The conditioned merger of *p* + *f* > [f] before *t* or *s* in Old Icelandic

An analysis of the orthographic manifestation of [ft]/[fs] clusters
in 12th to 14th-century manuscripts

Ritgerð til MA-prófs í íslenskri miðaldafræði

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Abstract

The conditioned phonemic merger *p*, *pp*, *f* > [f] before *t* or *s* took place already in pre-literary Old Icelandic. This sound change is reflected by the spelling of the earliest extant Old Icelandic manuscripts where these consonant clusters were predominantly noted with "ft" and "fs". In the early thirteenth century, however, the spellings "pt" and "ps" seem to take over. This study analyzes the orthography of [ft]/[fs] clusters in Icelandic manuscripts from the mid-twelfth century until the fourteenth century in order to find out when and how the orthographic representation changed. It also aims to examine the graphemic-phonemic relationship of abovementioned clusters in early Old Icelandic. The development of consonants from Proto-Indo-European to Old Icelandic, including the phonemic merger of bilabial and labiodental voiceless stops and fricatives, has been studied by various scholars, offering different views on the date of the merger as well as on the orthographic representation of the relevant consonants. Studies on the development of the consonants and consonant clusters in question along with etymological evidence in Norse runic inscriptions and related languages indicate that the merger has likely been completed before Old Icelandic. The information presented in the handbooks does no rely on extensive studies of literary sources. Therefore, this research project aims to enable further discussion about Old Norse-Icelandic consonant changes and the phonemic-phonetic reality behind the orthographic evidence. To do so, this study provides an analysis of the orthography of the oldest surviving manuscripts. A list of target words gives information on the orthography of early manuscripts based on four different types of [ft]/[fs] clusters, lexemes without a synchronically clear connection to words with *p*, words both related to *f* and *p*, and borrowings. The findings are compared with an emphasis on the period of time in which the spellings occur, lexeme categories and irregularities within manuscripts, as the relationship between orthography and phonology of these clusters was to some extent lexicalized and based on the practice of individual scribes.

Skilyrtur samruni *p*, *pp*, *f* > [f] á undan *t* eða *s* átti sér stað fyrir tíma elstu varðveittu texta á forníslensku. Þessi hljóðbreyting birtist þegar í stafsetningu elstu varðveittu forníslensku handritanna þar sem þessir samhljóðaklasar eru venjulega táknaðir með „ft" og „fs". Snemma á þrettándu öld virðast rithættirnir „pt" og „ps" hins vegar ná yfirhöndinni. Í þessari rannsókn var sjónum beint að táknun [ft]/[fs] klasa í íslenskum handritum frá miðri tólftu öld fram á fjórtándu öld til þess að varpa ljósi á hvenær og hvernig stafsetningin breyttist og einnig hvernig háttað var sambandi hljóða og rittákna í þessum klösum í forníslensku. Saga samhljóða frá frumindóevrópsku til forníslensku, þar á meðal samruni tvívaramæltra og tannvaramæltra óraddaðra lokhljóða og önghljóða, hefur verið rannsökuð af ýmsum fræðimönnum og fram hafa komið ólík viðhorf um bæði tímasetningu samrunans og eins um túlkun stafsetningar í forníslenskum handritum. Rannsóknir á þróun þessara samhljóða og samhljóðaklasa ásamt orðsifjafræðilegum rannsóknum á norrænum rúnaáletrunum og skyldum tungumálum benda til þess að samruninn hafi líklega átt sér stað fyrir tíma forníslensku. Upplýsingar um samrunann í handbókum eru ekki reistar á víðtækum rannsóknum á forníslenskum handritum. Þessu rannsóknarverkefni er ætlað vera framlag til frekari umræðu um norrænar samhljóðabreytingar og hljóðfræðilegan veruleika á bak við ritheimildir með rannsókn á stafsetningu elstu varðveittu forníslensku handritanna. Könnuð var stafsetning í fornum handritum á fjórum gerðum af [ft]/[fs] klösum, í orðum án skýrrar samtímalegrar tengingar við *f* eða *p*, í orðum sem tengd eru orðum með *f* eða *p* og í aðkomuorðum. Lagt er mat á stafsetninguna eftir tímabilum, orðflokkum og frávikum í stafsetningu innan einstakra handrita, en samband stafsetningar og framburðar í þessum klösum virðist vera að einhverju marki bundið einstökum orðum og eins ritvenju einstakra skrifara.

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1. Introduction

In pre-literary Old Icelandic, a conditioned phonemic merger of *p*, *pp*, *f* > [f] before *t* or *s* took place. This sound change is reflected by the spelling of the earliest extant Old Icelandic manuscripts where the consonant clusters are predominantly spelled with "ft", for example "eft*ir*", "skrift", "skifta". In the early thirteenth century, however, the spelling "pt" seems to take over as seen in instances of for example "ept*ir*", "skript" and "skipta". This study will analyse the orthography of such [ft]/[fs] clusters in preserved vernacular manuscripts from the mid-twelfth until the mid-fourteenth century aiming to shed a light on when and how the orthographic representation changed, and, in a second step, to examine the graphemic-phonemic relationship between above-mentioned clusters in the early Old Icelandic language and script.

The history of consonant changes from Proto-Indo-European to Old Icelandic—including a phonemic merger of bilabial and labiodental voiceless stops and fricatives—has been studied by a variety of scholars, thus offering different attempts to determine the date of the merger as well as the reality of such clusters as found in vernacular manuscripts. Accordingly, the discussion will begin with the presentation of the state of research in chapter 2, thus concerning the phonemic inventory of Proto-Indo-European and Proto-Germanic stops and fricatives and addressing the emergence of *pt*, *ppt*, *ft*, *ps* and *fs* through vowel syncope. Also, Proto-Norse sound changes alongside etymological and orthographic evidence in Norse runic inscriptions and related languages indicate that the consonant merger of *p*, *pp*, *f* > [f] before *t* or *s* has likely been completed before Old Icelandic, and the pronunciation of *f* and *p* in Old Icelandic as well as how these clusters were realized in the orthography of early vernacular sources is discussed. According to Heusler[1], the different realizations of Old Icelandic *f*, namely [ɸ], [f] and [v] (and/or [β]) are in complementary distribution with the inherited Proto-Germanic voiceless bilabial fricative only occurring before *s*, *t*, *þ*, (*n*, *l*) whereas the voiceless labiodental fricative was articulated in other voiceless environments as the voiced fricative(s) were used in voiced environments. Thus, Heusler[2] and Krause[3] suggest that

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[1] Andreas Heusler, *Altisländisches Elementarbuch*, 7th ed. (Heidelberg: Carl Winter Universitätsverlag, 1967), 13.
[2] Heusler, *Altisländisches Elementarbuch*, 50.
[3] Wolfgang Krause, *Die Sprache der urnordischen Runeninschriften* (Heidelberg: Carl Winter Universitätsverlag, 1971), 37.

a secondary sound change followed the consonant merger, where the bilabial fricative disappeared in favour of [f]. Noreen[4] and Bandle[5] point out a change in the orthography of Old Icelandic manuscripts from "ft" and "fs" to "pt" and "ps" (beside mixed forms "fst", "fpt", "pst" and "pft" in a not clearly determined transition period) and, though not appearing a likely change, interpret the usage of these spellings in the earliest extant vernacular manuscripts as evidence that *f* and *p* merged back to [p] before *t* and *s*. However, the recent and Icelandic research by Stefán Karlsson[6] and Hreinn Benediktsson[7] oppose these hypotheses and argue against a following sound change, assuming that *f* has been representing the realization of [f] in Old Icelandic throughout modern Icelandic. According to that, spellings containing [ft]/[fs] clusters in later manuscripts kept their orthography to match the analogy of the lexemes. This, thus, shows that there is more dissent than consensus concerning the phonetic reality of the fricative that resulted from the consonant merger, the time frame during which the merger happened, sound changes that may have followed the merger, and the relationship between graphemes and phonemes as presented in extant Old Icelandic manuscripts.

As it seems, the information on the merger that is presented in the handbooks is not supported by reliable evidence from studies of the clusters in question as noted in the early literary sources. Therefore, this research project aims to enable further discussion about Old Norse-Icelandic consonant changes which have not been extensively studied to find out how exactly the orthography changed, seemingly over the course of the thirteenth century, what clusters were affected by a change and whether, and if so how, the phonemic-phonetic reality behind any orthographic shift was influenced.

To do so, chapter 3 deals with the examination of 21 early Old Icelandic manuscripts and fragments including the origins of different [ft]/[fs] clusters in Old

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[4] Adolf Noreen, *Altnordische Grammatik I. Altisländische und altnorwegische Grammatik (Laut- und Flexionslehre) unter Berücksichtigung des Urnordischen. Sammlung kurzer Grammatiken germanischer Dialekte 4* (Halle (Saale): Max Niemeyer, 1923), 180.

[5] Oskar Bandle, *Die Sprache der Guðbrandsbiblía. Orthographie und Laute, Formen*, Bibliotheca Arnamagnæana, vol. 17 (Hafniæ: Munksgaard, 1956), 123.

[6] Stefán Karlsson, *The Icelandic Language*, transl. by Rory McTurc (London: Viking Society for Northern Research, 2004), 18.

[7] Hreinn Benediktsson, *Early Icelandic Script as Illustrated in Vernacular Texts from the Twelfth and Thirteenth Centuries*, vol. 2, Íslenzk handrit—Icelandic Manuscripts, series in folio (Reykjavík: Manuscript Institute of Iceland, 1965), 77.

Icelandic, and establishes four categories; lexemes with no transparent relationship with *þ*, transparent relationships with *f* and *p* and borrowings to compare foreign influence in likely the youngest clusters. A compilation of target words serves here as a foundation for the manuscript analysis which look for the distribution of spellings representing [ft]/[fs].

The relationship between orthography and phonology of the consonant clusters is, seemingly, dependent on the quality of the lexeme and preferences of scribes. As expected, instances of target words with a transparent relationship with *f* are predominantly spelled with "ft" and "fs" in the earliest manuscripts. The same applies to most lexemes without a clear connection. Exceptions seem to mark the frequently used lexemes *eftir* prep. 'after', *aftr* adv. 'back', *oft* adv. 'often', *kraftr* m. 'strength, power' and *skrift* f. 'writing' whose instances show a variety of spellings. The *p* connected lexemes predominantly show an orthography containing "p" while some instances appear with the hypercorrect spelling "ft", especially in *skipta* v. 'devide' and *keypti* v. 'bought'. This shift appeared to happen between 1200 and 1250. At the same time the mixed spellings "fst" and "fpt" disappeared. Thus, the spelling of early Old Icelandic manuscripts does probably not show a sound change following the consonant merger but seems highly manuscript- and lexeme-dependent, as is discussed in the conclusion which considers temporal and regional circumstances, qualitative differences such as the type of text and context, and propose reasons for a change in the orthography and the relationship with the underlying phonetic-phonological reality.

2. Stops and fricatives from Proto-Indo-European to Old Icelandic

2.1. The phonemic inventory of Proto-Indo-European and Proto-Germanic: stops and fricatives

The Germanic Consonant Shift, also known as Grimm's law, marks a fundamental change in the consonant system of Proto-Indo-European, thus forming an important part of what makes the Germanic languages a family. The Proto-Germanic language is a result of a chain change in three steps where, firstly, the Proto-Indo-European voiceless stops **p, t, k* underwent fricativization and became the Proto-Germanic fricatives **f, þ,*

x (h). Secondly, to fill the gap, the Proto-Indo-European voiced stops *b, d, g* have been devoiced to form Proto-Germanic *p, t, k*. Finally, the Proto-Indo-European voiced aspirated stops *bʰ, dʰ, gʰ* became the Proto-Germanic fricatives *ƀ, đ, g*. If the Proto-Indo-European mobile accent was not on the preceding vowel, Verner's law applied. As a result, Proto-Germanic voiceless fricatives became voiced: *f > *ƀ, *þ > *ð, *x (h) > *g, *xw (hw) > *gw* and *s > *z*. However, word-initial voiceless fricatives were not affected by this change.[8]

Since texts written in what could be considered Proto-Indo-European or Proto-Germanic languages do not exist, there are no primary sources to deliver information about the consonants of early Germanic languages. However, William G. Moulton's comparison of the oldest derived Germanic dialects[9] offers a plausible reconstruction of Proto-Germanic consonants. According to that, evidence from derived daughter languages, for example the spelling of Greek loan words in Gothic,[10] indicates that Proto-Germanic *"p" likely represented a voiceless stop while *"f" was a voiceless fricative. As Proto-Germanic *f* was a result of the fricativization of the stop *p*, Andreas Heusler suggests that the manner of articulation of the obstruent in question remained unchanged and argues, therefore, that the Proto-Germanic voiceless fricative was bilabial: *f → [ɸ].[11]

At the same time, through Proto-Germanic vowel syncope, new consonant clusters such as *pt, ppt, ft, ps* and *fs* emerged[12] and created an environment for following sound changes including the object of study, the merger of *p, pp* and *f > [f] before *s* and *t*. Hans Krahe proposes that this merger happened in early Proto-Germanic, stating that [pt] clusters remained, among others, in Latin *captus* m. 'captive' but became *ft*[13] in Gothic *hafts* m. pl. 'married people', Old Icelandic *haftr* m. 'captive' and Old High German *haft* m. 'captive'.[14] It is, therefore, possible that a phonological distinction

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[8] Hans Krahe, *Germanische Sprachwissenschaft 1,* revised by Wolfgang Meid, 7th ed (Berlin: Walter de Gruyter, 1969), 82.

[9] William G. Moulton, "The Stops and Spirants of Early Germanic," *Language* 30 (1954): 1.

[10] Moulton, "The Stops and Spirants of Early Germanic," 4.

[11] Heusler, *Altisländisches Elementarbuch*, 13.

[12] Hreinn Benediktsson, *Early Icelandic Script,* 77.

[13] Krahe, *Germanische Sprachwissenschaft 1*, 85.

[14] *Althochdeutsches Wörterbuch*, ed. Rudolf Schützeichel (Tübingen: Max Niemeyer, 1969), s.v. "haft", 75.

between the stop *p and the fricative *f may have been neutralized before t and s as early as this period.[15]

2.2. Proto-Norse stops and fricatives: Sound changes and orthographic evidence

The Proto-Norse consonants corresponded to the phonemic inventory of Proto-Germanic to a large extent.[16] As mentioned above, Proto-Germanic *p has its origins in the devoicing of Proto-Indo-European *b whereas Proto-Germanic *f in combination with *k, s, t was formed by a sound change that began around the sixth century and went on until the late eighth century.[17] Voiced stops and fricatives except *s became devoiced in medial and final position.[18] Then, *b became *f by the end of the seventh century.[19] During this century, new Proto-Norse instances of f emerged from *b, thus forging supplementary consonant clusters containing the newly derived f. Finally, by the end of the eighth century, voiceless fricatives except *s became voiced in voiced environments.[20]. In the following, f could have been voiced, according to Wolfgang Krause[21], and created a complementary distribution between the allophones [f] and [ɸ] vs. [v] and/or [β] which were seemingly predominantly used in Proto-Norse, whereas the corresponding stop [p] was not a common sound at that time. Evidence can be found in equivalent changes in the writing system of North-Germanic runic inscriptions. While the elder *fuþark* consisted of 24 distinct runes arranged in 3 *ættir*, the younger *fuþark* distinguished only 16 runes.[22] Among others, the p-rune disappeared and was replaced by the b-rune.

Concerning Proto-Norse consonant clusters containing ft and fs both inherited from Proto-Germanic[23] and emerged from the devoicing of fricatives the handbooks offer different arguments for a merger of p, pp, f > [f] before t and s that may have happened during this period. Krause and Heusler state that a bilabial pronunciation of f

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[15] Hreinn Benediktsson, *Early Icelandic Script,* 76.
[16] Krahe, *Germanische Sprachwissenschaft 1*, 103.
[17] Noreen, *Altnordische Grammatik I*, 237-240.
[18] Moulton, "Stops and Spirants of Early Germanic," 9.
[19] Moulton, "Stops and Spirants of Early Germanic," 10.
[20] Moulton, "Stops and Spirants of Early Germanic," 11.
[21] Krause, *Die Sprache der urnordischen Runeninschriften*, 37.
[22] Krause, *Die Sprache der urnordischen Runeninschriften*, 91.
[23] Moulton, "Stops and Spirants of Early Germanic," 4.

is most likely older than its labiodental counterpart.[24] In accordance with that, *p* (both <
PIE *b and PIE *f) and *f* conditionally merged to a fricative which was realized as the
bilabial voiceless [ɸ] preceding *t* and *s* whereas *f* could have been articulated as the
labiodental counterpart [f] in other environments. Noreen[25] and Ranke/Hofmann[26] take
a different approach and argue that the bilabial fricative conditionally merged with *p*
preceeding *t* or *s* around the year 1000, which resulted in *pt* and *ps*. Yet, it remains
unlikely that this hypothesis is true. Once the merger has been completed, it could
probably not be changed back since following generations would not know that (and if
so which) sound change has happened, nor recognize the origins of the merged
consonants. Therefore, contemporary speakers would not have been able to restore the
original pronunciation of the oldest inherited clusters.[27]

Besides, especially North-Germanic runic inscriptions do not only give some
indication of the orthography of Proto-Norse and early Old Icelandic but also hint for
the possible phonetic reality behind early Norse runes. The sources suggest that *p* and *f*
have merged before *t* or *s* before or during early Proto-Norse, as [ft] clusters almost
exclusively show a spelling with "ft" all over the Nordic area where the p-rune (or later
the b-rune) were available but apparently not used. This could indicate a pronunciation
with a fricative. Thus, *ft* and *fs* occur in various manifestations from Norway, Denmark
and Sweden, for example on the Rök runestone inscription (ÖG 136, c800),

> **aft uamuþ stonta runaʀ þaʀ n uarin faþi faþiʀ aft faikion sunu sakum…[28]**
> "Eptir Vémoð/Vámóð standa rúnar þær. En Varinn fáði, faðir, eptir feigjan son. [...]"
> "In memory of Vémoðr/Vámóðr stand these runes. And Varinn coloured them, the
> father, in memory of his dead son. […]"[29],

which also contains **ftiʀ** (*(e)ftir*) and **tualfta** (*tólfta*); "aft" and "ftiʀ" appearing as a
form of the adverb *eftir* in the meaning 'in memory of'. [30] The same inscription
preserves an [fs] cluster spelled "fs" in **ra=þulfs | suniʀ** (*Ráðulfs synir*). Further

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[24] Krause, *Die Sprache der urnordischen Runeninschriften*, 37.

[25] Noreen, *Altnordische Grammatik I*, 180.

[26] Friedrich Ranke and Dietrich Hofmann, *Altnordisches Elementarbuch. Einführung, Grammatik, Texte (zum Teil mit Übersetzung) und Wörterbuch*, 5th ed (Berlin: Walter de Gruyter, 1988), 39.

[27] Cf. axioms in Lyle Campbell, *Historical Linguistics. An Introduction*, 2nd ed. (Edinburgh: Edinburgh University Press, 2004), 21-22.

[28] Wolfgang Krause, *Runen*, 2nd ed (Berlin/New York: Walter de Gruyter, 1993), 103.

[29] Arild Hauges runer, Arild Hauge, accessed January 26, 2017, http://arild-hauge.com/se-runeinnskrifter-oestergoetland.htm. Note that Hauge and Krause normalize the spelling of *eptir* with "pt", whereas the runes note "ft". See the full inscription in the appendix on page I.

[30] Terje Spurkland, *Norwegian Runes and Runic Inscriptions*, trans. Betsy van der Hoek (Woodbridge: The Boydell Press, 2005), 37-38.

instances of [ft] clusters can be found for example on the A-side of the Tune stone (N KJ72, the longest extant Proto-Norse inscription),

> **AI**   **ekwiwaʀafter'woduri**
> **AII**   **dewitadahalaiban:worahto'?**[31]
> "ek Wiwaʀ after Woðuriðe witaðah laiban wor hto [runoʀ]"
> "I, Wiwaz, made the runes after Woduridaz, my lord"[32]

cf. also **skiftum** on Troms fylke (N 540)[33] and the Bällsta runestone (U 225):

> **...unu. iki mirki . maiRi . uirþa . þan . ulfs . suniR . iftiR . kir**[34]
> "[...] [M]unu eigi merki meiri verða, en Ulfs synir eptir ger[ðu]"
> "[…] No landmark will be more (great) than (the one) the sons of Ulfr made in (his memory)".[35]

Looking at [fs] clusters, however, some West-Norse inscriptions such as the on the Ballaugh stone cross (BR OLSEN 189) found on the Isle of Man show "bs" in *ulfs-*:

> **aulaibr:liutulbsunr:raisti(k)rs þ(a)na:aiftir:u(l)b:sun: sin**[36]
> "Áleifr Ljótulfs sonr reisti kross þenna eptir Ulf, son sinn"
> "Áleifr/Óleifr, Ljótulfrs son raised this cross in memory Ulfr, his son"[37]

This could be a case of dialectal variation that just affected West Norway and the Northern British islands, or evidence for an ongoing merger of *p*, *pp*, *f* > [f] before *s* and *t* taking place in the tenth century and therefore possibly later than the merger, or stopping of *f* following *l*.

Tendencies of fricativization also occurred in other related Germanic languages during that period, for example in the High German Consonant Shift. South-Germanic runic inscriptions preserve the phoneme inventory of Proto-High-German, Proto-Old-Saxon and Lombardic dialects before the Consonant Shift,[38] a sound change which marked the fricativization and affricatization of Proto-Germanic voiceless stop *p to OHG. *ff* > *f*; and to OHG. *pf*, cf. Gothic *slēpan*, OHG. *slāffan*; Gothic *diups*, Old Icelandic *djúpr*, OHG. *tuif* > HG. *tief*; Gothic *wairpan*, Old Icelandic *verpa* > OHG.

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[31] Klaus Düwel, *Runenkunde*, 4th ed. (Stuttgart/Weimar: Verlag J.B. Metzler, 2008), 38. See appendix page I.
[32] Arild Hauges runer.
[33] Düwel, *Runenkunde,* 149. See appendix page II.
[34] Arild Hauges runer; Krause, *Runen*, 110. Note that Krause transliterates "æftiʀ".
[35] Arild Hauges runer.
[36] Krause, *Runen*, 115. See appendix page II.
[37] Arild Hauges runer.
[38] Düwel, *Runenkunde,* 56.

werfan).[39] These changes probably took place at the same time as the consonant changes in Proto-Norse, and they were not completed before the end of the eighth century.

