Vowel length in Shetland Norn
Contact, change, and competing systems

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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
Vowel length in Shetland Norn

- 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, hɔz̯l], sb., a young coalfish, esp. a two- (or three-) year-old coalfish, comm. in the compd. hol-piltek [pɔlˈlɛk]. U., Yh., n. hol for older *ol, either (and rather) = O.N. áll, m., an eet, or = O.N. völfr, m., a cylinder, round stick — in both cases alluding to the longish, narrow shape of the fish. Cf. ol in ollek = No. vallonga, f., a young ling. hol-piltek thus prob. from an original *ål (or *val)-pilfr (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/
  - /t/  
- 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, BART 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)
- Monosyllables: *son ‘son’, *sól ‘sun’, *höll ‘hall’, *sött ‘illness’
- (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. CVC undergoes lengthening earlier than CVCV
  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)
- Modern insular North Germanic (Kristján Arnason 1983, 2011), conservative western Norwegian (Sandøy 1983)
  - ON long vowels are tense (→ diphthongized), long or short: Icelandic bīta [ˈpiːta] ‘bite’, hvītt [kfiht] ‘white-NEUT.NOM.SG’
  - ON short vowels are lax (→ lowered), long or short: Icelandic vīta [ˈvɪːta] ‘know’, fiskur [ˈfɪskʏr] ‘fish’ (WestNo vēta, NorthNo fesk)

\[1\] An alternative notation focusing on rhymes in stressed monosyllables is also used (e.g. Kristján Arnason 1983, Barnes 1994, 437 on Shetland Norn). The correspondences are as follows: CV = –VC (short, ON son); CVV = –VVC (vowel-long, ON sól); CVC = –VVC (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-Miller 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>
</tr>
</thead>
<tbody>
<tr>
<td>West Nordic</td>
<td>Scotts</td>
</tr>
<tr>
<td>CV syllable</td>
<td>CV syllable</td>
</tr>
<tr>
<td>CVC syllable</td>
<td>Short, lax</td>
</tr>
<tr>
<td>ON fiskr → ModIc [i]skur</td>
<td>OScots kist → Scots k[ι]st</td>
</tr>
<tr>
<td>CVV syllable</td>
<td>Long, tense/diphthongized</td>
</tr>
<tr>
<td>ON bìta → ModIc b[i]:ta</td>
<td>OSc mete → Sc m[ι]t</td>
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<tr>
<td>OSc leve → Sc l[i]:v</td>
<td></td>
</tr>
<tr>
<td>CV syllable</td>
<td>Long, tense or lax/lowered</td>
</tr>
<tr>
<td>ON skin ‘sheen’ → NoNynorsk sk[ι]:n</td>
<td>OSc bit → Sc b[ι]t</td>
</tr>
<tr>
<td>ON lifa → ModIc l[i]:fa, NoNynorsk leve</td>
<td></td>
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<tr>
<td>CVVC syllable</td>
<td>Short, tense or lax/lowered</td>
</tr>
<tr>
<td>ON hvítt ‘white-NEUT’ → ModIc hv[i]tt</td>
<td>→ ModSw v[i]tt</td>
</tr>
<tr>
<td>Restrictions on length</td>
<td>No</td>
</tr>
</tbody>
</table>

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 1me4 (Bates et al. 2015)
  – More as a sanity check

\(^2\)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/

Reflexes of ON /a/ by ON syllable type

- 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 <å>
  - Faroese short [ɔ] ~ long [ɔa]

Reflexes of Old Norse /o/
Reflexes of ON /ɑ/ by ON syllable type

• ON ɑ often becomes [ø] when short in Norn and [u] when long in Norn
• Cf. Faroese: <ó> is short [æ]/[ɔ] ~ long [ou] \[Lockwood 1977\]
• Lindqvist (2003) reconstructs [œu(ː)]

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

**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 á → Norn [o] development
  - The Faroese-like ON ø → 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</th>
<th>ON /a/</th>
<th>ON /e/</th>
<th>ON /i/</th>
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<tbody>
<tr>
<td>æ</td>
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<thead>
<tr>
<th>Norn vowel</th>
<th>ON /o/</th>
<th>ON /u/</th>
<th>ON /y/</th>
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- 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

```r
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]

- 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

<table>
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<tr>
<th>Factor level</th>
<th>Estimated log odds</th>
<th>95% CI crosses zero</th>
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- These results should be taken with a pinch of salt, but...
  - Contexts promoting lengthening (beyond the fixed effects): /b k ŋ n s/
  - Contexts dispreferring lengthening: /t ŋ r/

- Shortening beyond SVLR: /t/ is usually from ON tt, /η/ 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 archæology

References

### Vowel length in Shetland Norn

<table>
<thead>
<tr>
<th></th>
<th>Full model</th>
<th>No SVLR effect</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>
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<td>(0.54)</td>
<td>(0.59)</td>
<td>(0.53)</td>
<td>(0.44)</td>
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<td>Norn SVLR context</td>
<td>1.89***</td>
<td>2.21***</td>
<td>1.99***</td>
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<td></td>
<td>(0.52)</td>
<td>(0.49)</td>
<td>(0.47)</td>
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<td>Norn tenseness</td>
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<td>4.04***</td>
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<tr>
<td>ON [a]</td>
<td>-0.12</td>
<td>-0.05</td>
<td>-0.26</td>
<td>0.65*</td>
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<td>(0.39)</td>
<td>(0.38)</td>
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<td>ON [o]</td>
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<td>-0.80*</td>
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</table>

| AIC                   | 762.75     | 774.91         | 793.36                | 992.06              |
| BIC                   | 814.94     | 829.98         | 839.43                | 1038.12             |
| Log Likelihood        | -371.88    | -378.45        | -387.68               | -487.03             |

***p < 0.001, **p < 0.01, *p < 0.05

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