Lexicon optimization:
irregular vowel length changes in Middle English

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I. Irregular vowel length changes in ME: the analogical account

(1) Lengthening in monosyllabic stems closed by a single consonant (see Appendix A):

OE     PDE
blæd   blade
cōl    coal
crān   crane
geāc   yoke
hōp    hope
hwēl   whale
mōt    mote
slēd   slade
þōl   thole

(2) Shortening in unapocopated disyllabic stems (see Appendix B):

OE     PDE
ceccen  chicken
hāring  herring
rēdic  radish
sārig  sorry
sēlig  silly
wēpen  weapon
wēdīg   withy
(3) The traditional explanation of lengthening in monosyllabic stems:
levelling from disyllabic inflectional forms subject to Open Syllable Lengthening
(Luick 1964: §392.1)

<table>
<thead>
<tr>
<th>sg</th>
<th>pl</th>
</tr>
</thead>
<tbody>
<tr>
<td>OE hwæl</td>
<td>hwæ̨.las</td>
</tr>
<tr>
<td>ME whāl</td>
<td>whą̄.les</td>
</tr>
</tbody>
</table>
levelling

(4) The traditional explanation of shortening in unapocopated disyllabic stems:

(4a) levelling from syncopated inflectional forms subject to Closed Syllable Shortening
(Jordan 1974: §23)

<table>
<thead>
<tr>
<th>sg</th>
<th>pl</th>
</tr>
</thead>
<tbody>
<tr>
<td>OE wæ̨.pen</td>
<td>wæ̨p.nu</td>
</tr>
<tr>
<td>ME wę̌.pen</td>
<td>wę̌p.nen</td>
</tr>
</tbody>
</table>
levelling

(4b) levelling from unsyncopated inflectional forms subject to Trisyllabic Shortening (Luick 1964: §387)

<table>
<thead>
<tr>
<th>sg</th>
<th>pl</th>
</tr>
</thead>
<tbody>
<tr>
<td>OE hæ̨.ring</td>
<td>hæ̨.rin.gas</td>
</tr>
<tr>
<td>ME hę̌.ring</td>
<td>hę̌.rin.ges</td>
</tr>
</tbody>
</table>
levelling

(5) The analogical account of shortening in unapocopated disyllabic stems extends to the
numerous ‘exceptions’ of MEOSL (Luick 1964: §392.2): cf. (4b)

<table>
<thead>
<tr>
<th>sg</th>
<th>pl</th>
</tr>
</thead>
<tbody>
<tr>
<td>OE hę̌o fon</td>
<td>hę̌o.fo.nas</td>
</tr>
</tbody>
</table>

[MEOSL blocked]  ↓  TRISH
ME hę̌.ven | hę̌.ve.nes |
levelling
II. EVIDENCE AGAINST THE ANALOGICAL EXPLANATION
(see Bermúdez-Otero 1998)

TRISH and the ‘exceptions’ of MEOSL

(6) There is no evidence of TRISH in base forms (Ritt 1994: 103-5, Minkova & Stockwell 1996); in fact, TRISH is not a genuine historical sound change.

(7) Incidence of lengthening among unapocopated disyllabic stems in Minkova’s corpus (see Appendix C):

(a) The post-tonic rhyme contains a sonorant consonant.................166 items
   N  %  e.g.
   (i) Lengthened: 39  23.5  raven
   (ii) Unlengthened: 127 76.5  heaven

(b) The post-tonic rhyme contains an unchecked vowel.................24 items
   N  %  e.g.
   (i) Lengthened: 0  0  —
   (ii) Unlengthened: 24 100  body

(c) The post-tonic rhyme consists of vowel plus obstruent.............41 items
   N  %  e.g.
   (i) Lengthened: 1  2.4  naked
   (ii) Unlengthened: 40 97.6  gannet

Total........................................................................................................231 items

(8) Correlation between lengthening and presence of a sonorant in the post-tonic rhyme

\[ \chi^2 = 12.646 \]

p < .0005
(5 doublets excluded)

<table>
<thead>
<tr>
<th>Sonorant C in post-tonic Rh</th>
<th>Lengthening</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td>observed</td>
</tr>
<tr>
<td>YES</td>
<td>34</td>
</tr>
<tr>
<td>NO</td>
<td>1</td>
</tr>
</tbody>
</table>

N.B. The correlation remains highly significant even if we exclude from the corpus items with obstruent+(ɔ)+liquid sequences (e.g. better) to control for the possibility of gemination.

(9) Minkova’s (1982) compensatory analysis of MEOSL is correct: lengthening is circumscribed to disyllabic stems where the post-tonic rhyme contains a deletable -ɔ.

• If the schwa is obligatorily deleted (i.e. in stem-final position), lengthening is regular: e.g. OE nāma > PDE name (Minkova 1982).

• If the schwa is variably deleted (i.e. stem-internally before a sonorant consonant), lengthening is sporadic: e.g. OE hrēfen > PDE raven, but OE hēnofon > PDE heaven.