2.3. The pronunciation of *f* and *p* in Old Icelandic

Old Icelandic *f* kept the distinction of voiced [v]/[β] in voiced environment and a voiceless pronunciaton immediately preceding *s* or *t*,[40] and as onset-*f* preceding all voiceless consonants and geminates.[41] Old Icelandic, thus, followed the general scheme in Norse languages in which voiceless consonants influenced their respective environment and desonorized preceding and following voiced consonants.[42] However, scholars do not agree on the articulation of the voiceless stop *p* and the fricative *f* in [ft]/[fs] clusters occuring in Old Icelandic.[43] According to Heusler, the realizations of Old Icelandic *f*, [ɸ], [f], [v] (or [β]) are in complementary distribution where the inherited Proto-Germanic voiceless bilabial fricative only occurs before *s, t, þ, (n, l)* the labiodental fricative in other voiceless environments and the voiced fricative in all voiced environments.[44] Additionally, Bandle points out that the differences between the phonological qualities of [ɸ] and [p] are marginal. Thus, both phones could have been used contemporarily since the Proto-Germanic stage.[45] On the contrary, research by Stefán Karlsson in *The Icelandic Language*[46] assumes that Old Icelandic voiceless *f* equalled the modern Icelandic pronunciation [f].

Due to this discrepancy, the opinions on the relationship between the articulation and orthography of the consonant clusters "pt" vs. "ft" and "ps" vs. "fs" differ widely. Noreen mentions instances of "pft" and "fpt" in surviving early Old Icelandic manuscripts and draws the conclusion that such mixed forms may indicate a transition period in the phonology of the shift from bilabial [ɸ] to the labiodental [f].[47] According

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[39] Krahe, *Germanische Sprachwissenschaft 1*, 103.
[40] Adolf Noreen, *Geschichte der nordischen Sprachen besonders in altnordischer Zeit*, 3rd ed., Revised by Hermann Paul, Grundriss der germanischen Philologie (Strasbourg: Verlag von Karl J. Trübner, 1913), 98.
[41] For example, *fara* v. 'move', *offra* v. 'make an offering'; Heusler, *Altisländisches Elementarbuch*, 13; Bandle, *Die Sprache der Guðbrandsbiblía*, 120.
[42] Ragnvald Iversen, *Norrøn Grammatik,* revised by E.F. Halvorsen, 7th ed (Oslo: Aschehoug, 1973), 33.
[43] Iversen, *Norrøn Grammatik*, 33.
[44] Heusler, *Altisländisches Elementarbuch*, 13.
[45] Bandle, *Die Sprache der Guðbrandsbiblía*, 123.
[46] Stefán Karlsson, *The Icelandic Language*, 18.
[47] Noreen, *Geschichte der nordischen Sprachen*, 98.

to that, the orthography of Old Icelandic manuscripts reflects a sound change where *p* is often exchanged for *f*. Bandle, too, suggests a connection between orthographical changes and a phonological change that, supposedly, first happened in West Norwegian dialects. [48] Other scholars, among others Heusler, state that, although consonant clusters spelled with "pt" and "ps" can be found fairly often in vernacular manuscripts, these forms do not necessarily represent a sound change resembling *p*, *pp*, *f* > [p] before *t* and *s*, but rather show that the bilabial pronunciation of the voiceless fricative [ɸ] is akin to the stop [p]. Therefore, according to Heusler, scribes might have been tempted to spell [ft]/[fs] clusters predominantly with "p"[49] unless the analogy demanded a spelling with "ft" or "fs", for example *ljúft*, *ljúfs* from *ljúfr*).[50] Hreinn Benediktsson, Stefán Karlsson and Ragnvald Iversen endorse the theory of an early merger of stops and fricatives which was completed long before Proto-Norse and Old Icelandic. In this case, *p*, *pp* and *f* would traditionally have been pronounced alike before *t* and *s* for generations,[51] hence the spellings "p(p)t", "ft", "fs" and "ps" were used side by side in Old Icelandic literature,[52] mean the same, and can vary in the very same manuscript.[53] The same applies to mixed spellings of these clusters. Their orthography does not indicate a change of the pronunciation of [ft]/[fs] clusters. Though, the orthography of different lexemes in Old Icelandic was not random but depended on paradigms and related words.[54]

2.4. Conclusions

Whereas all handbooks agree that a merger has happened where the distinction of the plosive [p] and the fricative [f] (or [ɸ]) has been neutralized before *t* and *s*, there seem to be many contrasting hypotheses and interpretations of the phonetic reality of the fricative that resulted from the merger, the time frame during which the merger has happened, sound changes that may have followed the merger, and the relationship

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[48] Bandle, *Die Sprache der Guðbrandsbiblía*, 123.
[49] Heusler, *Altisländisches Elementarbuch*, 50.
[50] Heusler, *Altisländisches Elementarbuch*, 50.
[51] Stefán Karlsson, *The Icelandic Language*, 18.
[52] Iversen, *Norrøn Grammatik,* 35.
[53] Hreinn Benediktsson, *Early Icelandic Script,* 76.
[54] Hreinn Benediktsson, *Early Icelandic Script,* 77.

between graphemes and phonemes as presented in extant early Old Icelandic manuscripts.

As pointed out above, the difference between the bilabial [ɸ] and the labiodental [f] are minimal. It can probably not be exactly determined which fricative resulted from the merger with [p] but, as they are akin, the identification of the phone does not have a significant impact on the outcome of this study.

Concerning the age of the merger, there are four different arguments. Thus, *p* and *f* could have merged between the Proto-Indo-European and Proto-Germanic stage. It is possible, as Hreinn Benediktsson points out,[55] that the neutralization of the distinction between stop and fricative can be traced back to Proto-Indo-European or early Proto-Germanic when older clusters containing *pt*, *ppt*, *ft*, *ps* and *fs* emerged through adding the suffixes **-t* and **-s* on the one hand, and through syncope which erased medial vowels between **p*, **f* and **t*, **s* which created [ft]/[fs] clusters on the other hand. The most supported hypothesis by various scholars (Heusler, Noreen, Düwel, Hauge and Krahe) dates the merger to late Proto-Germanic or early Proto-Norse. During this period, younger *pt/ft* and *ps/fs* clusters formed through inflection and derivation by adding suffixes such as the genitive -s and neuter -t endings. Besides, evidence from related languages and Norse runic inscriptions support this argument. Nevertheless, it is more likely that the merger happened in Proto-Germanic or Proto-Norse than in early Old Icelandic. Krause, by contrast, assumes that it cannot exactly be determined when the merger happened. However, evidence suggests that the merger has most likely been completed before literary Old Norse-Icelandic.

There is also some dissent on the issue of chain changes following the consonant merger in question. Thus, *f* and *p* could have merged back to [p] before *t* or *s,* before it changed back to [f] in modern Icelandic.[56]

1) Merger: *p* + *pp* + *f* > [f] or [ɸ] before *t* and *s*
2) Merger: *p* + *pp* + *f* > [p] before *t* and *s*

However, as examined above, it is unlikely that a merged fricative would change back to a voiceless stop. The second option offered by Heusler states that, if the fricative resulting from the merger *p*, *pp*, *f* > [f] before *t* or *s* is interpreted as the bilabial

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[55] Hreinn Benediktsson, *Early Icelandic Script,* 76.
[56] Noreen, *Altnordische Grammatik I*, 180.

voiceless fricative, *f* could have remained [ɸ] before *t, s* or *þ*, but pronounced as labiodental [f] in other voiceless environments. Then, in Old Icelandic, the distinction between [ɸ] and [f] may have been completely neutralized in favour of [f].[57] If this is the case, the bilabial [ɸ] kept its phonetic properties, whereas newly emerged environments caused the phones to adapt.[58]

The third theory endorsed by Stefán Karlsson and Hreinn Benediktsson states that after the merger there was no difference between the pronunciation of *p* and *f* before *t* or *s*; both matched modern Icelandic [f]. Therefore, no second sound change has happened.

The orthography of the oldest Icelandic manuscripts can provide evidence on the grapheme-phoneme relationship of [ft]/[fs] clusters. While in Proto-Norse runic inscriptions "ft" occurs as the only and "fs" as the predominant spelling of such clusters, in Old Icelandic manuscripts, "p" seems to take over as the predominant form before *t, s* and *þ*. However, "ft" and "fs" spellings as well as mixed forms such as "pft", "fpt" and "fst" occur. Scholars have interpreted the change of the orthography in different ways. Thus, the predominant "pt" and "ps" notations in later manuscripts may show that *f* was pronounced as bilabial before *t* or *s* (Heusler, Bandle). Noreen explains the spelling with "p" as indication for a sound change where *p* and *f* would conditionally merge to [p] before *t* and *s*. Instances of mixed forms could, consequently, be evidence of a sound change. Hreinn Benediktsson, on the other hand, interprets the occurrence of inversed and merged spellings as evidence for the already completed neuralization rather than a sound change that happened around the twelfth century.[59]

As mentioned before, the orthography was probably heavily influenced by analogy. Especially when formed through inflection, the orthography of the consonant clusters tended to be in line with the spelling of other forms belonging to the paradigm (Stefán Karlsson, Hreinn Benediktsson, Heusler[60]). Finally, the orthography could have been independent from the phonetic realization of a lexeme. Thus, both spellings with "pt"/"ft" and "ps"/"fs" were contemporary and represented synonyms articulated as [ft] and [fs] (Stefán Karlsson, Hreinn Benediktsson, Iversen).

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[57] Heusler, *Altisländisches Elementarbuch*, 13.
[58] Campbell, *Historical Linguistics*, 21-22.
[59] Hreinn Benediktsson, *Early Icelandic Script,* 77.
[60] Heusler, *Altisländisches Elementarbuch*, 50.

The variety of arguments and hypotheses makes it difficult to issue reliable statements concerning [ft]/[fs] clusters. The cause of the problem seems to be a lack of sufficient data supported by an extensive study of the surviving Old Icelandic manuscripts. An analysis of the oldest extant literary sources from the mid-twelfth century is therefore necessary to provide reliable evidence for the actual distribution of different spellings, how and when they changed, and what the relationship between phonology and orthography was like.

3. Manuscript analysis

3.1. Methodology

This study made use of a descriptive, quantitively driven examination of the orthography of the oldest surviving Old Icelandic manuscripts by collecting empirical data and a subsequent analysis of the findings. The existing information given by the handbooks on the orthography and articulation of [ft]/[fs] clusters, and beyond that interpretations of which, is not based on empirical evidence. Their foundation is the tendency of an increasing number of "pt" and "ps" spelling occurring in Old Icelandic manuscripts. Thus, no data is provided which would support the assumption that the orthography of [ft]/[fs] clusters was influenced by underlying phonological changes. For this reason, the aim of this study was to make more objective statements and to interpret the results rather than proving a sound change right or wrong without sufficient evidence. This data was necessary to give an overview concerning what orthographic changes happened when, how the consonant clusters were affected by the change, reasons for possible spelling changes and conclusions on the relationship between orthography and phonology.

In a first step, a list of target words was established to give information on the orthography of early manuscripts based on four different types of [ft]/[fs] clusters, namely lexemes containing these clusters in the word stem without showing a synchronically transparent connection to *f* or *p*, *f* and *p* related word stems which were formed both by inflection and derivation, and, in contrast, younger incorporated clusters in foreign loan words. For the purpose of establishing said word list, lemmatized indices

such as Ludvig Larsson's word list[61], if existing for the respective manuscript, diplomatic editions, facsimiles, images and further information provided by the Árni Magnússon Institute for Icelandic Studies[62] and the ONP catalogue[63] were used to count the instances of different spellings of the target words, namely "pt/-s", "ft/-s", "f" and "p" based mixed spellings, all both in total number of occurrences and percentages for the purpose of an easier comparison. Scribal errors, abbreviations of words and other instances where parts of the clusters were not noted in a manuscript have been omitted, as they do not provide fruitful information. The data was organized in tables, which are added to the appendix. The underlying reference were 21 vernacular manuscripts, as explained below, and fragments starting with the earliest extant sources dated to c1150 until the mid-fourteenth to create a decent sample size.

The analysis focussed on multiple dimensions to provide a broader overview. Firstly, the total numbers of non-associated (category 1), *f* (category 2) and *p* associated words (category 3) and borrowings were compared split up in the four periods 1150-1199, 1200-1249, 1250-1299 and 1300-1370. Secondly, the categories and their orthographical shifts were compared with each other before the origins of the clusters themselves were considered— inflection vs. derivation vs. old inherited clusters from Proto-Germanic and Proto-Norse. In a last step, the findings were summarized. This method provides an accurate overview of the orthographic reality of [ft]/[fs] clusters in the earliest vernacular texts. However, given the small number of extant manuscripts and leaves surviving from this time, sources are limited. Results can only function as a sample and briefly point towards a common spelling or even phonological realization of such clusters at this period.

Like every method, this approach has its limits. Thus, the limited number of vernacular texts from the twelfth and early thirteenth centuries, due to loss of leaves, cuts, corruption or other damage, can only show tendencies based on the orthography of a small part of what was written in the North during the early Middle Ages. Furthermore, the organization of the data in the tables and the division of which into

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[61] Ludvig Larsson, *Ordförrådet i de älsta islänska handskrifterna: leksikaliskt ock grammatiskt ordnat* (Lund: Lindstedt, 1891).
[62] Handrit.is, Stofnun Árna Magnússonar í íslenskum fræðum and Den Arnamagnæanske Samling, https://handrit.is/.
[63] Ordbog over det norrøne prosasprog, Københavns Universitet, http://onp.ku.dk/.

artificial categories and their results are always subjective and must be interpreted with reservation. As especially total numbers and generalizations regarding the overall predominant spelling of a century, manuscript or category can be misleading and yield inaccurate results, this study analysed the numbers from different perspectives such as regional, temporal, lexeme and scribe dependent discrepancy.

3.1.1 Overview over the manuscripts

21 manuscripts and fragments were included, starting with the earliest Old Icelandic Sermons AM 237 a fol dated to c1150 and ending with AM 132 fol *Möðruvallabók* dated to c1330-1370 (see *Table 1*).

Manuscript	Name/contents	ONP Date
AM 237 a fol	Sermons	c1150
AM 315 d fol	Grágás fragments	c1150-1175
AM 674 a 4to	"Bókin dýra"; Elucidarius	c1150-1200
AM 249 l fol	Rímtal	c1190
GKS 1812 IV 4to	Rímbegla	c1192
AM 673 a I,II 4to	Physiologus	c1200
Holm Perg 15 4to	Icelandic Homily Book	c1200
AM 677 4to	Homilies and Dialogues of Gregory the Great	c1200-1225
AM 673 b 4to	Plácitus drápa	c1200-1225
AM 645 fol	Heilagramanna sǫgur	c1220-1250
AM 325 II 4to	Ágrip af Nóregskonunga sǫgum	c1225
AM 162 a θ fol	Egils saga fragment	c1250
GKS 1157 fol	Konungsbók Grágásar	c1250
AM 162 d 2 fol	Laxdæla saga fragment	c1250-1300
AM 334 fol	Staðarhólsbók	c1260-1340
GKS 1009 fol	Morkinskinna	c1275
AM 291 4to	Jómsvíkinga saga	c1275-1300
AM 519 a 4to	Alexanders saga	c1280
AM 371 4to	Hauksbók	c1302-1310
AM 47 fol	Eirspennill	c1300-1325
AM 132 fol	Möðruvallabók	c1330-1370

Table 1: Early Old Icelandic manuscripts used in this study

3.2. The origins of the different [ft]/[fs] clusters in Old Icelandic

The [ft]/[fs] clusters can be divided into the following four different categories:[64]

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[64] For the purpose of easier reading henceforth referred to as categories 1-4.

Target words containing *ft*	Etymology
aftr adv. 'back' *eftir* prep. 'after' *aftann* m. 'evening'	*aft-*, cf. Gothic *aftra*[65] West-Gmc. **āfanþiịa*[66], Proto-Norse **aftanaʀ*[67] possibly analogous to **eptinn* > dat. **aptni*, maybe the result of a merger of *aft* and *ǫnn*?
heift f. 'feud'	Etymology unclear[68], maybe derived from the suffixation of PGmc **haif-* with the suffixes **-ti-* and **-sti-*[69] cf. OHG *heifti* adj. 'vigorous', Gothic *haifsts* f. 'dispute'[70]
kjaftr m. 'jaw'	probably derived from PIE **keƀuta-*[71]
-kraftr m. 'strength, power'	derived from PGmc **kraftu-*, **krafti-*[72]
loft n. 'air, sky'	Etymology unclear[73], cf. Gothic *luftus*? m. 'upper air layer', cf. OIcel. *lypta* v. 'raise'[74]
nift f. 'female relative'	derived from PIE **nepti-*[75], PGmc **nefti-*[76], cf. Latin *neptis* f. 'granddaughter', Gothic *(ga-)niþjis* m. 'relative'[77]
oft- adv. 'often'	maybe derived from PGmc **uftō*, **ufta-*[78], cf. Gothic *ufta* adv. 'often'
raftr m. 'log'	maybe from the root **rep-*[79]
rifta v. 'invalidate'	derived from PGmc **rifatjan*[80]
skaft n. 'shaft, handle'	derived from PIE **skep-*, **skop-*, **skabh*, PGmc **skafta-*[81]
Target words containing *fs*	**Etymology**
ofsi m. 'overbearing, tyranny'	derived from PIE **uƀasan-*, **ufasan-*[82]
refsa v. 'punish', *refsing* f. 'punishment'	derived from PGmc **rafisjan*[83]

Table 2: The etymology of category 1 target words

[65] *Íslensk orðasifjabók*, ed. Ásgeir Blöndal Magnússon (Reykjavík: Orðabók Háskólans, 1989), s.v. "efter, †epter, †ept," 145; Heusler, *Altisländisches Elementarbuch*, 50.

[66] *Altnordisches Etymologisches Wörterbuch*, ed. Jan de Vries, 2nd ed. (Leiden: E.J. Brill, 1962), s.v. "aptann, eptinn," 11.

[67] Ranke, Hofmann, *Altnordsiches Elementarbuch*, 39; *Vergleichendes Wörterbuch der Gotischen Sprache*, ed. Sigmund Feist (Leiden: E.J. Brill, 1939), s.v. "aftana," 11.

[68] *Vergleichendes Wörterbuch der Gotischen Sprache,* ed. Sigmund Feist, s.v. "haifsts," 231.

[69] *Altnordisches Etymologisches Wörterbuch*, ed. Jan de Vries, s.v. "heifst," 217-18.

[70] *Íslensk orðasifjabók*, ed. Ásgeir Bl. Magnússon, s.v. "heift, †heipt, †heifst," 314.

[71] *Íslensk orðasifjabók*, ed. Ásgeir Bl. Magnússon, s.v. "kjaftur, †kjǫptr, †kjaptr, †keptr," 465.

[72] *Íslensk orðasifjabók*, ed. Ásgeir Bl. Magnússon, s.v. "kraftur, †krapt(u)r, †krǫpt(u)r," 499.

[73] *Vergleichendes Wörterbuch der Gotischen Sprache,* ed. Sigmund Feist, s.v. "luftus," 337.

[74] *Altnordisches Etymologisches Wörterbuch*, ed. Jan de Vries, s.v. "lypta," 370.

[75] *Indogermanisches etymologisches Wörterbuch 1-2*, ed. Julius Pokorny (Tübingen/Basel: Francke, 1959), s.v. "nepōt-," 764-65.

[76] *Íslensk orðasifjabók*, ed. Ásgeir Bl. Magnússon, s.v. "nift, nipt," 667.

[77] *Vergleichendes Wörterbuch der Gotischen Sprache,* ed. Sigmund Feist, s.v. "niþjis," 376.

[78] *Íslensk orðasifjabók*, ed. Ásgeir Bl. Magnússon, s.v. "oft, †opt, †ofst," 686.

[79] *Íslensk orðasifjabók*, ed. Ásgeir Bl. Magnússon, s.v. "raftur, †rapti," 738.

[80] *Íslensk orðasifjabók*, ed. Ásgeir Bl. Magnússon, s.v. "rifta," 760.

[81] *Indogermanisches etymologisches Wörterbuch 1-2*, ed. Julius Pokorny, s.v. "skebh-," 930-33.

[82] *Íslensk orðasifjabók*, ed. Ásgeir Bl. Magnússon, s.v. "ofsi," 686.

[83] *Íslensk orðasifjabók*, ed. Ásgeir Bl. Magnússon, s.v. "refsa", 747.

The Category 1, No synchronically clear connection with words containing *p*

Some of the oldest clusters were inherited from Proto-Indo-European and Proto-Germanic throughout Old Icelandic. They mostly contained *ft* and *fs* as part of the root word in Old Icelandic and did not have a synchronically transparent relationship with *p*. The origins of such lexemes were most likely not clear to contemporary speakers. Scribes would not have known what these clusters derived from, whether their roots were associated with *p* or *f*. Since for the most part no synchronically connection to words with *p* was obvious, target words in this category are expected to either appear mostly evenly distributed in the earliest surviving manuscripts, or to show the inherited "ft" and "fs" spellings.

Category 2, Synchronically clear connection with *f*

The most reference words containing [ft]/[fs] clusters show a transparent connection with *f* as a part of the word roots and stems. Contemporary scribes probably knew about the origins and analogies to related words and roots and should, therefore, could recognize these patterns and their association with *f*. It is expected that most instances noted in early Icelandic manuscripts used the spellings "ft" and "fs". The consonant clusters were formed through inflection and derivation and could occur in the following lexical categories:

- **Substantives** through genitive -s-endings of a-stem, i-stem and ija-stem masculine singular substantives and neuter substantives except an-stems, for example *arfs* m. 'inheritance', *hafs* n. 'the sea', *hofs* n. 'temple', *lífs* n. 'life', *lofs* n. 'praise', *nefs* n. 'nose', *rofs* n.'breach', *úlfs* m. 'wolf', *þjófs* m. 'thief'.

- **Positive forms of adjectives** through genitive -s-endings of masculine and neuter singular indefinite adjectives, and nominative and accusative -t-endings of neuter singular indefinite adjectives, for example *eilífs/-t* adj. 'eternal', *hálfs/-t* adj. 'half', *ljúfs/-t* adj. 'dear, gentle, pleasant'.

- **Strong and weak superlative forms** of *efri* adj. 'upper(most)': *efstr, efst, efsti…*

- **Pronouns** through genitive -s-endings of masculine and neuter singular and nominative and accusative -t-endings neuter singular of the reflexive pronoun *sjálfr* pron. 'self': *sjálfs*, *sjálf*.

- Numerals: The ordinal numbers *ellefti* ord. numb. 'eleventh', *tólfti* ord. numb. 'twelfth'.

- Verbs: The 2. pers. singular preterite indicative active of strong verbs and ija-verbs; neuter nominative and accusative preterite participle forms, medio-passive forms and instances of the preterite-present verb *þurfa* v. 'need, want'; *þarft, þurfti, þyrfti, þurft...*; such as the 2. pers. singular present indicative active, all preterite indicative and subjunctive active forms, and the preterite participle: *gaft – gefa* v. 'give', *haft – hafa* v. 'have', *horft – horfa* v. 'turn', *leyft – leyfa* v. 'allow, permit'.

- Creation of new [ft]/[fs] clusters through morphological derivation:
Verb-to-verb derivation through suffixation, for example: *gefa – gifta* v. 'give away in marriage', *hefja – hefta* v. 'bind, fetter'.

