dutch and Middle Low Saxon. In the spelling of those languages, the first <V> in the graphematic sequence <VCV> represented a long vowel, while the first <V> in <VCCV> was a short vowel. When long consonants disappeared from Middle Dutch and Middle Low Saxon, double consonant spelling turned into a marking of vowel length. A single consonant signals that the preceding vowel is long, while a double consonant signals a short preceding vowel. This is still the general rule in Modern Dutch spelling. For languages where Open Syllable Lengthening had been generally applied, the spelling did not change from this re-interpretation.

Before the quantity shift of vowels and consonants:

\[
\begin{align*}
<V(VCV)> & \Rightarrow [V:CV] \\
<VCV> & \Rightarrow [VCV] \\
<VCCV> & \Rightarrow [VC:V]
\end{align*}
\]

after the quantity shift:

\[
\begin{align*}
<V(VCV)> & \Rightarrow [V:CV] \\
<VCCV> & \Rightarrow [VCV]
\end{align*}
\]

\[42\] Note the phonetic contrast in voiced single consonant versus geminated unvoiced consonant.
An example from Middle Dutch, with regular lengthening in open syllable:

Single vowel and single consonant spelling $<\text{VCV}>$:

- Early-Middle Dutch: short vowel and short consonant [VCV]:
  \(<\text{gebeden}>\, [\text{bêdən}] \) ‘prayed’

- Late-Middle Dutch: long vowel and short consonant [V:CV]
  \(<\text{gebeden}>\, [\text{bêdən}]\)

Single vowel and double consonant spelling $<\text{VCV}>$:

- Early-Middle Dutch: short vowel and long consonant [VC:V]:
  \(<\text{bedden}>\, [\text{bêdːən}] \) ‘beds’

- Late-Middle Dutch: short vowel, short consonant [VC V]
  \(<\text{bedden}>\, [\text{bêdən}]\)

Open Syllable Lengthening was far less prevalent in West Frisian than it was in Dutch and Low Saxon. In West Frisian, there were several [VCV]-syllables left with historically motivated spelling $<\text{VCV}>$, such as $\text{wesa} \, \text{‘to be’}$. Writers of Frisian were familiar with the graphematic sequence $<\text{VCV}>$ as a marker of [V:CV] from Middle Dutch and Middle Low Saxon. Therefore, they developed a habit of spelling with double consonants in those cases. For example, $<\text{wessa}>$ instead of the older $<\text{wesa}>$. The application of this new ‘spelling rule’ was even more probable when in Frisian $<\text{CC}>$ no longer represented [C:]. An increase of $<\text{CC}>$-spelling can signal the loss of phonological geminate consonants. This phenomenon was already discussed by Hofmann (1969). Hofmann concluded that degemination did not take place in West Frisian before 1400 (idem, 72).

The following examples have been taken from the charter text corpus and $\text{Unia}$: Old Frisian $\text{seke} \, \text{‘case’}$, $\text{bitalad} \, \text{‘paid’}$, $\text{wesa} \, \text{‘to be’}$ and $\text{makad} \, \text{‘made’}$. In Old Frisian, they are spelled with $<\text{VCV}>$, but in Middle Frisian they are written $<\text{seke}>, <\text{bitalad}>, <\text{wessa}>$ and $<\text{mackad}>$.$^{43}$ The proportion of historical tokens with only one consonant is shown in graph 2.1. After 1460, the spelling type $<\text{VCV}>$ almost disappeared. The charters reveal no geographical variation in the development.

\[\text{It is remarkable that the number of } <\text{Il}> \text{ spellings in } \text{bitalado(n)} \text{ is significantly lower than in } \text{bitalad}. \text{Following a single } <\text{l}> \text{ one often finds the spelling } <\text{y(n)}> \text{ or } <\text{ijc(n)}>. \text{This may be an indication that the sound following } [\text{l}] \text{ was a consonant } [\text{i}], \text{rather than a vowel } [\text{i}]. \text{Thus: } <\text{bitalye(n)}> \text{ implies } [\text{bitaljə(n)}] \text{ while } <\text{bitallie(n)}> \text{ reflects } [\text{bitaljə(n)}].\]
In the original charters from the 14th century, tokens spelled with one, historically correct \(<C>\) dominate. This indicates that phonological degemination of long consonants did not start much before 1400. The data from Unia confirms this assumption. Most texts in Unia group A-1 and A-2 stick to the etymologically correct spelling of short consonants in words such as \(\text{wes}, \text{seke}\) and \(\text{makad}\). In early 15th century texts ‘Processus Judicii’ and ‘Thet Autentica riecht’, spelling with \(<CC>\) dominates. This data suggests that consonant degemination did not start in West Frisian before 1390, but then evolved very rapidly, to be completed before 1460.

Graph 2.1: Proportion of tokens with one intervocalic consonant in words with an historical short consonant. The graph is based on the words: \(\text{seke} \text{ ‘case’}, \text{bitalad/-th} \text{ ‘paid/pay’}, \text{wesa ‘to be’} \text{ and makad/-th ‘made/make’}. \) ‘token percentage (%)’ means that the percentage \(<C>\) spelling was calculated over the total of the tokens from the four words. For ‘lemma percentage (%)’ the percentage with \(<C>\) was computed per word, and subsequently, the average of these four figures was taken. The dating of the charter data matches the middle of the time frames. For the Unia groups: A-1 = 1300, A-2 = 1350, A-3 = 1405 and C = 1440 (no data from group B for this graph).

There is one important restriction to this conclusion. What did Frisian writers do when they were writing their language with phonological geminate consonants using the spelling tradition of Middle Dutch? This question is difficult to answer. Middle Dutch spelling practices came into use shortly after 1400 and this was precisely the time when phonological degemination was likely to have taken place. Consider the following pronunciation and corresponding spellings, given the Middle Dutch spelling practice:
There is a theoretical way out of this problem. Spelling \[V:CV\] with \(<V(\text{V})CV>\), while spelling \[VCV\] with \(<VCCV>\). But that system was not applied in the early 15th century. For example, \(<\text{de}lc\> = [\text{de}lam] \text{ ‘part’} \text{ (OFO I-9, 1402); } <\text{fanc}\> = [\text{fanc}t] \text{ ‘moor’ (dat. sg.)} \text{ (OFO I-34, 1421)}, \text{ although } <VVCV> \text{ does regularly appear alongside } <VCV>.

Evidence from compensatory lengthening of vowels preceding a geminate consonant
Finally, there is evidence of the aforementioned compensatory lengthening (for instance Modern Frisian /rɔt/ ‘rat’ < Old Frisian /rɔt:/, cf. § 2.2.2). One problem is that the phenomenon is geographically limited to the north and that it has never grown to be any more than a tendency. Clear cut examples are therefore difficult to find in the charter corpus. The Old Frisian word \(\text{dam} \text{ ‘dam’}\) shows lengthening in Standard Modern Frisian: \(\text{daam}\). In original charters, the oldest attestation is from 1446 (OFO I-95) <\text{dam}>. As lengthening is always absent in the plural, there are only 12 relevant attestations in the original charters. Just two of them show lengthening: The oldest case of lengthening is from 1453 (OFO IV-16): <\text{daem}>. The other case is OFO II-359, 1531: <\text{daemie}> meaning ‘to dam’.

Table 2.3: Correspondences between pronunciation and spellings in late medieval Dutch and Frisian

<table>
<thead>
<tr>
<th>Middle Dutch</th>
<th>late-Old Frisian</th>
</tr>
</thead>
<tbody>
<tr>
<td>[V:CV]</td>
<td>&lt;V(\text{V})CV&gt;</td>
</tr>
<tr>
<td>[VCV]</td>
<td>&lt;VCCV&gt;</td>
</tr>
<tr>
<td>[VC:V]</td>
<td>&lt;VCCV&gt;</td>
</tr>
</tbody>
</table>

For late Old Frisian writers of Frisian who applied Middle Dutch spelling practices, there was a problem of how to represent geminate consonants. According to Dutch spelling practices \(<VCV>\) meant \[V:CV\]. The most logical way to spell geminate consonants was with \(<CC>\). So \[VC:V\] could be spelled with \(<VCCV>\). The problem arises for \[VCV\]. Applying the Middle Dutch spelling practice implies the spelling \(<VCCV>\), but this means that \(<CC>\) is used both for \([C]\) and \([C:]\). Spelling \[VCV\] as \(<VCV>\) would mean that the length of the vowel becomes ambiguous.\(^{44}\)

\(^{44}\) There is a theoretical way out of this problem. Spelling \[V:CV\] with \(<VVCV>\), while spelling \[VCV\] with \(<VCV>\). But that system was not applied in the early 15th century. For example, \(<\text{de}lc}\> = [\text{de}lam] \text{ ‘part’} \text{ (OFO I-9, 1402); } <\text{fanc}\> = [\text{fanc}t] \text{ ‘moor’ (dat. sg.)} \text{ (OFO I-34, 1421)}, \text{ although } <VVCV> \text{ does regularly appear alongside } <VCV>.
Summarising the evidence:

- The end of the Latin spelling tradition provides a datum post quem of about 1390. In the Latin spelling tradition, quality contrast of consonants are actually spelled out: /c/ = <C>, /c:/ = <CC>. The historical-phonological contrasts are spelled correctly in pre-1400 sources;
- Vowel Balance effects in an unstressed non-final /a/ suggest a degemination after 1430;
- An absence of Vowel Balance effects according to historical root quantity, including geminate consonants, in the reduction of word-final unstressed /a/ provide a datum ante quem for consonant degemination of 1470;
- Scarce evidence of the word *dam* suggests consonant degemination before ± 1450;
- The ambiguous indication of spelling practices suggests a start of the process of degemination after 1400, to be completed not later than 1460.

The accumulation of these indicators enables a dating of the degemination process in West Frisian between ± 1420 and 1460. This means that the process took place over little more than one generation.

The cause of the degemination may stem from a loss of functional loading in the quantity contrast. Take the following example:

<table>
<thead>
<tr>
<th>stage</th>
<th>‘sun’</th>
<th>‘son’</th>
<th>status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proto Old Frisian</td>
<td>[sunːθ]</td>
<td>[sunθ]</td>
<td>Gemination has phonological status</td>
</tr>
<tr>
<td>Old Frisian</td>
<td>[sunːθ]</td>
<td>[sɔnθ]</td>
<td>Single and geminated consonants show a complementary distribution: /VC:/ ~ /VːC:/</td>
</tr>
<tr>
<td>Late-Old Frisian</td>
<td>[sonːθ]</td>
<td>[sɔn]</td>
<td>Due to /θ/-apocope and syncope, the number of contrasting contexts is strongly reduced.</td>
</tr>
<tr>
<td>Middle-Frisian</td>
<td>[sonθ]</td>
<td>[sɔn]</td>
<td>Vowel length is the only contrasting qualitative feature</td>
</tr>
</tbody>
</table>

Table 2.4: Geminated consonants and their phonological status.

Not every unstressed vowel was subject to syncope or apocope. There were instances of complementary distributions and incidental minimal pairs, but apparently not enough to maintain a phonetic contrast throughout the language.
Section summary:

- Old Frisian had a phonetic opposition between short and long consonants;
- Information about consonant length can be obtained from: Vowel Balance effects, spelling practices and compensatory vowel lengthening (Modern Frisian rot < Old Frisian /roː/);
- The combined evidence suggests a rapid loss of long consonants between ± 1420 and 1460.
2.3 Open Syllable Lengthening

2.3.1 The Germanic context

Open Syllable Lengthening is a development where a Proto-Germanic short root vowel is lengthened when in syllable final position. For example, Proto-Germanic *se-gô, with a short /a/, becoming English saw [sɔː], Dutch zaag [zaː], West Frisian seage [st.əɣə], Icelandic ság [saxː] and High German Säge [zeːɡ] (< *se-gô), all with long root vowels. A tendency towards some form of Open Syllable Lengthening is widespread in all Germanic languages.

Dutch and Low Saxon

The phenomenon is most widespread and generally applied in Dutch and Low Saxon: Modern Dutch week ‘week’ < Old Dutch wika, meten ‘to measure’ < metan, water ‘water’ < water, zoon ‘son’ < sunu, deur ‘door’ < duri. West-Germanic /i/ and

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45 Here and in subsequent cases, High German pronunciation reflects common North German practices, for example, an initial [a] instead of a South German [s] or [R] for /s/ instead of a South German [ɛ] (König 2001, 244-245).
/e/ coalesce in /c:/, and /o/ and /u/ in /o:/.

Compare High German *sicher* ‘sure’ and *Nuß* ‘nut’ preserving the original vowel qualities /i/ and /u/, against Modern Dutch *zeker*, *noot*, with lowered qualities /e:/ and /o:/ (Modern Low Saxony *sèker*, *Nòt*). Lengthening took place in Dutch prior to the 13th century (Pijnenburg 1997, 84).

**English**

In the course of the Middle English and early-Modern English period, Open Syllable Lengthening could be overruled by a metrical rule, asking for two short vowels in many disyllabic words ending in a consonant or trisyllabic words (Brunner 1970, 18; Ekwall 1975, 13). So Modern English *sake* [sæk] < Old English *sacu*, but *hammer* [hæmər] < Old English *hamor*. This metrical constraint not only prohibited or reversed the lengthening, but also caused shortening of originally long vowels, as in *brother* [brʌðər] < Old English *brottun*. The lengthening of /a/, /e/ and /o/ took place around 1300. The lengthening of /i/ and /u/ did not take place before the late 13th and 14th centuries and in a more limited geographical region only.

**High German**

In High German (König 2001, 153) many words which were subjected to lengthening in other languages, avoid this because of the High German Consonant Shift. The consonant shift produced a number of new geminate consonants, closing the preceding syllable. Compare Dutch *water* [vatər] < /va-tər/, High German *Wasser* [vazər] < /va-sər/, Dutch *gereden* [ˈɣeːrə.dən] < -/ri- dan/ and High German *geritten* [ɡeɾɪtən] < -/rit-tan/. The oldest indications of Open Syllable Lengthening in High German are from the 12th century.

Standard High German has a large number of lengthened vowels in monosyllabic closed syllables due to levelling. In the Middle High German paradigm, the vowel was in open or closed syllable alternatively, depending on the case, for example in the singular of *tac* ‘day’: nom./acc. *tac*, gen. *tac-ges*, dat. *tac-ge*. In Dutch, the singular form kept the short vowel from the nominative and accusative (*dag*; but: *eerdages* ‘soon’ < *eerdages*). The lengthened vowel appears in the plural *dagen*. In Modern High German, the lengthened vowel has been generalised throughout the paradigm: nom./dat./acc. sg. *Tag* [ta:k]. The spread of this phenomenon through German dialects is gradual. In the Bavarian and East-Franconian dialects, monosyllabic words with a short vowel whether they be followed by a single or double consonant, are always lengthened: *kôpf* ‘head’, *däch* ‘roof’, in Standard High German with short vowel: *Kôpf*, *Däch*.

In the far south-western dialects (Swiss-German), there is no lengthening of short vowels at all. Here, the Proto-Germanic syllable types of short and long syllables
The name ‘Scandinavia’ is used in the narrow geographical sense of the Scandinavian Peninsula only, comprising of Norway and Sweden. Both Denmark and Finland and even Iceland and the Faroe Islands are sometimes included in ‘Scandinavia’. Note that Finnish and Sami, spoken in Norway and Sweden, are not Germanic languages, while Denmark is not on the Scandinavian Peninsula. The narrow interpretation is very practical in the context of this study, because relevant phenomena, such as pitch accent, Vowel Harmony and Vowel Balance are limited to varieties of Norwegian and Swedish.

North Germanic
North Germanic languages including Icelandic, Faroese, west Norwegian, Danish and southern Swedish show a regular application of Open Syllable Lengthening. The lengthening started in Danish in the 13th century, reaching Icelandic not before the 16th century. Additionally, many North Germanic languages show lengthening of originally short vowels when followed by only one consonant. For example, Icelandic dag (acc. sg.) [da:y] ‘day’ with a long vowel, cf. West Germanic Dutch dag [dOx] with a short vowel. In East-Norwegian dialects in the Trondheim region, as well as in Central-Swedish (including the Stockholm region), there is a tendency not to lengthen the vowel but to lengthen the consonant. For example, New Norwegian (based on western dialects) veke [ve:k:a] ‘week’ versus Swedish vecka [vE:k:a] (Haugen 1984, 326-327).

Regions with consonant lengthening largely coincide with dialects that have a late pitch peak in Scandinavian Accent I (the ‘unmarked’ type) and a double pitch peak in Accent II (the hatched region in map 2.1). In the same part of Scandinavia, there are dialects with no Open Syllable Lengthening at all in either vowels or consonants. The archaic Álvdalsk dialect of Dalecarlia does have lengthening in monosyllabic words ending in a single consonant, but not in bisyllabic words. For example nom. sg. [dell:] ‘valley’, nom. pl. [dóltr]. In bisyllabic words, Dalecarlian exhibits so-called Level Stress. Level Stress means that two adjacent syllables are perceived as being more or less evenly stressed. This effect can be caused by the spread of the intensity stress over two syllables, but also by the combination of intensity stress on the first syllable and a pitch accent on the second. An example of the former is found in Wallisian dialects (see the following paragraph). The latter type is one that is regularly found in Scandinavian dialects (Bye 2004b; more about Level Stress and the Scandinavian accent types in chapter 4).
Archaic syllable structures and stress patterns in Wallisian dialects

With the sole exception of Swiss German, all Germanic languages seem to ‘do’ something with originally short root syllables. High German dialects of Wallis preserve the archaic settings in this respect. There is a connection in phonetics between stress and duration. They attract each other. Wipf (1910, 19) writes about intensity stress in the Wallisian dialect of Visperterminen at that time:

“In isoliert gesprochenen Wörtern wie fatter Vater; bogo Bogen; himill Himmel; bættu beten; gibættot gebetet, besteht zwischen der Stärke der letzten Silbe und der Haupttonsilbe ziemlich genau dasselbe Verhältnis wie in musterdeutschem ‘Schönheit’; [....]”

Wipf emphasises that the stress contrast between root and unstressed syllables is much less than in Standard High German or any other Swiss German dialect. The musical accent is described as ‘strong’ (idem, 21) and not connected with intensity stress, as is the case with the rest of Swiss German and Standard High German. The tone contour is “völlig frei, d.h. sie ist ganz von der Stellung im Satze und dem musikalische Satza kzent abhängig.” (idem, 22). The Wallisian dialects also exhibit several full vowels in unstressed syllables. This is one of the features that disappeared from many Germanic languages as a result of primary root stress. The issue of stress in syllable structure and phonological change is covered further in chapter four.

47 In words, realised in isolation such as ... father, ... bow, ... heaven, ... to plead, ... pleaded, the relation between the intensity stress of the final syllable and the root syllable is more or less the same as in Standard High German ... (beauty).

48 “…completely free, meaning entirely depending on the position in the sentence and the musical sentence accent.”

49 Although this sounds rather archaic and indeed goes together with the retention of Old High German features in phonology and syllable structure, it is important not to interpret the Wallisian situation as a pure phonetic relic. Wipf notes that, to a stranger, the dialect sounds like a Romance dialect (idem, 21). The region was most likely first linguistically Germanised after 1100 (Julen 1989, 14). Wallis was dominated by French for a long time. If the stress pattern of Visperterminen in the early 20th century was the same as in Proto-Germanic, its retention may be due to a coincidental support by Romance adstratum or substratum influences. The Romance origin could also be a leading factor, being the cause of the retention of archaic phonological features.
Section summary:

- Proto-Germanic short roots (short vowel + single consonant) are subject to lengthening processes in almost all Germanic languages;

- Wallisian High German preserves the old syllable pattern and exhibits no fixed connection between intensity stress and tone contours.
2.3.2 The Frisian context

Open Syllable Lengthening is far less obvious in Frisian than it is in neighbouring Dutch, Low Saxon and Danish. General implementation of this tendency is only found in the dialect of Saterland and in the North Frisian dialects of the islands. The latter case is difficult to come to grips with from a modern point of view, because of an extensive shortening of older long vowels (including the lengthened short vowels in open syllables). Examples from the North Frisian dialect of Föhr show different developments of Old Frisian /i/ in open or closed syllable:

<table>
<thead>
<tr>
<th>In open syllable:</th>
<th>In closed syllable:</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>sledd</em> ‘sledge’</td>
<td><em>fask</em> ‘fish’</td>
</tr>
<tr>
<td><em>slide</em></td>
<td><em>fisk</em></td>
</tr>
</tbody>
</table>

Open Syllable Lengthening influenced by subsequent vowel quality

In North Frisian mainland dialects, short vowels in open syllables show different developments depending on the quality of the vowel in the subsequent unstressed syllable. Before an Old Frisian /a/ in unstressed syllable, short root vowels share the same fate as their closed syllable cognates (Versloot 2002a). As in the island dialects, the later quantity resuffle obscures the perception of this development. Examples from the dialect of the Halligen:

<table>
<thead>
<tr>
<th>In open syllable before Old Frisian /a/:</th>
<th>In closed syllable and before Old Frisian /a/:</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>määl</em> ‘meal’ &lt; Old Frisian <em>meł</em></td>
<td><em>smeel</em> ‘narrow’ &lt; Old Frisian <em>smel</em></td>
</tr>
<tr>
<td><em>mele</em></td>
<td><em>steele</em> ‘to steal’ &lt; Old Frisian <em>stela</em></td>
</tr>
</tbody>
</table>

A similar tendency can be observed in the (now extinct) East Frisian dialect of Harlingerland and the West Frisian dialect of Schiermonnikoog (idem, 67,68).

‘Scandinavian’ patterns in East Frisian dialects

The central Scandinavian tendency to lengthen intervocalic short consonants (instead of lengthening the vowel) is found in the (also extinct) dialect of Wangerooge. In this dialect, historical geminate consonants were retained and augmented by new geminate consonants, developing from short consonants after a short root vowel (Versloot 1996), cf. § 2.2.2.: 

<table>
<thead>
<tr>
<th><em>timmer</em> [tım:ər] ‘to timber’</th>
<th><em>kumme</em> [kʊm:ə] ‘to come’</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; Old Frisian <em>timmeria</em></td>
<td>&lt; Old Frisian <em>koma</em></td>
</tr>
</tbody>
</table>

In Scandinavia, dialects with consonant gemination are intermingled with Level Stress dialects (map 2.1). A similar geographical pattern was found in East
Friesland. The ‘neighbour’ of the Wangerooge dialect, the dialect of Land Wursten (also extinct) shows an extreme form of Level Stress (Hofmann 1961 and recently in Smith & Van Leyden 2007). In this dialect, the Level Stress resulted in a complete accent shift from the root towards the ending in words with short vowels in open syllables: kma ‘to come’ < Old Frisian koma.

The lengthening of Old Frisian /i/ and /u/

For West Frisian, Hoekstra (2001a, 723-724) and Versloot (2001b, 769) point out the absence of lengthening in open syllables of the Old Frisian /e/ and the lengthening of /a/ and /o/. For Old Frisian /i/ and /u/ in open syllables, the situation is rather complex. Versloot (2001b, 770-771) assumed a lengthening of /i/ and /u/ and subsequently coalescence with Old Frisian /i:/ and /u:/.

Hoekstra (2001a, 723) takes a more careful position. He signals that both the historical /i/ and /i:/ (and similar for /u/ and /u:/) underwent a redistribution of their quantity according to the following consonant. So there are two scenarios:

- /i/ was lengthened in open syllables and merged with the old /i:/ and /i:/.
- /i/ remained short and kept its closed quality in open syllables and could later be lengthened in some phonological contexts; /i:/ was shortened precisely in those contexts where /i/ was not lengthened. This cascade of developments finally produced an identical quantity distribution (Hoekstra’s view 2001a).

In the next section new evidence will be presented for the first scenario.

A similar problematic situation is found in Wangeroogic. Versloot 2001b (770), mentions that /i/ and /u/ were probably lengthened in open syllables. The reasons for this assumption are:

- The gemination of former single consonants in open syllables is absent after Old Frisian /i/ and /u/;
- The root vowels are written <û> and <uu>, suggesting long vowels.

Phonetic transcriptions of late 19th century Wangeroogic made by phonetician Otto Bremer (in his copy of Ehrentraut 1849, cf. § 2.2.2) reveal that there was a quantity opposition in Wangeroogic between short /i/ and long /i:/.

The Old Frisian long /i:/ could either be long or short in Wangeroogic. The product of short /i/ had the same quality, but was apparently always short. The numbers refer to the page in the aforementioned book, the bold form is the lemma where
Bremer made his note:

- p. 363, **dîk**: dîk […], dîk (mit kurzem i)
  - ‘dyke’ ‘... with short i’; < Old Frisian /dîk/

- p. 399, **tîd**: thîd
  - ‘time’ < Old Frisian /tîd/ 

- p. 392, **sîlîch**: si-lix (deutlich zwei kurze i)
  - ‘seal’ ‘... clearly two short i’s’; < Old Frisian */silîch/

It is difficult to date Open Syllable Lengthening in Frisian. Thirteenth and 14th century Old Frisian sources from East Friesland show no traces of Open Syllable Lengthening or intervocalic consonant gemination.

Three aspects deserve special consideration in the study of the charters in the following section:

- There is no certainty about Open Syllable Lengthening of the Old Frisian /i/ and /u/;
- The Old Frisian /e/ is apparently not affected by Open Syllable Lengthening in Middle Frisian;
- Different developments can be expected before an Old Frisian /a/ or /o/.

Section summary:

- Open Syllable Lengthening is not as general in Frisian as neighbouring West and North Germanic languages;
- The (extinct) East Frisian dialects of Wangerooge and Land Wursten show ‘Scandinavian’ patterns (consonant lengthening or level-stress);
- In other dialects, including some West Frisian ones, Open Syllable Lengthening does not occur when the following unstressed syllable contains /a/ in Old Frisian.
2.3.3 The West Frisian charters

The main issues in the following section are:

- Open Syllable Lengthening in mediaeval West Frisian in words where the following syllable contains an /ɔ/ or /u/ (§ 2.3.3.1);
- A limited application in instances where the root was followed by an unstressed syllable with /a/ (§ 2.3.3.2).