• Elsewhere (i.e. if the post-tonic rhyme does not contain a deletable schwa), lengthening is impossible: e.g. OE bōdīg > PDE body, OE gānōt > PDE gannet.
The morphologization of SHOCC: evidence from the Orrmulum

(10) The Orrmulum:
• completed by circa 1180 in South Lincolnshire (Bourne?) (Parkes 1983)
• authors’s dialect not yet subject to MEOSL (Anderson & Britton 1997, Fulk 1996)
• SHOCC already fully morphologized (see Appendix D)

(11) Morphological environments triggering SHOCC:
(i) Synchronously underived environments
   e.g. <blostm> ‘blossom’ OE blōstma
   <lēhht> ‘light’ OE lēoht
(ii) Athematic past tense and past participle forms of weak verbs
   e.g. <dēmme> ‘deem’ pret.3sg. OE dēman
   <hidd> ‘hide’ p.ptc OE hūdan
(iii) -þe/-te suffixation
   e.g. <mæþe> ‘kin’ OE mǣg
   <sæollþe> ‘happiness’ OE sæl

(12) Morphological environments blocking SHOCC:
(i) Nominal inflection
   e.g. sg. <dēkenn> ~ pl. <dēcness>, not *<deccness>, ‘deacon’ OE dēacon
   sg. <tākenn> ~ pl. <tacness>, not *<taccness>, ‘token’ OE tācen
(ii) Zero-derived weak verbs
   e.g. noun <tākenn> ~ vb. <tacnenn>, not *<taccnenn>, ‘betoken’ OE tācen
   noun <wæpenn> ~ vb. <weppnedd>, not *<weppnedd>, ‘arm’ OE wǣpen
(iii) Derivational suffixation (including suffixoids; see Sauer 1992)
   e.g. <god> ‘good’ ~ <godnesse> ‘goodness’, not *<goddnesse>, OE gōd
   <soþ> ‘true’ ~ <soþlike> ‘truely’, not *<soþlike>, OE sōþ
(iv) Compounding
   e.g. <boc> ‘book’ ~ <bocstaff> ‘letter’, not *<boccstaff>, OE bōc
   <shep> ‘sheep’ ~ <shephirde> ‘shepherd’, not *<shepphirde>, OE scēap

(13) Implications:
• The morphologization of SHOCC was completed fairly early, i.e. before C13.
• The interaction between SHOCC and morphological structure was orderly, rather than random. SHOCC was blocked in well-defined morphological environments.
• The morphologization of SHOCC always implies dependence of morphologically complex forms on their base, never vice versa. This includes declensional paradigms.
A brief comparison with Danish (Riad 1992: 355)

(14) Danish has genuine (i.e. mora-epenthetic, non-compensatory) OSL:

<table>
<thead>
<tr>
<th>Word</th>
<th>Pronunciation</th>
<th>Meaning</th>
<th>Old English</th>
</tr>
</thead>
<tbody>
<tr>
<td>blad</td>
<td>blaa.det</td>
<td>‘leaf’</td>
<td>OE blaðd</td>
</tr>
<tr>
<td>bud</td>
<td>buu.det</td>
<td>‘message’</td>
<td>OE bód</td>
</tr>
<tr>
<td>glad</td>
<td>glaa.de</td>
<td>‘happy’</td>
<td>OE glaðd</td>
</tr>
<tr>
<td>fred</td>
<td>free.den</td>
<td>‘peace’</td>
<td>OE fridd</td>
</tr>
</tbody>
</table>

(15) In Danish, like ME, there has been sporadic lengthening of monosyllabic stems:

<table>
<thead>
<tr>
<th>Word</th>
<th>Pronunciation</th>
<th>Meaning</th>
<th>Old English</th>
</tr>
</thead>
<tbody>
<tr>
<td>baar</td>
<td>bær</td>
<td>‘bare’</td>
<td>OE bër</td>
</tr>
<tr>
<td>blaad</td>
<td>blæd</td>
<td>‘blade’</td>
<td>OE blæd</td>
</tr>
<tr>
<td>daal</td>
<td>dæl</td>
<td>‘dale’</td>
<td>OE dæl</td>
</tr>
</tbody>
</table>

As in English, this lengthening has been imputed to analogical levelling from disyllabic inflectional forms subject to OSL (Boberg 1896).

(16) However, there are lengthened words lacking disyllabic forms to trigger lengthening:

Hansen notes that several original CvC forms that have lengthened their vowel could not have become that way analogically, for lack of bisyllabic forms to model on. Typical cases are nouns with zero plurals, e.g. maat ‘food’, loof ‘permission’, taak ‘roof’, höør ‘flax’, øøl ‘beer’, hool ‘hole’. The definite article [suffix], which would render these words bisyllabic, was only in severely restricted use at this time. Hence, analogy alone could not explain the situation. Riad (1992: 355)

III. HOW THE GRAMMAR INTERACTS WITH THE LEXICON: INPUT HARMONY

(17) Lexical diffusion ≠ random replacement of lexical specifications

If we assume that lexical diffusion is nothing more than the substitution of one phoneme for another in the lexical representations of words, we have no explanation either for the direction of the change, nor for the envelope of phonological conditions that continues to control it. Kiparsky (1995: 651)

(18) Radical Underspecification Theory: ‘default’ vs ‘marked’ feature values

- In each environment E where the feature [F] is lexically contrastive, one of the values of [F] is designated as the ‘default’; the opposite value is the ‘marked’ value.
- Default values are left unspecified in the lexicon; in the grammar, they are filled in by means of context-sensitive structure-building lexical rules.

UR
X[ ] Y X[-F]Y

Structure-building rule: [ ] → [+F] / X __ Y X[+F]Y blocked

In this example, [+F] is the default value of feature [F] in the environment X__Y, assigned by rule; lexical items containing the marked value [-F] block the default rule (see Kiparsky 1993).
Lexical diffusion as lexicon simplification (Kiparsky 1995)

- The ‘marked’ feature value is gradually removed from underlying representations on a word-by-word basis.
- Concomitantly, the ‘default’ feature value appears to diffuse, as ever more lexical items cease to block the application of the relevant structure-building lexical rule.

The problem: This approach is descriptive, rather than explanatory; default rules have to be stipulated ad hoc.