Verb-to-noun derivation through suffixation, for example *gifta* v. 'give away in marriage' – *gift* f. 'gift', *grafa* v. 'dig, bury' – *grǫftr* m. 'digging, burial, tomb', *skjálfa* v. 'shake, quiver'– *skjálfti* m. 'shivering', *skrifa* v. 'write' – *skrift* f. 'writing'. Ordinal-to-noun derivation through umlaut, for example *tólf* numb. 'twelve'– *tólfti* ord. numb. 'twelfth', *tylft* f. 'a dozen'.

Category 3, Synchronically clear connection with *p*

Another category form target words containing [ft]/[fs] clusters that show a systematically transparent connection with *p* as a part of the word roots and stems. The consonant clusters are formed through inflection and derivation. As the origins are to a great extant transparent to contemporary scribes, instances of these reference words are expected to occur spelled with "pt" and "ps". Here, it is interesting to keep in mind that scribes might have acknowledged the phonological reality of [ft] and [fs] behind "pt" and "ps" spellings. Thus, hypercorrect notations of the lexemes with "f" may occur in early Old Icelandic manuscripts. Combinations of *pt* and *ps* can occur in the following lexical categories:

- Substantives through genitive **-s-**endings of a-stem, i-stem and ija-stem masculine singular substantives and neuter substantives except an-stems, for example *dráps* n. 'killing', *hrepps* m. 'district', *kaups* n. 'bargain', *skips* n. 'ship'.

- Positive forms of adjectives through genitive **-s-**endings of masculine and neuter singular indefinite adjectives and nominative and accusative -t-endings of neuter

singular indefinite adjectives, f.ex.: *djúpr* adj. 'deep': *djúps*, *djúpt*.

- Verbs: The 2. pers. singular preterite indicative active forms and the neuter nominative and accusative preterite participle, for example *hlaupa* v. 'leap, run' – *hleypt/hleypti*, *kaupa* v. 'buy' – *keypt/keypti*, *kippa* v. 'pull' – *kip(p)t/kip(p)ti*, *klippa* v. 'cut' – *klip(p)t/klip(p)ti*.

- Creation of new [ft]/[fs]-clusters through morphological derivation:

Verb-to-verb derivation through suffixation, for example: *skipa* v. 'arrange, assign' – *skipta* v. 'devide'.

Possibly also noun-to-verb derivation through suffixation, for example *glœpr* m. 'crime' – *gløpska* f. 'offence'.

Category 4, Borrowings

The fourth and arguably youngest group of Old Icelandic [ft]/[fs] clusters are lexemes borrowed from written forms of foreign loan words which have been incorporated into the vernacular, for example Latin *baptista* m. 'baptizer' > Old Icelandic *baptisti* m. 'baptizer'; Ancient Greek *epískopos* m. 'overseer' > Old Icelandic *biskup* m. 'bishop'; Ancient Greek *aíguptos* f. 'Egypt', Latin *ægyptus* f. 'Egypt' > Old Icelandic *Egyptaland* n. 'Egypt'. As these clusters originate from foreign languages that were relatively recently adopted at that time it seems likely that scribes of early extant manuscripts kept the spelling of these loan words as taken from the original language.

Category 1
-*aftann* m. 'evening'
aftr adv. 'back'
eftir prep. 'after'
heift f. 'feud'
kjaftr m. 'jaw'
-*kraftr* m. 'might, strength, power'
loft n. 'air, sky'
nift f. 'female relative'
oft- adv. 'often'
raftr m. 'log'
rifta v. 'invalidate'
skaft n. 'shaft, handle'
ofsi m. 'overbearing, tyranny'
refsa v. 'punish'; *refsing* f. 'punishment'

Category 2
arfs m. gen. sg. of *arfr* m. 'inheritance'
eilífs/-t m. gen. sg., n. nom./acc. sg. of *eilífr* adj. 'eternal'
ellefti ord. numb. 'eleventh'
efri adj. 'upper(most)', *efstr…*
gaft, gafst, gafsk… various forms of *gefa* v. 'give'
gifta v. 'give away in marriage', *gift* f. 'gift'
grǫftr m. 'digging, burial, tomb'
haft pp. n. sg. of *hafa* v. 'have'
hafs n. gen. sg. of *haf* n. 'the sea'
hálfs/-t m. gen. sg., n. nom./acc. sg. of *hálfr* adj. 'half'
hefta v. 'heave, raise, lift'
hofs n. gen. sg. of *hof* n. 'temple'
horft pp. n. sg. of *horfa* v. 'turn'
leyft pp. n. sg. of *leyfa* v. 'apply, permit'
lífs n. gen. sg. of *líf* n. 'life'
ljúfs/-t m. gen. sg., n. nom./acc. sg. of *ljúfr* adj. 'dear, gentle, pleasant'
lofs n. gen. sg. of *lof* n. 'praise'
nefs n. gen. sg. of *nef* n. 'nose'
rofs n. gen. sg. of *rof* n. 'breach'
sjálfs/-t m. gen. sg., n. nom./acc. sg. of *sjálfr* pron. 'self'
skjálfti m. 'shivering'
skrift f. 'writing'
tólfti ord. numb. 'twelfth', *tylft* f. 'a dozen'
Úlfs- m. gen. sg. of *Úlfr* m. 'wolf'
þjófs m. gen. sg. of *þjófr* m. 'thief'
þurfti, þyrfti, þurft… various forms of *þurfa* v. 'need, want'

Category 3
djúps/-t m. gen. sg., n. nom./acc. sg. of *djúpr* adj. 'deep'
dráps n. gen. sg. of *dráp* n. 'killing'
glǿpska f. 'offence'
hleypti past tense, various forms of *hleypa* v. 'to make one run'
hrepps hreppr
kaups n. gen. sg. of *kaup* n. 'bargain'
keypti past tense, various forms of *kaupa* v. 'buy'
kippti past tense, various forms of *kippa* v. 'pull'
klippti past tense, various forms of *klippa* v. 'cut'
skips n. gen. sg. of *skip* n. 'ship'
skipta v. 'devide'

Category 4
baptisti m. 'baptizer'
biskups- m. gen. sg. of *biskup* m. 'bishop'
Egyptaland n. 'Egypt'

Table 3: Categories and reference words containing [ft]/[fs] clusters

3.3. [ft]/[fs] clusters in the earliest extant Old Icelandic manuscripts dated to c1150-1199

Determining the predominant spelling of [ft]/[fs] clusters as found in vernacular sources from the mid and late twelfth century proves difficult as only eight Old Norwegian and 20 Old Icelandic manuscripts from this period survived.[84] Most of which are religious texts such as homilies, sagas concerning the lives of saints, bishops and apostles as well as the earliest fragments of the sagas of the kings of Norway.[85] Thus, since only an insignificant part of literary sources that were written in the North during this time is extant, the possible research is limited to a sample of texts.[86] Apart from that, early manuscripts are fragmentary to some extent and their parchment corrupted or dark. Besides, as some manuscripts were written in Latin, only vernacular manuscripts can be considered useful for this study. Yet, the surviving manuscripts provide important data to examine tendencies and preferred spellings of the target words.

Manuscript	Name / contents	ONP date
AM 237 a fol	Sermons	c1150
AM 315 d fol	Grágás fragments	c1150-75
AM 674 a 4to	'Bókin dýra', Elucidarius	c1150-1200
AM 249 l fol	Rímtal	c1190
GKS 1812 IV 4to	Rímbegla	c1192

Table 4: Late twelfth century and early thirteenth century manuscripts

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[84] Guðvarður Már Gunnlaugsson, "The origin and the development of Icelandic script," *Régionalisme et Internationalisme. Problèmes de Paléographie et de Codicolgie du Moyen Âge. Actes du Xve Colloque du Comité International de Paléographie Latine*, edited by Otto Kresten and Franz Lackner, Veröffentlichungen der Kommission für Schrift- und Buchwesen des Mittelalters, Series 4, Vol. 5, Denkschriften der philosophisch-historischen Klasse, Vol. 364.

[85] Hreinn Benediktsson, *Early Icelandic Script,* 14.

[86] Hreinn Benediktsson, *Early Icelandic Script*, 15.

AM 237 a fol marks the oldest extant manuscript used in this study, dated to the mid-twelfth century. It consists of two remaining leaves containing fragments of an Icelandic translation of Gregory the Great's gospel homily. The data was gathered from Larsson's word list.[87]

AM 315 d fol is the oldest legal text, a *Grágás* fragment from the mid- to late-twelfth century. Only two leaves survived. The parchment is dark which makes parts of the manuscript difficult or impossible to read. The data was gathered from Larsson's word list.

AM 674 a 4to is the Old Norse translation of the *Elucidarius*, set up in a Socratic dialogue. The manuscript dates to the mid- to late-twelfth century and consists of 33 leaves. Although the scribe was Icelandic, it was probably copied from an Old Norwegian original. The data was gathered from Larsson's word list and Scherabon Firchow and Grimstad's edition.[88]

AM 249 l fol is a fragmentary calendar mostly written in Latin and consisting of four leaves. Large parts of the first leave have been cut. The parchment is corrupted. The data was gathered from Larsson's word list.

GKS 1812 IV 4to, *Rímbegla*, is a fairly large early manuscript which contains 36 surviving leaves. The oldest part, 24r – 34vb, is dated to c1192. The data was gathered from Larsson's word list.

3.3.1. Category 1 words in the earliest manuscripts

In the earliest extant vernacular literary sources written between c1150 and 1199, the target words that do not show a systematically transparent association with *p* occur 103 times (see *Table 5*).

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[87] Larsson, *Ordförrådet i de älsta islänska handskrifterna.*
[88] Evelyn Scherabon Firchow and Kaaren Grimstad, eds., *Elucidarius in Old Norse Translation* (Reykjavík: Stofnun Árna Magnússonar á Íslandi, 1989), xxvii.

Manuscripts c1150-1199	"pt", "ps"	"ft", "fs"	"pCt", "pCs"	"fCt", "fCs"	total
AM 237 a fol	0	13	0	2	**15**
AM 315 d fol	0	4	0	2	**6**
AM 674 a 4to	1	9	0	27	**37**
AM 249 l fol	0	1	0	0	**1**
GKS 1812 IV 4to	32	9	0	3	**44**
total	**33** 32,04%	**36** 34,95%	**0** 0,00%	**34** 33,01%	**103**

Table 5: Instances of category 1 words in early manuscripts

The study of the category 1 target words yields mixed results. The orthography of the words, however, shows a general trend to spell the great majority of [ft]/[fs] clusters with "ft", "fs" and "fst". Target words that appear with this orthography are *raftr* in AM 237 a fol, *aftr* in AM 237 a fol, AM 674 a 4to, AM 249 l fol (here as the only preserved target word in this manuscript) and GKS 1812 IV 4to, three times in the spelling "affꞇr" with a ligature scholarship[89] interprets as "fft" in AM 315 d fol and AM 674 a 4to. The same applies to "kraftr" (AM 237 a fol) and "loft" (AM 237 a fol, GKS 1812 IV 4to) which predominantly appear spelled with "ft" but with "fft" in AM 674 a 4to. "eftir" and "oft" only occur spelled with "ft" in AM 237 a fol, AM 315 d fol). In addition to that, AM 674 a 4to and GKS 1812 IV 4to show the "fft"-ligature and spell "effꞇ" and "offt". However, GKS 1812 IV 4to is the only manuscript from the twelfth century containing instances of "pt" spellings, namely "epꞇ" and "opꞇ".

The orthography of such clusters as found in AM 674 a 4to and GKS 1812 IV 4to stand out in many ways. Thus, there are no instances of "pt" and "ps" spellings in the oldest examined texts, AM 237 a fol, AM 315 d fol and AM 249 l fol. One exception in the early manuscripts seems to be the orthography of the *Elucidarius*, where out of 37 total instances a single "pt" spelling occurs in "apꞇаɴ". Furthermore, AM 674 a 4to is the only manuscript using the "fft"-ligature as the overall dominating form and in the first part of the manuscript almost exclusively occurring form of every other target word in this category. GKS 1812 IV 4to, on the other hand, marks the

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[89] Hreinn Benediktsson, *Early Icelandic Script,* 77.

earliest analysed manuscript which predominantly uses spellings with "pt" and "ps" (72,7%) in category 1 target words.

3.3.2. Category 2 words in the earliest manuscripts

In the earliest manuscripts AM 237 a fol, AM 315 d fol, AM 674 a 4to and GKS 1812 IV 4to, 28 instances of category 2 target words occur (see *Table 6*).

Manuscripts c1150-1199	"pt", "ps"	"ft", "fs"	"pCt", "pCs"	"fCt", "fCs"	total
AM 237 a fol	0	3	0	0	**3**
AM 315 d fol	0	3	0	0	**3**
AM 674 a 4to	0	11	0	1	**12**
GKS 1812 IV 4to	2	5	0	3	**10**
total	**2** 7,14%	**22** 78,57%	**0** 0,00%	**4** 14,29%	**28**

Table 6: Instances of category 2 words in early manuscripts

There is a relatively large number of different words, though most of them only occur once or twice. Despite that, these instances still give valuable information as they yield the same results. The target word forms in the oldest manuscripts are consistently spelled with "ft" and "fs". Only once, the "fft"-ligature was used in "giffra" in AM 674 a 4to. GKS 1812 IV 4to, however, is the sole manuscript showing a different distribution of spellings. Out of ten total forms, five instances are spelled with "f", whereas two "pt" spellings appear in "epsта" and "ellepтe".

3.3.3. Category 3 words in the earliest manuscripts

Manuscripts c1150-1199	"pt", "ps"	"ft", "fs"	"pCt", "pCs"	"fCt", "fCs"	total
AM 237 a fol	0	1	0	0	**1**
AM 674 a 4to	0	0	0	6	**6**
GKS 1812 IV 4to	2	0	0	0	**2**
total	**2** 22,22%	**1** 22,22%	**0** 0,00%	**6** 66,67%	**9**

Table 7: Instances of category 3 words in early manuscripts

Category 3 target words only occur nine total times in three out of the analysed twelfth century manuscripts (AM 237 a fol, AM 674 a 4to, GKS 1812 IV 4to). This data can give some evidence but it does not provide reliable information concerning the preferred orthography of *p*-related words in the earliest Old Icelandic manuscripts. Apart from that, the only target word showing instances in the examined fragments from the late twelfth century are forms of *skipta*. Thus, while GKS 1812 IV 4to twice notes "skipta", the earlier vernacular sources only show *skipta* spelled with "ft" once in AM 237 a fol, or with the "fft"-ligature in AM 674 a 4to (six times).

Although evidence is very limited, the occurrence of "f" spellings in transparent connections with *p* could hint to the tendency to use morphophonemic spellings before the year 1200.

3.3.4. Category 4 words in the earliest manuscripts

Borrowings containing [ft]/[fs] clusters such as *baptisti*, *biskups-* and *egyptaland* were mostly adopted from written Ancient Greek and Latin forms and incorporated into the Old Norse-Icelandic language, as mentioned earlier. They particularly occur in a Christian context and in sagas of the kings of Norway. Thus, instances of these words are predominantly found in Old Icelandic religious texts such as homilies, saint stories and bishop sagas. In the manuscripts from the twelfth century only AM 674 a 4to preserved instances of the category 4 target word *egyptaland* which appears twice in total—once with the spelling "ft", once with "pt". Yet, the lack of data makes it difficult to make assumptions about the orthography of borrowings in the twelfth century.

3.4. [ft]/[fs] clusters in Old Icelandic manuscripts dated to c1200-1249

The manuscripts from the early until mid-thirteenth century include, like the earliest twelfth century vernacular sources, saga fragments and religious texts such as homily books, sagas of saints, apostles and bishops.

Manuscript	Name / contents	ONP date
AM 673 a I,II 4to	Physiologus	c1200
Holm Perg 15 4to	Icelandic Homily Book	c1200
AM 677 4to	Homilies and Dialogues of Gregory the Great	c1200-25
AM 673 b 4to	Plácitus drápa	c1200-25
AM 645 fol	Heilagramanna sǫgur	c1220-50
AM 325 II 4to	Ágrip af Nóregskonunga sǫgum	c1225

Table 8: Manuscripts of the first half of the thirteenth century

AM 673 a I and II 4to are two manuscripts containing a didactic Christian text, the Icelandic *Physiologus*. Two (in Ph I) and nine (in Ph II) leaves survived. Ph II quarto 1r – 6v[8] and 8r – 9v date back to around the year 1200, whereas 6v – 9v are later additions by a second hand. The data was gathered from Larsson's word list.

Holm Perg 15 4to, the Icelandic Homily Book, dates to around 1200. With 102 extant leaves, the manuscript is the oldest whole Old Icelandic book, thus being an important source for linguistic studies of the early Icelandic language. The data was gathered from Andrea de Leeuw van Weenen's word list.[90]

AM 677 4to, dated to the first quarter of the thirteenth century, contains 41 leaves of a copy of a Old Norwegian Homily book. There are two hands, the first one being on quarto 1r – 6v, the second one 7r – 41v. The data was gathered from Weinstock's[91] and Seip's[92] editions.

AM 673 b 4to is an Icelandic manuscript from the first quarter of the twelfth century that consists of five surviving leaves. The data was gathered from Tucker's edition.[93]

AM 645 fol from the second quarter of the thirteenth century contains ten sagas of saints and apostles written on 66 folios by two different scribes. The first hand noted

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[90] Andrea de Leeuw van Weenen, ed., *The Icelandic Homily Book. Perg. 15 4° in the Royal Library, Stockholm*. Íslensk handrit—series in quarto 3 (Reykjavík: Stofnun Árna Magnússonar, 1993).
[91] John M. Weinstock, A graphemic-phonemic study of the Icelandic manuscript AM 677 (Ann Arbor, MI: University Microfilms, 1974).
[92] Didrik Arup Seip, *The Arna-Magnaean Manuscript 677, 4to. Pseudo-Cyprian fragments, Propser's epigrams, Gregory's Homilies and dialogues* (Copenhagen: Munksgaard, 1949).
[93] John Tucker, ed., *Plácidus saga. With an Edition of Plácitus drápa by Jonna Louis-Jensen*, Editiones Arnamagnæanæ, Series B, Vol.31 (Copenhagen: C. A. Retzels Forlag, 1998).

part 1-6 on the folios 1r – 42v; the second hand, supposedly younger, noted part 7-10 on the folios 43r – 66v. The data was gained from Jón Helgason's[94] and Unger's[95] editions.

AM 325 II 4to is an old abstract of the sagas of the Norwegian kings copied from a Norwegian original. The manuscript dates to the second quarter of the thirteenth century and provides 25 leaves. The data was gathered from Driscoll's edition.[96]

3.4.1. Category 1 words

The analysed sources from the first quarter of the thirteenth century show 861 total instances of category 1 target words (see *Table 9*). The orthography of which, however, is not consistent and seems to be fluctuating between 1200 and 1250, as more "p" spellings start to appear. Thus, AM 673 a I, II 4to contain twelve instanes of target words. Five times "pt" was noted, six times "ft", plus one instance with a mixed spelling of *eftir*, here "efрт".

Manuscripts c1200-1249	"pt", "ps"	"ft", "fs"	"p*C*t", "p*C*s"	"f*C*t", "f*C*s"	total
AM 673 a I, II 4to	5	6	0	1	**12**
Holm Perg 15 4to	203	125	0	56	**385**
AM 677 4to	188	12	0	2	**202**
AM 673 b 4to	0	2	0	1	**3**
AM 645 fol	22	168	0	1	**191**
AM 325 II 4to	1	66	0	0	**68**
total	**419** 48,66%	**379** 44,02%	**0** 0,00%	**61** 7,08%	**861**

Table 9: Instances of category 1 words in 13th century msanuscipts

As the analysis shows, category 1 target words were predominantly spelled with "pt" and "ps" in Holm Perg 15 4to and AM 677 4to. Holm Perg 15 4to additionally contains a comparably large number of ligatures. Out of 385 total instances of the target words

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[94] Jón Helgason, ed., *Byskupa sögur I-II*, Editiones Arnamagnæanæ, Series A, vol. 13:2 (Copenhagen/Munksgaard: Arnamagnæan Commission, 1938-1978).
[95] Carl Richard Unger, ed., *Postola sögur. Legendariske fortællinger om apostlernes liv. Deres kamp for kristendommens udbredelse samt deres matrydød. Efter gamle haandskrifter udgivne af C. R. Unger* (Christiania: B. M. Bentzen, 1874).
[96] Matthew James Driscoll, ed., *Ágrip af Nóregskonungasögum. A twelfth-century synoptic history of the kings of Norway* (London: Viking Society for Northern Research, 1995), x.

aftr, *eftir*, *heift*, *kraftr* and *oft*, 203 times "pt" was noted (52,7%), 125 times "ft" (32,5%), and 56 times "fft" and "fpt" (14,5%). Yet, the total numbers of the Icelandic Homily Book can be misleading since almost all category 1 target words are predominantly spelled with "ft". The only exception is *eftir* which occurs 171 out of 222 times in the spelling "epꞇ" (see chapter 3.7.). In AM 677 4to, by contrast, "pt" is the dominating spelling throughout all words in this category, thus occurring 188 out of 202 times (93,1%). "effꞇ" is the only mixed spelling in this manuscript which was noted twice. In AM 673 b 4to and AM 645 fol, however, the dominant orthography is "ft" throughout all target words with 168 out of 191 forms (88%). There is only one instance written with the "fft"-ligature, "heiffꞇ". AM 325 II 4to on the other hand makes almost exclusively use of "ft"-spellings (1 "pt" form vs. 66 "ft" forms).

In summary, it can be stated that the orthography of category 1 words in vernacular sources of the early thirteenth century changed from practically only "ft" to "pt". Manuscripts written in this period possibly hint to the beginning of an orthographical shift. During this transition period, mostly "p" spellings, evenly distributed "ft" nd "pt" spellings, mostly "f" spellings and almost exclusive "f" spellings occur side by side with an upward tendency to spell category 1 target words with "p". Yet, "ft" seems to remain the predominant spelling of most clusters until at least the mid-thirteenth century. Exceptions to this, as shown above, are specific for single manuscripts and/or their scribes, and dependent on the words themselves. For example, in Holm Perg 15 4to spellings of *aftr*, *eftir*, *kraftr* and *oft* do not match with the predominant orthography of other words in this category.

3.4.2. Category 2 words

In the examined vernacular manuscripts from the early thirteenth century, there are 320 total instances of category 2 target words (see *Table 10*). The increase in occurrence of instances over the twelfth and thirteenth centuries comes along with the increased usage of "pt" and "ps" spellings. Whereas the orthography of AM 673 a I, II 4to, AM 673 b 4to and AM 325 II 4to exclusively shows "ft" and "fs" clusters, Holm Perg 15 4to, AM 677 4to and AM 645 fol use both spellings. In AM 677 4to, six out of 16 instances of

target words, all forms of *gifta*, *skrift* and *þurfa* only occur spelled with "pt". AM 645 fol predominantly notes "ft" and "fs" except for three forms ("grepᴛe", "-skjalpᴛe").