Evidence from the charters has induced an investigation of two more, related features. In the context before /a/, curious spellings appear with <VVCC>, for example, <leessa> for leesa ‘to read’. The vowel digraph indicates vowel length, but the double consonant is usually a mark for the shortness of the preceding vowels. This phenomenon will be analysed in detail in § 2.3.3.3.

It also became apparent that an Old Frisian /a/ does not only block Open Syllable Lengthening in many cases, it can even cause the shortening of Old Frisian long vowels. Although both the <VVCC>-syllables and the shortening are beyond actual Open Syllable Lengthening, they will also be treated, given all phenomena are concerned with root syllable quantity processes.

Graph 2.2: Spelling of Old Frisian fore ‘for’ between 1379 and 1510.

2.3.3.1 Old Frisian short root vowels, when not followed by an unstressed /a/

The following words have been checked in the corpus to trace the development of the Old Frisian /a/ and /ɔ/ in open syllables before a following /ɔ/ in the next
syllable: dore 'door', sone 'son', bitale 'payment' and fora\textsuperscript{50} 'for'. In § 1.3.3, the case of fora was used in table 1.4 to illustrate the transition from the Latin spelling tradition, without explicit indication of root vowel length, towards the Dutch spelling tradition, with digraphs for long vowels.

Evidence from the charters

Explicitly marked vowel length appears in the following four examples in original charters for the first time:

<table>
<thead>
<tr>
<th>Word</th>
<th>Form</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>fora</td>
<td>&lt;foer&gt;</td>
<td>1425</td>
</tr>
<tr>
<td>sone</td>
<td>&lt;zoen&gt;</td>
<td>1429</td>
</tr>
<tr>
<td>bitale</td>
<td>&lt;bitael&gt;</td>
<td>1431</td>
</tr>
<tr>
<td>dore</td>
<td>&lt;doer&gt;\textsuperscript{51}</td>
<td>1487</td>
</tr>
</tbody>
</table>

Except for fora, there are no tokens with single vowel spelling in these words, not even in copies. Open Syllable Lengthening in these words must be older than the apocope of /a/, providing a first datum ante quem of this process of ± 1420. The preposition fora is uniquely written as <for> in the period 1390 to 1425. Because the lengthening of the original short /a/ must have taken place in the open syllable context with following /a/, the late 14\textsuperscript{th} century form of <for> can only represent /fɔːr/. This is in accordance with Latin spelling practices, which are generally applied in the oldest charters from the period. In fora, the Open Syllable Lengthening must therefore be older than 1390.

Evidence from Unia

In very early 15\textsuperscript{th} century texts in Unia (group A-3) <for> and <foer> prevail, while in older texts it is <fore>. No attestations to bitale were found. However the lemmas dore and sone are found, spelled <dora, dore, dorum, dorim> and <sone>. Examples of the words fôt 'foot' and grât 'great' show that the spelling of digraphs for long vowels in open syllables are not applied in Unia group A, therefore not before 1400:

\textsuperscript{50} The lemma entry fora, fori, for(e), fara in Holthausen/Hofmann is not correct. The Old Frisian form is for. This should be the first keyword. The spelling of fora is found only once in the charters (OFO IV-112,1496) and is a hyper-correct spelling of for. The form fara deserves its own entry. It is an example of adverbial flexion, always following the preposition in; to fara (cf. Modern Frisian voor ‘for’ and tijlwaarg ‘before’).

\textsuperscript{51} The <e> is rendered with an abbreviation in the text. The text edition transcribes <dore>, but this would be a unique instance. The other eight attestations to the singular are all <doer>. Vries (personal contact) confirmed that the solution <doer> could be equally valid for this case.
Because the text has not yet been lemmatised, it would be too time consuming to evaluate every word ending in \(<en>\). Dative plural forms in \(<en>\) have been identified as part of the analysis of the masculine nom./acc. plural ending, Old Frisian \(-an\) (§ 2.4.3.2). There, it could be seen that dative plural forms in \(<en>\) are quite rare before 1400 (< 5%).

<table>
<thead>
<tr>
<th>Date</th>
<th>Group</th>
<th>Text</th>
<th>Closed Syllable</th>
<th>Open Syllable</th>
</tr>
</thead>
<tbody>
<tr>
<td>± 1300</td>
<td>A-1</td>
<td>Older ‘Skeltenriucht’</td>
<td>&lt;grat&gt; /græt/</td>
<td>&lt;fota&gt; /fɔːtə/</td>
</tr>
<tr>
<td>± 1410</td>
<td>A-3</td>
<td>‘Authentica Riucht’</td>
<td>&lt;græt&gt; /græt/</td>
<td>&lt;græte&gt; /grætə/</td>
</tr>
<tr>
<td>15th c.</td>
<td>B/C</td>
<td>Lowerder Bota</td>
<td>&lt;føet&gt; /fɔɛt/</td>
<td>&lt;føetem&gt; /fɔɛtəm/</td>
</tr>
</tbody>
</table>

Table 2.5: Spelling vowel length with monographs or digraphs (tendencies).

So for instance, the spelling \(<sone>\) in Unia group A-1 may represent both /sɔnə/ and /sɔnə/.

*Indirect evidence from Vowel Balance in Unia*

The effect of Vowel Balance offers an opportunity to define the length of the root vowel (cf. § 2.1). In the archaic parts of Unia, the dative plural ending is written \(<um>\) in 83% of the tokens, but \(<em>\) and \(<im>\) also appear (cf. graph. 1.10). Instances of a complete reduction to \(<en>\) are not considered here.\(^{52}\) Due to Vowel Balance, reduction of /um/ to /ʊm/, spelled \(<em>\) or \(<im>\), will take place primarily when the root is long. Spelling \(<em>\) and \(<im>\) can therefore be used as indirect evidence of root vowel length. If words that are vulnerable to Open Syllable Lengthening indeed exhibit \(<em>\) and \(<im>\) significantly more often than words with an expected short root, the conclusion is justified that Open Syllable Lengthening has indeed taken place in those words.

Some texts contain \(<um>\) only and are therefore unsuitable for this test. When no variation appears, forms cannot be used to obtain indirect indications about the quantity of the root. The following subgroups have been identified:

(a) Words with an etymological short root, that still exhibit short vowels in the 15th century, for example, de gum, sekum ‘days, cases’;
(b) Words with an etymological short root, that exhibit long vowels in the 15th century, for example dorum, farum ‘doors, travellers’;
(c) Words with an etymological short root of which it is uncertain if they had a long vowel in the 15th century. For example, wikum, lithum ‘weeks, limbs’. These cases are particularly interesting, because they can provide information about the lengthening of /i/ in open syllables;

\(^{52}\) Because the text has not yet been lemmatised, it would be too time consuming to evaluate every word ending in \(<en>\). Dative plural forms in \(<en>\) have been identified as part of the analysis of the masculine nom./acc. plural ending, Old Frisian \(-an\) (§ 2.4.3.2). There, it could be seen that dative plural forms in \(<en>\) are quite rare before 1400 (< 5%).
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(d) Words with an etymological long root, for example, *jêrum, wordum* 'years, words';
(e) Words with a root consisting of two or more syllables, for example, *fingerum, wepnum* (base form *wepen*) 'fingers, weapons'.

Below is a distribution of the endings in texts from *Unia* group A (14th century) which contain variations between <um> and <em/im> according to defined subgroups:

<table>
<thead>
<tr>
<th>Ending</th>
<th>No context for lengthening</th>
<th>Context for lengthening</th>
<th>Uncertain lengthening</th>
<th>Long root</th>
<th>Trisyllabic</th>
<th>Total percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;um&gt;</td>
<td>21</td>
<td>7</td>
<td>7</td>
<td>171</td>
<td>76</td>
<td>282</td>
</tr>
<tr>
<td>&lt;em/im&gt;</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td>58</td>
<td>6</td>
<td>72</td>
</tr>
<tr>
<td>Total</td>
<td>22</td>
<td>10</td>
<td>11</td>
<td>229</td>
<td>82</td>
<td>354</td>
</tr>
</tbody>
</table>

Table 2.6: Distribution of the dative plural endings <um> and <em/im> according to word structure.

The differences mentioned in the rest of this paragraph are all statistically significant (see appendix 1):

- The reduced endings <em/im> are over-represented in the long roots (d);
- The reduced endings <em/im> are under-represented in words with an historical short root that do not fulfill the demands for Open Syllable Lengthening (a), for example, *sekum, degum*;
- Words that are expected to show Open Syllable Lengthening such as *dornum* and *farum* (b) behave the same as words with a long root (d) and differ from the words in group (a);
- Words such as *wikum* and *lithum* (c) behave in the same way as other words with Open Syllable Lengthening (b) and words with an historical long root (d).

This is a firm indication that originally short vowels were lengthened in open syllables during early times. Not only short /a/ and /o/, but also /i/. Therefore words such as *dore, bitale* and also *skiwe* already had long root vowels in the 14th century.

Further differentiation within *Unia* group A is problematic, because of the low number of relevant examples. A separate assessment of data from two archaic *Unia* texts, the *Older 'Skeltenariuchte'* and the *Eight Dooms*, reveals exactly the same skewness as in table 2.4, albeit that the numbers are too low to constitute a valid statistical proof. Taking this evidence seriously, the conclusion should be that
Open Syllable Lengthening of /a/, /o/, but also /i/ and probably /u/, dates from the beginning of the 14th century. The effect of Vowel Balance remained active in the reduction of -um in the charters from 1379 to 1430 (test in appendix 1).

The paradigm of ‘ship’
Additional information about Open Syllable Lengthening, especially the root vowel /i/ can be obtained from the paradigm of the noun skip ‘ship’.

The Old Frisian paradigm of ‘ship’ is shown below (genitive not considered here):

<table>
<thead>
<tr>
<th>skip ‘ship’</th>
<th>sg.</th>
<th>pl.</th>
</tr>
</thead>
<tbody>
<tr>
<td>nom./acc.</td>
<td>skip</td>
<td>skipe</td>
</tr>
<tr>
<td>dat.</td>
<td>skipum</td>
<td>skipe</td>
</tr>
</tbody>
</table>

Table 2.7: Old Frisian paradigm of skip ‘ship’.

Following the evidence from the Vowel Balance in the dative plural ending in Unia, Open Syllable Lengthening in the word skip could be expected when it is followed by an unstressed /u/ or /o/. This is basically everywhere apart from the nominative and accusative singular. In closed syllable, /i/ was lowered to /i/. The evidence from dore, sone and bitale shows that the final -e is dropped after a long root vowel (cf. § 2.4.3.9). Hence: dat. sg. and nom./acc. pl. /skipə/ > /skipə/ > /skip/ (cf. fore, /fo:rə/ > /fo:rə/ > /fo:r/). With the vowel reduction in the dative plural, the following forms of the paradigm of ‘ship’ could be expected. The attested forms in the charters before 1460 are rendered in the other half of the table:

<table>
<thead>
<tr>
<th>skip ‘ship’</th>
<th>sg.</th>
<th>pl.</th>
</tr>
</thead>
<tbody>
<tr>
<td>nom./acc.</td>
<td>/skipt/</td>
<td>/skipt/</td>
</tr>
<tr>
<td>dat.</td>
<td>/skipt/</td>
<td>/skipt̂m/</td>
</tr>
</tbody>
</table>

Table 2.8: Middle Frisian paradigm of skip ‘ship’; the dominant attested forms are given.

The attested forms before 1460 reveal a direct correlation between an expected /I/ and the written <i> in closed syllable on the one hand, and an expected /i:/ and written <ij/y> on the other. All relevant cases show Open Syllable Lengthening.
The plural has regular apocope of the final /o/ following a long root, producing /skiːp/. The dative singular shows an additional morphological ending -e (cf. § 2.4.3.9).

The example of ‘ship’ illustrates:

- The application of Open Syllable Lengthening to Old Frisian /i/;
- That lengthening took place before both the Old Frisian /o/ and the Old Frisian dative plural ending -um.

**Incidental lengthening of Old Frisian /ɛ/**

Words containing an Old Frisian /ɛ/ usually show no signs of lengthening in Modern Frisian. Compare: Modern Frisian wetter ‘water’, lekken ‘blanket’ and brekke ‘to break’, all with a short /ɛ/, with Dutch water, laken, breken with /aː/ and /ɛː/. The absence of Open Syllable Lengthening in words such as degum and sekum was confirmed by the Vowel Balance data in Unia (previous section). In the Middle Frisian data, digraph spelling occasionally occurs for Old Frisian short /ɛ/ in open syllables in several words, cf. § 2.3.3.3. The short-rooted seke ‘case’ for example, exhibits the spelling <seeck(e)> in 13% of the singular tokens. The first attestation

![Map 2.2: Lengthening of /ɛ/ in Old Frisian seke 'case'.](image-url)
is from 1441. This matches the period of apocope of word-final -e after short-rooted words such as *seke* (cf. § 2.4.3.8). The first time the word *seke* appears without the ending <e> is a case of vowel lengthening: OFO I-83, 1441 (*Tytsjerksteradiel*: <seeck>). This lengthening tendency does not really gain momentum and is not dominant in any specific region. Its distribution is concentrated in the centre of the province (map 2.2.).

After the apocope of final -e in most of the dialects, a final vowel in *seke* became a secondary feature of the south-west (cf. § 2.4.3.8, map 2.12.). This resulted in the following geographical distribution of secondary (!) forms:

<table>
<thead>
<tr>
<th>region</th>
<th>primary form</th>
<th>secondary form</th>
</tr>
</thead>
<tbody>
<tr>
<td>South-west</td>
<td>&lt;seeck&gt;</td>
<td>&lt;secke&gt;</td>
</tr>
<tr>
<td>Centre</td>
<td>&lt;seeck&gt;</td>
<td>&lt;seeck&gt;</td>
</tr>
<tr>
<td>North-east</td>
<td>&lt;seeck&gt;</td>
<td></td>
</tr>
</tbody>
</table>

Table 2.9: Primary and secondary forms of the noun *seke* 'case' in the period 1480-1550

After 1465, the root <seeck> is always found without a final vowel. The details from the period 1440-1465 reveal that the drop of the final vowel is not always instantly combined with a lengthening of the root, but the two processes are closely connected in time. It looks like a metrically motivated preference for a long foot consisting of either two short syllables, as in <secke>, or one long syllable <seeck>. The Open Syllable Lengthening in, for example, *sone* is definitely older than 1350, but in *sone*, the apocope of the final /ə/ is from ± 1390 (cf. § 2.4.3.9). This implies that the lengthening of /e/ has to be separated from the regular Open Syllable Lengthening. The lengthening of /e/ in open syllables never became a prominent feature in Middle or Modern Frisian.
Section summary:

- Open Syllable Lengthening of Old Frisian /i/ (and /u/), /a/ and /o/ is revealed by indirect evidence from Vowel Balance effects on the dative plural ending -nm in Unia;
- The lengthening is confirmed by the spelling in the 15th century charters;
- The lengthening started as early as the beginning of the 14th century;
- The lengthening of the Middle Frisian /ɛ/ in the middle of the 15th century was closely connected in time to the apocope of the final /θ/ and remained a limited phenomenon.
2.3.3.2 Old Frisian /a/ and /ø/ before /a/: regional diversity

Open Syllable Lengthening is less prevalent in words where the vowel of the second syllable is an /a/ in Old Frisian. The contrast between the development before an unstressed /a/ or /ø/ is well illustrated by plural forms of the word *dore* ‘door’, in the singular always <doer> from Old Frisian *dore*:

nom./acc. pl. doera: The plural appears as <dorra> (OFO II-30, 1450 copy). At a later stage, the old plural ending -a is replaced by the modern -en: <dorren> for example, in OFO I-307, 1481. The root remains short.53

gen. pl. dorena: In the genitive plural form dorena, there is an /a/ in the final syllable, but the syllable directly following the /ø/ has /ø/. This allows Open Syllable Lengthening, followed by the syncope of the word internal /ø/. The results are forms spelled: <doerena/doerene> in OFO II, 85 (1478, copy). The reconstructed stages are:

Another striking pair is formed by the noun *bitale* ‘payment’ and the past participle of the verb *bitala*: *bitalad*. Old Frisian *bitale* has always Open Syllable Lengthening with subsequent early apocope of /ø/ after the long root: /bital/ (cf. 2.3.3.1). The past participle *bitalad* hardly ever appears with signs of vowel lengthening. Spelling with <ae> appears in less than 5% of the tokens. Cases of spelling with an <ae> are concentrated in the south-west (map 2.3). More information on this lengthening and the specific spelling with <aell> in particular is given in § 2.3.3.3.

Map 2.3. reveals that in spite of the general trend not to lengthen Old Frisian short vowels before an unstressed /a/, exceptions are found. Compare the case of *seke*, which has an ‘unexpected’ lengthening of the Old Frisian /e/. This regionally-limited lengthening before /a/ can be documented further for the nouns *namna* ‘name’ and *boda* ‘messenger’. The first one has a short vowel in the modern language, namme, the other a long vowel, boade.

53 In OFO II-85 (1478 copy) the form *<doeren>* appears for the first time, being newly derived from the singular /doer/. This becomes plausible from the fact that both *<dorra>* and *<dorren>* exist, but only *<doeren>* and not *<doera>*.
Map 2.3: Lengthening of Old Frisian /a/ in *bitalad*/hitalia.

Map 2.4: Open Syllable Lengthening in words ending in unstressed -a: Old Frisian *nama* and *boda*. The trend surface is based on the cases with explicit spelling of vowel length <ae>,<oe> (black portions in the pie charts) and instances where the shortness is marked with double consonant spelling <mm>, <dd> (white portions in the pie charts). The area with vowel lengthening is grey, the percentages of the trend surface represent the portion of short forms.
Three spelling practices can be distinguished for these two words:

- \(<\text{naem-}, \text{boed}->\) indicate vowel lengthening;
- \(<\text{namm-}, \text{bodd}->\) indicate short root vowels;
- Tokens like \(<\text{nama}>\) or \(<\text{boden}>\) are ambiguous.

The trend surface in map 2.4 is based on cases with explicit marking of vowel quantity, either with \(<\text{ae}>, <\text{oe}>\) for long vowels or with a double consonant spelling \(<\text{mm}>\) or \(<\text{dd}>\) to mark short vowels. Lengthened forms cover a larger area than in the map of \(\text{bitalia}\). Short vowels remain dominant in \(\text{Leeuwarden}\) and further to the north-east. Percentages of the trend surface indicate that even in the south-west, the tendency of lengthening does not exceed 50%. Both in map 2.3 and 2.4, the lengthening is a tendency and not a general rule.\(^54\)

Lengthening before an unstressed \(/\text{a}/\) differs from the lengthening before an \(/\text{u}/\), both in geographical extension and in dating. Open Syllable Lengthening before the unstressed \(/\text{a}/\) dates back as early as the 14th century. Evidence of lengthened forms in \(\text{nama}, \text{boda}\) and \(\text{bitalad/bitalia}\) are found after 1450 (cf. the indicated time frames in the headers of the maps 2.3 and 2.4). So, the lengthening in open syllables when followed by an historical Old Frisian \(/\text{a}/\), was a relatively recent feature, compared to the vowel lengthening before \(/\text{u}/\). The same holds for the lengthening of \(/\text{e}/\) in \(\text{seke}\).

The masculine plural ending -an

In the word \(\text{bitalad}\), the \(/\text{a}/\) is not word-final, but protected by a final consonant. Also the classical Old Frisian ending of the masculine plural -an has a protected \(/\text{a}/\). It is difficult to find convincing examples that can support or dismiss the hypothesis that the protected \(/\text{a}/\) in the latter ending blocks the Open Syllable Lengthening. The potential corpus is limited to masculine nouns. Words such as \(<\text{hossen}>\) (17th century) ‘socks’ or \(<\text{dorren}>\) ‘doors’ are old feminine nouns where the Old Frisian ending -\(\text{a}\) was replaced by -\(\text{en}\) at a time when the Old Frisian \(/\text{a}/\) in a protected position had already been reduced to \(/\text{u}/\). Many words with a short root, a potential group for Open Syllable Lengthening, belong to the n-stems and as a result have an ending with word-final -\(\text{a}\) in the singular, for example, \(\text{boga}\) ‘bow’. The spelling \(<\text{bogghen}>\), appearing once in the charters, may have its short root vowel levelled from the singular. In words with an Old Frisian singular in \(-\text{e}\), the lengthened vowel of the singular can be levelled to the plural. An example of

\(^{54}\) In both maps, the region \(\text{Gaasterlân}\) has only long vowels. The figures from the \(\text{Gaasterlân-region}\) differ significantly from other regions in \(\text{Fryslân}\).
this was the previously mentioned spelling of <doeren>.

There are two possible scenarios. One is a blocking of the Open Syllable Lengthening before word-final -a, but not before the plural ending -an. The other is the blocking of the lengthening in both cases:

<table>
<thead>
<tr>
<th>lemma</th>
<th>singular</th>
<th>phonologically expected plural</th>
<th>plural with vowel levelling from the singular</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scenario I: No Open Syllable Lengthening for either word-final -a, or -an</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>sone 'son'</td>
<td>/so:n/</td>
<td>/so:nan/</td>
<td>/so:nan/</td>
</tr>
<tr>
<td>knapa 'boy'</td>
<td>/knapa/</td>
<td>/knapan/</td>
<td>/knapan/</td>
</tr>
<tr>
<td>Scenario II: No Open Syllable Lengthening for word-final -a, but for -an</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>sone 'son'</td>
<td>/so:n/</td>
<td>/so:nan/</td>
<td>/so:nan/</td>
</tr>
<tr>
<td>knapa 'boy'</td>
<td>/knapa/</td>
<td>/knapan/</td>
<td>/knapan/</td>
</tr>
</tbody>
</table>

Table 2.10: Possible scenarios for Open Syllable Lengthening for Old Frisian -an. The ending /an/ became /an/ in Middle Frisian, so /so:nan/ etc. can also be found.

The plural forms /so:nan/ and /knapan/ are possible in both scenarios. If there are attestations to /so:nan/ but not to /knapan/, scenario I is the most likely. If there are attestations to /knapan/ and no attestations to /so:nan/, scenario II is the most likely. In the following paragraphs, the words sone and knapa, boga, nama, boda (all representing the same syllable structure) are evaluated.

sonan / senan 'sons'

The word 'son' alternates between back and front root vowels (cf. § 1.3.5). In the singular, <soen> and its variations outnumber <zin> and its variations 62% to 38%. Forms such as <sinnen>/ <zennen> constitute the majority of the plural tokens (71%). There are 14 instances of <o> in the plural, two of them <zonnen> /so:nən/. The others probably represent /so:nən/.

Hoekstra (2007) discusses the curious spontaneous fronting of /u/ > /e/ (> /i/), as in Modern Frisian siune 'sun', wenje 'to live' and simmer 'summer' from Old Frisian sunne, wnnia and sunden. The fronted vowel in sone (from older sunu) may belong to the same development. As this feature is limited to historically short vowels, this scenario would be justification for the retention of the short vowel in
the plural form plural: /sðnə/ ~ /sunən/ 55 > /sɔːnə/ ~ /sunən/ > /sɔːnən/ ~ /sənən/ > /sɔːn/ ~ /sənən/. Summarising the evidence for some, the form /sɔːnən/ is attested, supporting scenario I with no lengthening in the plural. The widespread fronting in the plural is another, indirect indication of a short root vowel in the plural.

**knapan ‘boys’**
The word knapa ‘son, boy’ appears in the charters in the singular and as first element of the compound knapakind ‘boy-child, son’: <knappa>. There are two examples in the plural form: <knapan> in OFO IV-12, 1451, a copy of a copy(1).

Unia provides several examples from the early 15th century from the text ‘Processus Judicii’ with a singular <knapa> (one time) and <knappa> (four times), probably all representing /knapa/ with a short root vowel 56. In the plural there is <knappan> (nom. pl.) once. An interesting case is the genitive plural form <knapene>, possibly representing /knapəna/ < Old Frisian knapena with a lengthened vowel (cf. the gen. pl. form <doernea> earlier in this section). These Unia forms would comply with an expected phonologically defined paradigm, where both word-final /a/ and protected /a/ in the plural ending -an block Open Syllable Lengthening: singular knapa/knapa/, nom./acc. pl. knapan/knapan/, gen. pl. knapena/knapəna/, dat. pl. *knapum/knapum/.

**bogan ‘bows’**
The plural of boga is found as <bogghen> in the accusative in OFO II-100 (1481 original) and as <boeghen> in the dative in OFO II-201 (1501 original). This fits expected phonological forms: nom. acc. pl. /bɔːn/ < bogan without lengthening and /bɔːnə/ < bogum with lengthening. The year 1501 is rather late, but not impossible, for a separate dative form, cf. <degum> ‘days’ in OFO IV-129, original from 1502.

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55 With ‘Seesaw’-Vowel Harmony, cf. § 2.6.2.