An OT alternative: lexicon optimization

- Let [F] be a lexically contrastive feature in environment X__Y.

- The optimal (=most harmonic) input value of [F] in environment X__Y is that which leads to the best satisfaction of the constraint hierarchy in the output (Prince & Smolensky 1993: §9.3; Itô, Mester & Padgett 1995).

In lexical diffusion processes, optimal input specifications expand at the expense of non-optimal ones —where the relative harmony of input specifications is determined by the constraint hierarchy.

IV. INPUT HARMONY PATTERNS IN OE AND ME

Input harmony in monosyllables closed by a single consonant

- VVC monosyllables escaped SHOCC because the final consonant was extrasyllabic:

WeakC » ParseSeg

where WeakC: A consonant at the right edge of the prosodic word is dominated by the fewest possible prosodic nodes (Spaelti, 1994).

ParseSeg: Segments are syllabified.

<table>
<thead>
<tr>
<th>/stɔ:n/</th>
<th>![μμμ]</th>
<th>WeakC</th>
<th>IDENT</th>
<th>ParseSeg</th>
</tr>
</thead>
<tbody>
<tr>
<td>[_la[/stɔ:n]]</td>
<td>![star]</td>
<td>![star]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>[_la[/ston]]</td>
<td>![star]</td>
<td>![star]</td>
<td>![star]</td>
<td></td>
</tr>
<tr>
<td>[_la[/stoːn]]</td>
<td>![star]</td>
<td></td>
<td>![star]</td>
<td></td>
</tr>
</tbody>
</table>

Further evidence for WeakC » ParseSeg:

In compensatory lengthening triggered by the loss of stem-final schwa (e.g. /nəʊ/ → [naːm] ‘name’), the floating mora skips the final consonant so that the latter can become extrasyllabic (Bermúdez-Otero 1998: §3.3; cf. Riad 1992: 335-6).
Vowel length contrasts are not neutralized in the environment \([\text{C}_0\text{C}_1]\text{Word}\) owing to the dominance of faithfulness constraints:

\[
\text{DEP}^\mu \gg \text{WEAKC}
\]

where \(\text{DEP}^\mu\): All morae present in the output have an input correspondent

The correct pattern of input harmony emerges from the independently motivated ranking \(\text{DEP}^\mu \gg \text{WEAKC} \gg \text{PARSE}^{\text{Seg}}\).

**Input harmony in disyllables**

OE High Vowel Deletion

The basic pattern: High vowels are deleted in unstressed word-final syllables when preceded by a heavy stressed syllable or a light stressed syllable plus another syllable (Campbell 1959: §345-6).

\[
\begin{array}{llll}
\text{input} & \text{output} & \text{DEP}^\mu & \text{WEAKC} & \text{PARSE}^{\text{Seg}} \\
/CVC/ & [\text{f}\_\text{a}\_\text{t} \text{CVC}] & *! & & \\
/CVVC/ & [\text{f}\_\text{a}\_\text{tu} \text{CVV} \text{C}] & *! & & \\
\end{array}
\]

(For some recalcitrant problems surrounding HVD, see Hogg 1997)
(26) *HVD targets high vowels in unfooted syllables* (see Kager 1997):

\[ \text{MAX}^{[-\text{high}]} \rightarrow \text{PARSE}^{\sigma} \rightarrow \text{MAX}^{[+\text{high}]} \]

- \text{MAX}^{[-\text{high}]}: All nonhigh vowels present in the input have an output correspondent
- \text{PARSE}^{\sigma}: Syllables are footed
- \text{MAX}^{[+\text{high}]}: All high vowels present in the input have an output correspondent

(27)

<table>
<thead>
<tr>
<th>Input</th>
<th>PARSE(^{\sigma})</th>
<th>MAX(^{[+\text{high}]})</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ɛfæt]</td>
<td></td>
<td>*!</td>
</tr>
<tr>
<td>[ɛfa.tu]</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(28) • In pre-OE \(\dagger b\ddot{a}nu\), the final syllable was unfooted, i.e. \(\dagger[ɛb\ddot{a}]nu\), because the constraint RH\(\text{HRM}\) (Prince & Smolensky 1993: 59) was superordinate: the language did not tolerate unbalanced trochees, i.e. \(\dagger[ɛσσ]\).

• Note that vowel shortening is not available as a foot-reescuing strategy.

\[ \text{RH\(\text{HRM}, IDENT^{\mu\mu} \rightarrow PARSE^{\sigma}\) } \]

<table>
<thead>
<tr>
<th>Input</th>
<th>RH(\text{HRM})</th>
<th>IDENT(^{\mu\mu})</th>
<th>PARSE(^{\sigma})</th>
<th>MAX(^{[+\text{high}]})</th>
</tr>
</thead>
<tbody>
<tr>
<td>[aɻ[ɛbaː.nu]]</td>
<td>*!</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>[aɻ[ɛba.nu]]</td>
<td></td>
<td>*!</td>
<td></td>
<td></td>
</tr>
<tr>
<td>[aɻ[ɛba:]nu]</td>
<td></td>
<td></td>
<td>*!</td>
<td></td>
</tr>
<tr>
<td>[aɻ[ɛba:]n]</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
</tr>
</tbody>
</table>

(29) • In unpacopated disyllabic stems, the optimal input specification of stressed vowel length is short (monomoric):

<table>
<thead>
<tr>
<th>Input</th>
<th>Output</th>
<th>RH(\text{HRM})</th>
<th>IDENT(^{\mu\mu})</th>
<th>PARSE(^{\sigma})</th>
</tr>
</thead>
<tbody>
<tr>
<td>/σσ/</td>
<td>[aɻ[ɛσσ]]</td>
<td></td>
<td></td>
<td>*!</td>
</tr>
<tr>
<td>/σσ/</td>
<td>*</td>
<td>[aɻ[ɛσσ]]</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The correct pattern of input harmony emerges from the independently motivated constraint ranking RH\(\text{HRM}, IDENT^{\mu\mu} \rightarrow PARSE^{\sigma}\).

