
Vowel weakening in Old West Saxon

1 Vowel variation in weak verbs

The past tense forms of the second weak conjugation in Old West Saxon have both *-a-* and *-o-*:

- (1) Pret. *andswarade* ~ *andswarode* ‘answered’, perf. *wundad* ~ *wundod* ‘wounded’.

Two questions:

- (2) What grammatical principles guide the distribution of these two vowels?
(3) Why are the vowels distributed according to these principles?

With two answers:

- (4) The vowel *-o-* is significantly more common in a medial syllable (*andswarode*) than in a final syllable (*wundod*).
(5) I suggest that *-o-* originated from vowel weakening in medial syllables.

2 Unstressed *o* from older *u*

Proto-West-Germanic had three unstressed short vowels, and no *o*:

- (6)
- | | |
|---|---|
| i | u |
| a | |

In the earliest Old English texts from the 8th century, there are five unstressed short vowels, and still no *o* (Campbell 1959:19, 153, Hogg 1992:240):

- (7)
- | | |
|---|---|
| i | u |
| e | |
| æ | a |

In later texts, *u* is lowered to *o* in most positions.¹

(8) Old West Saxon is attested from ca. 890, and has mostly *o*.

(9) Past tense forms of the second weak conjugation in West Saxon have therefore more often *o* than *u*: pret. *laðode* ~ *laðude* ‘lathed’.

(10) ⇒ There is no contrast between unstressed *u* and *o* in Old English.

⇒ Since Old West Saxon *o* originates from older *u*, I will often refer to this vowel as *u*.

3 The origin of the second weak conjugation

(11) The verbs of the second weak conjugation are also called *ō*-verbs.

(12) These verbs are derived from nouns in *-ō* with the use of verbal morphemes:

Proto-Germanic	<i>*andswar-ō</i>	‘an answer’	→	<i>*andswar-ō-pi</i>	‘he answers’
				<i>*andswar-ō-dē</i>	‘he answered’

Old English	<i>andswaru</i>	→	<i>andswarað</i>
			<i>andswarade</i> ~ <i>andswarode</i>

⇒ The vowels *a* ~ *u* in the past tense forms of these verbs stem from an original **ō*.

4 Earlier treatments

(13) The first to note variation in the vowel of these forms was Hicke (1689:2, 47, 59).

(14) Rask (1817:2) emphasized that the variation is mainly between *-ad(e)* and *-od(e)*.

(15) Ettmüller (1851:LXVII) claimed that the variation between *a* and *o* is found in the preterite singular forms, but that *a* is rarely or never found in the preterite plural forms (similarly Shute 1867:35).

¹ Luick 1914–21:302, Campbell 1959:19, 155f., Brunner 1965:31, 124, 128, Hogg 1992:245f.

- (16) van Helten (1891:460ff.) sees Old English *a* as the regular development of unstressed **ō*, and suggests that *o* originates in the preterite plural forms by a specific sound change:
- **ō* is raised to **ū* when a **u* follows in the next syllable.
 - 3.sg. **andswarōdē* → *andswarade*
 - 3.pl. **andswarōdun* → **andswarūdun* → *andswarudun* → *andswarodon*
- (17) All main grammars of Old English accept van Helten's explanation for the variation *a* ~ *o* in the past tense forms of the second weak conjugation:
- Bülbring 1902:156f.
 - Luick 1914–21:269f.
 - Girvan 1931:126.
 - Kieckers 1935:36f., 184.
 - Campbell 1959:139.
 - Brunner 1965:31f., 128, 329.
 - Hogg 1992:66f.
 - Hogg & Fulk 2011:283.
- (18) There is no agreement to what extent this original distribution of *a* and *o* can be traced in Old English:
- Ettmüller: “In singulari praeteriti [...] interdum *â* pro *ô* legitur, [...] in plurali [...] nunquam vel rarissime [...]” (1851:LXVII).
 - Luick: “Das vor folgendem *u* entstandene *ū* wurde dann vielfach auch in verwandten Formen mit anderem Folgevokal übertragen” (1914–21:270).
 - Girvan: “vandaar is de *u* ook in andere vormen gedrongen, bv. in het part. perf.” (1931:126).
 - Kieckers: “*u* war ursprünglich vor dem *-un* des Plurals berechtigt; es trat aber Promiscuegebrauch ein” (1935:184).
 - Campbell: “either vowel might be generalized” (1959:139).
 - Brunner: “Diese Formen sind mundartlich verschieden aufgeteilt” (1965:329).
 - Hogg: “elimination of the predicted allomorphy is regular in all dialects” (1992:67).
 - Hogg & Fulk: “The analogical extension of *-ad-* and *-ud-/od-* is far advanced already in the earliest glossaries” (2011:283).
- (19) With the exception of Ettmüller 1851, most scholars indicate that the analogical extension of *a* and *o* in either direction is advanced, but perhaps not complete.