Holm Perg 15 4to, on the other hand, notes 235 total instances in this category, 176 times of which use "ft" and "fs" spellings. However, 50 times "pt" and "ps" were written. This orthography specifically occurs in forms of *efri*, *ellefti*, *gift*, *grǫftr*, *leyft*, *skjálfti* and *þurft-*. Interestingly, "pt" is the predominant spelling of the word skrift (27/8, 21,3%/74,9% out of 38 total instances); see chapter 3.7. Additionally, the "fft"-ligature appears eight times ("gifꜰᴛō", "hefꜰᴛō", "ſk`r′ıfꜰᴛ̃").

Manuscripts c1200-1249	"pt", "ps"	"ft", "fs"	"p*C*t", "p*C*s"	"f*C*t", "f*C*s"	total
AM 673 a I,II 4to	0	2	0	0	**2**
Holm Perg 15 4to	50	176	0	8	**234**
AM 677 4to	6	10	0	0	**16**
AM 673 b 4to	0	3	0	0	**3**
AM 645 fol	3	49	0	0	**52**
AM 325 II 4to	0	12	0	0	**12**
total	**59** 18,50%	**252** 79,00%	**0** 0,00%	**8** 2,51%	**319**

Table 10: Instances of category 2 words in 13th century msanuscipts

Although "ft" and "fs" remained the predominants spelling for f-associated target words, the orthography of such clusters seems to start changing in the early to mid-thirteenth century.

3.4.3. Category 3 words

Instances of catgory 3 target words occur 56 times in manuscripts of the early thirteenth century. 46 instances thereof (82,1%) are spelled with "pt" and "ps" (see *Table 11*), noted as the only forms in AM 673 a I, II 4to ("skips"), AM 677 4to ("keypti", "skipta"), AM 673 b 4to ("skipta") and AM 325 II 4to ("skips", "skipta").

Manuscripts c1200-1249	"pt", "ps"	"ft", "fs"	"pCt", "pCs"	"fCt", "fCs"	total
AM 673 a I,II 4to	5	0	0	0	**5**
Holm Perg 15 4to	24	6	1	0	**31**
AM 677 4to	4	0	0	0	**4**
AM 673 b 4to	1	0	0	0	**1**
AM 645 fol	7	3	0	0	**10**
AM 325 II 4to	5	0	0	0	**5**
total	**46** 82,14%	**9** 16,07%	**1** 1,79%	**0** 0,00%	56

Table 11: Instances of category 3 words in 13th century manuscripts

The target words in Holm Perg 15 4to display a predominant orthography with "pt" and "ps" (6/19, 31,6% instances of "skifta"). Besides, Holm Perg 15 4to contains the only instance of a target word, here "skipſreſc" from *skipta*, appears as not only the only target word with a mixed orthography in this period but even more as the only instance of a *p*-related mixed spelling of all analysed manuscripts. AM 645 fol shows ten total instances of target words; seven times thereof occur with a "p"-spelling: "dráps", "keyft" (only occurring with "ft"), "klipti", "skips" and "skipti" (three times with "pt", twice with "ft"). Although "p" spellings were predominantly used at the beginning of the thirteenth century, "f" spellings were used at the same time.

3.4.4. Category 4 words

Manuscripts c1200-1249	"pt", "ps"	"ft", "fs"	"pCt", "pCs"	total
Holm Perg 15 4to	32	0	0	**33**
AM 677 4to	1	0	0	**1**
AM 673 b 4to	1	0	0	**1**
AM 645 fol	32	0	0	**32**
AM 325 II 4to	3	0	0	**3**
total	**69** 100,00%	**0** 0,00%	**0** 0,00%	69

Table 12: Instances of category 4 words in 13th century manuscripts

The manuscripts from the early thirteenth century show an increase in instances of borrwings (see *Table 12*), especially in the Holm Perg 15 4to and AM 645 fol. Out of all 69 occurring instances, none appears in the orthography with "ft" or "fs". Thus, the spelling with "pt" and "ps" are the same form as taken from their originating languages.

3.5. [ft]/[fs] clusters in Old Icelandic manuscripts dated to c1250-1299

The manuscripts from the mid until late thirteenth century introduce, among the earliest surviving manuscript fragments of saga texts, many legal sources such as (nearly) complete versions of *Grágás*.

Manuscript	Name / contents	ONP date
AM 162 a θ fol	Egils saga fragment	c1250
GKS 1157 fol	Konungsbók Grágásar	c1250
AM 162 d 2 fol	Laxdæla saga fragment	c1250-1300
AM 334 fol	Staðarhólsbók	c1260-1340
GKS 1009 fol	Morkinskinna	c1275
AM 291 4to	Jómsvíkinga saga	c1275-1300
AM 519 a 4to	Alexanders saga	c1280

Table 13: Manuscripts of the second half of the thirteenth century

AM 162 a θ fol encloses the oldest fragment of an *Íslendingasaga* text containing of three surviving leaves from the mid-thirteenth century. The data was gathered from Bjarni Einarsson's edition.[97]

GKS 1157 fol is a legal text consisting of 93 leaves from the mid thirteenth century. The first part, 1r – 25v is considered to be a younger addition by a different

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[97] Bjarni Einarsson, ed., *Egils saga Skallagrímssonar. Bind I. A-redaktionen*, Editiones Arnamagnæanæ, Series A. Vol. 19 (Copenhagen: C. A. Reitzels Forlag, 2001).

hand, while folios 26r – 93v were written by the older main hand.[98] The data was gathered from Vilhjálmur Finsen's edition.[99]

AM 162 d 2 fol preserves one remaining leaf of a *Laxdæla saga* manuscript, dated to the mid to late thirteenth century. The data was gathered from images of the Árni Magnússon Institute.[100]

AM 334 fol from the mid to late thirteenth century is the second oldest law code that is extant to this point. The manuscript contains *Grágás*, *Járnsíða* and *Jónsbók* copies written on 108 leaves. The data was gained from the edition of Kommissionen for det Arnamagnæanske Legat.[101]

GKS 1009 fol dates to the third quarter of the thirteenth century and delivers sagas written by two different scribes. The parts vary in orthography. The older one spells [ft]/[fs] clusters with "ft", the younger one with "pt". The data was gathered from Finnur Jónsson's edition.[102]

AM 291 4to contains *Jómsvíkinga saga* on 38 partially damaged and dark leaves. The manuscript was written in Iceland in the third quarter of the thirteenth century. The data was gathered from Larsson's glossary.[103]

AM 519 a 4to contains an Icelandic or Norwegian *Alexanders saga* manuscript dated to c1280. The data was gathered from Andrea de Leeuw van Weenen's edition.[104]

3.5.1. Category 1 words

In the seven analysed manuscripts from the late thirteenth century, 1420 total instances of [ft]/[fs] clusters in category 1 words were noted (see *Table 14*).

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[98] Hans Fix, "Grágás: graphemische Untersuchungen zur Handschrift GKS 1157 Fol.," *Europäische Hochschulschriften Reihe 1, Deutsche Literatur und Germanistik* 1 (1979).

[99] Vilhjálmur Finsen, ed., *Grágás: elzta lögbók Íslendinga. Útgefin eptir skinnbókinni í bókasafni konungs á kostnað Fornritafjelags Norðurlanda í Kaupmannahöfn af Vilhjálmi Finsen 1-2* (Copenhagen: Nordiske Literatur-Samfund, 1852-1870).

[100] Handrit.is, https://handrit.is/en/manuscript/view/is/AM02-0162D-02.

[101] Kommissionen for det Arnamagnæanske Legat, eds, *Grágás efter det Arnamagnæanske Haandskrift Nr.334 fol., Staðarhólsbók* (Copenhagen: Gyldendal, 1987).

[102] Finnur Jónsson, ed., *Morkinskinna* (Copenhagen: Samfund til udgivelse af gammel nordisk litteratur, 1932).

[103] Ludvig Larsson, *Glossar till Codex AM 291, 4:to* (Lund: Gleerup, 1956).

[104] Andrea de Leeuw van Weenen, ed., *Alexanders saga, AM 519a 4to in The Arnamagnæan Collection*, vol. 2, Manuscripta Nordica (Copenhagen: Museum Tusculanum Press, 2009).

Manuscripts c1250-1299	"pt", "ps"	"ft", "fs"	"p*C*t", "p*C*s"	"f*C*t", "f*C*s"	total
AM 162 a θ fol	12	0	0	0	**12**
GKS 1157 fol	224	0	0	0	**224**
AM 162 d 2 fol	2	1	0	0	**3**
AM 334 fol	237	1	0	0	**238**
GKS 1009 fol	383	63	0	0	**446**
AM 291 4to	216	2	0	0	**218**
AM 519 a 4to	260	19	0	0	**279**
total	**1334** 93,94%	**86** 6,06%	**0** 0,00%	**0** 0,00%	**1420**

Table 14: Instances of category 1 words in late 13th century manuscripts

Most manuscripts noted exclusively (in AM 162 a θ fol and GKS 1157 fol) or predominantly (AM 334 fol, GKS 1009 fol, AM 291 4to and AM 519 a 4to) "pt" or "ps" in 1334 out of 1420 total instances (93,9%). AM 162 d 2 fol only provides three instances of target words on one extant leaf, thereof two spellings with "pt" and one with "ft", thus not giving sufficient information to assume a predominant orthography in this manuscript. GKS 1009 fol and AM 519 a 4to stand out of the rest of the examined manuscripts of this period, as they preserve a comparably larger number of "ft" and "fs" spellings. GKS 1009 fol contains 383 "pt" and "ps" spellings (85,9%) and 63 "ft"/"fs" spellings (14,1%). 62 out of 63 of these forms are "eft", one is "loft". Every other reference word is in line with the dominating "p" spelling. In AM 519 a 4to, the orthography with "p" was used 260 out of 279 times (93,2%). 18 out of the 19 instances of "f" spellings occur in [fs] clusters in "ofsi" and "refsa", "refsing". No ligatures or other mixed orthography appear in manuscripts of the late thirteenth century. At this point, the spelling with "pt" and "ps" seems to have taken over.

3.5.2. Category 2 words

The predominant orthography of [ft]/[fs] clusters in category 2 words of the late thirteenth century is "ft"/"fs" with 239 out of 332 total instances (72%, see *Table 15*). However, "f" and "p" spellings tend to be evened out in almost all examined manuscripts from the mid to late thirteenth century. AM 519 a 4to, by contrast, only

shows four instances of "pt" spellings in "gipta" and "grǫpt" (out of 59 total times), whereas AM 162 a θ fol only has "ft" spellings. In general, there are no ligatures or other instances of mixed spellings in this period.

Manuscripts c1250-1299	"pt", "ps"	"ft", "fs"	"pCt", "pCs"	"fCt", "fCs"	total
AM 162 a θ fol	0	5	0	0	**5**
GKS 1157 fol	20	53	0	0	**73**
AM 334 fol	34	37	0	0	**71**
GKS 1009 fol	23	68	0	0	**91**
AM 291 4to	11	21	0	0	**32**
AM 519 a 4to	4	55	0	0	**59**
total	**92** 27,79%	**239** 72,21%	**0** 0,00%	**0** 0,00%	**331**

Table 15: Instances of category 2 words in late 13th century manuscripts

3.5.3. Category 3 words

Manuscripts c1250-1299	"pt", "ps"	"ft", "fs"	"pCt", "pCs"	"fCt", "fCs"	total
GKS 1157 fol	201	4	0	0	**205**
AM 334 fol	253	1	0	0	**254**
GKS 1009 fol	43	1	0	0	**44**
AM 291 4to	11	0	0	0	**11**
AM 519 a 4to	29	0	0	0	**29**
total	**537** 98,90%	**6** 1,10%	**0** 0,00%	**0** 0,00%	**543**

Table 16: Instances of category 3 words in late 13th century manuscripts

In the mid to late thirteenth century, 543 total instances of category 3 target words occur with a dominating or exclusive spelling with "pt" and "ps" in 537 cases (98,9%). Mixed spellings do not exist in the reference texts. "ft" was used to spell "skaft" in GKS 1157 fol and "keyft" in GKS 1009 fol.

3.5.4. Category 4 words

Borrowings containing [ft]/[fs] clusters occur 39 times in late thirteenth century manuscripts. All instances of the target words are spelled with "pt" and "ps", for example "biskups" in GKS 1157 fol, AM 334 fol and AM 291 4to, "baptisti" and "byskups" in GKS 1009 fol, and "byskups" and "egyptaland" in AM 519 a 4to.

Manuscripts c1250-1299	"pt", "ps"	"ft", "fs"	"pCt", "pCs"	"fCt", "fCs"	total
GKS 1157 fol	18	0	0	0	**18**
AM 334 fol	10	0	0	0	**10**
GKS 1009 fol	5	0	0	0	**5**
AM 291 4to	1	0	0	0	**1**
AM 519 a 4to	5	0	0	0	**5**
total	**39**	**0**	**0**	**0**	39
	100,00%	0,00%	0,00%	0,00%	

Table 17: Category 4 words in late 13th centry manuscripts

3.6. [ft]/[fs] clusters in Old Icelandic manuscripts dated to c1300-1370

The manuscripts from the early fourteenth century are among others copies of religious and legal books, sagas of the Icelanders, sagas of the Norwegian kings and the *Codex Regius*.

Manuscript	Name / contents	ONP date
AM 371 4to	Hauksbók	c1302-10
AM 47 fol	Eirspennill	c1300-25
AM 132 fol	Möðruvallabók	c1330-70

Table 18: Manuscripts of the first half of the 14th century

AM 371 4to contains a fragmentary *Landnámabók* copy on 18 leaves attributed to Haukr Erlendsson and dated to c1302-1310. The data was gathered from Finnur Jónsson's edition.[105]

AM 47 fol is a comprehensive treatise of the history of the kings of Norway preserved on 194 leaves. The manuscript was probably written by (an) Icelander(s) in the first quarter of the fourteenth century. The data was gathered from Finnur Jónsson's edition.[106]

AM 132 fol is a compilation of sagas written on 201 folios in the mid-fourteenth century. The data was gathered from Andrea de Leeuw van Weenen's edition.[107]

3.6.1. Category 1 words

In the analysed fourteenth century manuscripts, 1925 total instances of category 1 target words were noted. 1875 forms of which (97,4%) are "pt" and "ps" spellings. AM 371 4to is the only manuscript in this period showing a fair number of "ft" spellings; here, 40 instances of "eft".

Manuscripts c1300-1370	"pt", "ps"	"ft", "fs"	"p*C*t", "p*C*s"	"f*C*t", "f*C*s"	total
AM 371 4to	113	44	0	1	**158**
AM 47 fol	910	4	0	0	**914**
AM 132 fol	852	1	0	0	**853**
total	**1875** 97,40%	**49** 2,55%	**0** 0,00%	**1** 0,05%	**1925**

Table 19: Category 1 words in early to mid 14th century manuscripts

As this study shows, the orthography of category 1 target words in the earliest vernacular manuscripts is dependent on the respective word and the scribe's preferences. Not only do relatively many total instances of these words exist, but also

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[105] Finnur Jónsson, ed., *Hauksbók. Udgiven efter de Arnamagnæanske håndskrifter no. 371, 544 og 675, 4° samt forskellige papirhåndskrifter af det kongelige nordiske oldskrift-selskab* (Copenhagen: Kongelige nordiske oldskrift-selskab, 1892-1896).
[106] Finnur Jónsson, ed., *Eirspennill. AM 47 fol. Nóregs konunga sǫgur. Magnús góði – Hákon gamli 1-5* (Christiania: Den norske historiske kildeskriftkommissionen, 1913-1916).
[107] Andrea van Arkel-de Leeuw van Weenen, ed., *Möðruvallabók, AM 132 fol* (Leiden: E. J. Brill, 1987).

the differences in spellings are not consistent throughout the centuries. "fft"-ligatures seem to be more common in this category than in the others, especially in *aftr*, *eftir* and *oft*. However, these spellings disappear during the mid to late thirteenth century. At the same time, the orthography with "pt" and "ps" seems to take over.

3.6.2. Category 2 words

Category 2 target words occur 418 total times in the examined manuscripts dated to c1300-70. 315 instances, thus most of the instances in AM 371 4to, AM 47 fol and AM 132 fol are spelled with "ft" and "fs" (see *Table 20*). In conclusion, the orthography of [ft] and [fs] clusters in category 2 words is predominantly "ft" and "fs" from the twelfth until the mid fourteenth century. However, an increase of inverse spellings with "pt" and "ps" happened, it seems, during the thirteenth century, although it only affected [ft] clusters (see chapter 3.7.).

Manuscripts c1300-1370	"pt", "ps"	"ft", "fs"	"p*C*t", "p*C*s"	"f*C*t", "f*C*s"	total
AM 371 4to	5	30	0	0	**35**
AM 47 fol	48	170	0	0	**218**
AM 132 fol	50	115	0	0	**165**
total	**103** 24,64%	**315** 75,36%	**0** 0,00%	**0** 0,00%	**418**

Table 20: Category 2 words in early to mid 14th century manuscripts

3.6.3. Category 3 words

In the manuscripts dated to later than c1300, there are 423 instances of *p*-associated target words of which 420 (or about 99%) have an orthography containing "pt" and "ps" (see *Table 21*). AM 47 fol is the only manuscript here that contains three "ft" spellings, all in forms of *hleypt-*.

Manuscripts c1300-1370	"pt", "ps"	"ft", "fs"	"pCt", "pCs"	"fCt", "fCs"	total
AM 371 4to	31	0	0	0	**31**
AM 47 fol	130	3	0	0	**133**
AM 132 fol	259	0	0	0	**259**
total	**420**	**3**	**0**	**0**	423
	99,29%	0,71%	0,00%	0,00%	

Table 21: Category 3 words in early to mid 14th century manuscripts

Comparing all 21 examined manuscripts, "ft" and "fs"-spellings of *p*-related target words, morphophonemic spellings and the mixed forms "pſt" and "fſt" are mostly found in the oldest manuscripts. Later vernacular texts predominantly or exclusively use "p" spellings to represent these clusters with a few exceptions being limited to a small number of manuscripts and target words; especially forms of *skipta* and *keypt-* (see chapter 3.7.).

3.6.4. Category 4 words

Manuscripts c1300-1370	"pt", "ps"	"ft", "fs"	"pCt", "pCs"	"fCt", "fCs"	total
AM 371 4to	31	0	0	0	**31**
AM 47 fol	85	0	0	0	**85**
AM 132 fol	2	0	0	0	**2**
total	**118**	**0**	**0**	**0**	118
	100,00%	0,00%	0,00%	0,00%	

Table 22: Category 4 words in early to mid 14th century manuscripts

There are 118 instances of the borrowings *baptisti* and *biskups-* in the analysed early fourteenth century manuscripts. All forms occur in the spelling with "pt" and "ps". In summary, it can be said that the foreign origins of *baptisti*, *biskups-*, and *egyptaland* seem to have been transparent to the scribes of the twelfth, thirteenth and fourteenth centuries, as the clusters in incorporated words only show spellings with "pt" and "ps". There are no instances of "fſt" ligatures nor "ft" spellings with *Elucidarius'* "egiftaland" being the only exception.

3.7. The orthography of [ft]/[fs] clusters in early Old Icelandic manuscripts

The analysis of the orthography of [ft] and [fs] clusters in the oldest surviving vernacular manuscripts has confirmed a change of the predominant spellings from "ft" and "fs(t)" to "pt" and "ps" with consideration to word- and scribe-dependent discrepancy. Comparing the total numbers of consonant clusters, the instances of target words which are not associated with *p* or *f* are mostly spelled with "ft" and "fs" up until the end of the twelfth century. Besides, a relatively high number of "fſt" ligatures and "fpt" spellings were written. The orthography, however, started to change in the late twelfth century. The oldest part of *Rímbegla* dated to c1192 is the first examined manuscript stating this change. The early thirteenth century seems to be a transition period, thus showing a shift where "pt"/"ps", "ft"/"fs" and "fſt" spellings occur side by side and relatively balanced. Whereas the orthography seems to be regulated by the origins of the target words (see chapter 3.7.1.), the predominant spellings appear to remain "ft" and "fs" until around 1250. Thus, ligatures disappear and the predominant orthography changes to "pt"/"ps" in all manuscripts in the late thirteenth century.[108]

 Concerning the total numbers of instances in category 2 target words, the predominant spellings supported by evidence in the analysed manuscripts contain "ft" and "fs", though some changes happened in the same manner as in category 1 words. Thus, no "p" spellings can be found before the end of the twelfth century, the first manuscript being *Rímbegla*. Here, the only mixed spelling is a single instance of the "fſt" ligature ("giffra" in *Elucidarius*). In course of the thirteenth century, shortly after the target words of category 1 began to change, the "p" spellings of *f* related lexemes increase, as evidence from Holm Perg 15 4to, AM 677 4to and AM 645 fol suggests. At the end of the thirteenth century, all manuscripts have a more balanced number of "p" and "f" spellings, while ligatures have disappeared. Yet, "ft" and "fs" remained the predominant orthography. The analysis of fourteenth century manuscripts yields the same results.

 Category 3 target words primarily occur with the orthography "pt" and "ps". In the earliest manuscripts, however, there is an, albeit insignificant, amount of "ft"/"fs"

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[108] *Morkinskinna* is the only exception which shows a significant number of "f" containing spellings in category 1 target words (see chapter 3.7.2.).

spellings and "fſt" ligatures, which seem to vanish around 1225. The orthography using "f" drastically decreased during the late thirteenth century. From then on, less than 1% of all instances show these spellings.

In contrast, foreign clusters that have been borrowed from written Latin originals, thus probably being the youngest examined consonant clusters, were always written with "pt" and "ps". The only exception marks a single "ft" spelling in *Elucidarius*, the oldest analysed manuscript which shows instances of category 4 words.

The changes affecting the orthography of [ft] and [fs] clusters took place between 1200 and 1250, as shown in the graphs below.[109] In category 1 target words, the orthography changed from "ft", "fs", "fst" and "fpt" to "pt" and "ps", whereas category 2 words show an increase in "p" spellings accompanied with a decrease in "f" spellings. Besides, "f" containing clusters decreased, and mixed spellings disappeared completely in category 3 words. As the analysis points out, the manuscripts GKS 1812 IV 4to, AM 673 a I, II 4to, Holm Perg 15 4to, AM 677 4to, AM 645 fol and AM 325 II 4to contain a variety of different spellings and can, thus, be seen as a transition period towards a dominating orthography with "pt" and "ps". If, and if so how the orthography of the target words changed depends on the origins and formation of the [ft]/[fs] clusters.