56 Note it is assumed that <apa> renders /apa/, but <ape> /a:pə/. When a vowel was mostly short before an /a/, there was less of a need to write a double /pp/ for /apa/, because at that time /pp/ would represent /pe/. Evidence of this assumption is provided by the forms of the infinitive / gerund and past participle of the verbs kera ‘to choose’ and swera ‘to swear’. In the gerund, Old Frisian knapam/swerpam, the /a/ is mostly written with one <r> (Middle Frisian <keren / sweren>), while in the past participle, Old Frisian kerpam/swerpam, it is mostly written <rr> (Middle Frisian <keren / sweren>) after 1450. The historical geminate consonants had already disappeared at that time. All evidence from later developments suggests that the root vowel was short /ə/. Writers apparently felt less need to mark the shortness of the root vowel with a <rr> when the following vowel was the ‘heavy’ underlying /a/.
naman ‘names’
The six instances of <naemen> (four originals and two copies) as a plural form of
nama ‘name’ all originate, bar one, from the west or south-west, where lengthening
before -a(n) is possible (cf. map 2.4). There is one case from the north-east (OFO
II-205, 1510 original from Dantumadiel), which happens to be a context for a dative
plural.

bodan ‘messengers’
Most attestations to the plural of boda are written <bodden>. The three remaining
tokens from original documents are: <boden> and <boddena> both gen. pl. and
<boden> acc. pl., all from the late 15th century. No instance of *<boeden> has
been found.\textsuperscript{57}

The evidence of sone and knapa (with old attestations from Unia) points towards
scenario I. The evidence for boga and nama could still fit there as well, while the
evidence for boda remains ambiguous. All in all, the most likely scenario is number
I: that the masculine plural ending -an indeed prohibited Open Syllable
Lengthening.

Section summary:

• Both word-final /a/ (for example in Old Frisian dorg ‘doors’)
  and protected Old Frisian /a/ (for example in Old Frisian
  bitalad ‘paid’) generally prevented Open Syllable Lengthening;

• Exceptions are found in the south-western half of Fryslân,
  not before 1450 (while Open Syllable Lengthening before an
  Old Frisian /@/ is from the early 14th century).

\textsuperscript{57} In originals only once <boeda> as a singular from Bolward located in the south-
west.
2.3.3.3 <VVCC>-spelling

The tokens of bitalia ‘to pay’ reveal a curious peculiarity in the spelling (cf. map 2.3). In 13 tokens the vowel digraph <ae> is followed by consonant digraph <ll>. A double vowel <VV> usually expresses a long vowel, while a double consonant <CC> marks the shortness of the preceding vowel (cf. § 2.2.3). The combination of both is a contradiction. The question is: What special sound pattern is represented by this spelling, if any? This can only be answered after a thorough analysis of the <VVCC> spelling, by identification of the historical and synchronic phonological contexts in which the spelling pattern appears.

From the combination of <VV> = ‘long’ + <CC> = ‘short’, the working hypothesis is formulated that the sequence <VVCC> reflects a half-long vowel. This is sufficient for the rest of this section, where the analysis of the contexts is the primary issue. Final conclusions are drawn in chapter four.

The corpus was checked for words with the spelling pattern <VVCCV>, for example, in <bitaellet> or <wecesse>, Old Frisian weza ‘to be’. The following combinations were filtered from the text: <a,e,i,o,u,y+/e> + <dd|gg|ll|mm|nn|pp|rr|ss|sz|tt|zz>. Irrelevant tokens were removed from the selection, for example, <tyennende> Old Frisian thianande ‘serving’, which can be understood as /ti:nandə/, with a consonant /j/ + short vowel, marked by the following <nn>. Also, place names and proper names were removed, and only material from the original charters included.

There are four types of words with a <VVCC>-spelling pattern:

1. Words with /a/ or /ɔ/ in open syllables, for example: Old Frisian fora ‘before’ <foerra>, Old Frisian bitalad ‘paid’ <bytaellet>;
2. Words with an historical long vowel, for example: Old Frisian kâpad ‘bought’ <kaeppet>;
3. Words with a short /ɛ/ in open syllables, for example: Old Frisian lesa ‘to read’ <leessa>;
4. Words with an historical short vowel in closed syllable, for example: Old Frisian thredda ‘third’ <treddda>.

A total of 193 tokens from 56 lemmas were counted and statistically tested for typical patterns in a regional spread and phonological context.

58 The spelling <ck> is a double consonant spelling from a modern point of view, but at that time it was not distinctive, and regularly appears following any long vowel or in word-final position.
In this selection, only actual instances of <VVCC> spelling are counted. In other sections, all relevant examples of a lemma are counted, for example, the verb *bitalia* ‘to pay’. In this case, only absolute numbers of <VVCC> tokens are known and not contrasting spelling variants. Therefore, a token count was not an option, because an absolute number of tokens is meaningless when the number of contrasting tokens is unknown. The alternative is a charter count: What percentage of the charters (from a given period/region) exhibit at least one instance of a <VVCC> spelling? Graph 1.9 illustrates that the consequences are very limited in practice. To obtain additional information, one high frequent relevant lemma per type was checked completely, enabling a token count. Before dealing with the individual types, two observations can be made for all types discussed:

**Vowel quality of the following syllable**

Significantly, <VVCC>-syllables are often followed by an Old Frisian /a/. For all the <VVCC>-tokens, the historical Old Frisian vowel of the following syllable was reconstructed. The percentage of historical /a/ or /ia/ - the reason to include /ia/ becomes clear from the discussion of type 1 - is compared with the percentage of /a/ and /ia/ in 150 tokens selected at random from the archaic Old Frisian texts of the *Older ‘Skeltenaricht’*. In the Old Frisian sample, /a/ or /ia/ appear in 45% of the tokens. Among the tokens in the <VVCC> sample, this percentage is 74%. The /a/ context is also significantly over-represented for each type individually.

**Dating**

The oldest example in the <VVCC> set is from 1418 and belongs to type 4. All the other examples are ≥1436. There is a weak progressive trend. See graph 2.3. Application of the same <VVCC> search in *Unia* retrieved only one relevant example, *<treedde>* ‘third’, in the early 15th century north-eastern text *‘Autentica Riecht’*. This word belongs to type 4, just as the oldest token from the charters. The <VVCC> phenomenon belongs to 15th century Middle Frisian.

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59 For example: In table 2.11, there are more tokens with <aell> in the noun *bitalinge* (6) than in the infinitive and gerund (2). It is only when it is known that the ‘6’ are 6 out of 76, while the ‘2’ are 2 out of 11 instances, that the real importance of these absolute numbers becomes apparent.
Type 1: example *<bitaellet>*
Type 1 is relatively frequent with 61 tokens. Words in this group contain Old Frisian /a/ or /ə/ as a root vowel, for example, *fora* ‘before’, *baria* ‘declare an agreement’, *fola* ‘many’ and *bitalia* ‘to pay’. The root vowels /a/ and /ə/ usually show Open Syllable Lengthening before the /a/ (§ 2.3.3.1). In the south-west this is also found to a limited extent before /a/ (§ 2.3.3.2). Type 1 shows, in its geographical distribution, a descending slope from south-west to north-east. For the South-West region, a relative over-representation is statistically significant.

The word *bitalia* and the noun *bitalinge* ‘payment’, derived from the verb, are typical examples of this type and are well represented in the charter corpus: 30% of the tokens of this type belong to these two lemmas. The sequence *<aell(1)>*, appearing in this verb and noun, have been studied in detail. Querying the entire charter corpus shows that the spelling of *<aell>* + vowel is an anomaly. Compare the following figures:

Graph 2.3: Increasing percentage of charters with *<VVCC>*-spelling.
The observed correlation is not significant: p-value for a one tailed test 6.8%. Including the evidence from *Unia* provides a significant trend.
A.P. Versloot: *Mechanisms of Language Change*

<table>
<thead>
<tr>
<th></th>
<th>&lt;ael&gt; &amp; &lt;aell&gt;</th>
<th>&lt;ael&gt;+V</th>
<th>&lt;aell&gt;+V</th>
<th>% &lt;aell&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>bitalad/-ath</td>
<td>9</td>
<td>11</td>
<td>55%</td>
<td></td>
</tr>
<tr>
<td>bitalia(ue)</td>
<td>9</td>
<td>2</td>
<td>18%</td>
<td></td>
</tr>
<tr>
<td>bitalinge</td>
<td>70</td>
<td>6</td>
<td>8%</td>
<td></td>
</tr>
<tr>
<td>rest of the charters</td>
<td>224</td>
<td>3</td>
<td>1%</td>
<td></td>
</tr>
</tbody>
</table>

Table 2.11: Skewed distribution of the sequence <aell>.

Table 2.11 shows that the spelling sequence <aell> is not random. There is a clear preference for the verb *bitalia* and the derived noun *bitalinge*, but among them, there is a special preference for paradigm forms of the verb such as *bitalath* and *bitalad*.

The table shows that the context before Old Frisian /a/ in the following unstressed syllable, is the ‘natural’ environment of the half-long vowel. Through levelling, it can appear in related forms.

Type 2: <kaeppet>

Type 2 is concerned with lemmas with a long vowel, such as Middle Frisian *kaepia* ‘to buy’ and *goena* ‘gulden (valuta)’ < Old Frisian *goldena*. This type has no statistically significant geographical core at the level of the regions. In the charters from the city of Harlingen it is over-represented. The overall percentage for type 2 is 5%, for Harlingen it is 29%.

One of the most frequent lemmas in this group is the verb *(for)kâpia* ‘to buy / to sell’. This verb was investigated as a whole, enabling a proper comparison with other spelling variants and token counts. This revealed that not only forms such as <kaeppet> exist, but also <cappet>. The latter token combines a single vowel sign with a double consonant sign, a reliable marker of a short vowel: [kap<öt]]. This is remarkable for a word with an Old Frisian /a/. The spelling with <pp> in the lemma *(for)kâpia* is over-represented in Wûnseradiel, which is next to Harlingen, a place already mentioned in this context.

Evidence of *kâpia* reveals a significant contrast between the east and the west of Fryslân. In the east, the spelling <aep> is dominant among the tokens with <pp>. The sequence <ac> was probably pronounced [æ:] in the late Middle-Ages.

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60 Including both originals and copies from the entire charter corpus.

61 Most of the contrasts in table 2.11 are statistically significant.
A.P. Versloot: Mechanisms of Language Change

It is therefore interesting to observe that Leeuwarden has an attestation to <keppet>, probably representing [kɛpɛt], a short variant of <kaeppit>. The tokens from the west of Fryslân have <c/kappet>: [kɛpɛt]. A complete shortening of an Old Frisian long vowel as in <kappet> is for example, also found in Old Frisian bûran ‘neighbour(hood) (plural)’. This word appears as <burren> in two charters from Wûnsersadiel. This suggests a complete shortening of Old Frisian long vowels in the west of Fryslân, especially Wûnsersadiel, in specific words.

There is a slight tendency to shorten Old Frisian long root vowels when followed by an unstressed /a:/ . In the west, especially in the region of Wûnsersadiel, this could lead to a complete shortening (for example, <kappet> and <burren>) while in the east, the vowel remained half-long (<kaeppit>) with only occasional shortening to [ɛ]. A short [a] is the product of shortening of [a:], while [ɛ] comes from [ɛ:]. The realisation [ɛ:] for Old Frisian /a:/ is more recent than [a:], so the shortening in the west is probably older than that of the north-east.

Type 3: <weessa>

Type 3 contains words with Old Frisian /ɛ/ in open syllables, for example, in wesa ‘to be’, lesa ‘to read’, but also in wenia/-atb ‘to live’. Discussion in § 2.3.3.1 indicated that vowel lengthening is rare in this context. It should be noted that this lengthening is not the same as in modern Modern Frisian: wêze, lêze or dialectal weinje. The latter instances of lengthening are from the 18th century (Hockstra 2001a, 724).

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62 The form keppje [kɛpje] is mentioned as a variant of kapipe [kaipjo] in the north-eastern modern dialect of Schiermonnikoog.

63 This is not 100% certain. The transition from [a:] > [ɛ:] could also have been earlier in the north-east than the south-west. There are three known phenomena which make this option possible:
1) In placenames, Old Frisian /gaːst/, denoting a location with sandy soil, became Modern Frisian [gaːst] with [a] < [ɛ] in the north and east of Fryslân, for example, Wûnsersadiel. In the south-west, this element regularly appears as [gaːst]: Gaast, Tjoerkgast.
2) An Old Frisian /a:/, that was lengthened in open syllable, often joins the development of Old Frisian /a:/ > Modern Frisian [a:] in the west and south, while it is kept separated from /a:/ in the rest of Fryslân. Coalescence of the vowels is more likely when Old Frisian /a:/ was still very close to [a] at the moment of lengthening of /a/. Forms like <dægen> with [a], modern standard language <dægen> [daːɣøn], and <tæl> with [ɛ], modern standard language <taal> [taːl], appear in writings from the early Modern Frisian period from the south-western half of Fryslân.
3) The archaic dialect of Schiermonnikoog in the north-east regularly has an [ɛ] or [ə] < Old Frisian /a:/ . The archaic dialect of Hindeloopen in the south-west also regularly has an [a] or [əa] < Old Frisian /a:/.
Of all four types, this one is most closely attached to the context of an Old Frisian \(/a/\) in the following syllable (88% of the tokens). This is confirmed by the information on the verb *wesa* 'to be', a prototype example of this type. Twelve out of the 13 examples with a long vowel (four <VVC> and nine <VVCC>, including copies) are infinitives or gerund forms, Old Frisian *wesane*. There is only one past participle <weisen>, Old Frisian *wesen*; the six tokens from original charters with <VVCC> are infinitives and gerund forms only.

The combined evidence from the verb *wesa* and the <VVCC> sample set provides a rather solid indication that the product of this half-lengthening was \([\text{\textit{e}}]\), written <ae> in the south, but \([\text{\textit{e}}.]\), written <ee> (sometimes \([\text{\textit{e}}.]\), written <ei>) in the north.

The conclusion for type 3 is that lengthening of Old Frisian \(/\text{\textit{e}}/\) in open syllables was taking place to some extent, with a clear preference for the phonological context of a following Old Frisian \(/a/\). This is remarkable, because it is normally the context for unstressed \(/a/\) which indicates Open Syllable Lengthening, while \(/a/\) rather blocks the lengthening. The example of *wesa* shows that when lengthened, the spelling of <VVCC> is preferred to the spelling of <VVC>, underlining the special nature of this lengthening. The quality of the lengthened vowel was slightly more open in the south than in the north.

**Type 4: <treedda>**

This type contains words with an historical short vowel before a geminate consonant. There are few tokens in this group. Statistically significant observations on geographical regions are not possible. The evidence from the most frequent lemma in this type, Old Frisian *treddu* 'third', does not provide a clearer picture. Considering the phonological pattern of short vowel plus long consonant in Old Frisian in these words, the expression of lengthening might be a demonstration of the compensatory lengthening for degeminated consonants (§ 2.2.3).
Section summary:

- The phenomenon of half-long vowels was little more than a weak tendency in the overall picture;
- The south-west has a preference for half-long vowels from Old Frisian /a/ and /o/ in open syllables, when followed by an Old Frisian /a/ (type 1);
- The north-east shows half-long vowels as the result of shortening Old Frisian long vowels before an unstressed Old Frisian /a/ (type 2);
- In all four types, there is an over-representation of the context before the Old Frisian unstressed /a/, for example, *wesa, thredda.*
2.3.4 The reverse process: shortening before /a/

A study of the process of Open Syllable Lengthening reveals the shortening of historical long vowels before /a/ in the following syllable in the <VVCC> type 2: <kaeppet>, <cappet> (Old Frisian kâpat/kâpad). The material studied contains two more examples of shortening of an Old Frisian long sound before a following unstressed /a/, in the Old Frisian words fût 'foot' and mûnande 'Monday'.

2.3.4.1 Old Frisian fôt

The first example is Old Frisian fôt 'foot'. The Old Frisian paradigm in Unia is:

<table>
<thead>
<tr>
<th></th>
<th>singular</th>
<th>plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>nom.</td>
<td>foet</td>
<td>*foten / fet</td>
</tr>
<tr>
<td>gen.</td>
<td>-</td>
<td>fota</td>
</tr>
<tr>
<td>dat.</td>
<td>fote</td>
<td>fotum (-em)</td>
</tr>
<tr>
<td>acc.</td>
<td>foet</td>
<td>foten / *fet</td>
</tr>
</tbody>
</table>

Table 2.12: Paradigm of Old Frisian fôt 'foot' in the archaic parts of Unia (group A).

The archaica plural form <fet> (cf. Modern English feet) is found once, the form <foten> three times. The newer nom./acc. plural is not found with a full ending -an in Unia, but there are attestations to <fo(e)tan> in Jus. The genitive plural is relatively frequent because of its use as a partitive genitive, for example, thria and sextich fota bred '63 feet wide'. Additionally a derivated adjective with the suffix -ad (Munske 2001b, 643) is found in Unia, for example, fiowerfotad a sette 'four-legged cattle'. In a reduced form, this suffix may appear in da Berfotba broren (OFO I-222, 1472) and dae Barfotte broren 'the barefoot(ed) brethren' (OFO I-336, 1484), both from Leeuwarden. In the nom./acc. plural fôtan, the gen. pl. fûta and in the suffixed form fôtade, the root was followed by an unstressed /a/ in Old Frisian. In the 16 attestations to the three forms in original charters, a clear difference is apparent between the charters from the North-East and Leeuwarden regions and the charters from the other regions (map 2.5).

Unambiguous vowel length indication in <foeten> is predominant in the west. Unambiguous spelling of a short vowel in <fotte(n)> is only found in the (north-)east. The form <fotten> is also the form in the Bogerian proverbs, dialectally allocated to Dongeradeel at the beginning of the 16th century and in the
modern Schiermonnikoog dialect. Apparently, the Old Frisian long /o:/ could be shortened in the context before an unstressed /a/.

Modern Schiermonnikoog has singular - plural pairs such as (Visser & Dyk 2002):

- *fúet* [fyøt] ~ *fotten* [fotøn] ‘foot’ < Middle Frisian /fo:t/ ~ /fotøn/
- *priem* [priøm] ~ *primmen* [primøn] ‘needle’ < Middle Frisian /pre:m/ ~ /premøn/
- *bait* [bait] ~ *betten* [bøten] ‘boot’ < Middle Frisian /bø:t/ ~ /bøten/

These modern dialectal forms provide further evidence for occasional shortening of originally long vowels before the plural ending -*an* in the north-east.

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<foetont> is also a modern form in the dialect of Terschelling, but there it is phonetically [foetøn], where the [ø] is pronounced while the tongue rapidly moves to the palatum (Versloot, 2002b). This form originates from an older /fuønt/ < /fuønt/, matching the development in Standard Modern Frisian *footten* < *foeten*. The transition of /uə/ > /wo/ is also a kind of shortening and dates back to the 18th century.
2.3.4.2 Mônandei ‘Monday’

The word for ‘Monday’ is a compound of the words for ‘moon’ and ‘day’. ‘Moon’ is Old Frisian môna, a masculine n-root. It ends in -a in the entire singular. In the compound, the Proto-Germanic final -n of môna has been preserved: mônandei. There are no attestations to the noun môna ‘moon’ in Unia, but the word for ‘Monday’ is found: <monandei>. In the charters, ‘moon’ is possibly attested in the compound <moenstond> ‘duration of one moon/month’ (OFO I-155). The word for ‘Monday’ frequently appears in the charters. A third word from this root is the word for ‘month’, Old Frisian mônath. There are attestations to it both in Unia and in the charters. In the charters it also appears without a final dental sound as <mon(n)a/-e>. The seven attestations in original charters between 1498 and 1537 do not present a clear picture of the temporal or geographical variations of this /t/ apocope. As late as 1537 (OFO IV-263, Leeuwarderadeel), the form <monnet> is found. Even when the copies are included, no further light is shed on this question. In Modern Frisian, the words for ‘moon’ and ‘month’ have merged into one form: moanne [mwanə].

The development of the unstressed /a/ in both mônandei and mônath is discussed in § 2.4.3.5. In this context, it is the quantity of the root vowel, indicated by the following <n> or <nn> which deserves attention. The following combinations are found in the charters:

<table>
<thead>
<tr>
<th></th>
<th>en</th>
<th>a</th>
<th>e</th>
</tr>
</thead>
<tbody>
<tr>
<td>mon</td>
<td>19</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>monn</td>
<td>11</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>

Table 2.13: Spelling of the first element in the word ‘Monday’; mon + en represents <monendey>, monn + a is <monnadey>, etc.

In a copy of a charter from 1413 (OFO II-213) the form <monansdeijs> is attested with <a> in the unstressed syllable. In the rest of the data, the historical /an/ is always rendered with <en>, suggesting a reduction from /an/ > /en/ in unstressed syllables already in the early 15th century (cf. § 2.4.3.2). The transition from <a> to <e> in mônadei, where it is not followed by a tautosyllabic consonant, can be dated at ± 1500. Therefore during the 15th century there were three

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65 There are also attestations to the forms mon(n)ende and mon(n)endei in the charters. According to Århammar (1986) these forms are loans from Middle Dutch maamendē and maamendei. They are rare in Leeuwarden and the North-East region. In the rest of Fryslân they make up about 50% of the attestations to ‘Monday’. The forms do not increase in respect to môn(n)endei over time. The variant monnendei is almost exclusively south-eastern and does not appear after 1490. Some two-thirds of the tokens in this group have a short vowel. The number of forms with a long vowel is gradually increasing, albeit a weak tendency. The total history of ‘Monday’ - including the developments in early-Modern Frisian - deserves closer analysis.
competing forms: /mɔnːəndei/, /mɔnːəndei/ and /mɔnadei/.

Contrasts in the distribution depicted in table 2.13 are statistically significant. When a final /a/ is retained, the root is mostly short. When followed by an <en>, the root is generally long. There are similar variations in the word ‘month’: <mone(d)>, <monna/-et>. Map 2.6 shows the geographical distribution of the vowel quantity. The combination of long vowel with suffix <en> is dominant in the west. The combination of short root vowel and suffix <a> is typical for the central region around Leeuwarden. In the north-east the form <monnen> is dominant. The charters from Leeuwarden exhibit a ‘western’ flavour. This is mainly due to the city clerk Hemma Odda zin. He is the author of 10 of the 14

Map 2.6: Vowel length in Old Frisian môna- in the simplex môna(th) and the compound môna(dei).

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66 A remarkable aspect is that the graphematical and phonological patterns in the original charters are largely confirmed by the data from the copies, and yet the geographical pattern in map 2.6 is completely blurred when the copies are included.
original charters from Leeuwarden with <monen->.\textsuperscript{67}

Just as in the word \textit{fût}, there is a strong correlation between the retention of unstressed /a/ and the shortening of the root vowel in ‘Monday’ and ‘mouth’: <a> and late-Middle Frisian <e> from Old Frisian /a/ nearly always take a short root: <monnadey>, <monnedey>. Both the historical data and the geographical pattern suggest that the form <monnadey> was an innovation, replacing the archaic allomorph mânan- by the regular form for ‘moon’: mâna. The north-eastern instances of <monnendey> probably reflect a direct continuation from the Old Frisian form <monnande> as found in Unia: /mônan/ > /mônan/ > /mônen/.

The absence of shortening in the south-west suggests a development: /mônan/ > /mònan/. This matches the geographical picture for \textit{fût}. This implies that either the reduction of a protected unstressed /a/ > /a/ was much earlier in the south-west than in the north-east or that the phonological impact of an historical unstressed /a/ was different in the two regions, (or perhaps a combination of both, cf. § 4.5.2).

\begin{center}
\begin{tabular}{|l|}
\hline
\textbf{Section summary:} \\
\textbullet\quad Old Frisian \textit{fûta(n)} ‘feet’ and \textit{môna(n)dei} ‘Monday’ show shortening of the root vowel in contexts before unstressed /a/ in the north-east. \\
\hline
\end{tabular}
\end{center}

\textsuperscript{67} Hemma Odda \textit{zijn} writes <monendeys> 34 times and <monnendey> only twice, including copies by his hand; he never uses the spelling <monna(-e)dey>, which is quite common in the central region of Leeuwarden and surroundings. Other identified authors from Leeuwarden have a preference for <monna/-e> and <monnen>: Albertus Petri, minister in Lekkum, later in Wirdum writes <monnadeys> once, maester Otta, city clerk of Leeuwarden writes <monnedeys> three times and Marten Albert zoon, clerk of Leuwarderadeel, writes <monnendey> twice. Vries (1993, 190) suggests that the student ‘Henricus Odonis de Bolzuardia’, matriculated at the university of Leuven in 1471, was actually Hemma Odda \textit{zijn}. According to his spelling of the word ‘Monday’ Hemma’s provenance from Bolward fits nicely.
2.3.5 Conclusion

The process of Open Syllable Lengthening appears to be a gradual one, both in phonological impact and in time:

- The oldest stage of Open Syllable Lengthening is the lengthening of /a/, /ɔ/ and probably /i/ and /u/, when the following unstressed syllable was not an /a/. This lengthening took place at the beginning of the 14th century or even earlier;

- Lengthening of /ɛ/ was only a marginal feature at the time of the apocope of the final /θ/, in the middle of the 15th century;

- Lengthening of /ɛ/, /a/ and /ɔ/ in open syllables, when followed by unstressed /a/, remained limited to the south-west of Fryslân and even there, not everywhere and not always. It took place in the 15th century. The product of lengthening before an unstressed /a/ was a half-long vowel, often spelled <VVCC>;

- In the north-east and Wûnseradiel/Harlingen there is occasional (half-)shortening of long vowels before unstressed /a/: kâpad: <kaeppit>, mônna- <monn->, fota <fotten>.
2.4 Reduction of unstressed vowels

The reduction of Old Frisian unstressed vowels is at the core of this study. The mechanisms that control this reduction process are subject to deterministic modelling in chapter five. It is the remarkable behaviour of the unstressed Old Frisian /a/, especially its dominant presence in the phonological system even at a

Map 2.7: Size of the vowel inventory of unstressed syllables in modern Germanic languages.

The number ranges from only one (/a/) in many West Germanic languages, to five in Wallisian dialects (for North Germanic: Haugen 1984, 333; for Wallis: König 2001, 161; additions from few other dialect monographs). This map shows the situation at the level of the spoken dialects. The Faroese and Swedish standard languages have three different vowels (resp. <i ~ a ~ u>; <e ~ a ~ o>). Literary documents from Gotland use <i, e, a, å, o> in unstressed syllables. The New Norwegian standard allows for <i> and <o> in some cases, along with more widespread <e> and <a>. In the Upper Bavarian dialect of the XIII-communities (near Verona; Cappelletti & Schweizer 1942), /e/ and /a/ are the most frequently used sounds, /i/, /o/ and /u/ are more rare.
time when it was predominantly written $<e>$ ($= [\theta]$), that induced the formulation of the hypothesis about a tonal system in late mediaeval Frisian, which is covered in chapter four.