(30) Conclusion:

*The direction of lexical vowel length change in ME is governed by patterns of input harmony emerging from independently motivated constraint rankings.*
APPENDIX A
LENGTHENING IN MONOSYLLABIC STEMS

- Appendices A and B are based on a manual search of Holthausen (1934), crosschecked with the *Corpus of OE*, the *OED*, Onions (1966), and —for Appendix A— Ritt (1997).
- Obsolete and/or dialectal forms have been included only if the *OED* records attestations later than 1850.
- Relatively robust cases are highlighted in bold; relatively problematic forms are given in normal type.

A.1 Unlengthened items (e.g. GOD)

<table>
<thead>
<tr>
<th>OE</th>
<th>PDE</th>
<th><em>Orrmulum</em> nom. sg.</th>
<th>Alternative etyma</th>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>bæc</td>
<td>back</td>
<td>&lt;bacc&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>bǣð</td>
<td>bath</td>
<td>&lt;baþþ&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>blæc</td>
<td>black</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>bræs</td>
<td>brass</td>
<td>&lt;brass&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>bróc</td>
<td>brock</td>
<td></td>
<td></td>
<td>C19 dial. ‘badger’ (<em>OED</em>)</td>
</tr>
<tr>
<td>gebróc</td>
<td>brock</td>
<td></td>
<td></td>
<td>C19 dial. ‘fragment’ (<em>OED</em>)</td>
</tr>
<tr>
<td>brōd</td>
<td>broth</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ceāf</td>
<td>chaff</td>
<td>&lt;chaff&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>cōt</td>
<td>cot</td>
<td></td>
<td></td>
<td>also OE cote (fem.) &gt; cote</td>
</tr>
<tr>
<td>dōl</td>
<td>dull</td>
<td></td>
<td></td>
<td>*dyll-? (<em>OED)</em></td>
</tr>
<tr>
<td>fæt</td>
<td>vat</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>flæt</td>
<td>flat</td>
<td></td>
<td></td>
<td>ON flatr</td>
</tr>
<tr>
<td>glæd</td>
<td>glad</td>
<td>&lt;gladd&gt;</td>
<td></td>
<td>also OE flet(t) &gt; Scots flet</td>
</tr>
<tr>
<td>glæs</td>
<td>glass</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>gōd</td>
<td>god</td>
<td>&lt;godd&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>græs</td>
<td>grass</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>hōt</td>
<td>lot</td>
<td>&lt;lott&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>hōc</td>
<td>hock</td>
<td></td>
<td></td>
<td>OE <em>hocc</em> obs./dia. ‘mallow’</td>
</tr>
<tr>
<td>hrǣd</td>
<td>rad</td>
<td></td>
<td></td>
<td>C19 dial. ‘ready’ (<em>OED</em>)</td>
</tr>
<tr>
<td>lēc</td>
<td>lock</td>
<td></td>
<td></td>
<td>cf. OE locc (of hair)</td>
</tr>
<tr>
<td>lōs</td>
<td>loss</td>
<td></td>
<td></td>
<td>OE to lose</td>
</tr>
<tr>
<td>mōs</td>
<td>moss</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pēp</td>
<td>path</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>plōt</td>
<td>plot</td>
<td></td>
<td></td>
<td>(of land); only once in OE</td>
</tr>
<tr>
<td>sēd</td>
<td>sad</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>sēp</td>
<td>sap</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>sceōt</td>
<td>shot</td>
<td></td>
<td></td>
<td>‘act of shooting’</td>
</tr>
<tr>
<td>scēt</td>
<td>scot</td>
<td>ON skot, OF escot</td>
<td>as in scot-free</td>
<td></td>
</tr>
<tr>
<td>slæc</td>
<td>slack</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>slöp</td>
<td>slop</td>
<td>OE oferslop ‘surplice’</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------</td>
<td>---------</td>
<td>-------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>small</td>
<td>small</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>sōc</td>
<td>sock</td>
<td>‘liquid manure’</td>
<td></td>
<td></td>
</tr>
<tr>
<td>spār</td>
<td>spar</td>
<td>MLG?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>stāf</td>
<td>staff</td>
<td>cf. PDE stave</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ströp</td>
<td>strop</td>
<td>also PDE strap (Onions)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>swān</td>
<td>swan</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>swēðə</td>
<td>swath</td>
<td>also OE swāðu &gt; swathe</td>
<td></td>
<td></td>
</tr>
<tr>
<td>trōð</td>
<td>trough</td>
<td>dial. ‘footpath’ (OED)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>þæc</td>
<td>thack</td>
<td>noun ‘thatch’</td>
<td></td>
<td></td>
</tr>
<tr>
<td>þröc</td>
<td>throck</td>
<td>dial. ‘beam for ploughshare’ as in wrack and ruin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>wræc</td>
<td>wrack</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A.2 Lengthened items (e.g. WHALE)