3.7.1. Differences in the origins of [ft] and [fs] clusters

The non-associated target words *kjaftr* m. 'jaw', *nift* f. 'female relative', *ofsi* m. 'overbearing, tryanny', *raftr* m. 'log', *refsa* v. 'punish', *refsing* f. 'punishment' and *skaft* n. 'shaft, handle', only occur in a few instances in the younger manuscripts in the predominant spelling with "pt" and "ps", e.g. "kepт", "skapт". Although there are no or no sufficient instances of "ft"/ "fs" spellings of such target words in the examined extant vernacular sources, it does not necessarily mean that above-mentioned words were never spelled with "f" containing clusters, but rather indicate that sources showing earlier instances of said words did not survive or are not yet found. Therefore, a common preferred spelling of most reference words without a clear association with "p" or "f" in the early twelfth and thirteenth centuries cannot be determined.

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[109] See *Figure 1* for the different categories, *Figure 2* for the total numbers.
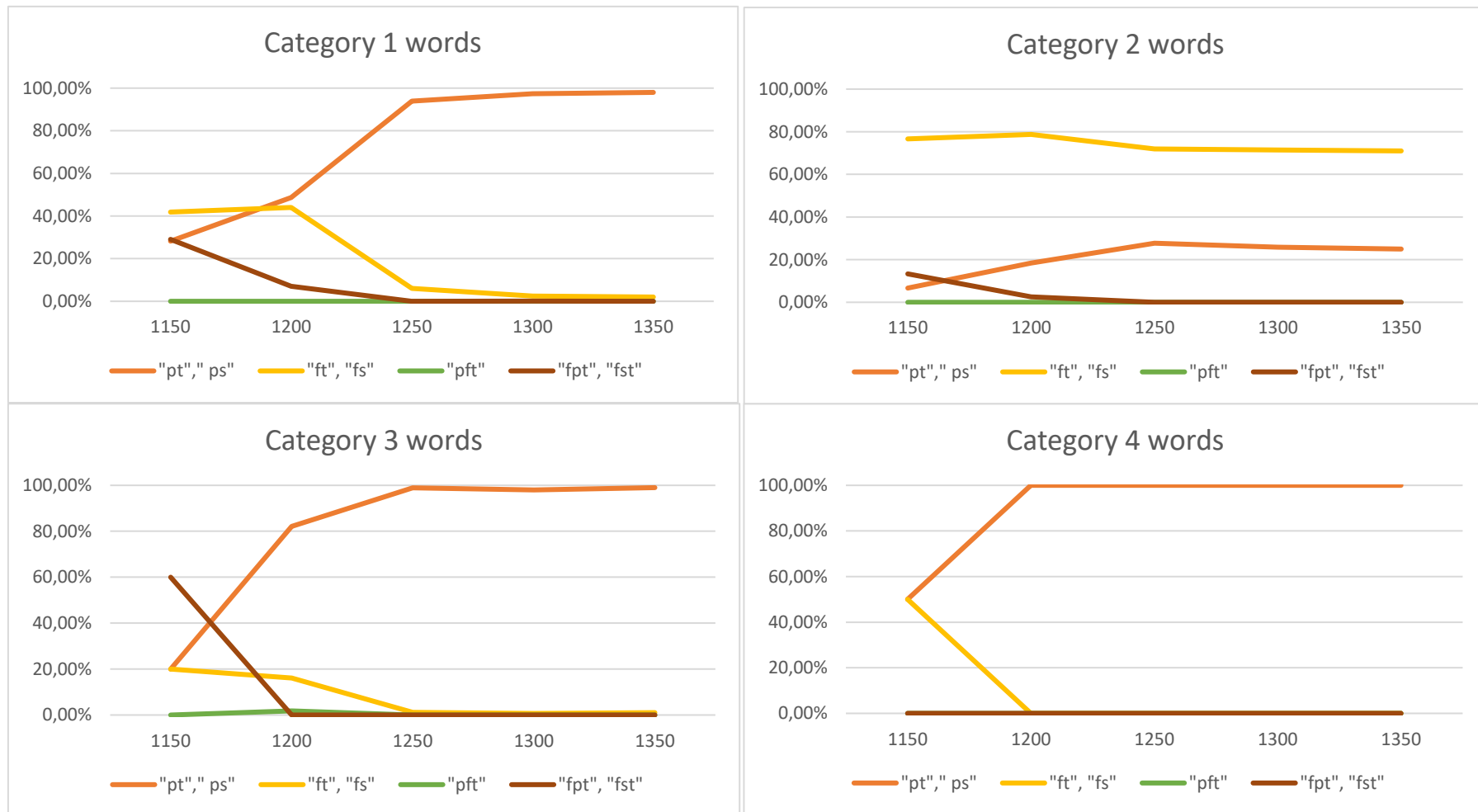
Figure 1: Distribution of all instances of category 1-4 target words in manuscripts dated to c1150-1350 in percent.
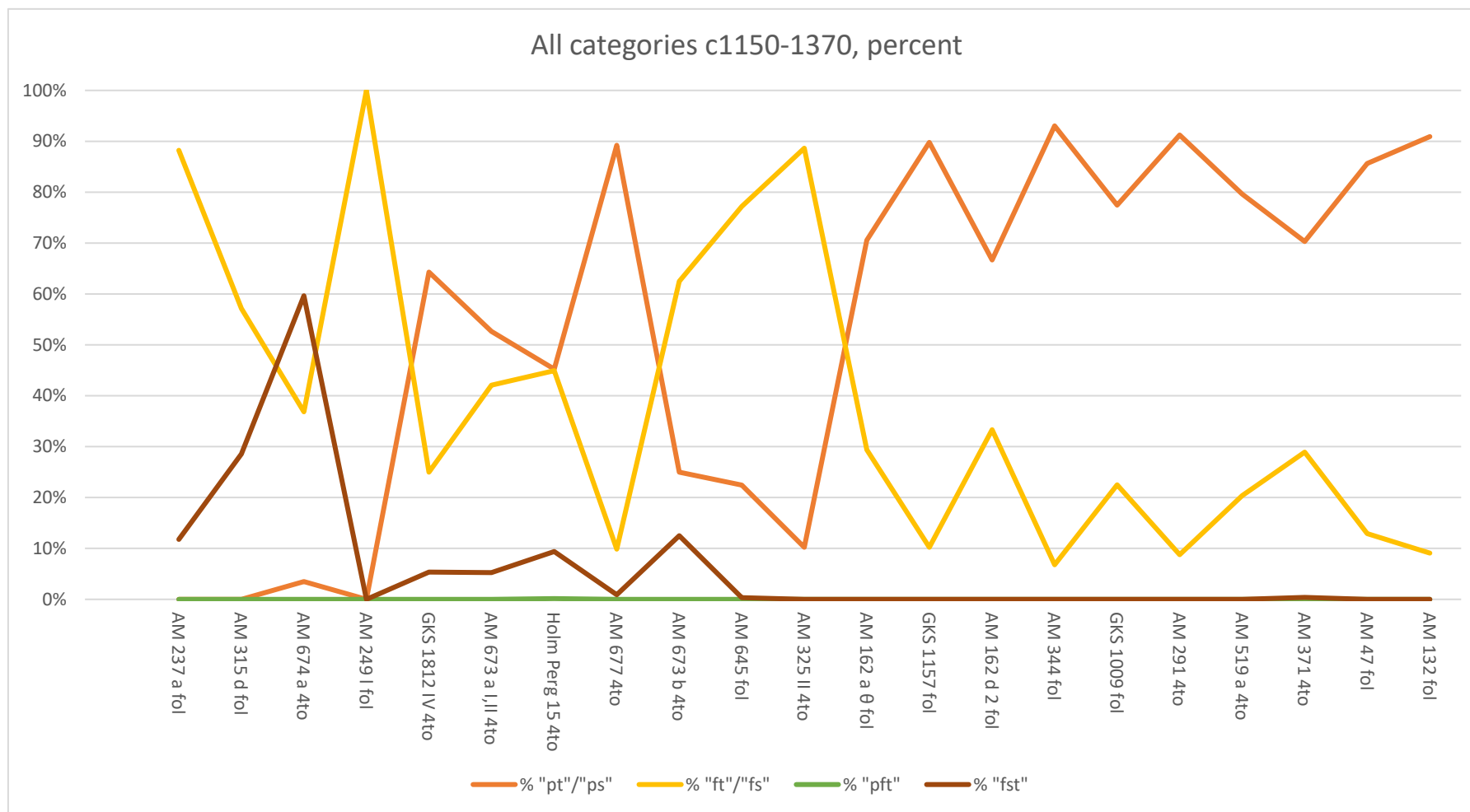
Figure 2: Distribution of all instances of category 1-4 target words dated to c1150-1370, total number in percent.

Other target words that show no transparent connection with either *p* such as *aftr*, *eftir* and *oft* as well as the substantives *heift*, *kraftr* and *loft* occur in a sufficient number that show a systematical transition in the orthography of [ft] clusters. Furthermore, these words were only or predominantly spelled with "ft" in twelfth century manuscripts before the orthography changed to "pt" during the thirteenth century. Accordingly, the first instances of *heift* occur in Holm Perg 15 4to, thus showing a "pt" spelling and six instances containing "ft" alongside the "fft" ligature, which resembles the orthography of the other early manuscripts, AM 673b 4to and AM 645 fol. It is not before GKS 1009 fol that the "pt" spelling takes over. A similar change happened in *kraftr* whose instances were always spelled with "ft" and "fft" in the oldest manuscripts. The orthography seemingly fluctuated between Holm Perg 15 4to and AM 645 fol, thus showing near balanced spellings, before carried into "pt". The same also applies to forms of *loft* which occur spelled "lofr" in the oldest manuscripts, and "loffт" in AM 674 a 4to. The earliest "pt" spelling of *loft* occurs in AM 677 4to.

aftr, *eftir* and *oft* were always spelled with "ft" and "fft" in the early Old Icelandic manuscripts while also showing lots of instances with a mixed orthography. The first instance of *aftr* in the orthography "apтr" can be found in Holm Perg 15 4to (x5 "pt", x21 "ft", x3 "fft"). In sources younger than AM 325 II 4to, the predominant spelling is "pt", although occasional "ft" spellings were used in AM 371 4to, AM 162 d 2 fol, AM 291 4to and AM 47 fol. The oldest manuscript using the spelling "opт" is GKS 1812 IV 4to (x9 "pt", x38 "ft", x18 "fft"). The change has been completed around 1250, as AM 645 fol marks the end of the transition period.

Out of all target words in category 1, *eftir* has the most instances, thus appearing in a lot of different forms dependent on the scribe's preference. Whereas the dominating spelling throughout the oldest vernacular sources was "ft" and "fft", the orthography seems irregular in most thirteenth century manuscripts, for example GKS 1812 IV 4to, AM 673 a I, II 4to, Holm Perg 15 4to, AM 677 4to, AM 673 4to, AM 645 fol and AM 325 II 4to, with either "pt" or "ft" as the preferred orthography while the respective other spelling also occurs within the same manuscripts. The mixed forms only occur in course of this transitional period, and predominantly in manuscripts which do not show a transparent dominating orthography of *eftir*.

Category 1

aftr

	"pt"	"ft"	"fst"
237	0	2	0
315	0	0	1
El	0	3	2
Rt	0	1	0
Rb	0	3	0
Ph	0	2	0
H	5	21	3
677	33	4	0
645	0	34	0
Ág	0	1	0
Eg	2	0	0
KG	25	0	0
Lax	0	1	0
334	27	0	0
Mk	79	0	0
Jóm	36	1	0
Al	4	0	0
Hk	20	4	0
Eir	204	1	0
Möð	134	0	0

eftir

	"pt"	"ft"	"fst"
237	0	3	0
315	0	1	0
El	0	6	16
Rb	29	4	3
Ph	3	2	1
H	171	26	25
677	79	3	2
673b	0	1	0
645	6	88	0
Ág	1	48	0
Eg	8	0	0
KG	172	0	0
Lax	2	0	0
334	182	0	0
Mk	243	62	0
Jóm	162	0	0
Al	201	1	0
Hk	89	40	0
Eir	581	3	0
Möð	564	1	0

oft-

	"pt"	"ft"	"fst"
237	0	1	2
315	0	0	1
El	0	0	3
Rb	3	1	0
Ph	0	1	0
H	9	38	18
677	21	4	0
645	1	10	0
Eg	2	0	0
KG	18	0	0
334	13	0	0
Mk	31	0	0
Jóm	6	0	0
Al	35	0	0
Hk	1	0	1
Eir	56	0	0
Möð	65	0	0

aftann

	"pt"	"ft"	"fst"
El	1	0	0
Ph	1	0	0
H	6	0	0
677	5	0	0
645	5	12	0
Ág	0	1	0
KG	9	0	0
334	3	0	0
Mk	12	0	0
Jóm	7	0	0
Al	1	0	0
Eir	25	0	0
Möð	15	0	0

kraftr

	"pt"	"ft"	"fst"
237	0	4	0
El	0	0	1
Ph	1	0	0
H	11	26	7
677	48	0	0
673b	0	1	0
645	10	21	0
Mk	1	0	0
Jóm	1	1	0
Al	7	0	0
Eir	3	0	0
Möð	3	0	0

loft

	"pt"	"ft"	"fst"
237	0	2	0
El	0	0	5
Rb	0	1	0
Ph	0	1	0
H	0	8	1
677	2	1	0
645	0	2	0
334	1	0	0
Mk	11	1	0
Jóm	4	0	0
Al	10	0	0
Eir	21	0	0
Möð	18	0	0

predominant orthography

transition period

Figure 3: Instances of selected category 1 target words

The change has happened by 1250. During the fourteenth century, only a few "ft" spellings occurred (AM 519 a 4to, AM 47 fol, AM 132 fol[110]). As an exception, *aftann* is the only target word in category 1 that is predominantly spelled with "pt" in all manuscripts. Only in AM 645 fol and AM 325 II 4to, instances of *aftann* exist that were written with "ft" (AM 645 fol: x5 "pt", x12 "ft"; AM 325 II 4to: x1 "ft").

All category 1 target words contain [ft] and [fs] clusters as a part of the word stem as opposed to being formed through inflection. The orthographic changes affecting such words were not random, but followed a pattern which shows the transitional phase from "f" spellings to "p" spellings in the early thirteenth century, beginning with GKS 1812 IV 4to and ending with the manuscripts AM 645 fol and AM 325 II 4to (see *Figure 3*). As a result of the transition, the orthography with "p" remained the dominating form, while most of the "fft" ligatures and "fpt" spellings disappeared.

The category 2 target words are predominantly spelled with "ft" and "fs" in all early vernacular manuscripts even though the orthography was determined by the word class and the formation of the [ft] and [fs] clusters. Thus, masculine and neuter singular genitive -s-endings of substantives that contain a stem-final *f*, for example *arfs*, *hafs*, *hofs*, *lífs*, *nefs*, *rofs*, *úlfs*, *þjófs*, only occur in the spelling with "fs", never with "ps" or mixed forms. The same applied to pronouns, neuter singular nominative and accusative, and masculine and neuter singular genitive -t-, and -s-endings of adjectives such as *eilífs/-t*, *hálfs/-t*, *ljúfs/-t*, *sjálfs/-t* and forms of *efstr* with a small deviation in AM 677 4to, which notes "pst" four times. Only a few instances of the ordinals *ellefti* and *tólfti* occur in the examined manuscripts. They show no consistent spelling. In GKS 1812 IV 4to, *ellefti* is spelled with "pt", whereas *tólfti* appears both written with "ft" in AM 132 fol and with "pt" in GKS 1157 fol.

The preterite, medio-passive, preterite participle and preterite-present verbforms, *gafz/gasfk/gafst/gaft…*, *haft*, *horft* and *leyft* were mostly written with "ft". There are no instances of ligatures and only an assessable number of "p" spellings, including one instance in Holm Perg 15 4to, where *leyft* appears noted with "pt".

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[110] The comparably high number of "eft" instances (89 "pt" vs. 40 "ft") might be explained by different hands writing at different times. One scribe is believed to be older than the second one, thus probably containing far more "ft" clusters than the younger part of the manuscript.

A special case are the various irregular forms of *þurfa* which for the most part show an orthography with "ft" but predominantly with "pt" in GKS 1157 fol, AM 334 fol and AM 291 4to (see *Figure 4*).

As it seems, when emerged through inflection, [fs] clusters were always spelled with "fs", and therefore transparent to the scribes of the oldest Icelandic manuscripts, whereas [ft] clusters were not always as clear, thus showing instances of inverse spellings.

In relation to that, *f* related [ft] clusters that were formed through derivation, for example *gifta*, *grǫftr*, *hefta*, *skjálfti* and *skrift*, do not show a single dominating orthography (see *Figure 5*). Thus, *gifta* is predominantly spelled with "ft" and "fſt" in the early thirteenth century manuscripts. Only AM 677 4to shows instances of "p" spellings. By 1250, the orthography changed to "pt" in all sources except for two instances in AM 371 4to. There are a few instances of *hefta* which occur in "ft" spellings until the mid thirteenth century. The same applies to *skrift*. Yet, Holm Perg 15 4to contains many "pt" spellings (x27 "pt" vs. x8 "ft" vs. x3 "fſt"). Concerning "grǫftr", the changes of the orthography are not as transparent. "pt" spellings occur alongside "ft" spellings in the twelfth and thirteenth century manuscripts.

The derived words seem to change in the same way as target words of category 1 ("ft" > "ft"/"fſt"/"pt" > "pt"), as the [ft] clusters are already part of the word stems or roots instead of being a result of active forming through inflection. Interestingly, the speakers did not seem to recognize the association, or the connection to *gefa*, *hafa, hefja*, *skrifa* and *grafa* was subordinate. In category 3 target words, only a small number of instances and different spellings survived. Therefore, statements on a predominant orthography of such clusters are not as elaborate and accurate as for target words of categories 1 and 2.

þurft-, þyrft-		
	"pt"	"ft"
El	0	2
H	2	13
677	1	0
673b	0	2
645	0	8
Ág	0	1
KG	8	3
334	9	1
Mk	0	18
Jóm	5	3
Al	0	5
Hk	0	4
Eir	0	40
Möð	2	38

Figure 4: Instances of *þurfa*

Category 2

gifta	"pt"	"ft"	"fst"
H	0	2	3
677	4	0	0
645	0	4	0
Ág	0	1	0
KG	3	0	0
334	1	0	0
Mk	22	0	0
Jóm	6	0	0
Al	1	0	0
Hk	4	2	0
Eir	27	0	0
Möð	47	0	0

skrift	"pt"	"ft"	"fst"
Ph	0	1	0
H	27	8	3
677	1	0	0
645	0	2	0
KG	3	0	0
334	4	0	0

grǫftr	"pt"	"ft"
237	0	1
Rb	0	1
H	1	3
645	1	1
KG	2	8
334	7	0
Mk	0	4
Al	3	0
Hk	1	1
Eir	15	2

predominant orthography

transition period

Figure 5: Instances of derived category 2 target words

For the most part, "pt" and "ps" spellings are in the majority. Yet, morphophonemic spellings can be found throughout the earliest extant manuscripts. Inflection based clusters such as neuter nominative and accusative -t-endings, and masculine and neuter singular genitive -s-endings, for example *djúps/-t* as well as substantive neuter singular genitive -s-endings as in *dráps*, *hrepps*, *kaups* and *skips* were always spelled with "ps" instead of "fs".

In various verbforms, however, the results are not as clear. While there are not enough instances of *kippti* and *klippti* in the earliest sources to make reliable assumptions, forms of *hleypt* and *keypt-* predominantly show an orthography with "p". Though, instances containing "ft" spellings can be found in early vernacular manuscripts up until 1275. As an interesting side note, it is worth mentioning that inflected related words do not necessarily show a matching orthography. Thus, *kaups* is always spelled with "p", while *keypti* mostly appears spelled with "ft" in several manuscripts.

When it comes to target words formed through derivation, there are not many attested words in the early sources other than *glǿpska*, which only occurs twice spelled with "ps" in Holm Perg 15 4to and AM 47 fol, and *skipta*.

As shown for the categories 1 and 2, the orthography of skipta (see *Figure 6*) appears in the predominant spellings "ft" and "fſt" during the late twelfth century. The transition period is reflected in Holm Perg 15 4to and AM 645 fol. From the mid thirteenth century forward, "pt" is the only remaining spelling.

As opposed to the other categories, borrowings containing [ft]/[fs] clusters did

skipta			
	"pt"	"ft"	"fst"
237	0	1	0
El	0	0	6
Rb	2	0	0
H	12	6	1
677	2	0	0
673b	1	0	0
645	3	2	0
Ág	2	0	0
KG	134	0	0
334	159	0	0
Mk	30	0	0
Jóm	7	0	0
Al	24	0	0
Hk	6	0	0
Eir	98	0	0
Möð	132	0	0

predominant orthography
transition period

Figure 6: Instances of *skipta*

not change. Since no instances of category 4 target words were noted with "f", apart from an early spelling of "egiftaland" in *Elucidarius*, it cannot be conclusively stated that tendencies of morphophonemic spellings affected foreign incorporated "pt" and "ps" clusters in the twelfth century.

Ligatures and other mixed spellings are generally noted as variants of "ft" spellings, "fpt" and "fſt" as opposed to "pft" and "pſt". Only one instance of the latter, "skipſreſc", ever occurs in all examined manuscripts. The mixed spellings appear at least once in almost every early Old Icelandic manuscript,[111] yet seem to vanish almost completely between the first and second quarter of the thirteenth century. There is only one instance of "fſt" ligature in the fourteenth century manuscripts, in AM 371 4to, which occurs as a variant spelling of *oft*. While the mixed orthography was never used in borrwoings, only seldom in the *p* associated word *skipta* and the *f* associated lexemes *gifta* and *skrift* in Holm Perg 15 4to, this orthography is typical of ategory 1 target words, as can be seen in instances of *aftr*, *eftir*, *heift*, *kraftr*, *loft* and *oft*. Thus, these

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[111] Except AM 249 l fol which provides a small number of extant leaves and, therefore, instances of target words.

spellings particularly occur in words that contain [ft] stems and generally appear without a distinct predominant spelling in their respective manuscript.

3.7.2. Manuscript-dependent anomalies

The examined manuscripts belong to different types of texts such as religious literature (AM 237 a fol, AM 674 a 4to, Holm Perg 15 4to, AM 673 b 4to and AM 645 fol) which represent a large part of the earliest extant vernacular manuscripts, law codes (AM 315 d fol, GKS 1157 fol, AM 334 fol), *Íslendingasǫgur* (fragments) and sagas of the kings of Norway (AM 325 II 4to, AM 162 a θ fol, AM 162 d 2 fol, GKS 1009 fol, AM 291 4to, AM 519 a 4to, AM 371 4to, AM 47 fol and AM 132 fol), and other sources such as the calendars (AM 249 l fol, GKS 1812 IV 4to) and the Icelandic *Physiologus* (AM 673 a I,II 4to).

