Vowel length in Shetland Norn

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1 Background

1.1 Shetland: a linguistic history

Population history

- Settlement from Scandinavia from AD 800
  - Part of Norway
  - Some contact with Scotland
- Pawned to the Scottish crown and then incorporated: 1469–1472
  - Increased contact with Scotland
  - Settlement of Scots and intermarriage (Knooihuizen 2008b)
  - Several waves of immigration (16th, 19th, 20th century)

Shetland Norn

- West / Insular North Germanic language
  - Potentially some Celtic influence (Lindqvist 2012)
  - Similar to Faroese in many respects (Barnes 1998)
    - e.g. Verschärfung, diphthongisation of /iː = yː/, loss of /θ, ð/ (?)
    - Many common features with the dialects of western Norway
- Language death around 1750 (but controversial; e.g. Melchers 1981, Knooihuizen 2008a)
- Few direct sources
A few medieval documents (Barnes 1998)
Dictionary (1890s) (Jakobsen 1908–1921, 1928–1932)

Jakob Jakobsen

• Faroese linguist (1864–1918) (see Barnes 1996, Dahl 2010)
  • Trained in tradition of Sweet and Jespersen
  • Active in Faroese linguistic revival
  • Phonetic transcriptions, (failed) spelling reform

• Fieldwork in Shetland, 1893
  • Ph.D., Det norrøne sprog på Shetland (1897)
  • Etymological Dictionary, finished posthumously
    * ‘Phonetics run riot’ (Stewart 1964)
    * But analysis shows consistent patterns (Knooihuizen 2013, this paper?)

hol [hɔl, hɔlʰ], sb., a young coalfish, esp. a two- (or three-) year-old coalfish, comm. in the compd. hol-piltekk [pɔlˈlæk]. U., Yh., n. hol for older *ol, either (and rather) = O.N. ál, m., an eit, or = O.N. vølr, m., a cylinder, round stick — in both cases alluding to the longish, narrow shape of the fish. Cf. ol in ollekk = No. vøllonga, f., a young ling. hol-piltekk thus prob. from an original *ál (or *vøl)-piltr (piltungr).

Shetland Scots

• Conservative Scots dialect
  • Immigrant koiné (McColl Millar 2008, Knooihuizen 2009)
  • Input from Angus, Fife, Lothian
  • North Germanic substrate

• Complicated linguistic history
  • Several waves of Scots and North Germanic influence
  • Poorly documented substrate

• Currently: dialect obsolescence (Smith & Durham 2011, 2012)
1.2 Quantity in Shetland

Scottish Vowel Length Rule

- Developed in the 15th-17th centuries (Aitken 1981)
- Lax vowels are always short
- Tense vowels are short, unless followed by
  - Morpheme boundary
  - Voiced fricatives /v z ð/
  - /r/
- Regional variation:
  - Participating vowels
  - Constraints on application

SVLR in Shetland Scots

- See Knooihuizen (2009)
- Based on LAS (Mather & Speitel 1975–1986)
  - /Y/ and /W/ are short
  - /I/ and /U/: classic SVLR pattern
  - /E/: classic SVLR pattern, BAIT set always long
  - /O/: classic SVLR pattern, long before /l/ and nasals
  - /A/: classic SVLR pattern, long if from *au, *al

Overall classic SVLR with some compensatory lengthening?

The phonetics of quantity in Shetland

- Inverse correlation of vowel and consonant duration (van Leyden 2004)
- The inverse correlation is much stronger in Shetland than in Orkney or Edinburgh
- ...but weaker than in Norwegian

Quantity in Old Norse

- In Old Norse, all types of syllable weight were allowed (e.g. Haugen 1976, Riad 1992, Kristoffersen 2011)
- (Except CV monosyllables)
Quantity shifts

- The 'great quantity shift': all stressed syllables become obligatorily CVX[1]
- Everywhere except some inland Norwegian and Swedish dialects and Fenno-Swedish, but including Faroese and Icelandic
- Dates between mid 13th to mid 16th century (Haugen 1976)
- Towards the end of this period for Insular North Germanic (Kristján Arnason 1983, Lindqvist 2003)
- Superheavy syllables shorten, light syllables have either vowel or consonant lengthening

Hesselman's laws

- Originally by Hesselman (1902), see also Riad (1992)
- Not really Lautgesetze but rather tendencies
  1. CVČ undergoes lengthening earlier than CVČV
  2. Low vowels [a æ] always lengthen
  3. With non-low vowels, either the consonant or the vowel lengthens