<table>
<thead>
<tr>
<th>OE</th>
<th>PDE</th>
<th>Ortmulum nom. sg.</th>
<th>Alternative etyma</th>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>bær</td>
<td>bare</td>
<td></td>
<td></td>
<td>-r</td>
</tr>
<tr>
<td>gebēd</td>
<td>bead</td>
<td>&lt;beđe&gt;</td>
<td>OE bedu?</td>
<td></td>
</tr>
<tr>
<td>blād</td>
<td>blade</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>gebōd</td>
<td>bode</td>
<td>&lt;bode&gt;</td>
<td>C19 dial. ‘offer’ (OED)</td>
<td></td>
</tr>
<tr>
<td>cōl</td>
<td>coal</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>crān</td>
<td>crane</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>dēl</td>
<td>dale</td>
<td>&lt;dāle&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>fær</td>
<td>fare</td>
<td></td>
<td>OE faru</td>
<td></td>
</tr>
<tr>
<td>flōt</td>
<td>float</td>
<td></td>
<td>OE flota, flotian; OF flotte, flotter</td>
<td>-r</td>
</tr>
<tr>
<td>geār</td>
<td>yair</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>geōt</td>
<td>gate</td>
<td>&lt;ʒate&gt;, &lt;gate&gt; ON gata</td>
<td></td>
<td></td>
</tr>
<tr>
<td>geōc</td>
<td>yoke</td>
<td>&lt;ʒ0cc&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>grāf</td>
<td>grave</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>hōl</td>
<td>hole</td>
<td></td>
<td>OE holh</td>
<td>‘small enclosed valley’</td>
</tr>
<tr>
<td>hōf</td>
<td>hope</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>hwēl</td>
<td>whale</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>lāt</td>
<td>late</td>
<td>&lt;lāte&gt; (adv.)</td>
<td>OE late (adv.) adj.</td>
<td></td>
</tr>
<tr>
<td>mōt</td>
<td>mote</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>sceād</td>
<td>shade</td>
<td></td>
<td>OE sceadu</td>
<td></td>
</tr>
<tr>
<td>slēd</td>
<td>slade</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>spēr</td>
<td>spare</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>spēd</td>
<td>spade</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>stēf</td>
<td>stave</td>
<td>&lt;staff&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>tām</td>
<td>tame</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>þōl</td>
<td>thole</td>
<td></td>
<td>‘peg in gunwale of boat’</td>
<td>-r</td>
</tr>
<tr>
<td>gewēr</td>
<td>aware</td>
<td>&lt;warr&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>wēr</td>
<td>weir</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX B
SHORTENING IN UNAPOCOPATED DISYLLABIC STEMS

- Items with potentially geminating *muta cum liquida* clusters are treated separately in order to control for the potential rôle of the geminate.

<table>
<thead>
<tr>
<th>OE</th>
<th>PDE</th>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

B.1 Items without *muta cum liquida* clusters

B.1.1 Unshortened (e.g. TOKEN)

<table>
<thead>
<tr>
<th>OE</th>
<th>PDE</th>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>æcum</td>
<td>oakum</td>
<td>reduced form of <em>ā-cumba</em></td>
</tr>
<tr>
<td>æfen</td>
<td>even</td>
<td>as in <em>evensong, evenbell</em>, etc.</td>
</tr>
<tr>
<td>bœacen</td>
<td>beacon</td>
<td></td>
</tr>
<tr>
<td>bœcen</td>
<td>beechen</td>
<td></td>
</tr>
<tr>
<td>bœsig</td>
<td>boosy</td>
<td>dial. ‘stall, crib’</td>
</tr>
<tr>
<td>bysting</td>
<td>beestings</td>
<td>‘cow's colostrum’ — unshifted V: dial.?</td>
</tr>
<tr>
<td>dœacon</td>
<td>deacon</td>
<td></td>
</tr>
<tr>
<td>drœorig</td>
<td>dreary</td>
<td></td>
</tr>
<tr>
<td>eœstre</td>
<td>Easter</td>
<td></td>
</tr>
<tr>
<td>gleœnung</td>
<td>gloaming</td>
<td></td>
</tr>
<tr>
<td>grœœdig</td>
<td>greedy</td>
<td><em>greed</em> is a C17 back-formation</td>
</tr>
<tr>
<td>hœlæig</td>
<td>holy</td>
<td>cf. wk. adj./noun <em>hālga &gt; hallow</em></td>
</tr>
<tr>
<td>hœœwen</td>
<td>heathen</td>
<td></td>
</tr>
<tr>
<td>hœœsl</td>
<td>housel</td>
<td>now obs.</td>
</tr>
<tr>
<td>ðig</td>
<td>ivy</td>
<td></td>
</tr>
<tr>
<td>ðœn</td>
<td>iron</td>
<td></td>
</tr>
<tr>
<td>ðœisc</td>
<td>Irish</td>
<td></td>
</tr>
<tr>
<td>ðœœle</td>
<td>ouzel</td>
<td>‘blackbird’</td>
</tr>
<tr>
<td>stœœnig</td>
<td>stony</td>
<td></td>
</tr>
<tr>
<td>tœœcn</td>
<td>token</td>
<td></td>
</tr>
<tr>
<td>tœœnel</td>
<td>teanel</td>
<td>dial. ‘baskent’</td>
</tr>
<tr>
<td>tœœsel</td>
<td>teasel</td>
<td></td>
</tr>
<tr>
<td>tœœding</td>
<td>tiding</td>
<td></td>
</tr>
<tr>
<td>ðœœsend</td>
<td>thousand</td>
<td></td>
</tr>
<tr>
<td>wœœsend</td>
<td>weasand</td>
<td></td>
</tr>
<tr>
<td>wœœcœing</td>
<td>Viking</td>
<td></td>
</tr>
<tr>
<td>wœœœrig</td>
<td>weary</td>
<td></td>
</tr>
</tbody>
</table>

B.1.2 Shortened (e.g. WEAPON)