⇒ If anything, *u* (→ *o*) should be more common where an original **u* followed than elsewhere.

5 New proposal: vowel weakening in medial syllables

Past tense forms of weak verbs in other Germanic languages show effects of vowel weakening in medial syllables:

- (20) This is seen in the past tense forms of the third weak conjugation, formed with **ē*.
- (21) In Old Norse, **ē* is entirely lost in medial syllables, but retained as *a* in final syllables (Noreen 1923:137):
- (22) **þul-ē-dē* **þul-ē-daR* → *þol-ði* *þol-a-ðr* ‘endured’
- (23) In Old High German, **ē* is shortened in medial syllables, but retained as a long vowel in final syllables (Stausland Johnsen 2010):
- (24) **þul-ē-dē* **þul-ē-daR* → *dol-e-ta* *dol-ē-t* ‘endured’

In Latin, *a* and *e* are retained in final open syllables, but reduced to *i* in medial open syllables (Leumann 1977:82, 92):

- (25) *ita* ‘in such a way’ *iti-dem* ‘in the same way’
 inde ‘from that place’ *indi-dem* ‘from the same place’

⇒ Vowels in medial syllables are susceptible to more reduction than in final syllables.

In many languages, an unstressed low back round vowel (*o*, *ɔ*) is raised to a high vowel *u*:

- (26) Old Norse *sógqorr* → *sógurr* ‘thus’, **heilǫg* → *heilug* ‘holy’ (Noreen 1923:127f., de Vries 1962:529).
- (27) Old Latin *opos* ‘work’, *venos* ‘love’ → Classical Latin *opus*, *venus* (Leumann 1977:94).
- (28) Bulgarian *róguf* ‘of horn’ vs. *rugát* ‘horned’, and *ónzi* ‘that (m.)’ vs. *unázi* ‘that (f.)’ (Crosswhite 2004:204).

⇒ A reduced back vowel *o* ~ *ɔ* is often raised to a high *u*.

I suggest that when unstressed **ō* [ɔ:] was shortened to **o* before Old English, it was reduced and raised to *u* in medial syllables, but developed regularly to *a* in final syllables.

⇒ Hypothesis: *u* (\rightarrow *o*) should be more common in medial syllables than in final syllables.

6 The two hypotheses

Van Helten' rule:

(29) *u* (\rightarrow *o*) is more common where an original **u* followed than elsewhere.

New hypothesis:

(30) *u* (\rightarrow *o*) is more common in medial syllables than in final syllables.

7 Ms Hatton 20 – Pastoral Care

(31) Pastoral Care written in Latin by Pope Gregory I in 591.

(32) Translated into Old West Saxon by Alfred the Great around 890, who sent one copy to each see in Wessex and Mercia.

(33) The only surviving original copy is the copy sent to bishop Werferth in Worcester: Ms Hatton 20.

(34) Written by thirteen (Gieschen 1887:1ff.) or three (Ker 1957:385f.) scribes.

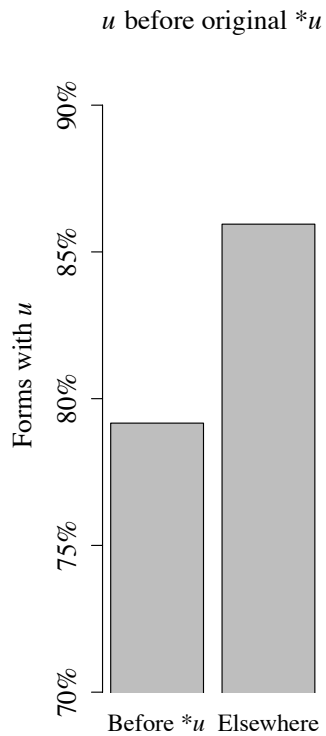
(35) Hatton 20 is especially valuable because it is the longest of the early Old English texts (roughly 68.000 words).