Consonant influence on lengthening

- Central and northern Swedish: no lengthening before fortis obstruents [p t k s] (Hesselman 1902), also [r]
- Norwegian: generally vowel lengthening (with local exceptions not relevant to us), no notable consonant asymmetries

Quality shifts

- Standard varieties of peninsular North Germanic are mutatis mutandis like most of English
- Modern short vowels are lax, modern long vowels are tense (Kristoffersen 2003, Riad 2014)
- Central Standard Swedish bit ['bilt] 'piece' ≠ vinn ['wvn] 'win''
- Modern insular North Germanic (Kristján Arnason 1983, 2011), conservative western Norwegian (Sandøy 1983)
  - ON long vowels are tense (→ diphthongized), long or short: Icelandic bita ['pi:ta] 'bite', hvitt [kfiht] 'white-NEUT.NOM.SG'
  - ON short vowels are lax (→ lowered), long or short: Icelandic vita ['vι:ta] 'know', fiskur ['fskyr] 'fish' (WestNo veta, NorthNo fesk)

[1] An alternative notation focusing on rhymes in stressed monosyllables is also used (e.g. Kristján Arnason 1983: 437 on Shetland Norn). The correspondences are as follows: CV = –VC (short, ON son); CVV = –VVC (vowel-long, ON sólf); CVC = –VCC (consonant-long, ON holl); CVVC = –VVCC (overlong, ON sótt).
1.3 The research question

Vowel length in Shetland Norn

It could well be that the syllabic structure of modern Shetland speech reflects, at least in part, a Norn substratum. A thousand pities then that this phenomenon never seems to have been observed by Jakobsen. [...] Once again we are faced with an impasse on a fundamental issue of Norn phonology, and it is not easy to see any satisfactory way forward.

(Barnes 1991:437)

Competing systems in Shetland Norn

- Shetland Scots has been argued to evidence new-dialect formation mechanisms (McColl Millear 2008, Knooihuizen 2009)
- Can we see traces of multiple inputs in Shetland Norn?
- If the input systems agree in some feature, we expect the outcome to have that feature
- If the input systems disagree, then some features will be lost due to focusing
- Our focus here is on differences in quantity behaviour between Scots and (West) Nordic

<table>
<thead>
<tr>
<th>Feature</th>
<th>Outcome</th>
<th>West Nordic</th>
<th>Scots</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVC syllable</td>
<td>Short, lax</td>
<td>Short, lax</td>
<td>OSCots kist → Scots k[ɪ]st</td>
</tr>
<tr>
<td></td>
<td>ON fiskr → ModIc f[ɪ]skur</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| CVV syllable             | Long, tense/diphthongized      | Short or long, tense/diphthongized | OSc mete → Sc m[ɪ]t
|                          | ON bi[ɪ]ta → ModIc b[ɪ]ta      |                              | OSc le[ɪ]ve → Sc l[ɪ]v        |
| CV syllable              | Long, tense or lax/lowered     | Short, lax                   | OSc bit → Sc b[ɪ]t           |
|                          | ON skin ‘sheen’ → NoNynorsk sk[ɪ]n |
|                          | ON li[ɪ]fa → ModIc l[ɪ]fa, NoNynorsk le[ɪ]ve |
| CVVC syllable            | Short, tense or lax/lowered    | It’s complicated...           |
|                          | ON hv[ɪ]tt ‘white-NEUT’ → ModIc hv[ɪ]tt |
|                          | → ModSw v[ɪ]tt                  |
| Restrictions on length   | No                             | SVLR                         |

Table 1: Differences in quantity shift outcomes
Research questions, bluntly put

• How reliable is the data?
  – Is it just a mess of overanalysed transcriptions?
  – Is it phonologically just Shetland Scots?

• If it does represent Norn in some way...
  – Can we discover what happened to quantity in Norn?
  – Was it in line with what happened in West Nordic otherwise?
  – Was there any input from Scots?