As the analysis of target words in the oldest surviving Old Icelandic manuscripts suggests, the type of text does not have as much of an impact on the orthography of [ft]/[fs] clusters as their origins. Yet, different words occur more than others in a different context: the borrowings *biskup* and *egyptaland* as well as the target words *kraftr*, *skrift* and *eilífr* are most commonly found in Christian literature, whereas *skipta*, *gifta*, *arfr* and *skaft* are more common in law texts. The orthography as presented in the *Elucidarius*, however, stands out from all other manuscripts, as it marks the sole vernacular source which predominantly makes use of the "fſt" ligature (59,7% of all forms), especially in category 1 words and forms of *skipta* (for example "skiffre"). In the first part of AM 674 a 4to, it is the only spelling of [ft]/[fs]-clusters.

Compared to all other analysed manuscripts from the late twelfth and early thirteenth centuries, Holm Perg 15 4to contains more leaves since it is the earliest extant complete vernacular book, thus showing plenty of instances of target words, which do not show the distribution of different spellings that has proven to be typical for early thirteenth century manuscripts. In category 1 words, 203 "pt" spellings out of 385 total instances occur; "ft" was noted 125 times, and 56 instances show a mixed orthography with "fſt" and "fpt". In contrast to the total number, however, the orthography with "ft" is predominant in all target words except for *eftir*, *kraftr* and *oft*. *eftir* stands out, as "pt" spellings outweigh the number of other clusters while a fair amount of "ft" and "fſt"

spellings survived. *kraftr* and *oft*, on the other hand, are mostly written with "ft". Yet, there are higher than average numbers of other spellings. Odd spellings are also found in the *f* and *p* associated words *gifta* (x7 "pt", x12 "ft", x1 "fft"), *skrift* (x27 "pt", x8 "ft", x3 "fft") and *skipta* (x12 "pt", x6 "ft", x1 "fft"). In the same manner, *kraftr* is the only word showing a more balanced orthography in AM 645 fol (x10 spelled "pt", x21 "ft"). Differences also occur in instances of GKS 1813 IV 4to in *eftir* and *oft*, which appear to be the only category 1 target words predominantly spelled with "pt" in this manuscript. Anomalies are not only presented in the earliest Old Icelandic manuscripts, but also in sources from the late thirteenth and fourteenth centuries, as for instance GKS 1009 fol shows. The manuscript contains a relatively high number of category 1 words spelled with "ft"—discrepancy that might be explained by the orthography used by the older hand as opposed to a second hand which predominantly spelled "pt" and "ps".[112]

As the analysis has pointed out, not all [ft]/[fs]clusters, categories, word classes and target words show systematic changes. Furthermore, the type of text seemingly did not have an impact on the orthography. Thus, the discrepancy occurring in vernacular manuscripts of the twelfth and thirteenth century depends on the words and scribal preferences, whereas the change of the orthography did not happen randomly. The changes affected target words that contain [ft] and [fs] clusters as a part of the word stems and roots rather than being created through inflection, for example *eftir*, *kraftr*, *oft*, *skrift* and *skipta*, as shown above.

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[112] Alex Speed Kjeldsen, *Filologiske studier i kongesagahåndskriftet Morkinskinna*, Bibliotheca Arnamagnæana, Suppl. Vol. 8 (Copenhagen: Museum Tusculanum Press, 2013), 184.

4. Conclusions: The grapheme-phoneme relationships

Although the changes in the orthography are clearly displayed in thirteenth century Old Icelandic manuscripts, the reality behind the spellings was different, thus probably not indicating a sound change. As older research suggests, the neutralization of *p* and *f* happened before literary Old Icelandic times. Evidence from Proto-Norse runic inscriptions and related words in other Germanic languages—(Old) English, Gothic, (Middle) High German—preserve the results of a consonant merger and support hypotheses stating that a sound change occurred between Proto-Germanic and Proto-Norse. Orthographic evidence of the early Old Icelandic texts does most likely not reflect a change in the pronunciation resembling [f] > [p] before *t* or *s*.

While "fſt" ligatures mainly appeared during a transition from "f" to "p" spellings, they disappeared almost entirely by the end of the thirteenth century accompanied by the takeover of "pt" and "ps" spellings. Yet, this does not have to be related to the phonology of such spellings, as the study of [ft] and [fs] clusters in the 21 selected vernacular manuscripts from the twelfth to fourteenth century proves. Although the changes happened in course of the first half of the thirteenth century, and systematically in categories 1-4 target words in most manuscripts, the distribution of spellings and categories does not match up with the overall changes. Thus, words that do not show a transparent relation to *f* or *p* carry the consonant clusters within the word stems and roots and mainly represent a change in the orthography from mostly "f" containing spellings over a balanced distribution and mixed forms to dominating "p" spellings. The *f* associated lexemes, as the analysis indicates, show an increase in "p" spellings and a decrease in "f" spellings. However, the main orthography never completely changed from "ft" and "fs" to "pt" and "ps", while the amount of target words in this category that display the transition is small. In *p* associated words, "pt" and "ps" remained the predominant orthography in all manuscripts, though in the earliest sources morphophonemic spellings occur in the form of "ft", "fs" and "fſt" instances which, seemingly, disappeared to a great extent by the early thirteenth century. Apart from that, only *skipta* can function as a reference for a shift in this category. Borrowings, on the other hand, did not change. The foreign clusters noted and articulated as [pt]/[ps] in the originating languages were incorporated into Old Icelandic

and, therefore, written with "pt" and "ps" from the twelfth century onward. The earliest and only instance spelled with "ft" in AM 674 a 4to may be an exception or briefly indicate that morphophonemic spellings may have affected foreign clusters, too. However, this hypothesis is not reliable until further evidence is available.

Furthermore, not only the presented categories show discrepancy—it is the origins and formation of the [ft]/[fs] clusters which make a difference. As proposed in chapter 3.7., the changes in the orthography almost exclusively affected [ft] clusters rather than [fs] containing words, as these were formed through inflection and kept the orthography of the stem. Derived and older inherited [ft] clusters with or without a transparent connection with *f* or *p*, however, show a concurrent transition which went systematically but not throughout all target words as the study of *aftann*, *grǫftr* and *skipta* has revealed. Thus, *aftann* is the only category 1 word that predominantly appears written as "aptaɴ" in almost every manuscript whereas *grǫftr* and *skipta* do not have a transparent preferred orthography that changed drastically over the centuries.

All arguments go against a sound change which has occurred in the early thirteenth century and which is reflected in the orthography of the Old Icelandic manuscripts of that time. If a phonological change was displayed, there would not be a difference between target words. All clusters would have been affected since the phonology is subordinate to the morphology. Therefore, the large number of inverse "pt" spellings in the late thirteenth century does not resemble a sound change from a fricative to a stop but is rather evidence for the completion of the neutralization of *p* + *pp* + *f* before *t, s*. The distinction has been eliminated. Thus, all diverse spellings represent the phonemic clusters [ft] and [fs]. As proposed by various scholars (see chapter 2), the analogy of the target words determined the orthography to a large degree, especially in substantives and adjectives.

Since the changes do not seem to be phonologically conditioned, the shift in the orthography must be caused by other reasons. While it might not be conclusively determined why the Icelandic scribes of the thirteenth century systematically changed the orthography of [ft] containing word stems, it should be considered that the examined manuscripts mark a very early stage of Old Icelandic script using the Latin alphabet. During this perhaps experimental period, the early eleventh and twelfth century scribes

likely copied the orthography with "ft" and "fs" as found in Proto-Norse runic inscriptions.

Apart from that, and since the origins and etymologies of the words that contain old inherited *ft* and *pt* clusters from pre-literary stages were not transparent, contemporary speakers would not have known the 'correct' spelling—as opposed to inflected clusters which clearly contained *f* or *p*. Precisely because no sound change has happened, the variety of spellings were pronounced alike, thus [ft] clusters were prone to a diverse orthography, including derivations of originating *f* and *p* associated words. Here, another explanation may lie in the phonetic properties of the *f* connected target words. Thus, *grafa*, *hafa*, *skrifa* and *gefa* are pronounced with the voiced labiodental fricative [v], as explained in chapter 2, another allophone of *f* beside [f] (and possibly [ɸ] which is alike [p]). The transition from the spoken to written language concerning the [ft]/[fs] clusters might not have been very transparent in early Old Icelandic.

What the results amount to is the launching of a discussion about the reality behind [ft] and [fs] consonant clusters in early Old Norse-Icelandic script by ruling out the problematic questions and many contrasting theories of the previous research. The study supports the thesis that the merger of *p* + *pp* + *f* > [f] before *t* or *s* probably took place long before the earliest vernacular manuscripts were written, thus, the orthographic changes which happened during the early thirteenth century were not conditioned by a (chain) sound change as suggested by some handbooks. The variety of mixed forms, inverse spellings and morphophonemic spellings are evidence that there was no distinction in the articulation of such clusters in the early Middle Ages. All clusters were realized as [ft] and [fs], or for that matter [ɸt] and [ɸs]. Yet, the systematical orthographical changes were not completely independent from external circumstances, but they were to some degree impacted by the analogy of the word, whenever the consonant clusters were actively formed through inflection.

The orthography of such words may provide another tool for the dating of early Old Icelandic manuscripts. Frequently occurring non-associated or *f* associated derived target words might be best suited for that purpose, as predominantly used "f" spellings or "fꝼt" ligatures could indicate that the respective manuscript was probably written

before 1250 since the orthography with "ft" and "fs" seemingly did not change back until the eighteenth century.[113]

However, this project is only the first step of the study of the reality behind [ft] and [fs] clusters in twelfth and thirteenth century vernacular sources. While a bigger sample size of manuscript(s) (fragments) and target words may be beneficial to provide a more comprehensive overview, the graphemic representation of Old Icelandic consonant clusters as well as the relationships between the orthography and its phonetic realization proves to be an interesting niche of a, so far, partly left out field of study for scholars to come.

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[113] This requires an independent study of the orthography of post-medieval manuscripts. "pt" and "ps" seem to remain the predominant orthography throughout the fourteenth and fifteenth centuries, cf. "aptazt", "ept″", "greypt" and "aptr" in AM 162 a η fol see Guðvarður Már Gunnlaugsson, *Sýnisbók íslenskrar skriftar*, 2nd ed. (Reykjavík: Stofnun Árna Magnússonar í íslenskum fræðum, 2007), 80-81; "opt″, "ept", "djupt" and "apt" in AM 556 a 4to, see ibid., 88-89, "eptt″" and "ept" in Bps b III 1, see ibid., 100-101. Over the course of the eighteenth and nineteenth centuries, on the other hand, reference words seem to often appear spelled with "fft", cf. "effter" and "afftur" in AM 246 4to, see ibid., 118-119, and "effter", "lofftenu" and "kraffta" in Lbs 182 4to, see ibid., 162-163. However, "pt" is still noted, for example in "skapti", "eptir" in Lbs 677 4to, see ibid., 168-169.

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Appendix

I. Rök runestone inscription ÖG 136

"Arild Hauges runer," Arild Hauge, accessed January 26, 2017, http://arild-hauge.com/se-runeinnskrifter-oestergoetland.htm.

ÖG 136 - RÖKS KYRKOGÅRD, RÖKS SN, LYSINGS HD, ÖSTERGÖTLAND

Innskriften er ristet på en runesten, og er datert til 800-tallet. Innskriften er skrevet med kortkvistruner og lyder:

aft uamuþ stonta runaR þaR n uarin faþi faþiR aft faikion sunu sakum
mukmini þat huariaR ualraubaR uaRin tuaR þaR suaþ tualf sinum uaRin
numnaR t ualraubu baþaR somon o umisum
monum ' þat sakum onart huaR fur niu altum on urþi fiaru miR hraiþkutum auk tu miR on ub sakaR raiþ
þiaurikR hin þurmuþi stiliR flutna strontu hraiþmaraR sitiR nu karuR o kuta sinum skialti ub fatlaþR skati marika þat sakum tualfta huar histR si kunaR itu
uituoki on kunukaR tuaiR tikiR suaþ o likia ' þat sakum þritaunta huariR tuaiR tikiR kunukaR satin t siulunti fiakura uintur at fiakurum naþnum burnR fiakurum broþrum ' ualkaR fim ra=þulfs
suniR hraiþulfaR fim rukulfs
suniR hoislaR fim haruþs suniR kunmuntaR fim (b)irnaR suniR * nuk m-- (m)- alu -(k)(i) ainhuaR -þ-...þ ... friR fra sagwm
mogmeni (þ)ad hOaR igOldga OaRi gOldin d gOonaR hOsli sakum
mukmini uaim si burin
niþR troki uilin is þat knuo knati
iatun uilin is þat (n)(i)(t) akum
mukmini þur sibi uiauari ul niruþR

II. Tune stone inscription N KJ72, A-side

"Arild Hauges runer," accessed January 22, 2017, http://arild-hauge.com/innskrifter.htm.

A1 ᛖᚲᚹᛁᚹᚨᛉᚨᚠᛏᛖᚱᛁᚹᛟᛞᚢᚱᛁ

A2 ᚹᛁᛏᚨᛞᚨᚺᚨᛚᚨᛁᛒᚨᚾᛁᚹᛟᚱᚨᚺᛏᛟ˙

ekwiwaRafter˙woduri
dewitadahalaiban:worathto˙?[---

III. Troms fylke inscription N 540

ᚠᚢᚱᚢ ᛭ ᛏᚱᛁᚴᛁᚨ ᚠᚱᛁᛋᛚᛆᛏᛋ ᛆ
ᚢᛁᛏ ᛆᚢᚴ ᚢᛁᚴᛋ ᚠᛆᛏᚢᛗ ᚢᛁᚱ ᛋᚴᛁᚠᛏᚢᛗ

furu– trikia frislats a
uit auk uiks fotum uir skiftum

IV. Ballaugh stone cross inscription BR OLSEN 189

BR OLSEN;189 - STENKORS FRA BALLAUGH, ISLE OF MAN
Innskriften er risset med kortkvistruner og er datert til ca 950-1000.
Innskriften lyder:

oulaibr ÷ liu(t)ulbs| |sunr : r[ai](s)[ti k]rs * þ-na : ai(f)(t)ir * ...-b : sun [s]in

Aleifr Ljótulfs sonr reisti kross þenna eptir Ulf, son sinn.

II

AM 237 a fol *Sermons* **c1150**

no association	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"	Paleography of mixed forms
"aftr"	0	2	0	0	0	2	0,00%	100,00%	0,00%	0,00%	
"eftir-"	0	3	0	0	0	3	0,00%	100,00%	0,00%	0,00%	
"-kraftr"	0	4	0	0	0	4	0,00%	100,00%	0,00%	0,00%	
"loft-"	0	2	0	0	0	2	0,00%	100,00%	0,00%	0,00%	
"oft-"	0	1	0	2	0	3	0,00%	33,33%	0,00%	66,67%	"offr"
"raftr"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%	
total	**0**	**13**	**0**	**2**	**0**	**15**	**0,00%**	**86,67%**	**0,00%**	**13,33%**	

"f"-association	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"	
"efstr"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%	
"grǫftr"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%	
"hlífs"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%	
total	**0**	**3**	**0**	**0**	**0**	**3**	**0,00%**	**100,00%**	**0,00%**	**0,00%**	

"p"-association	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"	
"skipta"	**0**	**1**	**0**	**0**	**0**	**1**	**0,00%**	**100,00%**	**0,00%**	**0,00%**	

| **Sum** | **0** | **17** | **0** | **2** | **0** | **19** | **0,00%** | **89,47%** | **0,00%** | **10,53%** | |

AM 315 d fol   *Grágás fragment*   **c1150-75**

https://handrit.is/is/manuscript/view/is/AM02-0315d

Guðvarður Már Gunnlaugsson, *Sýnisbók íslenskrar skriftar*, 2nd ed. (Reykjavík: Stofnun Árna Magnússonar í íslenskum fræðum, 2007), 16-17.

Ludvig Larsson, *Ordförrådet i de älsta isländska handskrifterna: leksikaliskt ock grammatiskt ordnat* (Lund: Lindstedt, 1891).

no association	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"	Paleography of mixed forms
"aftr"	0	0	0	1	0	1	0,00%	0,00%	0,00%	100,00%	"affꝛꝛ"
"eftir-"	0	1	0	0	1	2	0,00%	50,00%	0,00%	0,00%	
"oft-"	0	0	0	1	0	1	0,00%	0,00%	0,00%	100,00%	"offꝛ"

"f"-association	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"	
"lofs"	0	2	0	0	0	2	0,00%	100,00%	0,00%	0,00%	
"sjálfs"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%	

| **Sum** | **0** | **4** | **0** | **2** | **1** | **7** | **0,00%** | **57,14%** | **0,00%** | **28,57%** | |

IV

AM 674 a 4to   *Bókin dýra - Elucidarius*   **c1150-1200**

Ludvig Larsson, *Ordförrådet i de älsta isländska handskrifterna: leksikaliskt ock grammatiskt ordnat* (Lund: Lindstedt, 1891).

Evelyn Scherabon Firchow and Kaaren Grimstad, eds., *Elucidarius in Old Norse Translation* (Reykjavík: Stofnun Árna Magnússonar á Íslandi, 1989).

no association	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"	Paleography of mixed forms
"-aftann"	1	0	0	0	0	1	100,00%	0,00%	0,00%	0,00%	
"aftr-"	0	3	0	2	0	5	0,00%	60,00%	0,00%	40,00%	"aftr"
"eftir-"	0	6	0	16	0	22	0,00%	27,27%	0,00%	72,73%	"eftt"
"-kraftr"	0	0	0	1	0	1	0,00%	0,00%	0,00%	100,00%	"cffra"
"loft"	0	0	0	5	0	5	0,00%	0,00%	0,00%	100,00%	"loffr"
"oft-"	0	0	0	3	0	3	0,00%	0,00%	0,00%	100,00%	"offr"
total	**1**	**9**	**0**	**27**	**0**	**37**	**2,70%**	**24,32%**	**0,00%**	**72,97%**	

"f"-association	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"	Paleography of mixed forms
"eilífs"	0	2	0	0	0	2	0,00%	100,00%	0,00%	0,00%	
"gift-"	0	0	0	1	0	1	0,00%	0,00%	0,00%	100,00%	"giffr"
"lífs"	0	7	0	0	0	7	0,00%	100,00%	0,00%	0,00%	
"þurfti"	0	2	0	0	0	2	0,00%	100,00%	0,00%	0,00%	
total	**0**	**11**	**0**	**1**	**0**	**12**	**0,00%**	**91,67%**	**0,00%**	**8,33%**	

"p"-association	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"	Paleography of mixed forms
"skipta"	0	0	0	6	0	6	0,00%	0,00%	0,00%	100,00%	"skiffre"

borrowings	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"	
"egyptaland"	1	1	0	0	0	2	50,00%	50,00%	0,00%	0,00%	

| **Sum** | **2** | **21** | **0** | **34** | **0** | **57** | **3,51%** | **36,84%** | **0,00%** | **59,65%** | |

AM 249 l fol *Rímtal* **c1190**

Ludvig Larsson, *Ordförrådet i de älsta isländska handskrifterna: leksikaliskt ock grammatisk ordnat* (Lund: Lindstedt, 1891).

no association	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"
"aftr"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%
Sum	**0**	**1**	**0**	**0**	**0**	**1**	**0,00%**	**100,00%**	**0,00%**	**0,00%**

GKS 1812 IV 4to *Rímbegla, oldest part* **c1192**

https://handrit.is/is/manuscript/view/is/GKS04-1812

Ludvig Larsson, *Ordförrådet i de älsta isländska handskrifterna: leksikaliskt ock grammatisk ordnat* (Lund: Lindstedt, 1891).

no association	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"	Paleography of mixed forms
"aftr"	0	3	0	0	0	3	0,00%	100,00%	0,00%	0,00%	
"eftir-"	29	4	0	3	0	36	80,56%	11,11%	0,00%	8,33%	"effrer"
"loft"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%	
"oft-"	3	1	0	0	0	4	75,00%	25,00%	0,00%	0,00%	
total	**32**	**9**	**0**	**3**	**0**	**44**	**72,73%**	**20,45%**	**0,00%**	**6,82%**	

"f"-association	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"	Paleography of mixed forms
"efstr"	1	1	0	0	0	2	50,00%	50,00%	0,00%	0,00%	
"ellefti"	1	0	0	0	2	3	33,33%	0,00%	0,00%	0,00%	
"grøftr"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%	
"haft"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%	
"hálft"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%	
"tólfti"	0	1	0	0	1	2	0,00%	50,00%	0,00%	0,00%	
total	**2**	**5**	**0**	**0**	**3**	**10**	**20,00%**	**40,00%**	**0,00%**	**10,00%**	

"p"-association	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"	
"skipta"	2	0	0	0	0	2	100,00%	0,00%	0,00%	0,00%	

Sum	**36**	**14**	**0**	**3**	**3**	**56**	**64,29%**	**25,00%**	**0,00%**	**5,36%**	

AM 673 a I,II 4to *Physiologus* **c1200**

https://handrit.is/is/manuscript/view/is/AM04-0673a-II

Ludvig Larsson, *Ordförrådet i de älsta isländska handskrifterna: leksikaliskt ock grammatiskt ordnat* (Lund: Lindstedt, 1891).
Halldór Hermannsson, *The Icelandic Physiologus: facsimile edition with an introduction by Halldór Hermannsson, Islandica*, vol. 27 (Ithaca, New York: Cornell University Library, 1938).

no association	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"	Paleography of mixed forms
"aftann-"	1	0	0	0	0	1	100,00%	0,00%	0,00%	0,00%	
"aftr-"	0	2	0	0	0	2	0,00%	100,00%	0,00%	0,00%	
"eftir-"	3	2	0	1	0	6	50,00%	33,33%	0,00%	16,67%	"efpτ"
"kraftr"	1	0	0	0	0	1	100,00%	0,00%	0,00%	0,00%	
"loft"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%	
"oft-"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%	
total	**5**	**6**	**0**	**1**	**0**	**12**	**41,67%**	**50,00%**	**0,00%**	**8,33%**	

"f"-association	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"
"haft"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%
"skrift"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%

"p"-association	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"
"skips"	5	0	0	0	0	5	100,00%	0,00%	0,00%	0,00%

Sum	**10**	**8**	**0**	**1**	**0**	**19**	**52,63%**	**42,11%**	**0,00%**	**5,26%**

Holm Perg 15 4to *Icelandic Homily Book* **c1200-25**

Andrea de Leeuw van Weenen, ed., *The Icelandic Homily Book. Perg. 15 4° in the Royal Library, Stockholm. Íslensk handrit*—series in quarto 3 (Reykjavík: Stofnun Árna Magnússonar, 1993).

Andrea de Leeuw van Weenen, *Lemmatized Index to the Icelandic Homily Book. Perg. 15 4° in the Royal Library, Stockholm* (Reykjavík: Stofnun Árna Magnússonar, 2004).