### 2.4.1 The Germanic context

The vowel inventory of the Proto-Germanic unstressed syllables included both long and short vowels, monophthongs and diphthongs. As a characteristic - apart from all kinds of individual changes throughout time - this was still valid for Gothic, Runic North Germanic and Old High German. Old Saxon had four different qualities in unstressed syllables, but no length opposition, just as early-Old English. Classical Old English and Old Nordic had only three short unstressed vowels. The reduction process has evolved into a situation with only /\theta/ in many modern Germanic languages and dialects.68

Contrasting vowel qualities in unstressed syllables are found in the North Germanic languages and in Upper High German dialects. Note that most written forms of North Germanic standard languages and literary expressions of North Germanic dialects regularly use more different vowel qualities than spoken varieties. Diphthongs and quantity contrasts in unstressed syllables have disappeared from all modern varieties of the Germanic languages.

Wallisian dialects have the vowels /i, e, a, o, u/ in unstressed syllables. They are the result of Old High German long vowels. Old High German short vowels have often been subjected to apocope or syncope (Wipf 1910, 47-61). Not every ‘unstressed’ position is the same in these dialects. In word-final position, the entire range of /i, e, a, o, u/ may be found, but when followed by a consonant, only /i, e, o, u/ appear. In several contexts, there are even more limited vowel sets: before a final /n/ there is only /u/ and /e/, before a final /r/, only /e/ (idem, 60). In originally tri syllabic words, Old High German’s unstressed penultimate vowels are mostly subject to syncope (idem, 47, 61ff.). A similar pattern of increasing vowel reduction from the final position inwards is observed in Riustringen Old Frisian (Boutkan 1996, 33). The size of the vowel inventory in unstressed syllables in

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68 This assertion is limited to etymologically Germanic words, preferably monomorphemic ones, and does not hold for every unstressed affix in several languages, as in Modern Frisian hantsje ‘little hand’, meitsje ‘to make’, regionally pronounced as [hantsi] and [maitsi], Modern Dutch meijsje ‘girl’, occasionally pronounced as [maizsi] or English daddy [dædi].

69 In Wipf (1910, 9), this sound is spelled $<e>$. To speakers of languages with a preference for /\theta/ in unstressed syllables, it may sound like a fronted ‘schwa’. The sound is definitely more closed than, for example, the Frisian [e]. The phoneme /\theta/ does not exist in the aforementioned Wallisian dialect (idem, 11).
different positions in Wallisian German, matches the intensity stress (Wipf 1910, 19):

“Der stärkste Nebenton liegt in drei- und mehrsilbigen Wörtern meistens auf der letzten Silbe.”

In the analysis of unstressed vowels in late mediaeval Frisian it seems useful to distinguish between word-final and non-word-final positions.

Section summary:

• Reduction of Proto-Germanic unstressed vowels to /ə/ or even deletion (apocope, syncope) is a general tendency in all Germanic languages;
• The variants of Germanic with a relatively limited reduction are found at the geographical fringes;
• The level of reduction is gradually increasing from word-final position towards the word-interior.

70 “In three or more syllabic words, the most prominent secondary stress is positioned on the final syllable.”
2.4.2 The Frisian context

The exact phonological interpretation of unstressed vowels in Old Frisian is subject to differing opinions. These are discussed in more detail in § 3.1. In writing, vowels <i, e, a, u> appear frequently in Old Frisian. In the language of Riustringen the <o> also appears frequently.\footnote{None were found in Unia, and in the charters no more than five types with <o> in unstressed syllables of non-compounded words (so apart from instances like <fridom> 'freedom' = frî+dom); OFO-IV,12 (1451, copy) <windom> 'Windum (place name)', with in the same sentence <windum>; OFO I-175 (1465) <munekom> dat. pl. of 'monk'; the other examples are all from OFO II-76 (1473, old copy); <otherom> dat. pl. of 'other'; <hinxtdijeron> dat. pl. of 'horse'; four times <wetteron> dat. pl. of 'water'. Note the reduction of the dative plural ending from -um to <-om> to <-on>. A parallel copy of the last charter writes <hynxtedeyren> and <wett/heren> in three of the four instances of <wetteron>.} Anticipating the outcome of § 3.1, it is the author’s understanding that Old Frisian had three different vowels in unstressed syllables: /ə ~ a ~ u/, with /u/ merely appearing in the dative plural ending -um. It is presumed that Riustringen Old Frisian had five different vowels, with complementary distributions of /i ~ u/ and /e ~ o/ (Versloot 2005, 271).

In Old East Frisian and also in the oldest parts of Unia, the historical /a/ is almost uniquely rendered with an <a>, for example, in the plural endings -an and -ar (Versloot, 2005 with further references; Sjölin 1970, 159-160).

All existing varieties of Modern Frisian have only an /a/ in unstressed syllables (with the same limitations as mentioned for all modern Germanic languages in the previous section). The North Frisian dialect of Föhr and Amrum has an /ø/ and an /ʌ/, the former being pronounced as [œ̃] or [ʌ] or even [a]. The /i/ originates from the Old Frisian ending -ia in most cases. A similar phenomenon exists in some (former) southern mainland North Frisian dialects.

Modern Weser Frisian descendants of Riustringen Old Frisian (the now extinct dialects of Land Wursten and Wangerooge) had a more extended set of vowels in unstressed syllables. The dialect of Harlingerland represents a transition towards western East Frisian dialects. The dialect of Wangerooge retained the Old Frisian /i/ and /u/, while /a/ was reduced to /a/, but only following an Old Frisian short root. Otherwise every final vowel disappeared (examples in table 2.14). The Vowel Harmony that saw the alternation of /i ~ e/ and /u ~ o/ in Riustringen Old Frisian left no such remnants in Wangeroogic (Versloot 2001a, 426).

The situation in the Land Wursten dialect was complicated by the accent shift. In words with a short root in Old Frisian, the stress shifted from the root towards the final syllable in the Wursten dialect (Hofmann 1961; Smith & Van Leyden 2007).
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Newly stressed vowels were not reduced but lengthened. For example, *Snuh* [snu:] ‘son’ < *sunu*. Original root vowels became unstressed and were reduced, as any other ‘normal’ unstressed vowel, first to /ə/, for example, *nesie* [nəˈsi:] ‘nose’ < Old Frisian *nozi*. This schwa could either be dropped, if the syllable structure allowed for it as in *Snuh*, or the schwa was coloured according to the new stressed vowel, for example, *mickie* [miˈki:] ‘to make’ < /maˈkii:/ < Old Frisian *makia*. In words with long roots, all unstressed vowels were reduced to /ə/ and could be subject to apocope, for example, Wursten dialects *âge* ‘eye’, *ahr* ‘ear’ < Old Frisian *âge*, *âre*.

In the dialect of Harlingerland, there are a few unclear indications of a remaining unstressed /i/, for example, *hovvy* ‘church’ < Old Frisian *hovi* ‘churchyard’ and *macki* ‘to make’ < Old Frisian *makia*.

In Insular North Frisian, all final vowels are regularly dropped. In Mainland North Frisian dialects and in West Frisian, it is predominantly the quality of the Old Frisian ending that determines the development. In Weser Frisian dialects, the root quality is the controlling factor in the development of the unstressed syllables. The dialect of Harlingerland exhibits a mixture of both factors. Table 2.14 gives a somewhat idealistic picture of the developments:

<table>
<thead>
<tr>
<th>Old Frisian examples</th>
<th>long root -e:</th>
<th>long root -a:</th>
<th>short root -e</th>
<th>short root -a:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>bâne ‘bean’,</td>
<td>rogga ‘oat’,</td>
<td>mele/mi représ</td>
<td>hava ‘hare’</td>
</tr>
<tr>
<td></td>
<td>âre ‘ear’</td>
<td>bekka ‘neck’</td>
<td>sone/sunn ‘son’</td>
<td></td>
</tr>
<tr>
<td>Mainland North Frisian/West Frisian - 20th c.</td>
<td>ø</td>
<td>-e</td>
<td>ø</td>
<td>-e</td>
</tr>
<tr>
<td></td>
<td>bunn, uur</td>
<td>rooge, nekke</td>
<td>mûal, såän</td>
<td>hâaste</td>
</tr>
<tr>
<td></td>
<td>bean, ear</td>
<td>rooge, nekk</td>
<td>meel, soen</td>
<td>haazge</td>
</tr>
<tr>
<td>Harlingerland - 17th c.</td>
<td>-e (&gt; ø)</td>
<td>-e (&gt; ø)</td>
<td>ø</td>
<td>-e</td>
</tr>
<tr>
<td></td>
<td>bâûne, óbr</td>
<td>rogge, nekk</td>
<td>mill, zûhu</td>
<td>hâaste</td>
</tr>
<tr>
<td>Wangeroogic - 19th c.</td>
<td>ø</td>
<td>ø</td>
<td>-i/-u</td>
<td>-e</td>
</tr>
<tr>
<td></td>
<td>bunn, oor</td>
<td>raug, nek</td>
<td>millii, sunnun</td>
<td>hazzge</td>
</tr>
</tbody>
</table>

Table 2.14: Vowel reduction and root structure in the modern Frisian varieties. Examples for North Frisian dialects from the Halligen dialect.

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72 In 19th century Wangeroogic, apocope of word-final /a/ after long roots had become the rule (Versloot 2001a, 426). Analysing the East Frisian dialects of the Harlingerland, Wangerooge and Land Wursten suggests that the apocope was on its way in the 17th and early 18th century. This is contemporaneous with the apocope of final /a/ in the adjacent Low Saxon dialects; the earliest recordings of apocope in Low Saxon are from the second half of the 16th century (König 2001, 159).
The development in West Frisian has been subject to more detailed investigation. Therefore, the Fryske Akademy language database, accessible at www.fa.knaw.nl/tdb and the FAND-database (1980/95) were used. There appears to be a set of factors that contribute to the retention or apocope of final vowels. Typical examples are given.

1) Old Frisian vowel quality was complicated by the flexion of words. Strong feminine and a few masculine words ended in -e in the entire singular. For example, seke f. ‘case’ and breke m. ‘break’. Apocope is expected there. Weak masculine nouns ended in -a in the entire singular, for example, nama ‘name’. These words are expected to show a final -e in Modern Frisian. Weak feminine nouns ended in -e in the nominative and accusative singular, but in -a in the genitive and dative, for example, strête / strêta ‘street’. The word strête appears 41 times in the charters, all of these in the context of locations (in der stree ta, etc.). Because the oblique form strêta was far more frequent, the oblique form formed the input for the modern form when the case system was abandoned in the late 15th century: Middle Frisian strêta developed into Modern Frisian: strijt te with final /e/.

A statistically significantly high proportion of Old Frisian weak masculine nouns retains the final vowel Old Frisian -a as /a/ in Modern Frisian: Middle Frisian nama > Modern Frisian namme. For Old Frisian strong feminine nouns, the trend towards apocope is statistically significant, for example, Middle Frisian diede ‘deed’ > Modern Frisian died. But weak feminine nouns with a mixed pattern, reflecting the mixed Old Frisian paradigm, with alternating -e and -a, do not differ significantly from the average figures. For example, Middle Frisian bregge, oblique cases bregga > Modern Frisian both brêge and brich (dialectal form).

2) § 2.1 states that vowel quantity in the modern form of words contributes to the word structure. A final -e is statistically significantly favoured by a short root vowel. After a long root vowel there is a preference not to have the final -e. This implies that words such as ploege [plu:ŋ] ‘plough’ or boete [bu.ɔt] ‘penalty’ with a long root vowel [u:] / [u.ə] and final -e appear 40% less frequently than might be expected if the distribution of the final -e was random. Words like protte [prot] ‘a lot’ and woole [vol] ‘wool’ have a short root vowel [o] and final -e. They are favoured by Vowel Balance.

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At the Fryske Akademy, scholars have direct access to all underlying data. It is not possible to retrieve everything via the current user application on the website.
These type of words tend to have a final -e almost twice as often as could be expected from a random distribution of the final -e.

3) The quality of the final consonant also has some influence. Words with a root ending in /b/, /d/ or /g/ in Old and Middle Frisian have a tendency to keep the final vowel, apparently to avoid word-final voiced consonants. Words that end with -be, such as ebb, 'low tide', appear three times more often, while words that end with -de, such as ierd, 'earth', appear 1.5 times more often than would be expected from a random distribution of the final -e.

4) The dialects show a general north-south trend in the level of apocope, irrespective of the former quality of the vowel. In Old Frisian, apocope is more intensive in the north (map 2.8, left). For example, in Schiermonnikoog and Terschelling there is wyk 'week' and blom 'flower'. In mainland dialects there is wike, blom, Hindeloopen in the south-west has wyke, blomme < Old Frisian wike, bluma.

5) The dialects behave differently in relation to the historical quality of the vowel. A diverging development of the Old Frisian final -e and -a is quite significant in the north and north-west, but less so in the south, and is practically absent in a region in the east (map 2.8, right). In Rottevalle (a village in that specific region) there is the example of bûke 'beech' and duaze 'box', while other mainland dialects refer to bûk and doaze < Old Frisian bôke and dose.

To summarise, the following phonological factors have been identified:

- Old Frisian vowel quality: /a/ or /ɑ/;
- Modern Frisian root syllable quantity;
- Voice feature of the root final consonant.

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74 This is an interesting case, because at the time that apocope was at stake, Frisian still had a final voiced /b/, /d/ or /g/. However, the apocope was apparently blocked when the result would be a new word with a final voiced consonant. This relationship can not easily be established for the phonemes /s/ ~ /z/ and /ʃ/ ~ /v/, because Old Frisian only had /s/ and /ʃ/. The sounds /z/ and /v/ were allophonic realisations in an intervocalic position. The word ending /z/ and /v/ did not exist in Old Frisian.
These interfered with the following pragmatic factors:

- Frequency-based preference for context-dependent word-final -a or -e in Middle Frisian;
- Dialectal variation in the sensitivity towards the aforementioned phonological factors.

All these factors have been interacting with each other from the very beginning of the reduction process. The factors are not entirely independent of each other. There is an historical relationship between the length of the syllables in the modern language and the syllable structure of the Old Frisian words, but the correspondence is not one-to-one. The distribution of the different syllable types over the morphological classes of inflection were not random in Old Frisian. Inflectional groups had morphologically defined case endings (for example, either -a, -e or o in the nominative singular). There were also dominant syllable structures for class and gender, etc. The interactions did not take place at only one moment in time, but constitute an ongoing process, as can be seen from the correlation between modern syllable structure and the presence of a final vowel. An interesting topic for future research would be determining the exact weighting proportion of all these factors in a diachronic perspective.
Most of the aforementioned factors are dealt with in § 2.4.3, chapter 3 and chapter 4, in the context of Old and Middle Frisian.

Section summary:

- Compared with many other Germanic languages, the reduction of unstressed syllables shows many different facets and many different routings in Frisian;
- Vowel Reduction shows high dialectal variation;
- Vowel Reduction depends on phonological criteria, there are: quality of the unstressed vowel itself, quantity of the preceding root syllable, voice features of neighbouring consonants.
2.4.3. The West Frisian charters

This section deals with the reduction of vowels in unstressed syllables in West Frisian between 1300 and 1550. It covers the transition from Old Frisian (a language form with both /a/ and /ɑ/ in unstressed syllables) to early-Modern Frisian, a language characterised by an /ɑ/ as the default vowel in unstressed syllables as well as frequent apocope and syncope of historical unstressed vowels. The developments are traced from the spelling in the charters and from the codex Unia.

Previous sections show how Vowel Balance and the position of the unstressed syllable in the word affected the development of unstressed vowels. As a result, examples are categorised according to those with a word-final or non-word-final position and the quantity of the root syllable. This produces the following combinations:

<table>
<thead>
<tr>
<th>Old Frisian /a/</th>
<th>protected</th>
<th>word-final</th>
</tr>
</thead>
<tbody>
<tr>
<td>short root syllable</td>
<td>§ 2.4.3.1</td>
<td>§ 2.4.3.4</td>
</tr>
<tr>
<td>long root syllable</td>
<td>§ 2.4.3.2</td>
<td>§ 2.4.3.5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Old Frisian /ɑ/</th>
<th>protected</th>
<th>word-final</th>
</tr>
</thead>
<tbody>
<tr>
<td>short root syllable</td>
<td>§ 2.4.3.7</td>
<td>§ 2.4.3.8</td>
</tr>
<tr>
<td>long root syllable</td>
<td>§ 2.4.3.7</td>
<td>§ 2.4.3.9</td>
</tr>
</tbody>
</table>

Each sub-section begins with a preview of the evidence from Unia, combined with data from the early 14th century charter, OFO I. This is followed by detailed information from the charters, where the developments can be traced over time frames of ± 30 years. This section is basically descriptive. The phonological interpretation and implications of the observed patterns are dealt with in chapter three.

2.4.3.1 Old Frisian /a/ following a short root, followed by a consonant

The Old Frisian /a/ in an unstressed position, followed by a consonant is almost entirely restricted to inflectional morphemes, such as: -ath, -ad and -an(e). Words like mônandei 'Monday', mônath 'month', sunnandeit 'Sunday' and abbate 'abbot' (all with a long root, cf. § 2.4.3.2) are typologically exceptional in Old Frisian.

According to the syllable structure, a difference could be expected between a non-word-final unstressed /a/ in open syllables, (for example, in bitaliane ‘to pay
(gerund)’ /bi-ta-li-a-nə/) and in a protected position, where the unstressed syllable is closed by a consonant (for example, bitalad’paid’ /bi-ta-ləd/). Relevant examples of the first type tended to disappear very early, for example, because of the apocope of the final /ə/ as in bitaliane, where the final /ə/ is dropped and the unstressed /ə/ came into a protected position: bitalian. The impact of the difference between syllable final vowel or vowels protected by a following tautosyllabic consonant are shown in the treatment of the words mōna / mōnath / mōnande’moon, month, Monday’ (see further on in this section). It makes little difference.\[75\] Other examples in this section are with unstressed /ə/ in closed syllables.

The evidence from Unia and OFO I-1
In positions where historically an /ə/ is expected in unstressed syllables following a short root, tokens from Unia group A-1 (Older ‘Skeltenaricht’), A-2 (early 14th century) and A-3 (early 15th century) show only an <ə>, for example, <makade> ‘made’ (past tense sg.) in A-1 or <bitalad> ‘paid’ (past part.) in A-3 (18 examples). Also, in OFO I-1 (1329), there is only an <ə>: <stadan> ‘places’, <barade> ‘declare an agreement’ (past tense, 3rd pers. pl.) (11 examples). Therefore, in 14th century West Frisian, /ə/ was intact in this position.

Old Frisian ‘bitalath’, ‘bitalad’ and ‘bitaliane’
The verb bitalia ‘to pay’ is found frequently in the corpus and is therefore suitable for tracing its development. The following forms are relevant in this context:

- Gerund form bitaliane;
- 3rd person singular and the entire plural of the present tense: bitalath;
- Past tense singular and plural bitalade(n);
- Past participle: bitalad.\[76\]

\[75\] As syllable boundaries are non-existent in phonetic measurements, this is a logical conclusion, assuming that phonology relies on phonetics (and not the other way round).

\[76\] Historically the ending of the past participle is with a /d/. Final devoicing was not common in Frisian until the 19th and 20th centuries. However, the ending of the past participle of verbs such as bitalia, kalpa: bitalad and kalpad exhibit a <t> or <th> in some 90% of the tokens. The Old Frisian ‘standard’ form is spelled with a -d, but in citations, a <t> prevails. The dental element has disappeared from the paradigm in Modern Frisian, except for Terschelling, where it is written as <t>. It is presumed that the final devoicing took place in Middle Frisian when the /d/ followed an unstressed syllable. At the end of stressed syllables, as in goed ‘good’ or baird ‘beard’ the /d/ remained voiced until the 19th century.
The bulk of the attestations are past participles. The data from *bitalad* (etc.) shows a clear shift through time (graph 2.4). Before 1430, the <i>a</i> is dominant, but after 1460 the <i>a</i> becomes very rare. The oldest spelling with an <i>i</i> is from 1449: <i>bytellit</i>. About 30% of the tokens have an ending written with an <i>i</i>. In the tokens from Leeuwarden, this figure is 60%, so the spelling with an <i>i</i> is over-represented. In texts with identified authors, two-thirds of the tokens with an <i>i</i> are from the hand of Hemma Odda zin. His share of the Frisian charters at the end of the 15<sup>th</sup> century explains the large proportion of <i>i</i>s in the time frame 1490-1510. This is an example of the token count validity being distorted by skewed attestations (cf. § 1.3.7.10).

The oldest attestation to a gerund, OFO I-2 (1386), shows the full form <i>bitaliane</i>. The full ending <i>-iane</i> is found once more in 1439, but after that only <i>-ian</i> and <i>-ien</i> appear.

The quantitative trend in graph 2.4 also has a geographical component. The <i>a</i> does not disappear from the spelling at the same time everywhere. Between 1406 and 1470, 33% of the tokens contain the letter <i>a</i>. In seven municipalities, this figure is less than 15% while in four it is more than 50%. Almost all the 'lows' are in the south, while the 'highs' are concentrated in the north (map. 2.9).
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The more archaic Old East Frisian dialects have -ar or -a. The form -an is an innovation in the west that was already used in Unia, so before about 1300, cf. Versloot (2004, 294 ff., 301).

Plurals of masculine nouns in ‘an’
The Old West Frisian plural form for masculine nouns is -an. In the modern language, the ending is -en [ŋn]. Nowadays it is often [ŋ], where syllabification can take place. While the development of /a/ in verbal endings is different for words with a long or a short root (cf. 2.4.3.2 and 2.5.2), there seems to be no difference in the distribution of <an> and <en> in terms of root quantity. The few instances of plurals in <an> in the charters are often words with a long root. For example, with a long root <dadan> ‘dead ones’, <deylan> ‘parts’ and <sibban> ‘relatives’ and with a short root <stadan> ‘cities/locations’ and <wegghan> ‘ways’. This matches the fact that long-rooted nouns are more frequent in the language as a whole. The development of the plural ending -an is discussed in § 2.4.3.2.

Map 2.9: Geographical variations in the reduction of protected /a/, following a short root. See § 1.3.7.4 for further explanation on the construction of this map.
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**Middle Frisian monna(n)-/monnath ‘moon, month’**

The Old Frisian word for ‘moon’, môna, was introduced in § 2.3.4.2, where it appears as the first element of the compound ‘Monday’. The word for ‘month’ is Old Frisian mônath. In Modern Frisian, both ‘month’ and ‘moon’ are moanne. The word mônath ‘month’ appears both with and without the final dental element since the oldest attestation. For example, OFO I-78, 1439 (copy): <monna>.\(^{78}\)

Section 2.3.4.2 outlines how the root vowel was often subjected to shortening, resulting in a (normalised) Middle Frisian monna(t). The verb Old Frisian monia ‘to dun’, without Open Syllable Lengthening in the central and north-eastern regions in particular, exhibits the same phonological structure: <monnia> ‘to dun’, <monnat> ‘dunned’. Here the cases with <nn> are studied. They represent a short root /môn/. Note that geminated consonants had not been in existence since the middle of the 15th century (§ 2.2.3).

The unstressed /a/ in the second syllable appears in the following contexts:

- Word-final: /môna/ ‘month’ and /mônia/ ‘to dun’;
- Morpheme final but not word-final (briefly ‘morpheme final’): /môna-dei/ ‘Monday’;
- Protected: /mônan-dei/ ‘Monday’, /mônat/ ‘month’, /mônan/ ‘to dun (gerund)’.

Graph 2.5: Different timings in the reduction of the unstressed /a/ in a protected position (monnan-dei and monnat), syllable final (monna-dei) or word-final (monna). Including data from copies.

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\(^{78}\) A phonologically similar variation of *-ath-* appears in babbath *(we/you/they) have*: wi babbath versus habba wi (cf. Hoekstra, 2001c).
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The different timings in the reduction of the unstressed /a/ in these three phonological contexts is shown in graph 2.5. In a protected position, the /a/ has become an <e> since the oldest attestation in an original charter: <monnendey>, OFO II-35 (1453). This matches the developments in the protected positions, discussed earlier in this section. Both the word and morpheme final /a/ were retained until the late 15th century. In the late 15th century, a small difference in timing emerges. The oldest attestation to an <e> in morpheme final position is in the original charter from 1497: <monnedey> (OFO I-428). The first instance of <monne> is from 1527 (OFO II-334). So, a morpheme final vowel in what probably was a transparent compound, behaved *almost* like a word-final vowel. Instances of a syllable final, but not morpheme final /a/ are rare, for example, <monaden> /mɔ:-na-dɔn/ ‘months’ (OFO II-161 from 1488, copy) and <moneden> /mɔ:-nɔ-dɔn/ ‘months’ (OFO III-27 from 1498. Similar examples of *abbate* are missing (§ 2.4.3.2); the verb *bitalia* provides only two examples: <bi/etelleden> /bɔ:-tɛl-ːɛ-dɔn/, in original charters from 1472 and 1489. These scarce examples suggest that the reduction of the syllable final, but morpheme internal /a/ keeps pace with the reduction of the protected /a/.

2.4.3.2 Old Frisian /a/ following a long root, followed by a consonant

For words with a long root, the frequently-used verb *habba* /hæ-ba/ ‘to have’ serves as the first example, with the Old Frisian /a/ in a protected position in the plural form of the present tense, *habbath*, and the gerund *habbane*. The nominative and accusative plural ending of the masculine nouns -an deserves separate treatment. The protected /a/ appears in two more examples. In the word *ronnendei* ‘Sunday’ the /a/ is followed by a tautosyllabic consonant. In the word *abbate* ‘abbot’ the /a/ is word-interior but syllable final in Old Frisian, but not in Middle Frisian <abbet>.