2 Analysis

2.1 Data and methods

Etymological Dictionary data

• Transcriptions from G and H headwords, \( n = 1614 \)
  – Included if Old Norse (putative) etymology given

• Coded for...
  – Norn vowel quantity, quality
  – Old Norse vowel quantity, quality
  – Norn, Old Norse following consonant
  – Old Norse syllable type\(^2\)

• Norn vowels
  – Our attempt to convert Jakobsen’s descriptions to IPA and reduce the number of categories
  – Based on his description and transcriptions of Faroese he made using the same system ([Hammershaimb 1886–1891], compared with [Lockwood 1977])
  – Also coded for ‘tense’/‘lax’ based on these interpretations

Analysis

• Many conditions poorly represented
• Focus on ON /i u y e o a/
  – Reasonably well represented in the corpus
  – Reflexes expected to participate in SVLR pattern, if any is found

• Quantitative analysis: are the observed distributions just noise?
• Generalized linear mixed models with \( \text{lm4} \) ([Bates et al. 2015])

\(^2\)Unlike in his transcriptions for Faroese, Jakobsen does not mark consonant length in his Shetland Norn transcriptions. Less than a handful of isolated examples were found in our data.
2.2 Sanity checks

Reflexes of Old Norse /a/

<table>
<thead>
<tr>
<th>Norn quality</th>
<th>Norn vowel length</th>
<th>Short</th>
<th>Long</th>
</tr>
</thead>
<tbody>
<tr>
<td>aæ</td>
<td>ɒ</td>
<td>e</td>
<td>əɛ</td>
</tr>
</tbody>
</table>

Counts

Reflexes of Old Norse /o/

- We come back to ON a later, but it mostly a low, unrounded vowel
- ON á, whether short or long, is overwhelmingly round
- This is in line with expectations
  - Continental North Germanic <â>
  - Faroese short [ɔ] ~ long [ɔa]
ON /o/ often becomes [ɔ] when short in Norn and [u] when long in Norn.

- Cf. Faroese: <œ> is short [æ]/[ɔ] ~ long [ou] (Lockwood 1977)
- Lindqvist (2003) reconstructs [øuː]

Reflexes of Old Norse /i/
• ON ɨ is mostly [iː] or maybe [eː]
• ON ɨ, unless it lengthens, is [ɪ] ~ [e] ~ [ə]
• Difficult to quantify but consistent to some extent with the West Nordic development
• Cf. ON higr → Norn [hɾɡ]

Preliminary conclusions

• Not necessarily ‘phonetics run riot’
• Many developments visible in the data that make sense in a West Nordic context
  – Jakobsen (1928–1932) comments on the ON ɑ → Norn [ɔ] development
  – The Faroese-like ON ɑ → Norn [ø] change does not seem as notable in the literature

2.3 SVLR in Shetland Norn

Synchronic length in Norn

• Synchronously, lax vowels are almost never long in the data

<table>
<thead>
<tr>
<th>Norn vowel length</th>
<th>ON /a/</th>
<th>ON /e/</th>
<th>ON /i/</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>20</td>
<td>40</td>
<td>60</td>
</tr>
<tr>
<td>20</td>
<td>40</td>
<td>60</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Norn vowel length</th>
<th>ON /o/</th>
<th>ON /u/</th>
<th>ON /y/</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>20</td>
<td>40</td>
<td>60</td>
</tr>
<tr>
<td>20</td>
<td>40</td>
<td>60</td>
<td></td>
</tr>
</tbody>
</table>

• Tense vowels can be short or long
• Is this an SVLR pattern?
Synchronic SVLR in Norn

- If the data show Scots phonology, we expect a synchronic SVLR effect
Testing for synchronic SVLR

- A synchronic SVLR effect would imply long vowels
  - Before voiced fricatives and /r/
  - Before a morpheme boundary

- ...but not elsewhere
- We try to quantify this using logistic regression

\[
\text{full.fit <- glmer(norn.long ~ norn.svlr + norn.tense + on.quality + on.long + (1|norn.foll.c), data=model_data, family=binomial(link=logit))}
\]

![Fixed effects in the full model](image)

- Synchronic conclusion
  - Synchronic tenseness and ON length are good predictors of Norn length
  - ... but SVLR makes a contribution over and above these
- So it just Scots?
A closer look at the random effects

- The regression tells us that on average an SVLR context promotes length of the preceding vowel
- But it seems that the conditioning of length in Norn is not fully in line with the SVLR

These results should be taken with a pinch of salt, but...

- Contexts promoting lengthening (beyond the fixed effects): /b k ɡ n s/
- Contexts disfavouring lengthening: /t ɲ r/

- Shortening beyond SVLR: /t/ is usually from ON tt, /ŋ/ is a coda
- /r/ seems genuinely out of line
- Lengthening beyond SVLR: recall that West Nordic preferentially lengthens vowels in CV syllables

3 Discussion

3.1 North Germanic features in Shetland Norn?

General quantity facts

- Generally, ON vowels keep their length in Shetland Norn
  - Relatively little lengthening of short vowels, even in the presence of an SVLR effect
– Relatively little shortening of long vowels (other than elimination of overlength, shared with West Nordic)