<table>
<thead>
<tr>
<th>OE</th>
<th>PDE</th>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>æœœnig</td>
<td>any</td>
<td>low stress?</td>
</tr>
<tr>
<td>bœœœsm</td>
<td>bosom</td>
<td>eModE *lu/ &gt; /u/ (note C16 &lt;boosome&gt;)</td>
</tr>
<tr>
<td>cœœœcen</td>
<td>chicken</td>
<td></td>
</tr>
</tbody>
</table>
fōstor  foster  -sC-

hēring  herring  vowel still long in various dialects (OED)
rādic  radish
sārig  sorry
sēlig  silly  Also obs. dial. seely
þēstel  thistle  -sC-
wēpen  weapon
wēdig  withy

B.2  Items with muta cum liquida clusters

B.2.1  Unshortened (e.g. CLOVER)

bētel  Angl. *bētel?  beetle  ‘mallet, hammer’
bridels  bridle
clēfre  clover
īdel  idle
nēdl  needle
spīdra  spider
stēpel  steeple

B.2.2  Shortened (e.g. DEVIL)

(i) Geminated forms attested in OE — OE qualitative correspondences

ātor  āttor  atter
ēfre  ēffe  ever  geminate fricatives should resist voicing
bēdling  bēddel  badling
blēdred  blēddred  bladder
fōdor  fōddor  fodder
hlēdred  hlēddred  ladder
lītel  līttel  little
nēdred  nēddred  adder

(ii) Geminated forms unattested in OE — OE qualitative correspondences

dōfol  dōfol  devil  dialectally also /t/
fōdor  fother  ‘cartload’; technically, ‘measure of weight’
leþor  lather
lyþre  lither  or group (iii); dial. ‘lazy, sluggish’
þīder  udder  or group (iii)

(iii) ME qualitative correspondences

brōdor  brother  Note OE <broððran>, <broððre>
mōdor  mother  Note sporadic OE <moddor>
ōder  other  Note OE <oppre>
rādels  riddle
rōdor  rudder
tēafor  tiver  dial. ‘red dye’
APPENDIX C
LENGTHENING IN UNAPOCOPATED DISYLLABIC STEMS

This appendix is based on Minkova's (1982) corpus. It lists the PDE reflexes of those OE candidates to OSL which have remained disyllabic. For the corresponding OE and OF forms, see Minkova (1982: 33-40) and Bliss (1952/3: §56).

C.1 The unstressed rhyme contains a sonorant consonant: 166 items

C.1.1 Lengthened: 39 items
acorn, acre, beaver, besom, chafer, cradle, even, gable, haven, hazel, ladle, maple, navel, open, over, raven, staple, taper, treadle, weasel; bacon, basin, blazon, capon, favour, flavour, label, labour, mason, paper, patient, savour, razor, tabor, vacant, vapour, azure, moment, odour.

C.1.2 Unlengthened: 127 items
addle, aspen, bastard, batten, besom, better, blather, bottom, bracken, brothel, cackle, camel, canon, castle, chaffer, clatter, cocker, cockle, copper, creddle, edder, father, feather, fennel, fester, fetter, fettle, gammon, gather, gavel, gravel, hammer, hatchel, heaven, hovel, hover, kettle, Latin, latter, leather, maslin, nether, nettle, otter, oven, uvver, pebble, pepper, pottle, rather, reckon, repple, saddle, seven, shackle, shovel, snother, sollar, swaddle, talent, tetter, throttle, throstle, water, wattle, weather, wether, whether; alum, azure, baron, barren, barrel, cattle, channel, chattel, clamour, dragon, flatter, gallon, hazard, latten, maillard, manor, panel, satchel, satin, tabard, talon, tassel, travel, valour, vassal, warrant, beryl, bezant, celler, deavour, desert, felon, herald, kennel, lecher, lesson, metal, pennon, peril, present, record, revel, second, tenant, tenor, treasure, tremor, venom, coffin, collar, common, coral, florin, foreign, honour, moral, volume; colour, covin.

C.2 The unstressed rhyme contains an unchecked vowel: 24 items

C.2.1 Lengthened: 0 items

C.2.2 Unlengthened: 24 items
barrow, belly, berry, body, callow, fallow, ferry, harry, harrow, heavy, holly, many, mellow, narrow, nephew, penny, poppy, ready, sallow, shadow, steady, tarry, yellow; jolly.

C.3 The unstressed rhyme consists of vowel plus obstruent: 41 items

C.3.1 Lengthened: 1 item
naked.

C.3.2 Unlengthened: 40 items
basket, chalice, collop, eddish, gannet, haddock, jaspis, planet, provost, radish, relic, trivet; anet, anise, barrat, claret, damask, faggot, habit, latchet, marish, palace, palate, statute, brevet, jealous, legate, prelate, senate, trellice, bonnet, closet, crotchet, forest, profit, rocket, rochet, scket, solace; cherish.
APPENDIX D
MORPHOLOGICAL CONDITIONING OF SHOCC IN THE ORRMULUM

- Items such as <deofell> - <deofless> ‘devil’ OE dēofol are not significant owing to the possibility of resyllabification across the syncope site: i.e. <deo.fless>.
- The right column gives the morphological base in its OE form.
- Exceptions to the generalizations proposed are marked with an exclamation point (!).

D.1 Underived environments

SHOCC applies regularly in synchronically underived environments:

- <errnde>^1 ‘errand, message’ ærende
- <blosstme> ‘blossom’ blōstma
- <freollsenn> ‘celebrate’ frēols
- <zittsunng> ‘covetousness’ ġūsunγ
- <lihht> ‘light’ λēohht
- <nohht> ‘not’ nōht
- <ohht> ‘anything’ ȍht

Before sC clusters, shortening applies inconsistently: e.g.