Habbath/habbane:

The verb *habbath* appears as <habba> in inverted forms in the 1st and 2nd person plural indicative present tense. For example, *habba wi ‘... have we ...’* (OFO I-4, 1390). This inversion is discussed in Hoekstra (2001c). The form <habba> is dealt with in § 2.4.3.5. This section looks at the alternation of <a>~<e>~<i> in instances where the <t(h)> was retained.

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79 The overall contrast between the positions (word-final / morpheme final / protected) is statistically significant. For several sub-contrasts, Fisher’s Exact Test was used, because of the low numbers, returning p-values of 10.7% and 6.7% (details of the tests are included in the appendix 1).
The evidence from Unia and OFO I-1

The word forms are spelled with <a> in ± 80% of the tokens in all the Unia subgroups A-1, A-2, A-3 (41 examples) and in OFO I-1 (9 examples). The Unia groups B and C return a statistically significant lower score.

The charters

In the above-mentioned paradigm forms of the long-rooted verb habba, the spelling <a> disappears earlier than in bitalia. After 1430, spelling with an <a> is incidental. For bitalia, this is after 1470. The first spelling with an <i> appears in 1423 (OFO IV-8): <habbith>. The authors from Leeuwarden are again well represented, but remarkably Hemma Odda zin prefers -et and uses -it in only 4% of the tokens. In the gerund, there is <hebbyn> once (OFO II-256, 1511). The number of tokens with an <a> is too small to show any significant geographical distribution. Combined evidence from Unia and the charters implies that a protected /a/ following a long root may have appeared as an [a] since the early 14th century. The proportion [a] : [a] was about 1 : 4. This situation remained stable during the 14th century. Between 1380 and 1430, the vowel became predominantly an [a].

Graph 2.6: The rendering of the Old Frisian /a/ in habbath/habbane.
Masculine plural in -an.

Because neither Unia nor the charter corpus are yet fully lemmatised, it is not easy to get a full picture of the changes with respect to the plural endings of masculine nouns. There are several complicating factors:

- The transition takes place before 1440, when the number of charters are limited. The development cannot be traced by looking for one or two frequent lemmas;
- The plural ending -an is not in the expected archaic form for all masculine words, especially in some highly-frequent words, such as līnde ‘people’, fēt ‘feet’ or man ‘men’;
- The ending <en> can be the result of a reduction in both the dative plural ending -um (≥ -em > -en) and the masculine plural nominative/accusative (-an). Several instances of -en in the oldest charters are dative plural forms;
- Also, from the early 15th century, feminine nouns may already end in -en, albeit occasionally.

To overcome these problems, three search strategies were applied:

- A search query on “tha/da(e) / twen(e) / twee(r) / t(h)re ...-an/-en/-in”, to find plural forms preceded by the plural article tha/da(e) or the numerals ‘two’ and ‘three’. The result of this search of the charters reveals 911 tokens in original charters, 21 of which prior to 1440. From Unia, 76 examples were found. In these selections the dative plural forms have been excluded in the charters up till 1440.
- Scanning the charters for words ending in <an> and selecting the real plural forms from that set results in 27 tokens in original charters, including 16 from the period up to 1440.

The queries result in four data sets, two from Unia and two from the charters. The sets are labelled in graph 2.7:

- **U-tha-an** = result set from the query “tha/da(e)/twen(e)/t(h)ria ...-an/-en/-in” on Unia
- **U-4 words** = result set from the query on the plurals of dei, dēl, êth and riuchter
- **Ch-tha-an** = result set from the query “tha/da(e)/twen(e)/t(h)ria ...-an/-en/-in” on the charters
- **Ch-an-tokens** = the identified plurals in <an> in the charters, counted with charter count (§ 1.3.7.10)
The following chronological correspondences were applied:

- Unia group A-1 $\pm$ 1300
- Unia group A-2 $\pm$ 1350
- Unia group A-3 $\pm$ 1405
- Unia group B $\pm$ 1420
- Unia group C $\pm$ 1440

- Charters 1379 - 1400 $\pm$ 1385
- Charters 1400 - 1440 $\pm$ 1420
- Charters 1440 - 1460 $\pm$ 1450
- Charters 1460 - 1490 $\pm$ 1475

Graph 2.7: The decline of <an> as an ending in masculine plural nouns.
Probably as a consequence of heterogeneous data sets and a lack of completeness, the resulting graph exhibits some deviation. However, despite a large deviation of data from *Unia* group B and C, the general trend is clear and undisputable.\(^\text{80}\)

Similar to the long-rooted verb *habba*, the level of spelling with an <a> in -an is not 100% in the very early years of the 14th century. This differs from the Old Frisian /a/ following a short root, as in *bitalad*, which is always written with an <a> in the examples studied from *Unia* and the oldest charters. OFO I-1 (1329) has two attestations to masculine plurals: <stadan> ‘places’ and <dadän> ‘the dead ones’, both spelled with an <a>. The transition from <an> to <en> started in the second half of the 14th century, and ended around 1450.

In *Unia* group A, there is a significant Vowel Balance effect, so a stronger reduction of -an to -en after long roots is prevalent. This effect is not observed in the charters, nor in *Unia* group B and C (15th century). The charters do not show any significant geographical distribution of this feature.

**Old Frisian sunnande ‘Sunday’**\(^\text{81}\)

The word for ‘Sunday’ poses a very interesting case. The oldest form as found in Old East Frisian is *sunnande*, a compound of sunne ‘sun’ and deï ‘day’. The lemma *sunne* appears in the allomorphic shape sunnan-, preserving the Proto-Germanic final -n (as in mûnandeï, § 2.3.4.2). In *Unia*, the archaic form of the word is found only without geminate <nn>: <sunandeïs> (2x) from group A-2 (early and mid-14th century) and <sonendêï> (group C, 15th century). In *Jus*, there are four attestations to the word ‘Sunday’, two <sonendêïs> with a <nn>, and two <sonendêïs>, with just one <n>. The base lemma ‘sun’ is always written with <nn>, both in *Unia* (12 examples) and in *Jus* (19 examples). The relevance of the spelling with one or two <n> is discussed later in this section. The more modern form <snande> is found in the *Unia* group A-3 from the very early 15th century.

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\(^\text{80}\) Statistically the high values for U-tha-an and Ch-tha-an for ‘1420’ do not differ significantly from the computed average. The original texts in *Unia* group B and C are older. The texts were linguistically reshaped in the early 15th century (§ 1.3.8). The ending -an was still an option in the early 15th century. The outcome of § 1.3.6 was that archaic, but still current features were more likely to persist in the copy than the completely outdated features. Therefore the (excessively) high level of the <an> spelling for the masculine plural could fit this picture. The reason for the difference with graph 2.1, where the figures for group C are not (excessively) high, might be that maintaining the spelling of <an> did not cause any distortion in the spelling or the grammar. Maintaining the archaic spelling such as <makad> instead of <mackad> could lead to misreading [makad] instead of [makad].

\(^\text{81}\) Basically the same reconstruction, albeit with fewer details, is found in Miedema (1971, 41).
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The language material from the charters comprises of six types. Including 15 tokens from copies, there are 51 tokens, which is quite good. However, due to high temporal and geographical variations, not all details can be covered completely:

sonnandei

There is an archaic form of the word *<sonnandeys>* (OFO I, 11) from 1405, an original charter located in Frisekeradeel. In a charter from 1412 (OFO II-9, copy from Leeuwarden), the form *<sonen-dei>* is found.

sennendei

The word ‘sun’ was subject to a spontaneous fronting: *sunne > senne* (Hoeckstra 2007, 44). This process had already started in the oldest sections of *Unia*. In the *Older ‘Skeltenariucht’* there were four examples of *<sunna/e>* , one of *<senna>* and one *<sinne>.* The replacement of *sun-* with *sen-* in the first element of *‘Sunday’* followed the simplex with some delay. Both *Unia* and *Jus* have as the simplex both *sunne/sonne* and *senne/sinne* but only *son-/sun-* as the first element in *‘Sunday’.* In the charters, the form *<sennen-deijs>* is found once in a charter from 1466 (OFO II-66, a copy made in 1582). The charter deals with market rights in the village of *Joure*. Although located in the South-East region, this village is actually on the border of the South-Eastern and South-Western regions. It is therefore no surprise to find descendants of *sennendei* in (early-) Modern Frisian dialects in the far south-west: *Hindeloopen: sennendei(s)/sendei*(1679), *sende* (modern)

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*Steller (1926, 10) discusses the variation in the name of the ‘sheriff’, appearing both as *<scelta>* and *<sculta>* in the text of the *Older ‘Skeltenariucht’*. Steller assumes that the form *<sculta>* is a loanword, cf. Dutch *schout* < *scholte*, cf. the patronymic *Scholten* from the Low Saxon speaking regions of the Netherlands. Steller therefore generally replaces *<sculta>* with *<scelta>* in his edition. The chronological rendering of facts clearly shows a different story: *<sculta>* is the older form, *<scelta>* the more recent one, matching the *<sunne> ~ <senne>* pattern.

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*In Standard Modern Frisian, ‘sun’ is *sinne*, but in the south-west, including the dialect of *Hindeloopen*, the form *sunne* is used. The data allow for an interpretation of *sunne > sonne* in Frislänn before 1450, and *sunne > sonne* in the south-west in the second half of the 15th century (cf. § 2.6.3, map 2.15). This reconstruction remains tentative, due to a limited amount of information.*
The sequence /nVn/ is very rare in Frisian, especially with a short vowel. In Modern West Frisian only këyn [këin] ‘rabbit’ was found, which is a loanword.

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- *snande* is attested between 1406-1463 and is prominent in the north-east;
- *snainde* is attested between 1450-1488 and is prominent in central Fryslân;
- *snein* is attested between 1459-1532 and is prominent in the west and south.

If *snein* developed directly from *snendei*, then its base form may have been *sonandei*, with a reduced vowel [ɔ]. This would separate the accent shift from the realisation of the unstressed vowel as [a].

If *snein* developed from *snainde* < *snande* < *sonandei*, there would be a direct link between the unstressed [a] in *sonandei* and the accent shift. To gain more insight, the data is split both into time frames and regions:

<table>
<thead>
<tr>
<th>region</th>
<th>-1420</th>
<th>1420-1470</th>
<th>1470-</th>
</tr>
</thead>
<tbody>
<tr>
<td>NE</td>
<td>snande</td>
<td>snande</td>
<td>snein</td>
</tr>
<tr>
<td>MM</td>
<td>sonnandei</td>
<td>snande</td>
<td>snainde</td>
</tr>
<tr>
<td>NW</td>
<td>sonnandei</td>
<td>snande</td>
<td>snainde</td>
</tr>
<tr>
<td>SE</td>
<td>-</td>
<td>snainde</td>
<td>snainde</td>
</tr>
<tr>
<td>MW</td>
<td>-</td>
<td>snein</td>
<td>snein</td>
</tr>
<tr>
<td>SW</td>
<td>-</td>
<td>sennendei</td>
<td>snein</td>
</tr>
</tbody>
</table>

Table 2.15: The geographical and temporal spread of the forms of 'Sunday'.

Plain text = one attestation or two from the same charter. Underlined = more than 2 attestations. Both originals and copies are used. The copies confirm the picture from the originals and provide additional data for three cells in the table.

---

85 The transition from [sonə] > [sɔnɛ] is not excluded; there is at least one example of the transition of */θ/ to a fronted mid-high vowel in Modern Frisian */ɛ/: *gruwlîk* [ɡruwˈɛlɪk] ‘terrible’ < */ˈɡruwɔlɪk/ (cf. Modern Dutch *gruwelijk*).
A.P. Versloot: *Mechanisms of Language Change*

Table 2.15 suggests the following sequence of events:

<table>
<thead>
<tr>
<th>sonnendei</th>
<th>&gt;</th>
<th>sennendei</th>
<th>&gt;</th>
<th>modern (Hindeloopen) sende</th>
</tr>
</thead>
<tbody>
<tr>
<td>sonnandei</td>
<td>&gt;</td>
<td>snande</td>
<td></td>
<td>sainde &gt; sneinde &gt; modern standard language snein</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>&gt; snunn (charter Dongeradeel; modern Schiermonnikoog dialect)</td>
</tr>
</tbody>
</table>

The combination of a single attestation (in a copy) of <sennendeis> from the village of Joore and post-medieval information from the archaic south-western dialects of Hindeloopen and Molkwerum, suggest that accent shift was absent in the South-West region and some parts of the adjacent Mid-West and South-East regions. Later appearances of the word snein in the south-west are a result of dialectal borrowing/spread since the late-15th century.

Table 2.15 suggests that accent shift always went from sonandei to snande(i). For the South-East and Mid-West regions, this is neither confirmed nor contested. The years of attestation to the variations of ‘Sunday’ suggest that the accent shift took place in the late 14th century. Taking only original charters, there is one attestation to an archaic form, <sonnandeis> from 1405. The oldest token with an accent shift in an original charter is from 1406: <snandis>. Including the copies, 1412 is the last attestation to an archaic form and 1390 the first appearance of the form with the accent shift, <snande>. The same form with the accent shift is also found in Unia group A-3 from the early 15th century. This implies that the accent shift took place between ± 1380 and 1420.

The given spelling of the word for ‘Sunday’ with only one <n> in Unia and Jus could mark the first stage of the accent shift. Geminate consonants only appeared in the rhyme of stressed syllables in Old Frisian. When the accent shifted towards the second syllable, the realisation of the geminated [nː] became obsolete, a fact reflected in the spelling.

The modern dialectal form snôn from Terschelling is a direct descendant of snande, cf. Terschelling bon ‘land’ < Old Frisian land. In the far north-east, a velar glide was inserted: snande > snunn, as found in Dongeradeel (1504) (not rendered in table 2.15) and in the modern Schiermonnikoog dialect, cf. modern Schiermonnikoog dialect laun ‘land’ < Old Frisian land.

In the rest of Frislân, snande developed a palatal glide: snande > snainde. The phonetically normal case is that a velar vowel triggers the insertion of a velar glide, whereas front vowels trigger the insertion of a palatal glide. The intermediate vowel /a/ can go with both glides, depending on the phonetic details of its
realisation. A realisation towards [æ] results in *snainde*, while a rather backward [a], produces *snaun*.

The vowel [ai] later developed into [ei]. In every region where both *snaiinde* and *snein* are found, the former is always the older one (albeit only by four years in the Mid-West region). The transition from [ai] to [ei] is confirmed by the word *ein(dom)* ‘own(ership)’.

The new *snein* replaced the local form *sennen(dei)* in the south-west, while in the north-east, *smein* replaced the retained *snund* or the newer *snaun*, all after 1470.

<table>
<thead>
<tr>
<th>dialect</th>
<th>accent shift</th>
<th>second syllable</th>
<th>glide sound</th>
<th>form / example</th>
</tr>
</thead>
<tbody>
<tr>
<td>NE / Schiermonnikoog</td>
<td>yes</td>
<td>[a]</td>
<td>[u]</td>
<td>16th cent. and Schm. <em>snaun</em></td>
</tr>
<tr>
<td>North / Terschelling</td>
<td>yes</td>
<td>[a]</td>
<td>0</td>
<td>15th cent. <em>snunde</em>, Ters. <em>snun</em></td>
</tr>
<tr>
<td>Centre</td>
<td>yes</td>
<td>[a]</td>
<td>[i]</td>
<td>15th cent. <em>snaiinde</em>, mod. <em>smein</em></td>
</tr>
<tr>
<td>SW / Hindeloopen, Molkwerum</td>
<td>no</td>
<td>[Ø]</td>
<td>-</td>
<td>Hind. <em>sennedei</em> &gt; <em>snde</em> Molkw. <em>zindei</em></td>
</tr>
</tbody>
</table>

Table 2.16: Geographical stages in the development of unstressed /a/ in Old Frisian *sunnande* ‘Sunday’.

Combining information from the charters and the modern dialects, the main conclusion is that in the centre and north of Fryslân there is a co-occurrence of [a] as the vowel of the second syllable and accent shift. In the south-west, there is a reduction to [ø] and no accent shift. This is confirmed by evidence from *Jas*, in the south-west of Fryslân, with only *<son(n)en>* in the first part of the lemma.

---

66. In the modern dialect of *Schiermonnikoog*, the vowel /a/ is generally pronounced [a], while the mainland dialects have [æ]. This contrast may have ancient roots. Compare also Hindeloopen dialect /ai/ < /a/ in *saing* ‘song’ < *sang* with Icelandic *langur* [laʊŋˈyːr] ‘long’ with /ua/ < /a/.

67. The very oldest forms, from the Older *Skeltenariucht* (Unia group A-1), are *<ein>* (two examples), matching the vowel in Old East Frisian sources. *<Ain>* then becomes dominant in the rest of Unia (92%, 37 examples) and also in *Jas* (95%, 74 examples). The (back) development of *<ein>* starts in the southern half of Fryslân before 1430. It is not before 1510 that the form *<ein>* really takes over, to become the only form in early-Modern Frisian, with the sole exception of the far north-east: *Baggerman Proverbs* *<aın>* > modern Schiermonnikoog dialect *ooin*.
‘Sunday’. This compares to <sunãndeis> and <sunãnde> in Unia group A, which represents the north.\(^\text{88}\)

**Old Frisian ‘abbate’**
The Old Frisian word *abbate* ‘abbot’ is another interesting case because an /a/ in the unstressed penultimate syllable is rare. The source of the word comes from the Latin *abbas* /gen.* *abbatis*, which was adapted into Frisian as nom. sg. */ab-ba-to/ . The word is found twice in Unia group A-2: nominative singular <abbate>, genitive plural <abbatena>. *Jus* has nom. sg. <abbet(te)> twice and once gen. pl. <abbatena>.\(^\text{89}\)

The oldest relevant examples of *abbate* in original charters are from 1402 and 1418. In the charters, the spelling with an <a> in the second syllable is found only once, <abbath>, in a charter from 1453 (copy). All other instances of tokens with an <a> in the second syllable are from a Latin context. For example, OFO II-279: “hoe dat wij den [...] heer Reijnerum abbatem in Jerusalem [...] baeden habbe”\(^\text{90}\), with the abbot in the accusative singular. Both the name and the word ‘abbot’ take the Latin form of an accusative singular.

In the second half of the 15\(^{th}\) century, in particular after 1480, the short form <abt> becomes dominant. In the first half of the 15\(^{th}\) century there is a subtle, but noticeable difference between the forms in the north-east and in the rest of Fryslân:

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\(^\text{88}\) Contrast is statistically significant according to Fisher’s Exact Test, with a p-value of 1.8%.

\(^\text{89}\) Noticeably, the word is only found with an <e> or <i> in the second syllable and no final vowel in Old East Frisian sources R1 and F (not attested in B, E1): nom./acc. sg.: R1 <abbit>, F <abbet, abbit>. H has <ehbet(e): with final vowel and no <a> in the second syllable.

\(^\text{90}\) ‘as we then asked mr. Reijner, the abbot in (the monastery of) Jerusalem’
When the second unstressed vowel is protected by a consonant (for example, gen. sg. *abbatis) or even a complete syllable (gen. pl. *abatena), the second syllable is subjected to the syncope: /ab-ba-tə-na/ > /ab-tə-na/. However when the second unstressed syllable is not protected, as in *abbate, the developments diverge. In the north-east, the original /a/ is retained as an <e>, probably an [ə], while the final /ə/ is dropped. In the rest of the language area, the second syllable is subjected to syncope and the final syllable is retained. This development is the ‘normal’ procedure, cf. § 2.4.1. The full implication of these patterns is discussed in § 3.4.

In this section on the reduction of non-word-final /a/ in *abbate, it is important to note that:

- The penultimate /a/ is reduced at an early stage. This is consistent with tendencies previously described for non-final unstressed syllables in polysyllabic words in Wallisian High German and in Rüstringen Old Frisian in § 2.4.1;
- In the ongoing process of reduction, the <e> that develops from the preceding /a/ in the unstressed syllable is retained in the north-east, the same region where the unstressed /a/ was preserved for a long time, for example *bitalia and *sunnaehi;
- In the south and west, regions with an early reduction of an unstressed /a/, the second syllable of *abbate is subject to syncope in the entire paradigm.

<table>
<thead>
<tr>
<th></th>
<th>Old Frisian</th>
<th>Middle Frisian &lt; 1470</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>North-east</td>
<td>South and West</td>
</tr>
<tr>
<td>nom./acc. sg.</td>
<td>abbate</td>
<td>abbet</td>
</tr>
<tr>
<td>gen. sg.</td>
<td>*abbatis</td>
<td>abtis</td>
</tr>
<tr>
<td>dat. sg.</td>
<td>*abbate</td>
<td>abbet</td>
</tr>
<tr>
<td>nom./acc. pl.</td>
<td>*abhatan</td>
<td>abten</td>
</tr>
<tr>
<td>gen. pl.</td>
<td>abhatena</td>
<td>abten</td>
</tr>
<tr>
<td></td>
<td></td>
<td>*abtena</td>
</tr>
</tbody>
</table>

Table 2.17: Development of Old Frisian *abbate. The geographical contrast in the nom./dat./acc. sg. is statistically significant.
2.4.3.3 Summary: the development of Old Frisian /a/ in protected position

Examples in this section show that the unstressed /a/ in a protected position was hardly rendered with <a> already in the beginning of the 15th century. The difference between the long-rooted example of habbath / habbane and the short-rooted bitalad / bitaliane is evident. In the former, the year 1430/40 marks the end of spelling an <a>. In the latter, it lasts until 1460/70 when the <e> and <i> take over. This is the result of Vowel Balance (cf. § 2.5.2). The reduction of the masculine plural ending -an shows Vowel Balance effects in the 14th century, but not in the 15th.

For short-rooted words, a geographical trend could be observed between the south-west and the north-east. In short-rooted words, <a> was still relatively common in the north-east up until 1470. The long-rooted examples of sunnande and abbate reveal the same south-west / north-east trend.

An Old Frisian /a/ in a penultimate unstressed syllable, as in abbate, was subject to early reduction, earlier than in the final syllable. At the same time, this reduced historical /a/ showed somewhat more endurance in the north-east than in the west and south of Fryslân. The /a/ in sunnande attracted primary stress. In this word, the /a/ was reduced to /θ/ in the south-west at an early stage and moved away from this development.

The spelling <i> of the historical /a/ appears at a time when reduction of [a] to [θ] is already happening. The <i> is a variant of the reduced vowel and not of the [a]. The phonological relation between <e> and <i> is discussed in § 3.6.

Section summary:

• The protected unstressed /a/ was reduced to an [θ] in the first half of the 15th century;

• Particularly in verbal endings such as /aþ/ and /an(θ)/, reduction is earlier when the preceding root is long (< 1430), compared to when the root is short (<1470);

• In word-interior position, as in abbate ‘abbot’ and sunnande ‘Sunday’, the /a/ was more resistant to reduction in the north-east than in the south-west.
2.4.3.4 Old Frisian word-final /a/ following a short root

Infinitives wesa ‘to be’, bitalia ‘to pay’
In the infinitive of the Old Frisian verb wesa ‘to be’, the spelling with a final <a> appears to be very resistant to reduction. Only after 1510 does the spelling with an <e> increase substantially (cf. graph 2.9). The same trend, but with a slightly lower level of <a> tokens, is found in the infinitive of bitalia. Here, the year 1470 is the turning point. Between 1490 and 1510, the proportion of <a> had already fallen to 46% (graph 2.10). Despite the differences between wesa and bitalia, the comparison with the reduction of <a> in protected position in the gerund forms wesan(e) and bitalian(e) shows that /a/ in word-final position behaved distinctly differently. The reduction of /a/ in word-final position follows the reduction in protected position with a delay of at least half a century.

Plural of Old Frisian seke ‘saak’ and Old Frisian dore ‘doar’
The frequent noun seke ‘case’ combines several of the developments addressed in this study. In the period 1400 to 1500 the transition from Old Frisian grammar, with four grammatical cases, towards the modern paradigm, with the sole distinction of singular and plural, can be observed:

<table>
<thead>
<tr>
<th></th>
<th>sg Old Frisian</th>
<th>pl Old Frisian</th>
<th>sg Middle Frisian</th>
<th>pl Middle Frisian</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nom.</td>
<td>seke</td>
<td>sakaseka</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gen.</td>
<td>seke</td>
<td>seken sekene</td>
<td>seck(e)</td>
<td>seken</td>
</tr>
<tr>
<td>Dat.</td>
<td>seke</td>
<td>sekum</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acc.</td>
<td>seke</td>
<td>sakaseka</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2.18: The Old Frisian and Middle Frisian paradigm of the noun seke ‘case’ in the 14th and 15th century.
Graph 2.9: The spelling of Old Frisian -a in the infinitive *wesa* ‘to be’.

Graph 2.10: The spelling of Old Frisian -a in protected and word-final position, following a short root is illustrated by the infinitives and gerunds of *to be* and *to pay*: *wesa / wesan(e), bitalia / bitalian(e)*.
The Old Frisian forms are frequently used in the first half of the 15th century. Note the variants with <a> in the root of the nominative and accusative plural. More information on this variation is given in § 2.6.3. The transition towards the modern situation takes place roughly between 1460 and 1490. The apocope in the singular is discussed in § 2.4.3.8. Before 1460, the ending of the dative plural is regularly <im>, <em> or <um>. However after 1460 <um> is only found once more, in OFO II-79 (1479, Dongeradeel). By then, it is replaced by the ending -en. The genitive plural is rare. The last instance is from 1497. The ending of the nominative and accusative plural remains as -a until late the 15th century, cf. graph 2.11. The replacement by -en is quite abrupt. While the infinitives in graph 2.10 show a gradual transition from <a> to <e>, the reflection of a gradual phonetic reduction from [a] > [e], the plural marker of feminine nouns, shows a complete replacement of morphemes. The regular phonetic development to [e] is only found in the modern dialect of Schiermonnikoog, where feminine nouns end in -e, the successor of Old Frisian word-final -a, for example, baan (sg.) - bane (pl.) ‘bean’, with few relics in the northern mainland dialects.