Ludvig Larsson, *Ordförrådet i de älsta isländska handskrifterna: leksikaliskt ock grammatiskt ordnat* (Lund: Lindstedt, 1891).

no association	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"	Paleography of mixed forms
"-aftann-"	6	0	0	0	0	6	100,00%	0,00%	0,00%	0,00%	
"aftr-"	5	21	0	3	0	29	17,24%	72,41%	0,00%	10,34%	"afpr" "affrr"
"eftir-"	171	26	0	25	0	222	77,03%	11,71%	0,00%	11,26%	"efpt" "eftt"
"heift"	1	6	0	2	0	9	11,11%	66,67%	0,00%	22,22%	"heitfr", "heiffrup"
"-kraftr"	11	26	0	7	1	45	24,44%	57,78%	0,00%	15,56%	"cffrr", "cffra", "gp cffra"
"loft-"	0	8	0	1	0	9	0,00%	88,89%	0,00%	11,11%	
"oft-"	9	38	0	18	0	65	13,64%	57,58%	1,52%	27,27%	"offr", "orplega"
"raftr"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%	
"refsa"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%	
total	**203**	**125**	**0**	**56**	**1**	**385**	**52,59%**	**32,38%**	**0,26%**	**14,51%**	

"f"-association	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"	Paleography of mixed forms
"arfs"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%	
"efstr"/"eftri"	4	18	0	0	0	22	18,18%	81,82%	0,00%	0,00%	
"eilífs"/"eilíft" ""	0	27	0	0	0	27	0,00%	100,00%	0,00%	0,00%	
"ellifti"	1	0	0	0	0	1	100,00%	0,00%	0,00%	0,00%	
"gaft"	0	3	0	0	0	3	0,00%	100,00%	0,00%	0,00%	
"-gift"	7	12	0	1	0	20	35,00%	60,00%	0,00%	5,00%	"anda giffr"
"gifta"	0	2	0	3	0	5	0,00%	40,00%	0,00%	60,00%	"giffrō"
"grøftr-"	1	3	0	0	0	4	25,00%	75,00%	0,00%	0,00%	

	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"	Paleography of mixed forms
"hafs"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%	
"haft"	0	11	0	0	0	11	0,00%	100,00%	0,00%	0,00%	
"hálft"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%	
"hefta"	1	4	0	1	0	6	16,67%	66,67%	0,00%	16,67%	"hefſrõ"
"leyft"	1	2	0	0	0	3	33,33%	66,67%	0,00%	0,00%	
"lífs"	0	45	0	0	0	45	0,00%	100,00%	0,00%	0,00%	
"sjálfs/t"	0	10	0	0	0	10	0,00%	100,00%	0,00%	0,00%	
"-skjálfti"	2	2	0	0	1	5	40,00%	40,00%	0,00%	0,00%	
"skrift-"	27	8	0	3	0	38	71,05%	21,05%	0,00%	7,89%	"lkˠₗflſ̃" , "lkflſra"
"úlfs"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%	
"þurfti"	2	13	0	0	0	15	13,33%	86,67%	0,00%	0,00%	
"þurft-"	4	12	0	0	0	16	25,00%	75,00%	0,00%	0,00%	
total	**50**	**176**	**0**	**8**	**1**	**235**	**21,28%**	**74,89%**	**0,00%**	**3,40%**	

"p"-association	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"	Paleography of mixed forms
"-kaups"	11	0	0	0	0	11	100,00%	0,00%	0,00%	0,00%	
"glópska"	1	0	0	0	0	1	100,00%	0,00%	0,00%	0,00%	
"-skipti/a"	12	6	1	0	0	19	63,16%	31,58%	5,26%	0,00%	"lkiplfreſc"
total	**24**	**6**	**1**	**0**	**0**	**31**	**77,42%**	**19,35%**	**3,23%**	**0,00%**	

borrowings	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"
"baptisti"	17	0	0	0	0	17	100,00%	0,00%	0,00%	0,00%
"byskups-"	5	0	0	0	0	5	100,00%	0,00%	0,00%	0,00%
"egyptaland"	10	0	0	0	0	10	100,00%	0,00%	0,00%	0,00%
total	**32**	**0**	**0**	**0**	**0**	**32**	**100,00%**	**0,00%**	**0,00%**	**0,00%**

Sum	**309**	**307**	**1**	**64**	**2**	**683**	**45,18%**	**44,88%**	**0,29%**	**9,36%**

X

AM 677 4to *Homilies and Dialogues of Gregory the Great* **c1200-25**

John M. Weinstock, *A graphemic-phonemic study of the Icelandic manuscript AM 677* (Ann Arbor, MI: University Microfilms, 1974).

Didrik Arup Seip, *The Arna-Magnaean Manuscript 677, 4to. Pseudo-Cyprian fragments, Propser's epigrams, Gregory's Homilies and dialogues* (Copenhagen: Munksgaard, 1949).

no association	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"
"-aftann"	5	0	0	0	0	5	100,00%	0,00%	0,00%	0,00%
"aftr-"	33	4	0	0	0	37	89,19%	10,81%	0,00%	0,00%
"eftir-"	79	3	0	2	0	84	94,05%	3,57%	0,00%	2,38%
"-kraftr"	48	0	0	0	0	48	100,00%	0,00%	0,00%	0,00%
"loft"	2	1	0	0	0	3	66,67%	33,33%	0,00%	0,00%
"oft-"	21	4	0	0	0	25	84,00%	16,00%	0,00%	0,00%
total	**188**	**12**	**0**	**2**	**0**	**202**	**93,07%**	**5,94%**	**0,00%**	**0,99%**

"f"-association	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"
"eilífs"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%
"gifta"	4	0	0	0	0	4	100,00%	0,00%	0,00%	0,00%
"haft"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%
"hálft"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%
"lífs"	0	6	0	0	0	6	0,00%	100,00%	0,00%	0,00%
"sjálfs"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%
"skrift"	1	0	0	0	0	1	100,00%	0,00%	0,00%	0,00%
"þurfti"	1	0	0	0	0	1	100,00%	0,00%	0,00%	0,00%
total	**6**	**10**	**0**	**0**	**0**	**16**	**37,50%**	**62,50%**	**0,00%**	**0,00%**

"p"-association	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"
"keypti"	2	0	0	0	0	2	100,00%	0,00%	0,00%	0,00%
"skipta"	2	0	0	0	0	2	100,00%	0,00%	0,00%	0,00%
total	**4**	**0**	**0**	**0**	**0**	**4**	**100,00%**	**0,00%**	**0,00%**	**0,00%**

borrowings	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"
"biskups–"	1	0	0	0	0	1	100,00%	0,00%	0,00%	0,00%
Sum	**199**	**22**	**0**	**2**	**0**	**223**	**89,24%**	**9,87%**	**0,00%**	**0,90%**

AM 673 b 4to *Plácitus drápa* **c1200-25**

Ludvig Larsson, *Ordförrådet i de älsta isländska handskrifterna: leksikaliskt ock grammatiskt ordnat* (Lund: Lindstedt, 1891).
John Tucker, ed., *Plácidus saga. With an Edition of Plácitus drápa by Jonna Louis-Jensen*, Editiones Arnamagnæanæ, Series B, Vol.31 (Copenhagen: C. A. Retzels Forlag, 1998).

no association	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"	Paleography of mixed forms
"eftir"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%	
"heift"	0	0	0	1	0	1	0,00%	0,00%	0,00%	100,00%	"heifft"
"-kraftr"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%	
total	**0**	**2**	**0**	**1**	**0**	**3**	**0,00%**	**66,67%**	**0,00%**	**33,33%**	

"f"-association	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"	
"úlfs-"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%	
"þurft-"	0	2	0	0	0	2	0,00%	100,00%	0,00%	0,00%	
total	**0**	**3**	**0**	**0**	**0**	**3**	**0,00%**	**100,00%**	**0,00%**	**0,00%**	

"p"-association	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"	
"skipta"	1	0	0	0	0	1	100,00%	0,00%	0,00%	0,00%	

loan words	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"	
"biskups-"	1	0	0	0	0	1	100,00%	0,00%	0,00%	0,00%	

| **Sum** | **2** | **5** | **0** | **1** | **0** | **8** | **25,00%** | **62,50%** | **0,00%** | **12,50%** | |

AM 645 4to *Heilagramanna sǫgur* **c1220-50**

Jón Helgason, ed., *Byskupa sǫgur I-II*, Editiones Arnamagnæanae, Series A, vol. 13:2 (Copenhagen/Munksgaard: Arnamagnæan Commission, 1938-78).

Ludvig Larsson, ed., *Isländska handskriften No 645 4o i den Arnamagnæanska samlingen på Universitetsbiblioteket i København. I diplomatariskt aftryck utgifven af Ludvig Larsson. 1, Handskriftens äldre del* (Lund: Gleerup, 1885).

Ludvig Larsson, *Ordförrådet i de älsta isländska handskrifterna: leksikaliskt ock grammatiskt ordnat* (Lund: Lindstedt, 1891).

Carl Richard Unger, ed., *Postola sögur. Legendariske fortellinger om apostlernes liv.*
Deres kamp for kristendommens udbredelse samt deres martyrdød. Efter gamle haandskrifter udgivne af C. R. Unger (Christiania: B. M. Bentzen, 1874).

no association	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"	Paleography of mixed forms
"-aftann'"	5	12	0	0	0	17	29,41%	70,59%	0,00%	0,00%	
"aftr-"	0	34	0	0	0	34	0,00%	100,00%	0,00%	0,00%	
"eftir-"	6	88	0	0	0	94	6,38%	93,62%	0,00%	0,00%	
"heift"	0	0	0	1	0	1	0,00%	0,00%	0,00%	100,00%	"heiffr"
"-kraftr"	10	21	0	0	0	31	32,26%	67,74%	0,00%	0,00%	
"loft"	0	2	0	0	0	2	0,00%	100,00%	0,00%	0,00%	
"oft-"	1	10	0	0	0	11	9,09%	90,91%	0,00%	0,00%	
"refsa"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%	
total	**22**	**168**	**0**	**1**	**0**	**191**	**11,52%**	**87,96%**	**0,00%**	**0,52%**	

"f"-association	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"
"eftri"/"efstr"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%
"eilfis-"	0	4	0	0	0	4	0,00%	100,00%	0,00%	0,00%
"gift"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%
"gifta"	0	4	0	0	0	4	0,00%	100,00%	0,00%	0,00%
"grǫftr"	1	1	0	0	0	2	50,00%	50,00%	0,00%	0,00%
"hafs"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%
"haft"	0	7	0	0	0	7	0,00%	100,00%	0,00%	0,00%

"p"-association	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"
"hefta"	0	3	0	0	0	3	0,00%	100,00%	0,00%	0,00%
"hofs"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%
"horft"	0	2	0	0	0	2	0,00%	100,00%	0,00%	0,00%
"lífs"	0	12	0	0	0	12	0,00%	100,00%	0,00%	0,00%
"sjálfs/t"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%
"-skjálfti"	2	0	0	0	0	2	100,00%	0,00%	0,00%	0,00%
"skrift-"	0	2	0	0	0	2	0,00%	100,00%	0,00%	0,00%
"þurfti"	0	8	0	0	0	8	0,00%	100,00%	0,00%	0,00%
"þurft"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%
total	**3**	**49**	**0**	**0**	**0**	**52**	**5,77%**	**94,23%**	**0,00%**	**0,00%**

"p"-association	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"
"dráps"	1	0	0	0	0	1	100,00%	0,00%	0,00%	0,00%
"keypt"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%
"klipti"	1	0	0	0	0	1	100,00%	0,00%	0,00%	0,00%
"skips"	2	0	0	0	0	2	100,00%	0,00%	0,00%	0,00%
"skipta"	3	2	0	0	0	5	60,00%	40,00%	0,00%	0,00%
total	**7**	**3**	**0**	**0**	**0**	**10**	**70,00%**	**30,00%**	**0,00%**	**0,00%**

borrowings	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"
"baptisti"	1	0	0	0	0	1	100,00%	0,00%	0,00%	0,00%
"byskups-"	29	0	0	0	0	29	100,00%	0,00%	0,00%	0,00%
"egiptaland"	2	0	0	0	0	2	100,00%	0,00%	0,00%	0,00%
total	**32**	**0**	**0**	**0**	**0**	**32**	**100,00%**	**0,00%**	**0,00%**	**0,00%**

Sum	**64**	**220**	**0**	**1**	**0**	**285**	**22,46%**	**77,19%**	**0,00%**	**0,35%**

AM 325 II 4to *Ágrip af Nóregskonunga sǫgum* **c1225**

https://handrit.is/is/manuscript/view/en/AM04-0325-II

Matthew James Driscoll, ed., *Ágrip af Nóregskonungasögum. A twelfth-century synoptic history of the kings of Norway* (London: Viking Society for Northern Research, 1995).

no association	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"
"-aftann"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%
"aftr-"	0	17	0	0	1	18	0,00%	94,44%	0,00%	0,00%
"eftir-"	1	48	0	0	0	49	2,04%	97,96%	0,00%	0,00%
total	**1**	**66**	**0**	**0**	**1**	**68**	**1,47%**	**97,06%**	**0,00%**	**0,00%**

"f"-association	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"
"gafsk"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%
"-gift"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%
"gifta"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%
"haft"	0	3	0	0	0	3	0,00%	100,00%	0,00%	0,00%
"lífs"	0	2	0	0	0	2	0,00%	100,00%	0,00%	0,00%
"raufsk"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%
"úlfs-"	0	2	0	0	0	2	0,00%	100,00%	0,00%	0,00%
"þurfti"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%
total	**0**	**12**	**0**	**0**	**0**	**12**	**0,00%**	**100,00%**	**0,00%**	**0,00%**

"p"-association	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"
"skips"	3	0	0	0	0	3	100,00%	0,00%	0,00%	0,00%
"skipta"	2	0	0	0	0	2	100,00%	0,00%	0,00%	0,00%

borrowings	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"
"biskups-"	3	0	0	0	0	3	100,00%	0,00%	0,00%	0,00%

Sum	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"
Sum	**9**	**78**	**0**	**0**	**1**	**88**	**10,23%**	**88,64%**	**0,00%**	**0,00%**

AM 162 a θ fol *Fragment of Egils saga Skallagrímssonar* **c1250**

Bjarni Einarsson, ed., *Egils saga Skallagrímssonar. Bind I. A-redaktionen*, Editiones Arnamagnæanæ, Series A. Vol. 19 (Copenhagen: C. A. Reitzels Forlag, 2001).

no association	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"
"aftr"	2	0	0	0	0	2	100,00%	0,00%	0,00%	0,00%
"eftir-"	8	0	0	0	0	8	100,00%	0,00%	0,00%	0,00%
"oft-"	2	0	0	0	0	2	100,00%	0,00%	0,00%	0,00%
total	**12**	**0**	**0**	**0**	**0**	**12**	**100,00%**	**0,00%**	**0,00%**	**0,00%**

"f"-association	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"
"arfs"	0	3	0	0	0	3	0,00%	100,00%	0,00%	0,00%
"hafs"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%
"tylft"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%
total	**0**	**5**	**0**	**0**	**0**	**5**	**0,00%**	**100,00%**	**0,00%**	**0,00%**

Sum	**12**	**5**	**0**	**0**	**0**	**17**	**70,59%**	**29,41%**	**0,00%**	**0,00%**

GKS 1157 fol *Kónungsbók Grágásar* **c1250**

Vilhjálmur Finsen, ed., *Grágás: elzta lögbók Íslendinga. Útgefin eptir skinnbókinni í bókasafni konungs á kostnað Fornritafjelags Norðurlanda í Kaupmannahöfn af Vilhjálmi Finsen 1-2* (Copenhagen: Nordiske Literatur-Samfund, 1852-1870).

no association	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"
"-aftann"	9	0	0	0	0	9	100,00%	0,00%	0,00%	0,00%
"aftr-"	25	0	0	0	0	25	100,00%	0,00%	0,00%	0,00%
"eftir-"	172	0	0	0	0	172	100,00%	0,00%	0,00%	0,00%
"oft-"	18	0	0	0	0	18	100,00%	0,00%	0,00%	0,00%
total	**224**	**0**	**0**	**0**	**0**	**224**	**100,00%**	**0,00%**	**0,00%**	**0,00%**

"f"-association	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"
"arfs"	0	8	0	0	0	8	0,00%	100,00%	0,00%	0,00%
"efstr"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%
"gifta"	3	0	0	0	0	3	100,00%	0,00%	0,00%	0,00%
"grøftr"	2	8	0	0	0	10	20,00%	80,00%	0,00%	0,00%
"haft"	0	5	0	0	0	5	0,00%	100,00%	0,00%	0,00%
"hálfs"	0	11	0	0	0	11	0,00%	100,00%	0,00%	0,00%
"hofs"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%
"lífs"	0	2	0	0	0	2	0,00%	100,00%	0,00%	0,00%
"lofs"	0	3	0	0	0	3	0,00%	100,00%	0,00%	0,00%
"rofs"	0	5	0	0	0	5	0,00%	100,00%	0,00%	0,00%
"sjálft/s"	0	6	0	0	0	6	0,00%	100,00%	0,00%	0,00%
"skrift"	3	0	0	0	0	3	100,00%	0,00%	0,00%	0,00%
"tólfti"	2	0	0	0	0	2	100,00%	0,00%	0,00%	0,00%
"tylft-"	2	0	0	0	0	2	100,00%	0,00%	0,00%	0,00%
"þurfti"	8	3	0	0	0	11	72,73%	27,27%	0,00%	0,00%
total	**20**	**53**	**0**	**0**	**0**	**73**	**27,40%**	**72,60%**	**0,00%**	**0,00%**

"þ"-association	"þt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "þ"/"f"	total	% "þt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"
"dráps"	3	0	0	0	0	3	100,00%	0,00%	0,00%	0,00%
"hrepps"	41	0	0	0	0	41	100,00%	0,00%	0,00%	0,00%
"kaups"	4	0	0	0	0	4	100,00%	0,00%	0,00%	0,00%
"keypti"	1	0	0	0	0	1	100,00%	0,00%	0,00%	0,00%
"skapt"	2	4	0	0	0	6	33,33%	66,67%	0,00%	0,00%
"skips"	16	0	0	0	0	16	100,00%	0,00%	0,00%	0,00%
"skipta"	134	0	0	0	0	134	100,00%	0,00%	0,00%	0,00%
total	201	4	0	0	0	205	98,35%	1,65%	0,00%	0,00%

borrowings	"þt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "þ"/"f"	total	% "þt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"
"biskups-"	18	0	0	0	0	18	100,00%	0,00%	0,00%	0,00%

Sum	"þt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "þ"/"f"	total	% "þt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"
Sum	500	57	0	0	0	557	89,77%	10,23%	0,00%	0,00%

AM 162 d II fol *Laxdæla saga* **c1250-1300**
https://handrit.is/en/manuscript/view/is/AM02-0162D-02

no association	"þt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "þ"/"f"	total	% "þt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"
"aftr"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%
"eftir"	2	0	0	0	0	2	100,00%	0,00%	0,00%	0,00%
Sum	2	1	0	0	0	3	66,67%	33,33%	0,00%	0,00%

AM 334 fol *Staðarhólsbók* **c1260-1340**

Kommissionen for det Arnamagnæanske Legat, eds, *Grágás efter det Arnamagnæanske Haandskrift Nr.334 fol., Staðarhólsbók* (Copenhagen: Gyldendal, 1987).

no association	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"
"-aftann"	3	0	0	0	0	3	100,00%	0,00%	0,00%	0,00%
"aftr-"	27	0	0	0	0	27	100,00%	0,00%	0,00%	0,00%
"eftir-"	182	0	0	0	0	182	100,00%	0,00%	0,00%	0,00%
"kjafti"	1	0	0	0	0	1	100,00%	0,00%	0,00%	0,00%
"loft"	1	0	0	0	0	1	100,00%	0,00%	0,00%	0,00%
"oft-"	13	0	0	0	0	13	100,00%	0,00%	0,00%	0,00%
"rifta"	4	1	0	0	0	5	80,00%	20,00%	0,00%	0,00%
"skaft"	5	0	0	0	0	5	100,00%	0,00%	0,00%	0,00%
"tóft"	1	0	0	0	0	1	100,00%	0,00%	0,00%	0,00%
total	**237**	**1**	**0**	**0**	**0**	**238**	**99,58%**	**0,42%**	**0,00%**	**0,00%**

"f"-association	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"
"arfs"	0	9	0	0	0	9	0,00%	100,00%	0,00%	0,00%
"efstr"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%
"gifta"	1	0	0	0	0	1	100,00%	0,00%	0,00%	0,00%
"grøftr"	7	0	0	0	1	8	87,50%	0,00%	0,00%	0,00%
"haft"	8	1	0	0	0	9	88,89%	11,11%	0,00%	0,00%
"hálft"	0	11	0	0	0	11	0,00%	100,00%	0,00%	0,00%
"hefta"	5	0	0	0	0	5	100,00%	0,00%	0,00%	0,00%
"leyft"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%
"lofs"	0	3	0	0	0	3	0,00%	100,00%	0,00%	0,00%
"rofs"	0	4	0	0	0	4	0,00%	100,00%	0,00%	0,00%
"sjálfs"	0	5	0	0	0	5	0,00%	100,00%	0,00%	0,00%
"skrift"	4	0	0	0	0	4	100,00%	0,00%	0,00%	0,00%

	"pt''/s"	"ft''/s"	"pCt''/s"	"fCt''/s"	no "p''/"f"	total	% "pt''/s"	% "ft''/s"	% "pCt''/s"	% "fCt''/s"
"tölft"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%
"þurfti"	9	1	0	0	0	10	90,00%	10,00%	0,00%	0,00%
total	**34**	**37**	**0**	**0**	**1**	**72**	**47,22%**	**51,39%**	**0,00%**	**0,00%**

"p''-association"	"pt''/s"	"ft''/s"	"pCt''/s"	"fCt''/s"	no "p''/"f"	total	% "pt''/s"	% "ft''/s"	% "pCt''/s"	% "fCt''/s"
"djúpt"	1	0	0	0	0	1	100,00%	0,00%	0,00%	0,00%
"dráps"	2	0	0	0	0	2	100,00%	0,00%	0,00%	0,00%
"hleypt"	2	0	0	0	0	2	100,00%	0,00%	0,00%	0,00%
"(h)repps"	44	0	0	0	0	44	100,00%	0,00%	0,00%	0,00%
"kaups"	2	0	0	0	0	2	100,00%	0,00%	0,00%	0,00%
"keypt"	33	1	0	0	0	34	97,06%	2,94%	0,00%	0,00%
"skips"	10	0	0	0	0	10	100,00%	0,00%	0,00%	0,00%
"skipti/a"	159	0	0	0	0	159	100,00%	0,00%	0,00%	0,00%
total	**253**	**1**	**0**	**0**	**0**	**254**	**99,61%**	**0,39%**	**0,00%**	**0,00%**

borrowings	"pt''/s"	"ft''/s"	"pCt''/s"	"fCt''/s"	no "p''/"f"	total	% "pt''/s"	% "ft''/s"	% "pCt''/s"	% "fCt''/s"
"biskups–"	10	0	0	0	0	10	100,00%	0,00%	0,00%	0,00%

| **Sum** | **534** | **39** | **0** | **0** | **1** | **574** | **93,03%** | **6,79%** | **0,00%** | **0,00%** |