(36) All past tense forms of the second weak conjugation were collected from Hatton 20:

-o-	-a-	-u-	other	total
347	62	9	39	457

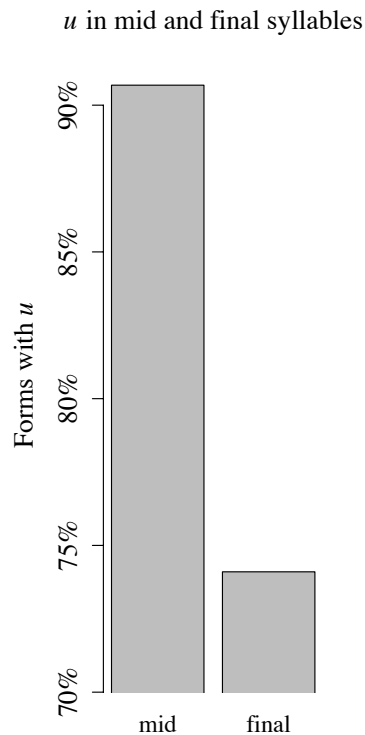
8 Analysis

- (37) Forms with *-o-* and *-u-* are treated as having *u*.
- (38) Forms which have neither *o*, *u* nor *a* are discarded.
- (39) Proportions of forms with *-u-* before an original **u*:



- (40) The vowel *-u-* is actually *less* common when an original **u* followed.
 - (41) But this difference is not statistically significant (mixed effects logistic regression, $p = .40$).
- ⇒ No support for van Helten's rule.

(42) Proportions of forms with *-u-* in mid and final syllables:



(43) The vowel *u* is considerably more common in medial syllables than in final syllables ($p < .0001$).

⇒ The new hypothesis is supported by the data.

9 Why is **o* raised to *u* in medial syllables?

(44) Unstressed vowels are shorter in medial syllables than in final syllables.²

9.1 Listener error

(45) There is a correlation between vowel duration and vowel height:

- High vowels are shorter than low vowels.³

² Delattre 1966:191ff., Lindblom 1968:3, Oller 1973:1236ff., Umeda 1975:442f.

³ Lindblom 1967:2, 22, Lehiste 1970:18f., Keating 1985:119, Choi 1991:8, Hertrich & Ackermann 1997:527, Maddieson 1997:623f., Most et al. 2000:300f., Myers 2005:432f., Escudero et al. 2009:1388.

- (46) Listeners are aware of this correlation, and perceive a shortened low vowel as a higher vowel (Hillenbrand et al. 2000:3020).
- (47) \Rightarrow The shortened **o* in medial syllables could therefore be misperceived by listeners as a higher vowel, starting a raising process that ended in *u*.
- (48) Cf. that pre-Old English at the time already had an unstressed **u*, but no unstressed **o* (section 2).

9.2 Speaker error

- (49) Low vowels are (by definition) produced with more tongue lowering than high vowels.
- (50) Low vowels are produced with more jaw lowering than high vowels (Lindblom 1967:2, Keating 1985:119).
- (51) Vowels in medial syllables are produced between consonants with an oral closure, which require tongue and jaw raising.
- (52) The physical distance between consonants and vowels is therefore larger for low vowels than for high vowels.
- (53) When a medial low vowel is shortened, the risk increases that the articulators (tongue and jaw) do not reach the target articulation (lowered tongue and jaw) before they need to retract for the oral closure of the consonant.
- (54) If the articulators undershoot, a higher vowel will be produced.
- (55) Listeners could analyze the undershot raised vowel as the intended articulatory target, starting a raising process ending in *u*.

9.3. Grammar – not error

- (56) The phonological grammar can be analyzed as conflicts between constraints promoting ease of articulation for the speaker and constraints promoting perceptual salience for the listener (Martinet 1968).
- (57) Producing short low vowels requires more articulatory effort than producing short high vowels, since the articulators need to travel longer and faster for low vowels.