Between 1460 and 1490, the ending -en was used exclusively for the dative plural, while the nominative and accusative still ended in -a. The dative ending -en was the autonomous outcome of the reduction of the archaic -um. The -en in the nom./acc. pl. is probably the result of levelling from the masculine nouns, not from the dative. The details of the developments in the 15th century are shown in table 2.19.

Graph 2.11: Nominative and accusative plural of seke.

---

91 In OFO I-428 (Leeuwarden, 1497) the phrase: "... om de seckena ende deh willa ..." (‘for this sake and deed’). Note that the article is not in the genitive, a sign that the case system was by then almost lost.
The transition from -a to -en in the nominative and accusative plural shows a geographical variation (map 2.10). The introduction of -en in the nom./acc. plural completes the levelling of the plural endings. Once more, the innovation comes from the west and south and was later followed in the north-east. The difference
is approximately 30 years. After 1490, both the endings with full vowels, that could mark the grammatical cases (-a, -ena, -um), as well as the case system itself, have gone. About that time, there are several examples of historically incorrect case forms, for example, OFO II-94 (original from 1481): “[...] sted van Liouwerd in de seck twiska Snytzera ende Bolswerdera [...]”92, instead of the historically correct form “inder seck”, which was used in the original charter OFO I-311 from the same year.

For comparison purposes, the feminine noun dore ‘door’, plural dora, with a similar syllable structure, was studied. Note that the vowel was not lengthened in the plural, due to the subsequent -a. There are only 21 tokens, most of them from copies, so the attestation status is far less favourable than for seke. The tokens fit nicely into the pattern of seke. In the dative plural, a form of <em> is found once (OFO II-30, 1450). The next dative plural form is <doeren> (OFO II-38, 1455). Between 1450 and 1478, the nominative and accusative plural appear three times with the Old Frisian ending -a and short root vowel /a/: <dorra> (cf. the singular doer /dɔːr/ in § 2.3.3.1). In three attestations from 1478 to 1515, the spelling <do(e)ren> is encountered, presumably with a long root vowel /dɔːrən/. These forms confirm the morphological innovation. They show that they are recent constructions from a singular root with a long vowel, extended by the ending -en. The token <dorren> (OFO I-307, original from Boarnsterhim, 1481) shows a

---

92 ‘... city of Leeuwarden in the case between the people of Sneek and Bolsward....’
According to this data, it could be assumed that *doeren* becomes the dominant form in the 16th century, but this is not the case. From 1609 to 1774 plural tokens of *door* are attested. The form *doeren* was found eight times between 1609 and 1774, and four tokens that indicated a long root vowel, such as *do(o)ren*, *doaren* and *dôaren*. It is not possible to determine a geographical distribution of these variants.

2.4.3.5 Old Frisian word-final /a/ following a long root: kâpia

The infinitive of the verb *kâpia* ‘to buy’ serves as an example of the Old Frisian /a/ following a long root. This example is extended with the word <kapa/>/<kape/>, a more recent variation of the past participle, the older form being *kâpad*. The first appearance of <kapa/> is in OFO I-306 (1481 from Skarsterlân). In both meanings, the proportion of spelling an <a> remains relatively high until the late 15th century, cf. graph 2.12.

The data in § 2.4.3.1 and § 2.4.3.2 reveal a clear difference in reduction progress of the protected /a/, following either a long or a short root. The word-final <a> remains high at least until 1490, in both a word such as *wesa* ‘to be’ and in *kâp(i)a* ‘to buy’. Note that both *wesa* and *kâpia* are not affected by either Open Syllable Lengthening or by degemination of long consonants. This makes them diachronically stable examples of words with a short or a long root. Comparison of graph 2.12 with graph 2.9 reveals a difference between *kâp(i)a* and *wesa* after 1490. Note the following dates of attestation in the well-documented South-Eastern and North-Eastern regions:

<table>
<thead>
<tr>
<th></th>
<th>North-East</th>
<th>South-East</th>
</tr>
</thead>
<tbody>
<tr>
<td>last &lt;a&gt; in <em>kâp(i)a</em></td>
<td>1470</td>
<td>1520</td>
</tr>
<tr>
<td>last &lt;a&gt; in <em>wesa</em></td>
<td>1506</td>
<td>1539</td>
</tr>
</tbody>
</table>

Table 2.20: Vowel Balance in the reduction of word-final /a/.

- Final <a> disappears earlier in long-rooted *kâp(i)a* than in short-rooted *wesa*;
- Final <a> disappears earlier in the North-East than in the South-East.

This Vowel Balance effect is discussed further in § 2.5.2.

All instances of *kâp(i)a* with word-final <a> after 1510 come from the south. A similar geographical pattern is found in the spelling of <habba/>/<habbe/>, the
infinitive and present plural form of the verb habba ‘to have’, cf. map 2.11. Note that habba had a long root before the degemination, but a short one after it, i.e. after ± 1460. A similar preference for the final <a> is found in short-rooted wesa, with only an <e> in the North-West and North-East regions after 1510, but occasionally an <a> in other, more southern regions. Until then, retention of the /a/ was a characteristic of the north-east (this is treated further in § 5.2.4).

2.4.3.6 Summary: Old Frisian /a/ in word-final position
The Middle Frisian unstressed final /a/ was either word-final from the very beginning of Old Frisian, as in wesa, seka and the infinitives kâpia and habba, or it was the result of an apocope of a word-final consonant, as in <kapa> from kâpad and <habba> from habbath. All instances behave in the same way. In all examples, with both an historical long or short root, spelling with an <a> dominates until about 1490. This is much later than in a protected position, where, even after a short root, the <a> disappears by ± 1470. Also, in word-final position, there is a Vowel Balance effect, causing a phase difference of approximately 20 years.
The examples of *wesa*, *habba* and *kâp(i)a* reveal the south as the most conservative region for the preservation of word-final *<a>*.

The final -*a* as a plural marker of feminine nouns was not reduced to *[ə]* (except in the dialect of *Schiermonnikoog*), but replaced by the ending -*en*, which came from masculine nouns.

Section summary:

- Word-final /*a*/ remains unaltered until ± 1490;
- There is a Vowel Balance effect with later transition to *[ə]* after short roots;
- The transition from *[a] > [ə]* is later in the south than in the north.
2.4.3.7 Old Frisian /a/ in protected position

The sections 2.4.3.1 and 2.4.3.2 discuss the reduction process of the Old Frisian /a/ in an unstressed position. The reduction of /a/ implies a reduction to /ə/. The general trend of vowel reduction in unstressed syllables in Germanic languages is from a full vowel inventory (as in Gothic and Old High German) towards a reduced vowel set (as in Old Frisian or Old Nordic), towards /ə/ and finally to ə. For example, Old High German macbōn, Old Frisian makia, Modern Frisian meitsje [ma.itsʃə] and Modern English to make [me.ɪk]. During the reduction process, qualitative reduction (for example, /a/ > /ə/) and quantitative reduction (cf. the qualitative and quantitative contrast between /oː/ and /a/ in machōn ~ makia) alternate. There is no principle opposition between both features, at least not in Germanic languages. Quality and quantity do not reduce independently, but in cooperation with each other. The reduction of the /ə/ > ə is a logical step in this process.

The reduction of /ə/ can, however, have severe consequences for the syllable structure, which do not occur at other stages of vowel reduction. Dropping an /ə/ may lead to consonant clusters that are difficult to pronounce. This can influence the actual implementation of the reduction from /ə/ > ə. This is particularly relevant when /ə/ is in a word internal position (syncope of /ə/ > ə). When /ə/ is in word-final position, the reduction is called an apocope. The latter process generally causes fewer problems with pronunciation.

This touches the fuzzy concept of ‘wellformedness’. Wellformedness is a collective word for a complex of articular and auditory constraints on combinations of sounds. Some of these are absolute and universal (for example, an onset cluster, as far as we know, [ktp] does not exist in any language). Some are very general, but not absolute (for example, onset cluster [pt] that is allowed in Greek84) and others are purely language specific (for example, voiced spirants [z] and [v] at the onset are prohibited in Frisian). This implies that wellformedness rules for one language at any given moment are a sub-selection of a universal ‘convenience’ phenomenon.

Apocope of the /ə/ in for example, Old Frisian dore, poses no problem. The new shape of the word /dɔr/ does not violate the conditions for well-formed words in Frisian, neither in Old Frisian, nor in Modern Frisian. However, the past participle of ‘to be’, Old Frisian wesn never exhibits syncope of the /ə/ to *<wesn> in Middle Frisian, because the sequence /sn/ does not fulfil the criteria of a well-formed rhyme of a Middle Frisian syllable. In Modern Frisian, the

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84 From Greek it penetrates into other languages in loanwords, for example, *prenamon. In Wangeroogic Frisian, the coda cluster [tk] exists in an endogenous word: fisk ‘wing’ < *fitek (diminutive form), cf. High German Fittich.
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sequence [vɛ:zn̥] (with syllabic [n̥]) exists.

This is not the place to investigate aspects of wellformedness in Old or Middle Frisian. This study works with two assumptions here:

1) The criteria of phonological ‘wellformedness’ for 15th century Frisian is, by and large, the same as for Modern Frisian words in the inherited Frisian part of the lexicon, excluding recent Dutch loanwords and internationalisms. This is a logical assumption, because the shape of inherited words in Modern Frisian is the direct product of wellformedness constraints in earlier stages of the language. A difference is the constraint on /r/ + /d, t, s, z, n, l/, implemented in the 18th century. So *bern* /bɛrn/ ‘child’ was a possible sequence in Frisian before 1700, but the modern pronunciation is [bɛ(ː)n]. Loanwords from the 20th century, such as *sport* ‘sport’, are pronounced with an [r]: [sport].

2) Syllabification of /n,m,r,l/ was not an issue in the 15th century. Reconsidering the example of *wesen* (in the 15th century gerund and past participle, in the modern language as *wêzen only gerund*) *<wesn>* *<wɛzn̥>* is not attested in the charters. In modern language [wɛzn̥] is the most common pronunciation of *wêzen*, alongside [wɛ:zn̥]. The ‘naive’ Frisian authors between the 16th and 18th centuries hardly ever wrote a plural with only an <n> instead of an <en>. ‘Naive’ authors of the Modern Low Saxon dialects, where syllabification is a compulsory phonological feature, do so regularly. In early-Modern Frisian, there are occasional tokens with <in>, for example, in *<soonin>* ‘sons’, modern spelling *<soannen>* (text 1686f in the Frisian Language Database).

The process of syncope of the Old Frisian /ɔ/, being developed from Proto-Frisian /i/, /ɛ/ and /u/, covers a period of more than two centuries. The process remains active over the entire time frame studied, from the archaic language type in *Unia* until the early 16th century. The following examples do not exhaustively cover all instances of syncope in Old and Middle Frisian, but are meant to provide examples for the study of conditions for /ɔ/ syncope. Syncope is the result of prosodic habits and varies according to factors such as style and speech rate, even for a single speaker. The manifestation in writing, as used below, marks the stage where the author consciously considers the syncopated form as the correct form, or at least a correct alternative and suitable for spelling out.
Syncope of /a/ in verbal endings in Old Frisian (Unia)

Syncope of the Proto-Frisian /i/ in the ending of the 3rd pers. sg. pres. of strong verbs and weak verbs of the so-called first class, for example, *kumeth* ‘comes’ was already completed in the oldest charters. Examples with retained /a/ are, for example, found in the archaic texts of the *Old Skeltenariucht*, *Synodal Law*, and *Statutes of Old Frisian Council*: <kumith, comet>. In other texts, only syncopated forms are found. Note that already in a text like the *Old Skeltenariucht*, syncope is more frequent in this context than the retention of /a/. No relevant examples without syncope were traced in the charters. The only possible context in OFO I-1 (1329) has syncope: <kumth>.

This evidence implies that syncope in this verbal ending was quite old. It must have started before 1300 and was completed before 1380. The syncope in the abovementioned verbal ending was not concentrated in time. A side glance towards Old English shows temporal and dialectal variation in the syncope in this verbal ending. In Old English it was a gradual process, that started in the 8th century. In Old English, this syncope is frequent in some dialects and is absent in others (Campbell 1977, 299 ff., 322 ff.). In the frequently syncopating West-Saxon dialect, the vowel is often preserved after liquids and nasals: /r, l, m, n/. In the Riutringen Old Frisian dialect, the syncope is generally conducted (Boutkan 1996, 116). In the language of the codex F, 65% of the 43 tokens with vowel <et(h)> or <it(h)> are found after liquids and nasals (Sjölin 1970, 154 & 161).

Another query on the *Unia* data provides 17 examples of a 3rd pers. sg. ind. in <e/it(h)>, all of them in the *Unia* group A. A further subdivision into older texts and late 14th century texts reveals a remarkable contrast. All the old examples (*Unia* groups A-1 and A-2) follow a short root, for example: <binimith, hevith> ‘denies, has’, and all of them end in a liquid, a nasal (cf. Old English, West-Saxon) or a /w/. As all the old examples without syncope have a short root, this is indirect evidence that after long roots, the syncope was already completed by then. Positive examples of the syncope of /a/ following a long root are abundant in the *Old Skeltenariucht*, for example, <bifalt> (inf. *bifalla* ‘being submitted to’, <bilift> (inf. *bilîva* ‘to die’), <delt> (inf. *dêla* ‘to divide’).

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55 This is one of the few instances in which the language of *Unia* is more archaic than the Riutringen dialect.

56 This implies that in *kumeth*, for example, the root vowel was short. This contrasts with the conclusion about Open Syllable Lengthening (§ 2.3.3.1). The vowel of the infinitive and the present plural forms remained short before following /a/: *kuma, kumath*. This short vowel quality is confirmed by the later spelling, such as <komma> (infinitive) and <komt> (3rd pers. sg. pres. tense).
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There are five examples from *Unia* group A-3 with intermediate <e>, all with long roots; three of them end in obstruents, for example, <sprecket> ‘speaks’ and <jechtet> ‘allows’. This seems a case of epenthesis to avoid long syllables with complex codas.

Syncope is more reluctantly implemented in the past participle of a weak verb such as *dêla*, taking a past participle in archaic Old Frisian in -ed (in contrast to the verbs in -ia, that take -ad). In the Older *Skeltenaricht* (*Unia* group A-1), the participle of the verb *dêla* regularly takes <ed>: <(une)deled> ‘(un)divided’ (2 examples). In the text ‘Processus Judicii’ from the early-15th century (*Unia* group A-3), there is only <deld> (3 examples) and in the text from the *Unia* group C ‘Statute of the Dean of Wirdum’ once <deeld>. This matches the evidence from the charters, with only past participle forms <deld>; oldest charter OFO I-5 (1390, copy) and oldest original OFO II-15 (1427). Of all examples in *Unia* of past participle forms of verbs like *dêla* that keep the unstressed /c/ at the ending, the root of 16 out of 19 end in a liquid or a nasal, /w/ or /j/. The sample contains verbs with both long roots (for example, *berned* ‘burned’) and short roots (for example, *seged* ‘said’).

Therefore, syncope of an /o/ in the verbal endings of the 3rd person singular and the past participle was affected by:

- The length of the root: All older instances of <eth> appear in short roots;
- The quality of the preceding consonant: Nasals, liquids and semi-vowels, all voiced continuants, favour the retention of /o/;
- The voice of the following consonant: The /o/ disappears earlier from -eth than from -ed.

*Unia* provides some additional good examples of /o/-syncope. An example of an unstressed protected /o/ following an historically short root syllable is the past participle of *swera* ‘to swear’, originally Old Frisian *sworen*. It has been attested five times in the Older *Skeltenaricht* (*Unia* group A-1) and once in ‘Haet is riucht’ (*Unia* group A-2). In § 2.3.3.1, the evidence from Vowel Balance points to a conclusion that Open Syllable Lengthening had taken place in Old Frisian by the beginning of the 14th century. Open Syllable Lengthening was generally applied to Old Frisian /o/. This means that <sworen> represented /swore(n)/ and that the word was a candidate for syncope of the /o/ following a long root vowel. It is found with syncope as <sworn> in two old charters: OFO I-1 (1329) and OFO I-15 (1407), a copy that looks reliable in this case, because it does not have the more recent
This more recent form \textit{swere} \textsuperscript{5} is an indicator of early Open Syllable Lengthening and an early syncope of a protected /\textipa{a}/ following a long root. The conversion of \textit{sweren} to \textit{sworn} may date back to the early 14\textsuperscript{th} century.

**Syncope in word-interior position:**

<table>
<thead>
<tr>
<th></th>
<th>bödel ‘property’ (Older ‘Skeltenarich’)</th>
<th>hawed ‘head’ (Unia group A)</th>
<th>finger ‘finger’ (several fine registers, Unia group A and B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>nom./acc. sg.</td>
<td>bodel</td>
<td>hawed</td>
<td>finger</td>
</tr>
<tr>
<td>gen. sg.</td>
<td>bodlis</td>
<td>haudis</td>
<td>-</td>
</tr>
<tr>
<td>dat. sg</td>
<td>bodle</td>
<td>hauðe</td>
<td>finger/fingere</td>
</tr>
<tr>
<td>gen. pl.</td>
<td>-</td>
<td>hauða</td>
<td>fingra</td>
</tr>
</tbody>
</table>

Table 2.21: /\textipa{a}/-syncope in Old Frisian noun paradigms.

**Brief discussion of the relevance of the examples:**

\textit{bödel}: The sequence of two consecutive /\textipa{a}/-s in the genitive and dative singular is avoided by deleting the left one, cf. the case of \textit{abbate} in § 2.4.3.2 with /\textipa{ab-ta}/ < /\textipa{ab-ba-ta}/.

\textit{hawed}: The contracted form \textit{haud} is frequently found in \textit{Unia}, for example, in the \textit{Older ‘Skeltenarich’}, but always in either inflected forms or as the first element of a compound. In texts where the long form appears, it is almost always (9 out of 10 times) the uninflected nom./acc. sg.

\textit{finger}: Syncope of the first /\textipa{a}/ in the sequence \textit{fingere} is not ‘compulsory’ (cf. \textit{bodle}). Preference is given to the form \textit{finger} (four examples) in the dative singular, to avoid both the sequence /\textipa{a-s}/ and a heavy consonant cluster /\textipa{nt}/. In the genitive plural form, dropping the ‘strong’ /\textipa{s}/ is not an option, and \textit{fingra} seems to be the only solution (three examples). The genitive plural is once attested with a long ending -\textit{ena} from the weak declensions, producing the form \textit{fingerna}, with syncope of the second /\textipa{s}/, avoiding both /\textipa{s-s}/ and /\textipa{nt}/.

\textsuperscript{5} This more recent form \textit{swere}, appearing for the first time in 1450, is regularly spelled \textit{sweren}, being /\textipa{swar-i}/, with a short root vowel and no syncope. The syncope in \textit{swere} first appears in a charter from 1488 (OFO II-163, copy).
In word-interior position, the syncope in Old Frisian was older than in the protected position in a word-final syllable, as can be seen from the comparison *kumeth ~ bodle < *boden, both from *Unia group A-1.

**Syncope in Middle Frisian: the charters**

The syncope of the protected Old Frisian /o/ from the time frame covered by the charters, is illustrated with the following words: *wesen* 'been' (past. part.), *sekena* 'cases' (genitive plural), *êpena* 'open' (inflected form of the adjective), *sweren* 'sworn' (past participle of *swera*; cf. the syncope in the original Old Frisian form *sworen* in the language of *Unia*), *dorena* (inflected form of *sweren*), *dorena* 'doors' (gen. pl.) and *wegena* 'ways' (gen. pl.). Finally, also *abbet* 'abbot' (nom.-/acc. sg.) and *abbete/-s/-n* gen./dat. sg., nom./acc. pl. are included. The words were chosen to demonstrate a broad spectrum of phonological contexts, using words that are well attested in the charters. Section 2.4.3.2 shows that a reduction from *abbate* to *abbet* occurred relatively early, especially in the south-west. Therefore, for the time frame after 1400, the Old Frisian word *abbate* can be interpreted as /ab-bctc/ and as such, is a possible candidate for syncope of the of /o/.

Graph 2.13 shows a wide range of developments. In the word for ‘abbot’, when followed by another unstressed syllable, as in *abbeten* (nom./acc. pl.), the first /o/ is always syncopated: *abten*. But in the nom./acc. sg. form *abbet* (north-east Fryslân) the syncope appears much later. It is a manifestation of the pattern that unstressed vowels are syncopated in the word-interior earlier than near the end (cf. similar patterns in the Wallisian dialects, mentioned in § 2.4.1 and in the case of Old Frisian *bodel ~ bulde < *bodele*). However, in the word *êpena*, syncope of the word-interior /o/ hardly takes place. The form <eepna> for *êpena* is attested only twice in the 250 tokens from the original charters. Here wellformedness (no sequence
[pn] allowed in Frisian) overrules the syncope tendency.

There are large differences between morphologically identical cases, as in: ĝōpēna - swerena (inflected adjectival forms) or sekena - dōrena (gen. pl.). Phonologically similar cases such as ĝōpēna and dōrena, both with a long vowel since the 14th century, or ĝōpēna and sekena, both with a root ending in an unvoiced consonant, behave differently.

It is tempting to try to find all regulating factors for syncope and their exact interaction. Root quantity and surrounding consonant voice features have been identified, as have wellformedness constraints, such as the syllable final [rn] ~ *[sn]. So far, sufficient information has been gathered to be used in the modelling of vowel reduction in § 5.1, and in § 5.1.4 in particular.

Section summary:

- Syncope of /ɑ/ in unstressed syllables was a gradual process in Frisian, stretching from the 12th to the 16th century;
- Syncope of /ɑ/ could be delayed or even prohibited by factors such as a short root quantity, a position near the end of the word, voiced consonantal surrounding, or wellformedness constraints.
2.4.3.8 Old Frisian word-final /ə/ following a short root
Apocope of a word-final /ə/ does not pose a problem with wellformedness in Old Frisian. To find suitable examples of words with a short root ending in -e is difficult in Middle Frisian, because Open Syllable Lengthening turned most short-rooted words into long-rooted ones, especially those with an -e (to a far less extent those ending in -a, cf. § 2.3.3.1 and 2.3.3.2).

Another complicating factor is the transition of words into another inflectional class. The frequently used word breke 'break' for example, is a masculine noun in -e. Masculine nouns rarely end in -e. The word tends to lose its final -e much earlier than the feminine word seke, as most words in -e are feminine. The importance of the gender in this example emerges from the fact that, in both charters with frequent spelling of breke with a final <e> (OFO II-9, 1412 & OFO II-10, 1417 both copies), the word appears as a feminine word. For example, “dio breke” (nom. sg.), “bi der breka” (dat. sg.). In the latter case, the word has the ending <a> from the dative singular of the weak feminine nouns. As a masculine noun, the syllable structure of breke is adjusted earlier to that of other masculine nouns, i.e. without the final -e.

Graph 2.14: Development of unstressed /ə/ in the word seke 'case'.

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88 Strictly speaking, this is a coincidence. There are definitely historical phonological reasons for it, but these are not the subject of this study. The key point here is that an apocope of /ə/ can always take place.
Singular of Old Frisian seke ‘case’

The singular of the noun seke ‘case’ may serve as an example of the Old Frisian /a/ in word-final position following a short root that was not generally subject to Open Syllable Lengthening (however cf. map 2.2 in § 2.3.3.1). The word seke is a feminine ð-root and has the ending -e in all cases of the singular. Levelling from the weak feminine nouns, marked by the ending -a in the genitive and dative singular, is very limited, with less than 5%. The word is well attested in the charters, with 300 tokens of the singular in original charters between 1379 and 1544. The first token with apocope is from 1441: <seeck> (OFO I-83, Tytsjerksteradiel). Prior to 1460, tokens with a final <e> still constitute 75% of the cases. After 1460 <e> vanishes, but stays at a more than marginal level. See graph 2.14.

The development has a distinct geographical component. Instances of <e> and sometimes <a> after 1470 are predominantly from the south and west of Fryslân (map 2.12). Map 2.8 (‘Apocope in Modern West Frisian’) shows that, in the modern dialects, apocope is stronger in the north than it is in the south. In the modern dialect of Hindeloopen in the south-west, the level of apocope is particularly low, with only 38%. The word seke cannot be traced any further into modern times because

Map 2.12: Geographical spread of retained final <e> (hypercocorrectly sometimes <a>) in the singular of seke after 1480.
the old form *seck(e)* was replaced by the Dutch loan form *saak* in the 17th century.

### 2.4.3.9 Old Frisian word-final /ø/ following a long root

Open Syllable Lengthening had taken place in the beginning of the 14th century (§ 2.3.5). Apocope of the word-final -e postdates this development. This implies that words with lengthening in open syllables, such as *dore* ‘door’, should be dealt with in this section.

Words ending in -e with a long root in early-Old Frisian, such as *âge* ‘eye’ are scarce. Many words with long roots dropped their final vowels in the Proto-Old Frisian period, cf. the i- and u-roots (§ 2.1, table 2.2). Also, in words such as *âge*, which kept a final -e in early-Old Frisian, this -e was dropped early. These words are rarely attested with a final <e> in the charter corpus, which makes it difficult to trace geographical differences.