GKS 1009 fol *Morkinskinna* **c1275**

Alex Speed Kjeldsen, *Filologiske studier i kongesagahåndskriftet Morkinskinna*, Bibliotheca Arnamagnæana, Suppl. Vol. 8 (Copenhagen: Museum Tusculanum Press, 2013), Finnur Jónsson, ed., *Morkinskinna* (Copenhagen: Samfund til udgivelse af gammel nordisk litteratur, 1932).

no association	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"
"-aftann"	12	0	0	0	0	12	100,00%	0,00%	0,00%	0,00%
"aftr-"	79	0	0	0	0	79	100,00%	0,00%	0,00%	0,00%
"eftir-"	243	62	0	0	0	305	79,67%	20,33%	0,00%	0,00%
"heift"	2	0	0	0	0	2	100,00%	0,00%	0,00%	0,00%
"kjafti"	1	0	0	0	0	1	100,00%	0,00%	0,00%	0,00%
"kraftr"	1	0	0	0	0	1	100,00%	0,00%	0,00%	0,00%
"loft"	11	1	0	0	0	12	91,67%	8,33%	0,00%	0,00%
"ofsi"	3	0	0	0	0	3	100,00%	0,00%	0,00%	0,00%
"oft-"	31	0	0	0	0	31	100,00%	0,00%	0,00%	0,00%
total	**383**	**63**	**0**	**0**	**0**	**446**	**85,87%**	**14,13%**	**0,00%**	**0,00%**

"f"-association	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"
"eilíft/s"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%
"gaft"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%
"gifta"	22	0	0	0	0	22	100,00%	0,00%	0,00%	0,00%
"grøftr"	0	4	0	0	0	4	0,00%	100,00%	0,00%	0,00%
"hafs"	0	5	0	0	0	5	0,00%	100,00%	0,00%	0,00%
"haft"	0	14	0	0	0	14	0,00%	100,00%	0,00%	0,00%
"hálft"	0	7	0	0	0	7	0,00%	100,00%	0,00%	0,00%
"hefta"	1	0	0	0	0	1	100,00%	0,00%	0,00%	0,00%
"lífs"	0	3	0	0	0	3	0,00%	100,00%	0,00%	0,00%
"sjálfs"	0	6	0	0	0	6	0,00%	100,00%	0,00%	0,00%
"úlfs-"	0	9	0	0	0	9	0,00%	100,00%	0,00%	0,00%

	"pt''/s"	"ft''/s"	"pCt''/s"	"fCt''/s"	no "p"/"f"	total	% "pt''/s"	% "ft''/s"	% "pCt''/s"	% "fCt''/s"
"þurfti"	0	18	0	0	0	18	0,00%	100,00%	0,00%	0,00%
total	**23**	**68**	**0**	**0**	**0**	**91**	**25,27%**	**74,73%**	**0,00%**	**0,00%**

"p''-association"	"pt''/s"	"ft''/s"	"pCt''/s"	"fCt''/s"	no "p"/"f"	total	% "pt''/s"	% "ft''/s"	% "pCt''/s"	% "fCt''/s"
"djúpt"	2	0	0	0	0	2	100,00%	0,00%	0,00%	0,00%
"dráps"	1	0	0	0	0	1	100,00%	0,00%	0,00%	0,00%
"drapt"	1	0	0	0	0	1	100,00%	0,00%	0,00%	0,00%
"keypt"	6	1	0	0	0	7	85,71%	14,29%	0,00%	0,00%
"skips"	3	0	0	0	0	3	100,00%	0,00%	0,00%	0,00%
"skipti/a"	30	0	0	0	0	30	100,00%	0,00%	0,00%	0,00%
total	**43**	**1**	**0**	**0**	**0**	**44**	**97,73%**	**2,27%**	**0,00%**	**0,00%**

borrowings	"pt''/s"	"ft''/s"	"pCt''/s"	"fCt''/s"	no "p"/"f"	total	% "pt''/s"	% "ft''/s"	% "pCt''/s"	% "fCt''/s"
"baptisti"	1	0	0	0	0	1	100,00%	0,00%	0,00%	0,00%
"byskups–"	4	0	0	0	0	4	100,00%	0,00%	0,00%	0,00%
total	**5**	**0**	**0**	**0**	**0**	**5**	**100,00%**	**0,00%**	**0,00%**	**0,00%**

| **Sum** | **454** | **132** | **0** | **0** | **0** | **586** | **77,47%** | **22,53%** | **0,00%** | **0,00%** |

AM 291 4to *Jómsvikinga saga* **c1275-1300**
Ludvig Larsson, *Glossar till Codex AM 291, 4:to* (Lund: Gleerup, 1956).

no association	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"
"aftann"	7	0	0	0	0	7	100,00%	0,00%	0,00%	0,00%
"aftr-"	36	1	0	0	0	37	97,30%	2,70%	0,00%	0,00%
"eftir-"	162	0	0	0	0	162	100,00%	0,00%	0,00%	0,00%
"kraftr"	1	1	0	0	0	2	50,00%	50,00%	0,00%	0,00%
"loft"	4	0	0	0	0	4	100,00%	0,00%	0,00%	0,00%
"oft"	6	0	0	0	0	6	100,00%	0,00%	0,00%	0,00%
total	**216**	**2**	**0**	**0**	**0**	**218**	**99,08%**	**0,92%**	**0,00%**	**0,00%**

"f"-association	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"
"gifta"	6	0	0	0	0	6	100,00%	0,00%	0,00%	0,00%
"haft"	0	4	0	0	0	4	0,00%	100,00%	0,00%	0,00%
"hálft"	0	7	0	0	0	7	0,00%	100,00%	0,00%	0,00%
"hofs"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%
"lífs"	0	3	0	0	0	3	0,00%	100,00%	0,00%	0,00%
"sjálfs"	0	2	0	0	0	2	0,00%	100,00%	0,00%	0,00%
"úlfs-"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%
"þurfti"	5	3	0	0	0	8	62,50%	37,50%	0,00%	0,00%
total	**11**	**21**	**0**	**0**	**0**	**32**	**34,38%**	**65,63%**	**0,00%**	**0,00%**

"p"-association	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"
"djúps"	1	0	0	0	0	1	100,00%	0,00%	0,00%	0,00%
"keypt"	1	0	0	0	0	1	100,00%	0,00%	0,00%	0,00%
"skips"	2	0	0	0	0	2	100,00%	0,00%	0,00%	0,00%
"skipti/a"	7	0	0	0	0	7	100,00%	0,00%	0,00%	0,00%
total	**11**	**0**	**0**	**0**	**0**	**11**	**100,00%**	**0,00%**	**0,00%**	**0,00%**

borrowings	"pt''/s''	"ft''/s''	"pCt''/s''	"fCt''/s''	no "p''/"f''	total	% "pt''/s''	% "ft''/s''	% "pCt''/s''	% "fCt''/s''
"byskups-"	1	0	0	0	0	1	100,00%	0,00%	0,00%	0,00%
Sum	**239**	**23**	**0**	**0**	**0**	**262**	**91,22%**	**8,78%**	**0,00%**	**0,00%**

AM 519 a 4to *Alexanders saga* c1280

Andrea de Leeuw van Weenen, ed., *Alexanders saga, AM 519a 4to in The Arnamagnæan Collection*, vol. 2, Manuscripta Nordica (Copenhagen: Museum Tusculanum Press, 2009).

no association	"pt''/s''	"ft''/s''	"pCt''/s''	"fCt''/s''	no "p''/"f''	total	% "pt''/s''	% "ft''/s''	% "pCt''/s''	% "fCt''/s''
"aftann"	1	0	0	0	0	1	100,00%	0,00%	0,00%	0,00%
"aftr-"	4	0	0	0	0	4	100,00%	0,00%	0,00%	0,00%
"eftir-"	201	1	0	0	0	202	99,50%	0,50%	0,00%	0,00%
"heift"	2	0	0	0	0	2	100,00%	0,00%	0,00%	0,00%
"kraftr"	7	0	0	0	0	7	100,00%	0,00%	0,00%	0,00%
"loft"	10	0	0	0	0	10	100,00%	0,00%	0,00%	0,00%
"ofsi"	0	10	0	0	0	10	0,00%	100,00%	0,00%	0,00%
"oft-"	35	0	0	0	0	35	100,00%	0,00%	0,00%	0,00%
"refsa"	0	5	0	0	0	5	0,00%	100,00%	0,00%	0,00%
"refsing"	0	3	0	0	0	3	0,00%	100,00%	0,00%	0,00%
total	**260**	**19**	**0**	**0**	**0**	**279**	**93,19%**	**6,81%**	**0,00%**	**0,00%**

"f''-association	"pt''/s''	"ft''/s''	"pCt''/s''	"fCt''/s''	no "p''/"f''	total	% "pt''/s''	% "ft''/s''	% "pCt''/s''	% "fCt''/s''
"gifta"	1	0	0	0	0	1	100,00%	0,00%	0,00%	0,00%

"p"-association	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"
"grǫftr"	3	0	0	0	0	3	100,00%	0,00%	0,00%	0,00%
"haft"	0	15	0	0	0	15	0,00%	100,00%	0,00%	0,00%
"hálft"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%
"horft"	0	2	0	0	0	2	0,00%	100,00%	0,00%	0,00%
"lífs–"	0	9	0	0	0	9	0,00%	100,00%	0,00%	0,00%
"ljúft"	0	2	0	0	0	2	0,00%	100,00%	0,00%	0,00%
"sjálfs/t"	0	21	0	0	0	21	0,00%	100,00%	0,00%	0,00%
"þurfti"	0	5	0	0	0	5	0,00%	100,00%	0,00%	0,00%
total	**4**	**55**	**0**	**0**	**0**	**59**	**6,78%**	**93,22%**	**0,00%**	**0,00%**

"p"-association	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"
"djúps"	2	0	0	0	0	2	100,00%	0,00%	0,00%	0,00%
"dráps"	2	0	0	0	0	2	100,00%	0,00%	0,00%	0,00%
"keypt"	1	0	0	0	0	1	100,00%	0,00%	0,00%	0,00%
"skipta"	18	0	0	0	0	18	100,00%	0,00%	0,00%	0,00%
"-skipti"	6	0	0	0	0	6	100,00%	0,00%	0,00%	0,00%
total	**29**	**0**	**0**	**0**	**0**	**29**	**100,00%**	**0,00%**	**0,00%**	**0,00%**

borrowings	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"
"byskups–"	2	0	0	0	0	2	100,00%	0,00%	0,00%	0,00%
"egyptaland"	2	0	0	0	0	2	100,00%	0,00%	0,00%	0,00%
"egypzkr"	1	0	0	0	0	1	100,00%	0,00%	0,00%	0,00%
total	**5**	**0**	**0**	**0**	**0**	**5**	**100,00%**	**0,00%**	**0,00%**	**0,00%**

| **Sum** | **298** | **74** | **0** | **0** | **0** | **372** | **80,11%** | **19,89%** | **0,00%** | **0,00%** |

AM 371 4to *Hauksbók* **c1302-10**

Finnur Jónsson, ed., *Hauksbók. Udgiven efter de Arnamagnæanske håndskrifter no. 371, 544 og 675, 4° samt forskellige papirhåndskrifter af det kongelige nordiske oldskrift-selskab* (Copenhagen: Kongelige nordiske oldskrift-selskab, 1892-1896).

no association	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"
"aftr-"	20	4	0	0	0	24	83,33%	16,67%	0,00%	0,00%
"eftir-"	89	40	0	0	0	129	68,99%	31,01%	0,00%	0,00%
"heift"	2	0	0	0	0	2	100,00%	0,00%	0,00%	0,00%
"oft-"	1	0	0	1	0	2	50,00%	0,00%	0,00%	50,00%
"tóft"	1	0	0	0	0	1	100,00%	0,00%	0,00%	0,00%
total	**113**	**44**	**0**	**1**	**0**	**158**	**71,52%**	**27,85%**	**0,00%**	**0,63%**

"f"-association	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"
"eilífs"	0	3	0	0	0	3	0,00%	100,00%	0,00%	0,00%
"gafst"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%
"gifta"	4	2	0	0	0	6	66,67%	33,33%	0,00%	0,00%
"grøftr"	1	1	0	0	0	2	50,00%	50,00%	0,00%	0,00%
"hafs"	0	2	0	0	0	2	0,00%	100,00%	0,00%	0,00%
"hálfs"	0	2	0	0	0	2	0,00%	100,00%	0,00%	0,00%
"hofs"	0	2	0	0	0	2	0,00%	100,00%	0,00%	0,00%
"horft"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%
"nefs-"	0	3	0	0	0	3	0,00%	100,00%	0,00%	0,00%
"úlfs-"	0	9	0	0	0	9	0,00%	100,00%	0,00%	0,00%
"þurfti"	0	4	0	0	0	4	0,00%	100,00%	0,00%	0,00%
total	**5**	**30**	**0**	**0**	**0**	**35**	**14,29%**	**85,71%**	**0,00%**	**0,00%**

"p"-association	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"
"keypti"	23	0	0	0	1	24	95,83%	0,00%	0,00%	0,00%
"skips"	2	0	0	0	0	2	100,00%	0,00%	0,00%	0,00%

	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"
"skipti/a"	6	0	0	0		6	100,00%	0,00%	0,00%	0,00%
total	**31**	**0**	**0**	**0**	**1**	**32**	**96,88%**	**0,00%**	**0,00%**	**0,00%**

borrowings	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"
"baptisti"	1	0	0	0	0	1	100,00%	0,00%	0,00%	0,00%
"biskups–"	30	0	0	0	0	30	100,00%	0,00%	0,00%	0,00%
Sum	**180**	**74**	**0**	**1**	**1**	**256**	**70,31%**	**28,91%**	**0,00%**	**0,39%**

AM 47 fol *Eirspennill* **c1350-65**

Finnur Jónsson, ed., *Eirspennill. AM 47 fol. Nóregs konunga sǫgur. Magnús góði – Hákon gamli 1-5* (Christiania: Den norske historiske kildeskriftkommissionen, 1913-1916).

no association	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"
"aftann"	25	0	0	0	0	25	100,00%	0,00%	0,00%	0,00%
"aftr-"	204	1	0	0	0	205	99,51%	0,49%	0,00%	0,00%
"eftir-"	581	3	0	0	0	584	99,49%	0,51%	0,00%	0,00%
"heift"	2	0	0	0	0	2	100,00%	0,00%	0,00%	0,00%
"kjaftr"	3	0	0	0	0	3	100,00%	0,00%	0,00%	0,00%
"kraftr"	3	0	0	0	0	3	100,00%	0,00%	0,00%	0,00%
"loft-"	21	0	0	0	1	22	95,45%	0,00%	0,00%	0,00%
"nift"	2	0	0	0	1	3	66,67%	0,00%	0,00%	0,00%
"ofsi"	1	0	0	0	1	2	50,00%	0,00%	0,00%	0,00%
"oft-"	56	0	0	0	0	56	100,00%	0,00%	0,00%	0,00%
"skaft"	6	0	0	0	0	6	100,00%	0,00%	0,00%	0,00%
"svipta"	6	0	0	0	0	6	100,00%	0,00%	0,00%	0,00%
total	**910**	**4**	**0**	**0**	**3**	**917**	**99,24%**	**0,44%**	**0,00%**	**0,00%**

"f"-association	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"
"dreift"	0	2	0	0	6	8	0,00%	25,00%	0,00%	0,00%
"efstr"	0	3	0	0	6	9	0,00%	33,33%	0,00%	0,00%
"eilífs"	0	5	0	0	0	5	0,00%	100,00%	0,00%	0,00%
"gafs"	0	2	0	0	0	2	0,00%	100,00%	0,00%	0,00%
"gifta"	27	0	0	0	0	27	100,00%	0,00%	0,00%	0,00%
"grøftr"	15	2	0	0	0	17	88,24%	11,76%	0,00%	0,00%
"hafs"	0	6	0	0	0	6	0,00%	100,00%	0,00%	0,00%
"hálfs"	0	15	0	0	0	15	0,00%	100,00%	0,00%	0,00%
"haft"	1	35	0	0	0	36	2,78%	97,22%	0,00%	0,00%
"lífs"	0	14	0	0	0	14	0,00%	100,00%	0,00%	0,00%
"ljúft"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%
"sjálfs/t"	0	12	0	0	0	12	0,00%	100,00%	0,00%	0,00%
"skrift"	5	0	0	0	0	5	100,00%	0,00%	0,00%	0,00%
"tylftir"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%
"úlfs–"	0	31	0	0	0	31	0,00%	100,00%	0,00%	0,00%
"þjófs"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%
"þurfti"	0	40	0	0	0	40	0,00%	100,00%	0,00%	0,00%
total	48	170	0	0	12	230	20,87%	73,91%	0,00%	0,00%

"p"-association	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"
"glǿpska"	1	0	0	0	1	2	50,00%	0,00%	0,00%	0,00%
"hleypt"	11	3	0	0	1	15	73,33%	20,00%	0,00%	0,00%
"keypt"	1	0	0	0	1	2	50,00%	0,00%	0,00%	0,00%
"kippti"	1	0	0	0	1	2	50,00%	0,00%	0,00%	0,00%
"klippti"	2	0	0	0	1	3	66,67%	0,00%	0,00%	0,00%
"skips"	16	0	0	0	0	16	100,00%	0,00%	0,00%	0,00%
"skipti/a"	98	0	0	0	0	98	100,00%	0,00%	0,00%	0,00%
total	130	3	0	0	5	138	94,20%	2,17%	0,00%	0,00%

borrowings	pt/s	ft/s	pCt/s	fCt/s	no p/f	total	%pt/s	%ft/s	%mixed pt/s	%mixed ft/s
"biskups-"	85	0	0	0	0	85	100,00%	0,00%	0,00%	0,00%
Sum	**1173**	**177**	**0**	**0**	**20**	**1370**	**85,62%**	**12,92%**	**0,00%**	**0,00%**

AM 132 fol *Möðruvallabók* **c1330-70**
Andrea van Arkel-de Leeuw van Weenen, ed., *Möðruvallabók, AM 132 fol* (Leiden: E. J. Brill, 1987).

no association	"pt"/s	"ft"/s	"pCt"/s	"fCt"/s	no "p"/"f"	total	% "pt"/s	% "ft"/s	% "pCt"/s	% "fCt"/s
"aftann"	15	0	0	0	0	15	100,00%	0,00%	0,00%	0,00%
"aftr-"	134	0	0	0	0	134	100,00%	0,00%	0,00%	0,00%
"eftir-"	564	1	0	0	0	565	99,82%	0,18%	0,00%	0,00%
"heift"	2	0	0	0	0	2	100,00%	0,00%	0,00%	0,00%
"kjaftr"	1	0	0	0	0	1	100,00%	0,00%	0,00%	0,00%
"kraftr"	3	0	0	0	0	3	100,00%	0,00%	0,00%	0,00%
"loft-"	18	0	0	0	0	18	100,00%	0,00%	0,00%	0,00%
"oft-"	65	0	0	0	0	65	100,00%	0,00%	0,00%	0,00%
"skaft"	48	0	0	0	0	48	100,00%	0,00%	0,00%	0,00%
"svipta"	2	0	0	0	0	2	100,00%	0,00%	0,00%	0,00%
total	**852**	**1**	**0**	**0**	**0**	**853**	**99,88%**	**0,12%**	**0,00%**	**0,00%**

"f"-association	"pt"/s	"ft"/s	"pCt"/s	"fCt"/s	no "p"/"f"	total	% "pt"/s	% "ft"/s	% "pCt"/s	% "fCt"/s
"arfs"	0	2	0	0	0	2	0,00%	100,00%	0,00%	0,00%
"efstr"	0	4	0	0	0	4	0,00%	100,00%	0,00%	0,00%
"eilífs"	0	5	0	0	0	5	0,00%	100,00%	0,00%	0,00%
"gafs"	0	2	0	0	0	2	0,00%	100,00%	0,00%	0,00%
"gifta"	47	0	0	0	0	47	100,00%	0,00%	0,00%	0,00%

"p"-association	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"
"hafs"	0	2	0	0	0	2	0,00%	100,00%	0,00%	0,00%
"hálfs"	0	14	0	0	0	14	0,00%	100,00%	0,00%	0,00%
"haft"	0	33	0	0	0	33	0,00%	100,00%	0,00%	0,00%
"hefta"	1	0	0	0	0	1	100,00%	0,00%	0,00%	0,00%
"horft"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%
"hofs"	0	2	0	0	0	2	0,00%	100,00%	0,00%	0,00%
"leyft"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%
"lífs"	0	2	0	0	0	2	0,00%	100,00%	0,00%	0,00%
"lofs"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%
"nefs"	0	1	0	0	0	1	0,00%	100,00%	0,00%	0,00%
"sjálfs/t"	0	2	0	0	0	2	0,00%	100,00%	0,00%	0,00%
"tólfti"	0	3	0	0	0	3	0,00%	100,00%	0,00%	0,00%
"úlfs–"	0	2	0	0	0	2	0,00%	100,00%	0,00%	0,00%
"þurfti"	2	38	0	0	0	40	5,00%	95,00%	0,00%	0,00%
total	**50**	**115**	**0**	**0**	**0**	**165**	**30,30%**	**69,70%**	**0,00%**	**0,00%**

"p"-association	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"
"djúpt"	1	0	0	0	0	1	100,00%	0,00%	0,00%	0,00%
"hleypt"	12	0	0	0	0	12	100,00%	0,00%	0,00%	0,00%
"hrepps"	11	0	0	0	0	11	100,00%	0,00%	0,00%	0,00%
"kaups"	6	0	0	0	0	6	100,00%	0,00%	0,00%	0,00%
"keypt"	30	0	0	0	0	30	100,00%	0,00%	0,00%	0,00%
"kippti"	5	0	0	0	0	5	100,00%	0,00%	0,00%	0,00%
"klippti"	2	0	0	0	0	2	100,00%	0,00%	0,00%	0,00%
"skips"	60	0	0	0	0	60	100,00%	0,00%	0,00%	0,00%
"skipti/a"	132	0	0	0	0	132	100,00%	0,00%	0,00%	0,00%
total	**259**	**0**	**0**	**0**	**0**	**259**	**100,00%**	**0,00%**	**0,00%**	**0,00%**

loan words	"pt"/s"	"ft"/s"	"pCt"/s"	"fCt"/s"	no "p"/"f"	total	% "pt"/s"	% "ft"/s"	% "pCt"/s"	% "fCt"/s"

"biskups-"	2	0	0	0	0	2	100,00%	0,00%	0,00%	0,00%
Sum	**1163**	**116**	**0**	**0**	**0**	**1279**	**90,93%**	**9,07%**	**0,00%**	**0,00%**