- (58) Raising of shortened low vowels occurs when the constraints promoting articulatory ease take priority over constraints for perceptual saliency (Flemming 2005:6).

10 Remaining issues

- (59) Is there experimental evidence outside of English that shortened low vowels are perceived as higher vowels?
- (60) Is there experimental evidence that shorter vowels have a higher jaw and tongue position than longer vowels (all else being equal)?
- (61) Add other phonological predictors to the model:
- For Old Mercian, Dresher (1985:48) suggests that *-u-* in the past ending correlates with back vowels in the root syllable.
 - In later West Saxon, Hogg & Fulk (2011:283) claim that *-a-* correlates with the back vowels *u* and *o* in the root syllable.
- (62) Add the remaining Old West Saxon manuscripts to the corpus (Parker Chronicle and Lauderdale Orosius).

11 Conclusions

- (63) Old West Saxon exhibits variation between *-a-* and *-o-* in the past tense of weak verbs: *andswarade* ~ *andswarode* ‘answered’.
- (64) A statistical analysis of the largest Old West Saxon text reveals that *-o-* is far more common in a medial syllable than in a final syllable: *clāensode* ~ *clāensad* ‘cleansed’, *bisgode* ~ *bisgad* ‘busied’.
- (65) Unstressed vowels in medial syllables are shorter and more likely to reduce than vowels in final syllables.
- (66) Perceptual and articulatory properties of shortened low vowels increase the likelihood that they are raised to high vowels.
- (67) ⇒ Unstressed **o* [ɔ] generally develops to *a* in Old English, but is shortened and reduced to *u* in medial syllables. This *u* is later lowered to *o* in West Saxon.

References

- Brunner, Karl. 1965. *Altenglische Grammatik nach der angelsächsischen Grammatik von Eduard Sievers. Dritte, neubearbeitete Auflage*. Tübingen: Max Niemeyer Verlag.
- Bülbring, Karl D[aniel]. 1902. *Altenglisches Elementarbuch. I. Teil: Lautlehre*. Heidelberg: Carl Winters Universitätsbuchhandlung.
- Campbell, A[listair]. 1959. *Old English Grammar*. Oxford: Oxford University Press.
- Choi, John D[ongwook]. 1991. An Acoustic Study of Kabardian Vowels. *Journal of the International Phonetic Association* 21 (1):4-12.
- Crosswhite, Katherine M[argaret]. 2004. Vowel Reduction. In Bruce Hayes, Robert Kirchner, and Donca Steriade, eds., *Phonetically Based Phonology*, 191-231, Cambridge: Cambridge University Press.
- Delattre, Pierre. 1966. A Comparison of Syllable Length Conditioning among Languages. *International Review of Applied Linguistics* 4 (3):183-198.
- Dresher, Bezalel E[lan]. 1985. *Old English and the Theory of Phonology*. New York, NY: Garland Publishing.
- Escudero, Paola, Paul Boersma, Andréia Schurt Rauber, and Ricardo A[ugusto] H[offmann] Bion. 2009. A Cross-Dialect Acoustic Description of Vowels: Brazilian and European Portuguese. *The Journal of the Acoustical Society of America* 126 (3):1379-1393.
- Ettmüller, Ludwig. 1851. *Vorda Vealhstôd Engla and Seaxna. Lexicon Anglosaxonicum ex Poëtarum Scriptorumque Prosaicorum Operibus nec non Lexicis Anglosaxonicis Collectum, cum Synopsi Grammatica*. Quedlinburg and Leipzig: Gottfried Basse.
- Flemming, Edward. 2005. A Phonetically-Based Model of Phonological Vowel Reduction. Ms.
- Gieschen, Ludwig. 1887. *Die charakteristischen Unterschiede der einzelnen Schreiber im Hatton Ms. der Cura Pastoralis*. Ph.D. dissertation, University of Greifswald.
- Girvan, R[itchie]. 1931. *Angelsaksisch Handboek*. Haarlem: H. D. Tjeenk Willink & Zoon.
- van Helten, W[illem]. 1891. Grammatisches. *Beiträge zur geschichte der deutschen sprache und literatur* 15:455-488.
- Hertrich, Ingo and Hermann Ackermann. 1997. Articulatory Control of Phonological Vowel Length Contrasts: Kinematic Analysis of Labial Gestures. *The Journal of the Acoustical Society of America* 102 (1):523-536.
- Hickes, George. 1689. *Institutiones Grammaticæ Anglo-Saxonicae, et Mæso-Gothicæ*. Oxford: Sheldonian Theatre.
- Hillenbrand, James M[ichael], Michael J[oseph] Clark, and Robert A[lphonse] Houde. 2000. Some Effects of Duration on Vowel Recognition. *The Journal of the Acoustical Society of America* 108 (6):3013-3022.
- Hogg, Richard M[ilne]. 1992. *A Grammar of Old English. Volume 1: Phonology*. Oxford: Blackwell Publishers.
- Hogg, Richard M[ilne] and R[obert] D[ennis] Fulk. 2011. *A Grammar of Old English. Volume 2: Morphology*. Chichester: Wiley-Blackwell.