Another complicating factor is the mixed paradigm in the singular, with -e in the nominative and accusative, but -a in the genitive and dative of the weak feminine nouns (cf. § 2.4.2). The forms in -a have contributed significantly to the retention of an /ø/ in Modern Frisian. That makes them unsuitable examples for the study of a final -e. A typical example is the word *bregge* ‘bridge’, originally a strong feminine noun. It exhibits extensive levelling towards the group of weak feminine words, with frequent dative singular forms in <a>, turning into a final <e> after 1480. In Modern Frisian, the word is *brêge*/brêch.*

All this may be interesting from a morphological point of view, but it limits the opportunities to see what happened from a purely phonetical and phonological viewpoint. In the rest of this section, words with -e as part of the nominative singular are presented, as well as the cases of -e as a verbal ending (1st pers. sg. pres. of *habba*) and the -e as marker of the dative singular of masculine and neuter words. The noun ‘ship’, originally a short root with Open Syllable Lengthening, provides an interesting illustration of the interaction between phonology and morphology in parts of the paradigm.

### Old Frisian fore ‘for’

The case of *fore* ‘for’ is also discussed in § 1.3.3 and § 2.3.3.1. The word was subject to Open Syllable Lengthening. The final vowel was dropped soon after 1390 (graph 2.2). *Unia* shows <fore> in group A-2, but <fo(e)r> prevails in group A-3, to become the only option in group B and C. This matches the dating of ± 1390.

### Singular of Old Frisian dore ‘door’, sone ‘son’ and bitale ‘payment’

The preposition *fore* is often unaccented in the sentence and that may be a reason for early apocope (cf. a similar case in Middle English, Brunner 1970, 32). This is
why some other words with Open Syllable Lengthening and word-final /a/ have also been checked. The oldest original attestations to 'son' and 'payment' in the charters already exhibit apocope: 1429 <zeon>, 1431 <bitael>; there is no trace of a remaining /a/. The oldest attestation to dore in an original charter is in OFO II-153, 1487 <do->, which has been transcribed as <dore> in the text edition. It may well represent <doer> (cf. § 2.3.3.1). Otherwise, there are no attestations to a retained final /a/ in dore. Both sone and dore are regularly attested with the final vowel, both in Unia and in Jus, indicating that apocope of the final /a/ did not take place before ± 1400, indeed somewhat later than in fore.

**Old Frisian âge 'eye'**
The Old Frisian word âge 'eye' is one of the few neuter weak nouns. It is rarely attested in the charters. As a singular, it is first attested in OFO I-267 from 1467: <aech>. In a text from Unia group A-2 (middle of the 14th century) the nominative singular is attested as <aech> and <aeg>. In a text from group A-3, the dative singular appears as <aghe>. This suggests the adoption of the general paradigm for strong neuter singular nouns: nom./acc. -ø, dat. -e. As an example of morphological levelling, it says little about the phonetic process of apocope. In Jus, the final -e is found 17 times in nominative and accusative singular. Jus provides no examples with apocope. As the language of Jus reflects the situation from the late 14th century, this would place the apocope in âge some time after 1380. The language of Jus can be sited in the south-west. The texts from Unia originate from the north. More specifically, the later texts in Unia originate from the north-east. The different appearances of âge in both codices may reflect a geographical contrast in the 14th century (note the retention of -e in the south-west in the word seke in the 15th century, map 2.12).

**skipere 'skipper', klagere 'complainer'**
Words such as skipere 'skipper' and klagere 'complainer' were nomina agentis. These words had a word-final -e in Old Frisian: skipere and klagere. In the archaic language of Riistringen, they appear with a final <e>. The word skipere is not attested in either Unia or in Jus. In the charters it appears in 1506 for the first time. By that time, the final -e had already disappeared: <sc(h)ipper>.

The word klagere is attested in all three West Frisian sources, Unia, Jus and the charters. Unia contains six tokens of a nom. sg. of klagere. The four instances from group A are all <clagere>. In two texts from C the word appears once as <clagere> and once as <clagher>. Jus has both forms with and without final <e> (nom./acc. and dat.).

In the dative singular, the form is <klaghere> in a text from Unia group B. In the charters, a dative singular <claghere> is found in OFO II-29 (1450). After 1460,
no datives singular forms with a final vowel are attested. The oldest attestation to a nominative singular in a charter is found in that same charter from 1450: <clagher>. In a copy from 1412, OFO II-9, the nom. sg. <klagher> is found. This implies that in the nominative singular, the final -e was lost at the beginning of the 15th century. In the dative singular, the final -e remained until the second half of the 15th century.

abbate ‘abbot’
The word abbate is discussed in § 2.4.3.2, in particular in table 2.17, and § 2.4.3.7.
After the reduction of the unstressed /a/ > [ə], [ab:ət] > [ab:ət], the word developed a sequence of two /ə/-s. This sequence did not survive into the 15th century. In both cases, at least one /ə/ was preserved for reasons of wellformedness:

- When the penultimate vowel was retained, apocope of the word-final [ə] took place in the late 14th century: [ab:ət] > [ab:ət];
- When the penultimate vowel was subject to syncope, the apocope of the word-final [ə] took place after 1430: [ab:ət] > [apt] > [apt].

dêde ‘deed’ and misdêde ‘crime’
The word dêde ‘deed’ was originally a strong feminine noun, with the -e in the entire singular paradigm. In Unia, the singular is found as <dede> 12 times in group A-1, A-2 and A-3. In the compound <ded ethum> ‘deed oaths’ (6 times) and in the sole phrase “mit reed and mit deed” (‘in word and deed’) it appears without a final <e>.

In the charters, it frequently appears in the compound misdêde ‘crime’. This is attested twice in 1392 (OFO II-3) in the nominative singular as <misdede>. An almost contemporaneous copy of that specific charter has <misdêde> once. In two charters from 1450 (OFO II-29 and OFO II-50) the word is found in the singular as <misdeed> and <misdede>. In six tokens from 1472 to 1501 the word is written with a final <a> in nom./dat./acc. singular. This pattern suggests two tracks:

- The final /ə/ was gradually reduced during the course of the 15th century;
- The word misdêde was levelled to the group of weak feminine nouns in the middle of the 15th century, giving rise to the ending -a in the singular paradigm.

The beginning of the apocope is not before 1400. The rendering of <e> until 1450 is quite late.
Dative singular ending -e following nouns with a long root: Old Frisian hûs, lôg, kâp, jeld

The special position of the dative ending of singular masculine and neuter nouns was also mentioned in the context of âge and klagere (earlier in this section).

The dative singular of the neuter noun hûs ‘house’ is well attested from 1379 onwards. The three oldest attestations are <huse>, but already in 1404 (OFO I-10), the first instance of a dative form without a final <e> is encountered: “by Eppamahuys”. Up until 1466, dative singulars with a final <e> are regularly attested, albeit in a (large) minority of cases. After 1470, the ending has almost entirely disappeared.

The word kâp ‘purchase, transaction’ is frequently attested in the idiomatic expression a fria kape/ in frye kasp ‘in a free transaction’ (to underline the voluntary character of a deal). Between 1439 and 1466, 11 out of 17 cases (65%) had a dative ending of <e>. In the period up to 1547 there are only nine out of 112 (8%), the last one from 1516.

There is some evidence that the -e was better preserved in the idiomatic expression a fria kape/ in frye kasp. Before 1470, there are no attestations to dative singular forms in the original charters outside this idiomatic context. In a copy of a charter from 1412 (OFO II-9), the dative form <kape> appears outside the aforementioned idiomatic expression. After 1470, the few instances of dative singular in <e> are always in idiomatic expressions, but this specific contrast is not statistically significant:

<table>
<thead>
<tr>
<th>1470 - 1547</th>
<th>idiom</th>
<th>non-idiom</th>
</tr>
</thead>
<tbody>
<tr>
<td>-ø</td>
<td>66</td>
<td>32</td>
</tr>
<tr>
<td>-e</td>
<td>8</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 2.22: Writing a dative <e> in Old Frisian kâp, in the context of the idiomatic expression a fria kape/ in frye kasp and other contexts. The skewness is not significant.

Original charters only.

In the word lôg ‘place, village’ (cf. Modern Frisian only in yn ‘e lytse loege sitte105) there are 19 attestations in original charters between 1442 and 1512, almost entirely in the fixed expression in elka longhe ‘in every place’. Before 1470 all tokens have a final

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99 cf. Dutch eed ‘oath’ – onder eed ‘on oath’.

100 meaning ‘to have a hard time’, cf. Hoekstra & Visser (1996).
A.P. Versloot: Mechanisms of Language Change

The presentation is rather difficult. The oldest instance of a nom./acc. pl. is from 101450, without the final <e>. The oldest dat. sg. without <e> is from 1466 and the previous one with <e> from 1454. This means that the apocope both in the dat. sg. and in the plural could be from about 1450. If both dat. sg. and nom./acc. pl. were */ski:p/ in 1440 and the apocope in both paradigm forms were a coordinated development, a plural /skipon/ could be expected already in the middle of the 15th century. This was not the case, which supports the hypothesis. 

The year 1470 seems to be the crucial turning point for the dative singular ending <e>. Both the data from kâp and lôg show a significant decline of the dative ending -e after 1470.

The paradigm of skip 'ship' (cf. § 2.3.3.1)
The word skip 'ship' underwent Open Syllable Lengthening when it was followed by an unstressed /ø/, i.e. in both the nom./acc. plural and the dative singular: /ski:p/>. The nominative was /ksipt/. After the apocope of word-final -e following long roots at the beginning of the 15th century, the following forms of the paradigm of 'ship' are expected and observed:

<table>
<thead>
<tr>
<th>Expected &gt; ±1410</th>
<th>Attested 1439 - 1460</th>
<th>Attested 1460 - 1524</th>
</tr>
</thead>
<tbody>
<tr>
<td>dat. sg. nom./acc.pl.</td>
<td>dat. sg. nom./acc.pl.</td>
<td>dat. sg. nom./acc.pl.</td>
</tr>
<tr>
<td>*/ski:p/</td>
<td>*/ski:p/</td>
<td>&lt;/schyp&gt;</td>
</tr>
<tr>
<td>/ski:p/&gt;</td>
<td>&lt;/skip&gt;/</td>
<td>/ski:p/&gt;</td>
</tr>
<tr>
<td>&lt;/schijp&gt;</td>
<td>&lt;/skip&gt;/</td>
<td>&lt;/skip&gt;/</td>
</tr>
<tr>
<td>/ski:p/&gt;</td>
<td>&lt;/skip&gt;/</td>
<td>&lt;/skip&gt;/</td>
</tr>
</tbody>
</table>

Table 2.23: Interference of morphology and phonology in the paradigm of skip 'ship'

The language reveals different strategies for the dative singular and the nom./acc. plural. The plural form is the phonologically expected one. It exhibits Open Syllable Lengthening and subsequent apocope of the final /ø/ following a long root, producing a plural /skip/. For neuter words, this fitted into the general pattern. Most neuter words had no plural ending, such as Old Frisian hûs 'house' or land 'land' in Jus, with only few cases of a plural ending -e. Modern Frisian still has some irregular neuter plurals: born (sg. & pl.) 'child' and skiep (sg. & pl.) 'sheep'. The plural root vowel /i:/ in /<schyp/> attests to the historical provenance of the form, being the result of Open Syllable Lengthening and -e apocope. Direct levelling from the singular would produce *<schip>/.

101 This presentation is rather difficult. The oldest instance of a nom./acc. pl. is from 1450, without the final <e>. The oldest dat. sg. without <e> is from 1466 and the previous one with <e> from 1454. This means that the apocope both in the dat. sg. and in the plural could be from about 1450. If both dat. sg. and nom./acc. pl. were */ski:p/ in 1440 and the apocope in both paradigm forms were a coordinated development, a plural /skipon/ could be expected already in the middle of the 15th century. This was not the case, which supports the hypothesis.
Analogy with other dative singular forms prevented the final -e of the dative singular of skip from disappear. The dative singular of masculine and neuter words generally retains the ending -e until about 1470, also after a long root. The spelling <schype> with root vowel <y> shows that this is the phonologically original dative form. Levelling would produce *<schippe>. After 1460, not only the dative ending -e disappears but also the vowel quality and quantity are levelled from the nominative and accusative singular. The dropping of the /a/ in the dative singular after 1460 is not a phonological process, but paradigmatic levelling. In the years after 1500, the plural form of <schippen> is encountered, irrespective of grammatical case. It was a recent product from the singular /skip/ + plural ending /ən/, restoring a regular paradigm.\(^{102}\)

The example of 'ship' illustrates:

- The apocope of word-final /a/ when not blocked by morphological levelling, at least before 1450 (OFO II-30, copy; confirmed by two more copies from the same decade), producing the pl. <schijp>;
- Removal of the dative singular ending -e after 1460 due to morphological / paradigmatic reshuffling.

\(^{102}\) In the 17th century, the plural /skip/ was still used in south-west Fryslân. It is attested in Hindeloopen and in writings by Gysbert Japicx, who came from Bolsward. Japicx uses <schijp/schyp> four times and <schippen> once. The latter form is also attested in the Burmania proverbs, a text dialectally most likely to be from the north-west of Fryslân. In the 18th century, the irregular plural form vanishes. As a common singular Japicx uses <schijp>, but in the idiomatic expression ‘t schijp’ (‘to ship, embark’, used twice) the old dative singular form is preserved (cf. Dutch scheepgaan < *te schepe gaan). In the compound Schijps lavearje ‘ship manoeuvre’ Japicx uses the old genitive singular /skips/ < /skippe/ (cf. Dutch scheeps- < schepe) as the first element of compound words. All forms at www.fa.knaw.nl/tdb, lemma skip. Cf. in Modern West Frisian skijp’ ‘embark’ < Old Frisian skipia.
the word ending -e has almost completely disappeared in both contexts.

The combination of verb form + pronoun, known as clitisation, is not equivalent to the sole combination of any unstressed ending with any initial vowel. Apart from the combination habbe + ik, with a high level of apocope, there is no difference in the level of apocope between the order ik habbe + /N/ or ik habbe + /C/.

Map 2.13 illustrates the geographical opposition. The final <e> is better preserved in the north-east than in the west and south. The map on the right shows the inverted construction. It is much whiter, reflecting a higher level of apocope. Before 1460, in five out of 61 tokens (8%) the ending is written with an <a> instead of an <e>. After 1460 this becomes nine out of 32 (32%), four being from Boarnsterhim (cf. map 2.11, showing the retention of word-final <a> in the infinitive habba). Therefore, in the region where word-final [a] was generally retained as [a], the word-final /ə/ tended to be realised as [a] as well. This is discussed further in chapter 3.

Map 2.13: Geographical spread of the word-final <e> (and occasionally <a>) in the 1st pers. sg. pres. of the verb habba ‘to have’, according to word order.
In the law texts of *Unia*, verbal forms of the 1st pers. sg. present tense appear 32 times, 20 times with an inversed word order and 11 with a regular word order. All examples are from text group A. In regular word order, the final <e> is the rule while in inverse word order, the <e> is regularly missing. There are three exceptions. There are two instances of inverse word order with the final <e> (<wedde ic>, <lidze je>) from the groups A-1 and A-2. There is one instance of regular order without the final <e> in <ic hab> from the early 15th century, group A-3. This produces a consistent diachronic picture (graph 2.15).

The combination of *Unia* data with evidence from the charters leads to the conclusion that the verb ending -e in the 1st pers. sg. pres. of verbs was quite often retained in normal word order until late in the 14th century. In inverse word order with the clitic <ie>, the ending is often missing, at least after the middle of the 14th century.
2.4.3.10 Summary: Old Frisian /ɔ/ in word-final position

The apocope of word-final /ɔ/ covers a period of more than a century in the history of West Frisian. The temporal development is illustrated in graph 2.16.

<table>
<thead>
<tr>
<th>Word</th>
<th>Unia A-1, 2</th>
<th>Unia A-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>âge nom. sg.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>babbe ik</td>
<td></td>
<td></td>
</tr>
<tr>
<td>fore</td>
<td></td>
<td></td>
</tr>
<tr>
<td>klagere</td>
<td></td>
<td></td>
</tr>
<tr>
<td>sone</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(mis)dlide sg.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>seke</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ik habbe</td>
<td></td>
<td></td>
</tr>
<tr>
<td>bâse dat. sg.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>âge dat. sg.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Graph 2.16: Apocope of Old Frisian /ɔ/. Black = forms with apocope attested; Light grey = forms without apocope attested; Dark grey = mixed; White = no attestations.

The evidence from group A in Unia both from the archaic parts (A-1 and A-2) and from the early 15th century sections (A-3) is presented at the front of the timeline.

It is a subtle mixture of phonetic and morphological factors that determine the course and speed of the development. The main tendency is that the word-final /ɔ/ was phonetically weakened and finally disappeared. When a weak neuter word âge was realised as [aː], it became a perfect match for the class of strong neuters, which was far larger than the small group of weak neuters. Allowing the apocope made the structure of the grammar more transparent. An apocope of the dative singular marker /ɔ/ resulted in a loss of information. The ending endured for about as long as the dative persisted in the language.

Apart from a few cases like âge, fore and ic habbe, the language of Unia exhibited little apocope. Combined evidence from words such as fore, sone and klagere but also dore and bitale show that following a long root, and when not prohibited by any morphological considerations, apocope of the final /ɔ/ started in the late 14th century and was implemented in those words before 1420. The plural of ‘ship’ can be added to this group. Also, the special case of the 1st pers. sg. pres. with elision, habbe ik, shares the same fate as this group.

Speakers were far more reluctant to apply apocope to a feminine word such as misdêde. The reason mirrors the rationale that is given for âge. The grammar preferred feminine words ending in a vowel in the singular. The mirrored mechanism caused the transition of the noun bitael < bitale from feminine to neuter. The short-rooted feminine noun seke was one of the last words with a word-final
/ə/ to lose it. The verbal ending of the 1st pers. sg. pres. shared the same fate. In contrast to the dative ending, the transition from habbe > hab did not encroach on its functionality. The explicit morphological marker of the dative singular of masculine and neuter nouns turned out to be the most resistant of the examples studied. Here, functionality overruled phonetics.

The purely phonetical process of reducing the word-final /ə/ seems best represented in forr, as a word with a (new) long root, and seke as a word with a short root.

Section summary:

• Apocope of word-final /ə/ was controlled by (at least) three factors:
  - Vowel Balance
  - voice of adjacent consonants
  - morphological patterns;
• The process covered the period from the middle of the 14th century to the late 15th century.
2.5 Vowel Balance

Vowel Balance is discussed in its Germanic context in § 2.1. This section is devoted to manifestations of Vowel Balance in other Frisian dialects (§ 2.5.1) and the impact of Vowel Balance on the reduction of unstressed syllables in late mediaeval West Frisian (§ 2.5.2). The default impact of Vowel Balance is that an element following a long root or syllable is quantitatively or qualitatively more reduced than when it follows a short one.

In the previous sections, Vowel Balance is mentioned four times:

- In § 2.3.3.1 / table 2.6, Vowel Balance is identified as the mechanism that controls the spelling alternation between the full ending <um> and the reduced form <em/im> for the dative plural ending in the language of the codex Unia;
- In § 2.4.3.3, the dating of the reduction of protected unstressed /a/ to [ə] is earlier for words with a long root than with a short one;
- In § 2.4.3.10, the dating of apocope of the word-final /æ/ is earlier for words with a long root than those with a short root (being only one of a number of factors);
- In § 2.1. and § 2.4.2 Vowel Balance is mentioned as one of the controlling factors in the apocope or the retention of the word-final /æ/ in (early) Modern West Frisian.

2.5.1 The Frisian context


In Riustringen Old Frisian, long root syllables caused a centralisation of unstressed vowels, for example:

/du-run/ ‘doars’, the rhyme consists of a short vowel, so the root is short. This short root is followed by the unstressed vowel /u/;
/ske:-ro/ ‘ploughshare’, the rhyme consists of an /e:/, so the root is long. This long root is followed by a more centralised unstressed vowel /o/.

This is the same type of Vowel Balance reported for Old Swedish (§ 2.1, table 2.1).

Modern Frisian dialects do not have different vowel qualities in unstressed syllables, apart from recent loanwords such as pasta [pasta] ‘pasta’ and bureau [by’ro] ‘bureau’
The following conclusions are based on a corpus of ca. 100 words with word-final vowels in Old Frisian. The selection criterion was mainly the question of attestation in the Harlingerland dialect (the dialect with the poorest attestation). The North Frisian data is from the dialect of Ockholm.

In the early-modern dialects of Wangerooge and Land Wursten, the process of reduction and apocope of final unstressed vowels is controlled by historical root quantity. In the other Frisian dialects, the historical quality of the unstressed syllable, /a/ or /ø/, is the controlling factor (Versloot 2002a). The dialect of Harlingerland has an intermediate position, cf. table 2.14 / § 2.4.2.

In modern Mainland North Frisian dialects (illustrated by the dialect of Ockholm) and the extinct dialect of the East Frisian Harlingerland, there are historical Vowel Balance effects superposed on the historical /æ/ ~ /ø/ contrast. The effects are different, as can be seen in graph 2.17. In Mainland North Frisian, the Old Frisian word ending /æ/ is preserved better after an Old Frisian short root (85%) than after an Old Frisian long root (69%), mutatis mutandis for Old Frisian /ø/ with 21% and 6%. The vowel quality is dominant, but root quantity modifies the quality effect.

Graph 2.17: A 3-D representation of apocope tendencies in Mainland North Frisian, Modern West Frisian and 17th century Harlingerland dialects. The percentages show the level of word-final -e in the dialects. Ockholm: contrasts on both axes are significant; West Frisian: only /ø/ ~ /æ/-contrast is significant; Harlingerland: the distinct position of short root + /ø/ is significant.

103 The following conclusions are based on a corpus of ca. 100 words with word-final vowels in Old Frisian. The selection criterion was mainly the question of attestation in the Harlingerland dialect (the dialect with the poorest attestation). The North Frisian data is from the dialect of Ockholm.
A totally different effect is found in the Harlingerland dialect, where the root quantity overrules the /a/ ~ /ə/ opposition. After an Old Frisian short root, the vowel quality is the dominant factor in the preservation or apocope of word-final vowels. After an Old Frisian long root, the impact of the final /a/ versus the /ə/ is completely neutralised.

In West Frisian, the effect of the vowel quality is statistically significant, the contrast between long and short not. The reason may lie in the fact that Open Syllable Lengthening changed many short-rooted words into long ones. The modern language shows a Vowel Balance effect (§ 2.4.2), where long root syllables correlate with fewer final unstressed vowels and vice versa. Such a contemporaneous Vowel Balance effect is missing in Mainland North Frisian.

The conclusion is that historical Vowel Balance effects are visible in all East and North Frisian, but their impact is quite diverse.

Section summary:

- Vowel Balance effects based on Old Frisian syllable quantity structures are found in East and North Frisian dialects;
- In Modern West Frisian the situation is blurred by early Open Syllable Lengthening and synchronic Vowel Balance.

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104 This synchronic Vowel Balance effect is confirmed by the dataset that was used for this overview.
2.5.2 The West Frisian charters

The protected Old Frisian /a/ was written as <a> in short-rooted words such as bitulad / bitaliane as late as 1460, while <a> had already disappeared by 1430 in words such as habbath / habbane, with a long root (§ 2.4.3.3). This is a regular case of Vowel Balance, meeting the default expectation: syllables following a long root show more reduced vowels. In this section, the focus is on the qualitative contrast of [a] ~ [ə] in late mediaeval West Frisian.

To make this hypothesis more secure, more words have been included in the sample:

- Old Frisian short root: wesane, gerund of wes ‘to be’, makad/-ath, past part. and 3rd pers. sg. pres. of makia ‘to make’;
- Old Frisian long root: kâpad/-ath, past participle and 3rd pers. sg. pres. of kâpa ‘to buy’.

In the first time frame, only few tokens are available and the differences are not statistically significant. There is no data for wesane and bitaliane from the first time frame. The differences are very clear in the second time frame, 1430 to 1460. All four examples of a short root show a similar level of <a> spelling (about 25%). For words with a long root, the levels are near 0%. The differences are statistically significant. This appears to be a straightforward case of Vowel Balance. The effect

Graph 2.18: Vowel balance in the reduction of Old Frisian protected /a/ / C

Graph 2.18: Vowel balance in the reduction of Old Frisian protected /a/. Shown is the percentage of tokens with an <a>.
was only temporary, although it lasted until the last time frame (1510 - ) before the differences disappeared.

The reduction process of Old Frisian protected /a/ to /æ/ proceeded very quickly in the western part of Fryslân between 1380 and 1430, both after long and short roots. Vowel Balance effects were mainly a phenomenon of the central and the north-eastern regions, as can be seen in map 2.14. Graph 2.19 shows Vowel Balance in Old Frisian protected /a/ according to historical root length, i.e. before the degemination of long consonants. This degemination took place before the reduction of word-final /a/.

Map 2.14: Vowel balance effects between 1430 and 1460. Figures per region. The reduction of the Old Frisian /a/ following short roots (= black bar) and long roots (= white bar) is equally as progressed in the Mid-West and South-West (both 0% <a> in the latter region). The differences are the biggest in the Centre (Leeuwarden-region) and North-East.
Graph 2.19: Reduction trends for historical long and short-rooted words with a protected (\(<aC>\)) and word-final (\(<a>\#\)) Old Frisian /a/:
Short root, protected /a/: wesane, bitiaane, bitaled, makaed; Long root, protected /a/: habbaath, habbene, kâpad; Short root, final /a/: wesa, bitia, hiara; Long root, final /a/: habba (inf + pl), kâpia; A Vowel Balance effect is clearly visible for protected /a/ (\(<aC>\)) in the first three time frames (-1460), but no such effect emerges for word-final /a/ (\(<a>\#\)) after 1490.

Graph 2.20: Vowel Balance in the reduction of final /a/.
In graph 2.20, seven examples of word-final /a/ are shown individually. The examples comprise of two instances from the class of verbs ending in -ia: bitalia 'to pay' and kâpia 'to buy'. The reduction of the final /a/ is faster in these two words than in the -a verbs (wesa ‘to be’, habba ‘to have’) and the pronoun biara ‘their’.\textsuperscript{105} The contrast between these two groups is statistically significant from 1470 onwards. The verbal ending with an additional /i/ or /j/ in the second syllable made the word longer and, as a result, caused a Vowel Balance effect. The words may have been trisyllabic: /bi-ta-li-ja/, /kæ:-pi-ja/. This Vowel Balance effect is also shown in table 2.20. Note that the Vowel Balance effect is found both in the North-East and the South-East, cf. map 2.14.