• Not clear whether there are coexisting systems or just preservation of archaic features
• We do suggest that the North Germanic quantity system was not completely clobbered by the SVLR

Low vowel lengthening

• ON short a does undergo lengthening quite often in this data
• There is nothing special about /a/ in Scots vowel systems
• Across North Germanic, ON a and æ are the vowels that most regularly undergo lengthening

Even in varieties with consonantal restrictions on lengthening
• This is suggestive

The effect of SVLR

• Despite an apparent synchronic SVLR effect, the restrictions on length go beyond it
• LAS data show SVLR to be fairly normal in the Scots lexicon of Shetland Scots
• Shetland Scots also lengthens [a] from *au, *al, but that does not happen in this material
• Various interpretations possible, but we suggest Jakobsen’s data does contain material with a West Nordic system

3.2 Summary

Conclusions

• Vowel quantity information in the Jakobsen material is not just chaotic noise
• The vowel quantity system is not identical to that of Shetland Scots
• Some of the features of the quantity system have clear precursors or direct parallels elsewhere in West Nordic

It is worth examining the material for clues regarding the possible North Germanic substrate of Shetland Scots
• See Lehiste (1965) on this kind of archaeology

References

Vowel length in Shetland Norn

<table>
<thead>
<tr>
<th></th>
<th>Full model</th>
<th>No SVLReffect</th>
<th>No ON quantity effect</th>
<th>No tenseness effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Intercept)</td>
<td>-4.91***</td>
<td>-4.65***</td>
<td>-4.63***</td>
<td>-2.97***</td>
</tr>
<tr>
<td></td>
<td>(0.54)</td>
<td>(0.59)</td>
<td>(0.53)</td>
<td>(0.44)</td>
</tr>
<tr>
<td>Norn SVLR context</td>
<td>1.89***</td>
<td>2.21***</td>
<td>1.99***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.52)</td>
<td>(0.49)</td>
<td>(0.47)</td>
<td></td>
</tr>
<tr>
<td>Norn tenseness</td>
<td>3.96***</td>
<td>3.98***</td>
<td>4.04***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.39)</td>
<td>(0.39)</td>
<td>(0.39)</td>
<td></td>
</tr>
<tr>
<td>ON [a]</td>
<td>-0.12</td>
<td>-0.05</td>
<td>-0.26</td>
<td>0.65*</td>
</tr>
<tr>
<td></td>
<td>(0.31)</td>
<td>(0.32)</td>
<td>(0.30)</td>
<td>(0.26)</td>
</tr>
<tr>
<td>ON [e]</td>
<td>0.13</td>
<td>0.11</td>
<td>-0.16</td>
<td>0.44</td>
</tr>
<tr>
<td></td>
<td>(0.39)</td>
<td>(0.39)</td>
<td>(0.38)</td>
<td>(0.33)</td>
</tr>
<tr>
<td>ON [o]</td>
<td>-0.78*</td>
<td>-0.80*</td>
<td>-0.58</td>
<td>-0.01</td>
</tr>
<tr>
<td></td>
<td>(0.37)</td>
<td>(0.38)</td>
<td>(0.36)</td>
<td>(0.32)</td>
</tr>
<tr>
<td>ON [u]</td>
<td>-1.97***</td>
<td>-1.95***</td>
<td>-1.69***</td>
<td>-1.00***</td>
</tr>
<tr>
<td></td>
<td>(0.43)</td>
<td>(0.43)</td>
<td>(0.41)</td>
<td>(0.37)</td>
</tr>
<tr>
<td>ON [y]</td>
<td>-0.89</td>
<td>-0.93</td>
<td>-0.77</td>
<td>-0.05</td>
</tr>
<tr>
<td></td>
<td>(0.48)</td>
<td>(0.49)</td>
<td>(0.47)</td>
<td>(0.42)</td>
</tr>
<tr>
<td>ON long vowel</td>
<td>1.32***</td>
<td>1.45***</td>
<td>1.71***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.24)</td>
<td>(0.24)</td>
<td>(0.21)</td>
<td></td>
</tr>
</tbody>
</table>

AIC 763.75 774.91 793.36 992.06  
BIC 814.94 820.98 839.43 1038.12  
Log Likelihood -371.88 -378.45 -387.68 -487.03

Table 2: The full model and some models with terms excluded (outcome variable: Norn vowel length)

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Low, George. 1879. *A tour through the islands of Orkney and Schetland containing hints relative to their ancient, modern and natural history, collected in 1774*. Joseph Anderson (ed.). Kirkwall: Peace.