- <asskenn> ‘ask’ āscian
- <brest> ‘breast’ brēost
- <esstess> ‘dainties’ ēst
- <fosstrenn> ‘foster’ vb. fōstor
- <prest> ‘priest’ prēost

D.2 Nominal inflection

Syncope attendant on the addition of nominal inflections fails to trigger SHOCC:

- <decness> ‘deacon’ pl. dēacon
- <ehne> ~ <ēzhne> ‘eye’ pl. ēage

---

^1 <errnde> occurs as nom. and acc. sg. There are no alternations to justify an unsyncopated underlying representation /ērnda/.

^2 *frī-hals > OE frēols ‘free’, whence frēolsian (Campbell, 1959: §238.2). Note that the SHOCC-triggering cluster occurs within the morphological base.

^3 Related forms: ġūsiān, ġūsiere, ġūsiendnes, etc. The -s- is to be analysed not as a derivational formative, but as part of the base.

^4 No longer synchronically related to <awihht> (OE āwiht) and <nawihht> (OE nāwiht)

^5Orm’s nom. sg. form is <ēzhne>; his plural form appears to involve double marking, with -e being added to the normal weak ending (cf. OE ēgan). The spelling <ehnē>, suggesting a shortened root-vowel, appears just once in the manuscript, in contrast with well over a dozen occurrences of <ehnē> ~ <ēzhne>. 
D.3 Verbal inflection

SHOCC applies regularly to athematic past tense and past participle forms of weak verbs:

- `<brohhte>` 'bring' pret. 3sg. `bringan`\(^7\)
- `<cwemmde>` 'please' pret. 3sg. `cwēman`
- `<demmde>` 'deem' pret. 3sg. `dēman`
- `<dredde>` 'dread' pret. 3sg. `adrēdan`
- `<fedde>` 'feed' pret. 3sg. `fēdan`
- `<flemmde>` 'banish' pret. 3sg. `flī̄eman`
- `<gæmmde>` 'heed' pret. 3sg. `gēman`
- `<hidde>` 'hide' p. ptc. `hīðan`
- `<keppte>` 'keep' pret. 3sg. `cēpan`
- `<kidde>` 'make known' pret. 3sg. `cī̄pan`
- `<ledde>` 'lead' pret. 3sg. `lēdan`
- `<sleppte>` 'sleep' pret. 3sg. `slē̄pan`
- `<sohhte>` 'seek' pret. 3sg. `sēcan`
- `<spredde>` 'spread' p. ptc. `sprē̄dan`
- `<tahhte>` 'teach' pret. 3sg. `tēcan`
- `<pohhte>` 'think' pret. 3sg. `pencan`
- `<phuhhte>` 'appear' pret. 3sg. `þyncan`
- `<wepptenn>` 'weep' pret. 3pl. `wēpan`

D.4 Derivation

D.4.1 Zero-derived weak verbs

Syncope attendant on the addition of verbal inflections to zero-derived weak verbs fails to trigger SHOCC:

- `<ahnenn>`\(^8\) 'obtain' `āgen` (whence `āgnian`)
- `<becnenn>` 'beckon' `bēacn`
- `<huslenn>` 'to admit to Communion' `hūsl`
- `<taecnenn>` 'betoken' `tācn`
- `<wapnedd>` 'arm' p. ptc. `wēpn`

---

\(^6\) *Hallig* is exceptional in the *Ormulum* in that it is the only word where the suffix -iʒ undergoes syncope (see Burchfield, 1956: 77, fn. 1, for a list of -iʒ derivatives). Note also the OE weak noun *hālga* 'saint'.

\(^7\) OE pret. 3sg. *brōhte*, from an athematic Germanic form *braht-es-t-; cf. also OE *þōhte* (*pencan*) and *þūhte* (*þyncan*) (Campbell, 1959: §753.9.b.5).

\(^8\) Note that in Orm's dialect *hn-* no longer is a permissible onset cluster: e.g. `<nesshe>` 'tender' OE *hnesce*. 
D.4.2 -þ/-t

The suffix -þ/-t triggers SHOCC consistently:

<ahhte> ‘property’ ãgan ‘own, possess’
<maþþe> ‘kin’ mæg
<laþþe> ‘hostility’ lāh
<seollþe> ‘happiness’ sæl
<wræþþe> ‘wrath’ wræþ

D.4.3 Other suffixes

All derivational suffixes other than -þ/-t fail to trigger SHOCC:

<æddmodleþc> ‘humility’ mōd
<æmodliþ> ‘humbly’ mōd
<æmodnesse> ‘humility’ mōd
<anfald> ‘onefold’ ān
<buhsumm> ‘obedient, pliable’ bugan ‘bend’
<clænleþc> ‘cleanliness’ clæne
<clænnesse> ‘cleanness’ clæne
<cupliþ> ‘familiarly’ cāþ
<deoplíkkerr> ‘deeply’ comp. dēap
<flæshlic> ‘carnal’ flæsc
<æþþeþc> ‘caution’ gēap
<galnesse> ‘wantonness’ gāl
<gasþlc> ‘spiritual’ gāst
<godþþeþc> ‘goodness’ gōd
<godnesse> ‘goodness’ gōd
<halsumm> ‘wholesome’ hāl
<hehlike> ‘high’ hēah
<lefliþ> ‘affectionately’ lēof
<onnlicnesse> ‘likeness’ gelāc

9 ‘Christian’, but Orm has <Cristene> ~ <Crisstene>, whence also <Crisstenndom>.