Graph 2.20 shows a subtle difference between Old Frisian kâpia and bitalia. In late 15\textsuperscript{th} century Middle Frisian, the former was pronounced [kɛ:piə] or [kɛ:piə] with a long vowel, while the latter is pronounced [bɪtɛliə] or [bɪtɛliə] with a short vowel. Between 1470 and 1510, the reduction seems to be faster in kâpia with the long root vowel. This matches expectations: Vowel Balance effects based on the root vowel length are also attested in Modern Frisian (§ 2.1. and § 2.4.2). The mean values of bitalia and kâpia do not deviate significantly. The test set was extended with examples from the verb makia ‘to make’. This verb appears as <metje> (short root as in bitalia) or <meitje> (long root as in kâpia). The combined data from makia, bitalia and kâpia shows a significant Vowel Balance contrast for root vowel length.

Section summary:

- Vowel Balance effects in the reduction of unstressed /a/ > /o/ are found in both the protected and unprotected Old Frisian /a/;
- In the reduction of a protected /a/, the Old Germanic syllable quantity, including consonant quantities, is leading;
- The reduction of word-final /a/ takes place after degemination;
- Vowel Balance effects in Middle Frisian are controlled by the syllable structure of the entire word and the quantity of the root vowel.

\textsuperscript{105} In most tables the second time frame is from 1430 until 1460, in this graph it covers the period 1440 to 1470. For the overall picture this is not particularly relevant.
2.6 Vowel Harmony

Vowel Harmony can be defined as “[...] a state in which segments agree with respect to their value for some feature within the relevant domain”. (Van der Hulst & Van de Weijer 1996, 503), i.e. a kind of agreement that is compulsory (to a certain, language-specific, extent) and not simply coincidental.106 Vowel Harmony usually leads to allophony in the root or affixes. The alternation accomplishes the assimilation of vowels or vowel features from different syllables, usually adjacent. In some languages Vowel Harmony influences non-adjacent syllables or all syllables of one word.

It is the author’s opinion that Vowel Harmony, in the sense of sharing articulatory features, can only be phonetic. Once this has been phonologised, it becomes a template or pattern. Its constituting segments can be subject to further sound changes, obscuring the phonetic origin.107 Describing such petrified forms of Vowel Harmony in terms of synchronic phonological features, such as [+high] or [+round], may lead to curious interpretations, as the originally shared phonetic

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106 Modern Frisian skikking ‘settlement’ is not a case of Vowel Harmony, because the harmony [i] - [i] is purely coincidental, cf. ferpakking ‘packing’, not *ferpakkang.

107 A good example is u-mutation in Icelandic and Faroese. A following [u] had a rounding effect on a short [a], so that [a] > [ɑ], for example, dagam > døgum ‘days’ (dat. pl) in Old Icelandic. The Old Icelandic unstressed [u] became Modern Icelandic [y] and Old Icelandic [ɑ] became Modern Icelandic [œː]. The synchronic alternation is [aː] > [ɑː] in front of [u]. Even when the modern alternation can still be described in terms of agreement of phonological features (rising, fronting, rounding), this synchronic agreement of phonetic features is coincidental. It is a petrified structure in the language. This becomes clear in the case of the nom. sg. of masculine nouns ending in -ur in the modern language, but which ended in -r in Old Icelandic. Hence: Modern Icelandic sandur and not *söndur ‘sand’ < Old Icelandic sandr, cf. nom. pl. fem. n-stem: plöntur (sg. planta ‘plant’) with an Old Icelandic ending -ur.

As a structural feature, embedded in the morphology, u-mutation is still active. The recent loanword banana, joining the weak feminine nouns, complies with it. Banana ‘banana’ ~ banaeun ‘bananas’ (dat. pl.). The alternation [ɑː] ~ [æː] also appears in other, historically motivated contexts, like gif ‘gift’ ~ gífar ‘gift’s’, where modern [æː] is the result of a Proto-Nordic [œː]: *gǣu < *gēu (already Old Icelandic gif).

That the agreement of [æː] and [aː] in fronting in Icelandic is a coincidentally shared innovation of the historical [æ] and [u] is illustrated by evidence from the closely related Faroese language. In Faroese, the modern day <œː> is pronounced as rounded, back vowel [Øː], while [œː] became [æː] or [œː] or remained [œː]. The [a] of the singular became [œː] in open syllables. The alternation in Faroese is nom. sg. is dagur [daɣur] ‘day’ - dat. pl døgum [døːɣum] (sic) < Old Nordic dagr - døgum, so before [u] < historical /aː/ only; the alternation between [æː] > [œː] can not be expressed with synchronic feature agreement, when phonetic reality is taken into account. Compare Faroese nom. sg. sandur [sændur] ‘sand’ - dat. pl. söndur [søndur], preserving the Old Nordic Vowel Harmony conditions in the root vowels; Icel. dags [dɑːɣɔː] ~ døgum [dɑːɣʊm], sandur [sændur] ~ söndur [søndur].
feature may be lost on either side of the harmony pair. Any feature-based phonological analysis of a petrified Vowel Harmony structure is therefore an anachronous enterprise. The synchronically existing patterns of (partly) shared phonetic features are merely the remnants of the original phonetic Vowel Harmony process.

2.6.1 The Germanic context

Vowel Harmony is a container word, because it comprises of various types of vowel feature assimilation. According to Van der Hulst & Van de Weijer (1996, 509 ff), eight types of Vowel Harmony can be distinguished. Examples are given in table 2.24, preferably from Frisian or other Germanic languages. The examples are not exhaustive. The Vowel Harmony effects can be limited to specific phonological contexts, as is the case in Riustringen Old Frisian, where Vowel Harmony patterns are limited to short roots, while progressive Vowel Harmony in Norwegian is found both in long and short-rooted words. The vowel which enforces the agreement (‘master’) is printed in bold face and underlined. The ‘slave’ is only underlined.

Backward Vowel Harmony is quite common in many Germanic languages, especially in older or geographically marginal dialects. In large modern Germanic languages, there is no Vowel Harmony, either as a productive phonetic feature, or as a petrified structural feature.\(^{108}\) Cases of backward Vowel Harmony are often considered as cases of \(i\), \(a\)- or \(u\)-mutation. It is the progressive Vowel Harmony that is usually referred to as ‘real Vowel Harmony’. Note that Riustringen Old Frisian shows doublets like \(keme - kimi\) and \(stede - stidi\) with either forward or backward Vowel Harmony. Agreement in palatalisation and rounding is found in Fennic-Uralic and Turkish-Altaic languages in particular, all of which originate from Northern and Central Asia.

The categories ‘forward’ and ‘backward’ can be ambiguous when related to stress patterns in words. In Germanic languages, the stress is basically on the root syllable, and the root syllable is mostly the first syllable in the word. Forward Vowel Harmony by default equals agreement of the following unstressed syllable with the stressed syllable, and Backward Vowel Harmony equals agreement of the preceding stressed syllable with the unstressed syllable. But cases of agreement between a stressed root and an unstressed prefix are also found. The Wursten Frisian examples are such a case.

\(^{108}\) With the exception of entirely morphologised features, such as the German umlaut in plural or compound forming.
A.P. Versloot: *Mechanisms of Language Change*

<table>
<thead>
<tr>
<th>Opening / high-low</th>
<th>Progressive / forward</th>
<th>Regressive / backward</th>
</tr>
</thead>
<tbody>
<tr>
<td>Norwegian and Swedish: for example, Jemtland dialect: [kʊ̃n.ʊ̵] 'come' &lt; Old Nordic: koma; [lɛːvəː] 'live' &lt; Old Nordic: lifa</td>
<td>Riistringen Old Frisian: a-mutation *duru - dora; lith - letha</td>
<td>Riistringen Old Frisian: kim &amp; s tīdi &lt; *stedi</td>
</tr>
<tr>
<td>Norwegian: [kem] &lt; *kemi; [stee] &lt; *stedi</td>
<td>bod &gt; *bodu</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fronting</th>
<th>Germanic i-mutation: Old Frisian: fōt - fēt &lt; *fōti &lt; *fōtjuz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finnish: vākkārā - makkara</td>
<td>For example, various Turkic languages</td>
</tr>
<tr>
<td>Rounding / labialisation</td>
<td>Wangerooge Frisian: schip - schüüp &lt; skipu; rāp - rüō &lt; *rōu</td>
</tr>
<tr>
<td></td>
<td>Icelandic: saga - sögu &lt; *sogu</td>
</tr>
<tr>
<td>Full agreement</td>
<td>Warstten Frisian: Kālāh &lt; Old Frisian: kola; wjēth &lt; Old Frisian: wetir; suddāhī &lt; Old Frisian: sadul.</td>
</tr>
</tbody>
</table>

Table 2.24: Vowel Harmony types in Germanic and other languages.

Section summary:

- ‘Vowel Harmony’ is a container label for several phonetic accommodations between vowels in adjacent syllables;
- Regressive Vowel Harmony in particular is abundant in older stages of Germanic languages.
2.6.2 The Frisian context

Table 2.24 contains several examples from the group of Weser Frisian dialects (Wursten, Wangerooge, Riusstringen Old Frisian). Careful examination of the Vowel Harmony patterns in West Frisian reveals that this table is not sufficient to describe every type of opening accommodation.

There appear to be two types of opening accommodation (table 2.24, upper row):

- The unidirectional opening accommodation, as in Middle Frisian <sacka> < seka, where /i/ is lowered to /a/ due to the following open /a/;
- A type of Vowel Harmony that could be called ‘Seesaw’-Vowel Harmony, where centralised vowels attract each other, but where existing contrasts are stressed by dissimilation. The Riustringen Vowel Harmony, as described in Boutkan (1996, 27), appears to be of a similar kind. A centralised root vowel /e/ or /o/ triggers a centralisation of the unstressed vowel /i/ > /e/ and /u/ > /o/, for example: <hiri> ‘her’ ~ <kere> ‘choice’, <skipu> ‘ships’ ~ <felo> ‘many’ (Boutkan 1996, 27). Following a root with a short /a/, the unstressed vowel is not opened (further) as might be expected, but appears as a closed vowel, e.g <clagi> ‘complaint’, <clagire> ‘accuser’, <skadu> ‘sharp’.

These two types of accommodation operate in two directions:

- The historical quality of the unstressed syllable affects the quality of the root vowel, as in the <sacka> < seka example (= regressive Vowel Harmony);
- The quality of the unstressed syllable (either ending or prefix), phonologically considered /ə/, is affected by the quality of the root vowel, as in <clagire> < klagere < *klagari (= progressive Vowel Harmony).

The regressive Vowel Harmony is only possible when unstressed vowels have qualities other than /ə/. Given the gradual reduction of all unstressed vowels to /ə/ in Middle Frisian, this type is no longer found in late-Middle or Modern Frisian.

The two types plus two directions suggest four different (sub-)types of opening Vowel Harmony in Frisian. All four combinations can be found in West Frisian. In most cases, Vowel Harmony patterns are tendencies. They are rarely compulsory and sometimes cause no more than a small deviation of a few percentage points. The cells contain relevant examples of Vowel Harmony tendencies, all statistically
significant. The overview is not exhaustive.\footnote{Preliminary studies suggest that the unidirectional type ‘from root to ending/prefix’ (top right cell in table 2.25) is a sub-type of the ‘Seesaw’ accommodation, depending on the phonetic details of the prototypical realisation of /a/. Another likely factor in all cells is the quantity of the root. Note that all examples given have short root vowels/syllables.} The vowel which enforces the agreement (‘master’) is printed in bold face and underlined. The ‘slave’ is only underlined:

<table>
<thead>
<tr>
<th>Unidirectional</th>
<th>from ending to root (‘backward’)</th>
<th>from root to ending/prefix (‘forward’)</th>
</tr>
</thead>
<tbody>
<tr>
<td>( a)ka ‘cases’ (pl) &gt; (&lt;s)aka&gt;</td>
<td>( &lt;bijnke&gt; \sim &lt;bete\text{l}\text{e}&gt; \sim &lt;bel\text{ang}&gt; ) (14\textsuperscript{th}/15\textsuperscript{th} century)</td>
<td></td>
</tr>
<tr>
<td>‘Seesaw’-accommodation</td>
<td>(&lt;k)uma&gt; ‘to come’ (inf.) \sim (&lt;k)ome&gt; ‘come’ (subj.) (14\textsuperscript{th} century)</td>
<td>(&lt;h\text{av}i\text{t}&gt; \sim &lt;h\text{ey}g\text{t}&gt; ‘(he) has’ (early 14\textsuperscript{th} century) \sim &lt;b\text{it\text{t}l}\text{i}&gt; \sim &lt;b\text{it\text{t}l}\text{er}&gt; ‘paid’ (15\textsuperscript{th} century)</td>
</tr>
</tbody>
</table>

Table 2.25: Examples of different Vowel Harmony types in several stages of West Frisian.

This complex of vowel accommodations deserves a separate treatment. This study concentrates on the \( a\)-mutation in the 14\textsuperscript{th}/15\textsuperscript{th} century West Frisian because this example provides information on the phonetic and phonological status and development of the Old Frisian unstressed /a/.

Section summary:

- West Frisian shows several types of both forward and backward Vowel Harmony;
- Vowel Harmony appears in Old, Middle and early-Modern Frisian.
2.6.3 The West Frisian charters

This section is devoted to a-mutation in late-Old Frisian and early Middle-Frisian. It is an example of accommodation in the degree of opening. It can be observed in the language of the West Frisian charters and 14th century language from Unia: for example, *seka* > *<sacka>* ‘cases’ (pl.), *wesane* > *<wessen/wassen>* ‘to be’ (gerund). Special attention is paid to the Vowel Harmony / a-mutation, caused by the masculine plural ending -an.

The bare manifestation of the Vowel Harmony resembles the late-15th century labialisation of /ɛ/ > /a/, as in the Modern Schiermonnikoog dialect. For instance *wazze* ‘to be’, *watter* ‘water’, Standard Modern Frisian *wêze < wezze, wetter*. Miedema (1986) treats word forms such as *<wassa>* ‘to be’ in the context of this labialisation. A map of the phenomenon described by Miedema, corrected for instances of a-umlaut is printed below (cf. Miedema 1986, 19). In Miedema’s map, the instances of *<a>* are not only found in the north-east but also in the centre and north-west. Comparison with map 2.16 showing the spread of the Vowel Harmony, reveals that labialisation and Vowel Harmony are two different phenomena.

There is another possible overlap between Vowel Harmony and Old Frisian, as well as Old English, velarisation. The latter causes the blocking of the general North-Sea
As Vowel Harmony is basically a phonetic phenomenon, it is assumed that \( e \) was opened to a sound that would have been near to \( \text{æ} \). The sound was generally restored to \( e \), later in the 15th century. This leads to the assumption that the Vowel Harmony realisation was \( \text{æ} \) rather than a fully open \( a \).

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110 As Vowel Harmony is basically a phonetic phenomenon, it is assumed that \( e \) was opened to a sound that would have been near to \( \text{æ} \). The sound was generally restored to \( e \), later in the 15th century. This leads to the assumption that the Vowel Harmony realisation was \( \text{æ} \) rather than a fully open \( a \).
The number of attestations is quite low, but the combined evidence of all data before 1480 shows that in the plural, Vowel Harmony is significantly more common when the ending is <a> than when <en>.

<table>
<thead>
<tr>
<th></th>
<th>Vowel Harmony -1460</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>pr-a</td>
<td>pl-en</td>
<td>sg-e/-o</td>
<td>dpl-um</td>
</tr>
<tr>
<td>sak-</td>
<td>88%</td>
<td>33%</td>
<td>1%</td>
<td>0%</td>
</tr>
<tr>
<td>sck-</td>
<td>12%</td>
<td>67%</td>
<td>99%</td>
<td>100%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Vowel Harmony 1460 - 1480</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>pr/sg-a</td>
<td>pr/sg-en</td>
<td>sg-e/-o</td>
<td>dpl-um</td>
</tr>
<tr>
<td>sak-</td>
<td>32%</td>
<td>23%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>sck-</td>
<td>68%</td>
<td>77%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 2.26: The distribution of <sack> according to case and ending. Prior to 1460, 88% of the nom./acc. plural forms in <a> take <a> in the root (<sacka>), 12% take <e> (<secka>); nom. acc. plural forms in <en> have an <a> in the root in only 33% of cases (<sacken>), etc.

Paradigm forms with no historical /a/ in the second syllable exhibit a root in <e> in almost 100% of the tokens. The plural form is an interesting case. In the archaic context with a plural in -a, the Vowel Harmony is very strong, at 88%. The modern plurals in -en take an intermediate position. The phonological template asks for the root /e/: /sèkən/, but the archaic morphology asks for an /a/ in the root in the nom./acc. pl.:

- **Archaic:** /saka/ = /sak/ + /a/;
- **Modern:**
  - Option 1) reapplying the plural allomorph:
    /sak/ + new plural marker /ən/ = /sakan/;
  - Option 2) using the singular root /sèk/:
    /sèk/ + new plural marker /ən/ = /sèkan/;
  - Option 3) applying the template /e-a/:
    /sèk/ + new plural marker /ən/ = /sèkan/.

With 33% <sacken> and 67% <secken>, the phonology is dominant, but the 33% with <a> is clearly higher than the almost 0% in other phonological cases, with no historical following of an unstressed /a/. This gradual difference remains during the following period.\(^{111}\)

\(^{111}\) The number of attestations is quite low, but the combined evidence of all data before 1480 shows that in the plural, Vowel Harmony is significantly more common when the ending is <a> than when <en>. 

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The archaic genitive plural in -a is rare, and -ena seems to be the default ending. So the morphological category of ‘genitive plural’ does not have the same attraction to Vowel Harmony as the nom./acc. plural. The sole attestation to a genitive plural in -a does have Vowel Harmony: <sakka> (OFO IV-17, 1453).

In the period 1460 to 1480, Vowel Harmony fades away. When applied, it is still in the traditional phonological context before the unstressed /a/ (32%) and the morphologically related case of nom./acc. plural in -en (23%). Interesting are the instances of Vowel Harmony in singular forms in <a>: <sacka>. Vowel Harmony is significantly high in these forms, with 71% (12 examples). This is a firm indication that the spelling <a> in the singular ending in the late 15th century was not merely a written hypercorrection of a final /a/. This <a> in the ending represents a phonetic reality [a] that could evoke Vowel Harmony of the root. \[112\]

In the verb wesu, spelling of the root with <a> is restricted to the infinitive and gerund, Old Frisian wegs, wegsne, while it never occurs in the past participle Old Frisian wessen. In the actual attestations to gerund forms, 92% of the tokens with an <a> spelling of the root have an ending of <en>: <was(s)en> (24 examples). This means that after the reduction of the /a/ in the ending of the gerund, there was a phonetic contrast between the gerund and the past participle. This was not in the ending, but in the root:

\[\text{gerund} \ /\text{væzan}/ \rightarrow \ [\text{væzn}], \ 	ext{past. part.} \ /\text{væzən}/ \rightarrow \ [\text{væzən}]\]

The overall proportion of infinitives and gerund forms with roots spelled <a> is 38% between 1420 to 1470 (102 examples). In instances of a gerund with a spelled ending <an(e)>, the proportion is only 10% (10 examples; statistical testing returns no significant contrast). This might reflect a situation where an [æ], when followed by [a], sounded like an /ɛ/, and when followed by /ə/ sounded like an /a/:

\[\text{[væ.zan]} \rightarrow \ <\text{wessan}>, \ \text{[væ.zən]} \rightarrow \ <\text{wassen}>\]

However tempting this explanation may seem, in the infinitive the ending is predominantly spelled with an <a> (cf. graph 2.9). However, spelling the root with an <a> is not restricted to instances of infinitives in <e>. The same yields mutatis mutandis for the Vowel Harmony in seke.

\[\text{[væ.zan]} \rightarrow \ <\text{wessan}>, \ \text{[væ.zən]} \rightarrow \ <\text{wassen}>\]
After 1470, Vowel Harmony disappears almost entirely. All cases of <wasse(n)> after 1480 are from Leeuwarden, Dongeradeel and Ferwerderadiel. Three instances of <sack-> after 1480 are from Leeuwarden, Dongeradeel and Nijefurd. Except for the sole case from Nijefurd, all these <a> tokens are found in the north-east. The distribution of <a> in the Vowel Harmony context seems to have merged with the <a>-forms in the ‘setta-sella’ group (velarisation, map 2.15). In the largest part of the language area, the Vowel Harmony did not leave a trace in words, such as the early-Modern Frisian lese ‘to read’, wese ‘to be’ or secken ‘cases’.

Dating the Vowel Harmony

The dating of the start of the development remains rather uncertain. For seka, the two oldest attestation have the root <sec/k> (OFO II-2, 1379 and OFO I-2, 1386). The next instance is <sacka> (OFO II-20, 1435). For wesa, the oldest relevant attestation in an original charter is from 1426: <waza>. Including the copies gives seven tokens with only an <e> in the root before 1403; OFO III-2, 1403 has <wasa>. This tendency is confirmed by one more example, the verb lesa ‘to read’. Also, in this verb the first instance of Vowel Harmony is <lasen> from OFO I-9, 1402. In 11 older attestations, four from original charters, there is only <les/z->. This suggests that the Vowel Harmony was a phenomenon from the very early 15th century, but not much earlier.

The evidence from Unia suggests an earlier dating. Already in group A-2, which is thought to be from the first half or middle of the 14th century, spelling forms such as <wasa> and <dagan> are quite common. Only the Older ‘Skeltenariucht’ barely shows any Vowel Harmony. The charter from 1329 has one relevant example, showing Vowel Harmony: <stadan> ‘places’ <stedian. All this suggests that Vowel Harmony was abundant in the first half of the 14th century. In Jus, spelling the root with an <a> is absent for seke and lesa and rare for wesa, but common in the plural of dei ‘day’, <dagh(he)n>. Perhaps dialectal variation was at stake? Map 2.16 shows a reasonably consistent application in the east, but varying distributions to the west and far north-east.

Vowel Harmony and the masculine plurals on -an

A masculine noun that appears quite frequently in the charters and in Unia is Old Frisian dei ‘day’, nom./acc. plural degan. In Jus, Unia and the charters, parallel forms like <dagan>, <dagh(he)n> are found. In the Older ‘Skeltenariucht’ there is only the nom./acc. plural <degan>, but both in the Unia groups A-2 and A-3, <dagh(he)n> is dominant. Jus contains a few instances of <degan>, next to several attestations with <a> in the root.
Comparing table 2.26 with 2.27 is very informative. The distribution of <a> over the different cases in the lemma dei is very similar to the pattern for seke before 1460. The spelling of <deg-> is dominant with 96% in the genitive and dative plural, at least when not spelled as <en>. In the nom./acc. plural, 75% of the tokens are spelled <da(e)g(h)en>. The dative plural forms in <en> show a similar ambiguity as the nom./acc. plurals of seke in -en: the functional interpretation as dative plural asks for <e>, the formal identity with the nom./acc. pl. triggers the use of <a>. Note that the phonetic cause for the Vowel Harmony, the nom./acc. pl. ending [an] is missing in all the examples in the charters (the oldest example in an original charter is in OFO IV-8, 1421, the next one from 1451). The alternation seems to be already morphologised at that time.

Table 2.27: The distribution of <deg>/<dag> according to case and ending.

The difference with examples such as wesa and seka arises in the next time frame, 1460 to 1480. In wesa and seka, Vowel Harmony is gradually abandoned. In degan, the forms with <a> in the root become dominant. The dative plural forms in <en> tend to adopt the root vowel <a> and even when the archaic dative plural ending <um> or <em> is used (no attestations to gen. pl. in this time frame) the root vowel steers towards <a>. The case system was finally abolished in the late 15th and early 16th centuries. The remaining data from the time frame 1480 - 1545 sees the forms with <a> in the root stabilise at 77%. The difference <da(e)gen> ~ <deggen> becomes a dialectal feature, with a slight preference for <deggen> in the west. This implies that the Modern Frisian plural form dagen ‘days’ (sg. dei) is a

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113 The general Vowel Harmony pattern is statistically significant, but the position of dative plural forms in <en> is not. However, it matches the similar, significant pattern observed in seke.

114 In the dialect of Hindeloopen of the 17th century, the plural form is degen, in the modern dialect dagen. The form deggen is also attested in the language of Bogerman (Dongeradeel), in the far north-east, underlining that it was originally a paradigmatic variant of the entire language.
petrified instance of Vowel Harmony. Its superficial resemblance with the Modern Dutch *dagen is a coincidence.

Section summary:

- The Vowel Harmony type of a-mutation is found in West Frisian words such as *wesa <wassa> ('to be') or *degan <dagen> 'days (nom./acc.)';
- This type is reflected in the spelling since the 14th century, but gradually disappeared after 1460;
- In most cases, the phonetic manifestation of Vowel Harmony is reversed in late-Middle Frisian, for example, early-Moder Frisian *wesse, not *wasse;
- In the case of the plural form *dagen ‘days’, the Vowel Harmony has been lexicalised.

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area. The early-Moder Frisian form *dagen ([dəːɡən], later [dəːɣən]) was concentrated in the west, mainly the north-west, but was the result of older /dayən/, where the /a/ from the Vowel Harmony was lengthened in open syllable and joined the development of Old Frisian /aː/, as in *brēd, modern *brēd ‘bread’.

It is also possible that the Modern Frisian form *saak, plural *saken is the result of a similar petrified plural form with Vowel Harmony, but the number of late-Middle and early-Moder Frisian attestations suggests that the modern form *saak/saken is a loan from Dutch *saak/saken.