- Keating, Patricia A[nn]. 1985. Universal Phonetics and the Organization of Grammars. In Victoria A[lexandra] Fromkin, ed., *Phonetic Linguistics. Essays in Honor of Peter Ladefoged*, 115-132. Orlando, FL: Academic Press.
- Ker, N[eil] R[ipley]. 1957. *Catalogue of Manuscripts Containing Anglo-Saxon*. Oxford: Clarendon Press.
- Kieckers, Ernst. 1935. *Altenglische Grammatik*. München: Max Hueber Verlag.
- Leumann, Manu. 1977. *Lateinische Laut- und Formenlehre*. München: C. H. Beck'sche Verlagsbuchhandlung.
- Lehiste, Ilse. 1970. *Suprasegmentals*. Cambridge, MA: The M.I.T. Press.
- Lindblom, B[jörn]. 1967. Vowel Duration and a Model of Lip Mandible Coordination. *Speech Transmission Laboratory – Quarterly Progress and Status Report* 8 (4):1-29.
- Lindblom, B[jörn] E[rland] F[redrik]. 1968. Temporal Organization of Syllable Production. *Speech Transmission Laboratory – Quarterly Progress and Status Report* 9 (2-3):1-5.
- Luick, Karl. 1914–21. *Historische Grammatik der Englischen Sprache. Erster Band. I. Abteilung*. Leipzig: Chr. Her. Tauchnitz.
- Maddieson, Ian. 1997. Phonetic Universals. In William J. Hardcastle and John Laver, eds., *The Handbook of Phonetic Sciences*, 619-639.
- Martinet, André. 1968. Phonetic and Linguistic Evolution. In Bertil Malmberg, ed., *Manual of Phonetics*, 464-487, Amsterdam: North-Holland Publishing Company.
- Most, Tova, Ofer Amir, and Yishai Tobin. 2000. The Hewbrew Vowel System: Raw and Normalized Acoustic Data. *Language and Speech* 43 (3):295-308.
- Myers, Scott. 2005. Vowel Duration and Neutralization of Vowel Length Contrasts in Kinyarwanda. *Journal of Phonetics* 33:427-446.
- Noreen, Adolf. 1923. *Altnordische grammatik I. Altisländische und altnorwegische grammatik (laut- und flexionslehre) unter berücksichtigung des urnordischen. Vierte vollständig umgearbeitete auflage*. Halle (Saale): Verlag von Max Niemeyer.
- Oller, D[avid] Kimbrough. 1973. The Effect of Position in Utterance on Speech Segment Duration in English. *The Journal of the Acoustical Society of America* 54 (5):1235-1247.
- Rask, R[asmus] K[ristian]. 1817. *Angelsaksisk Sproglære tilligemed en kort Læsebog*. Stokholm: Mag. Wiborgs Forlag.
- Shute, Samuel M[oore]. 1867. *A Manual of Anglo-Saxon for Beginners; Compromising a Grammar, Reader, and Glossary, with Explanatory Notes*. New York: Leypold & Holt.
- Stausland Johnsen, Sverre. 2010. Reconstructing the past of the Germanic 3rd conjugation. General paper, Harvard University.
- Umeda, Noriko. 1975. Vowel Duration in American English. *The Journal of the Acoustical Society of America* 58 (2):434-445.
- de Vries, Jan. 1962. *Altnordisches etymologisches Wörterbuch. Zweite verbesserte Auflage*. Leiden: E. J. Brill.