10 Here the relevant feature of the forms <æddmodleþc>, <æmodliþ> (also <æddmodliþ>) and <æmodnesse> (also <æddmodnesse>) is the absence of vowel shortening in the second root mōd after the addition of a consonant-initial derivational suffix. For the behaviour of the first root, see D.5 below.

11 Not *<clennnesse>. Orm’s orthography occasionally allows triple consonant graphs: e.g. <drunkennnesse> ‘drunkenness’ ll. 14741, 15377, 15389 (Holm, 1922: 94); <skilllæs> ‘ignorant’ l. 3715. Moreover, the length of the root-vowel is redundantly specified by the graph <æ>, which uniquely designates the long vowel ë (OE ā, ēa), its short counterpart being <e>: cf. <clennlike> below (see Anderson & Britton, 1997: §49-51). Note also the antonym <unnclænnesse>.
<meocleɔ̃c> 'meekness' Orm <meoc>
<meocnesse> 'meekness' Orm <meoc>
<secnedd>12 'sicken' p. ptc. seoc
<soflike> 'truly' sōp
<brōlik> 'sweetly' sweōte
<sellcuþlike> 'unusually' cūþ
<swētlike> 'wisely' wīs
! <clennlike> 'cleanly' clæn
! <clennsenn> 'cleanse' clēne
! <dunnwarrd> 'downward' adūne
! <herrsumm> 'obedient' hēran
! <liccness> 'likeness' gelēc
! <mannsenn> 'excommunicate’ vb. mān
! <wissenn>14 'instruct’ wīs

D.4.4 Suffixoids15

Suffixoids fail to trigger SHOCC:

<lefffull>16 'believing’ gelēafā
<nipfull> 'envious’ nō
<soþfasst> 'true, faithful’ sōp
<unnþæwfull> 'immoral’ þēaw
<whilwendlic> 'temporary’ hwīl
! <wissdom>17 'wisdom’ wīs

---

12 Derived by means of an -n- weak verb formative (OE -n-i-an; see Lass, 1994: 203).
13 But cf. <onlicnesse> above.
14 Whence <wissinng> ‘instruction’. In OE, wīsian alternated with wissian, which presumably already had a short vowel (Campbell, 1959: §287). Forms such as <clennsenn>, <mannsenn> and <wissenn> may suggest that in Orm’s dialect the presence of the -s- formative in thematic weak verbs (OE -s-i-an; see Lass, 1994: 203) triggers SHOCC consistently. If so, the derivational verbal suffix -senn would pattern with the derivational nominal suffix -þ/t. The evidence is, unfortunately, insufficient: note, in particular, that it is doubtful whether Orm perceived <wissenn> as containing the -s- formative, given that he does not write <wisssenn>.

15 In the classification of morphemes as suffixes, suffixoids, or compound formatives, I follow Sauer (1992).
16 Not *<leffful>; see note 11.
17 It is significant that a good deal of the morphologically unexpected applications of SHOCC in the Orrmlulm are concentrated in a handful of roots: <clennlike>, <clennsenn>, <unnclennsedd>; <Crisstene>, <cristtenn>; <hallflhe>, <hallflhem> (plural noun), <hallflhenn> (vb.); <wissenn>, <wissinng>, <wissdom>. This suggests incipient lexicalization of an already heavily morphologized process, rather than random analogical levelling.
D.5 Compounding

Transparent compounding fails to trigger SHOCC:

- `<æstdale>` ‘eastward’
- `<bocstaff>` ‘letter, character’
- `<breostlin>` ‘breast-plate of linen’
- `<bridgume>` ‘bridegroom’
- `<dædbote>` ‘penitence’
- `<dæþshildiʒ>` ‘guilty, condemned’
- `<drįʒcafficęss>` ‘magical arts’
- `<driʒmenn>` ‘magicians’
- `<dunstiʒhinng>` ‘descent’
- `<ficตร>` ‘fig-tree’
- `<hehfaderr>` ‘God the Father’
- `<larfadder>` ‘teacher’
- `<larspell>` ‘doctrine’
- `<licwurrpǐʒ>` ‘agreeable’
- `<shephirde>` ‘shepherd’
- `<suďdale>` ‘southward’
- `<útбресstenn>` ‘burst out’
- `<útlędenn>` ‘lead out’
- `<útnummenn>` ‘outstanding’
- `<útwiþþ>` ‘beyond, out of’
- `<wįfмann>` ‘woman’

! `<әdмod>` ~ `<әdмоd>`
! `<chappмenn>`
! `<goddспell>`
! `<laффdiʒ>`
! `<weппмann>`

Alongside the grammaticalized form `<wимвann>`.

Both Fulk (1996: 496-7) and Anderson & Britton (1997: 49-50) observe that the form `<әдмод>`, as well as its derivatives `<әдмодлęʒɛв`, `<әдмодлįʒ` and `<әдмоднєssе`, displays conflicting orthographic clues: on the one hand, the graph `<ә>` implies a long vowel (see footnote 11 above); on the other, the double consonant implies shortness. The change `-dm- > -dm-` (Campbell, 1959: §424) may be regarded as obscuring the relationship of the compound with its base: OE `әdє` ‘easy, friendly’, Orm `<әf>` (cf. Fulk, 1996: 504-5).

In this form shortening may already have occurred in OE (Luick, 1964: §204.1; Campbell, 1959: §285), although this is hard to ascertain. Orm is aware of the correct etymology of the word (Dedication, ll. 157ff.).

The truncation of the first element, already encountered in OE (Campbell, 1959: §477.5), may be a sign of grammaticalization.
REFERENCES


