THE VOWEL SYSTEM OF THOMAS WHYTHORNE
—An Analysis Based on Generative Phonology—

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1. Introductory Remarks†

The purpose of the present paper is to examine the vowel system of Thomas Whythorne within the model of generative phonology proposed by N. Chomsky and M. Halle in The Sound Pattern of English (1968).

Thomas Whythorne was an Elizabethan musician and composer, born in 1528 and died in 1596. His manuscript was edited by James M. Osborn and was published as The Autobiography of Thomas Whythorne in 1961,¹ and it is this edition that serves as the basis for the present investigation.² The autobiography cannot be dated exactly, but the year 1576 seems the most likely time for him to have composed it.³

Whythorne wrote the autobiography in his “new Orthografye”.⁴ He stated his intention explicitly—“I will wryte wurds as they be sowned in speech.”⁵ Dobson, however, was inevitably unable to include an account of the autobiography of Thomas Whythorne in his discussion of the sixteenth century spelling reformers, because the

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² The present discussion is based on the evidence gathered from p. 1 to p. 100 of this edition.
³ Osborn, op. cit., p. lxii.
⁴ Ibid., p. 1.
⁵ Ibid., p. 6.
manuscript came to light only after his book was at press.\textsuperscript{1} Therefore it will be linguistically significant to analyze his new orthography and to construct his vowel system.\textsuperscript{2}

All the vowels dealt with are those that occur in stressed syllables of the lexical categories "noun", "verb", and "adjective."\textsuperscript{3}

\textsuperscript{1} Dobson (1968), p. xi.

\textsuperscript{2} We have indeed Palmer's study (1969), but I think it worth-while to do it over again for the following reasons:

First, I disagree with him in many of his interpretations of Whythorne's sounds, and especially in his view that Whythorne was a dialect speaker. For example, he assumes that the reflexes of IME /i/ and IME /e/ merged into /i/ in Whythorne on the basis of their reflex in the modern Somerset dialect, Whythorne's use of the spelling \textit{y} both for the reflex of IME /i/ and for the reflex of IME /e/ in \textit{achyved} and \textit{graye}, and the rhymes between the reflexes of IME /e/ and IME /i/ such as \textit{gylv} (=give): \textit{revylv} (=revive). It is highly improbable that an educated speaker like Whythorne had preserved his broad Somerset speech throughout his life, because he had lived in Oxford and London after he left his native place, Somerset, at the age of ten. Palmer tries hard to find traces of Somerset pronunciation in the text, but with little success. The spelling \textit{y} in \textit{achyved} and \textit{graye} is considered to be a French traditional spelling taken over into English in the fifteenth century. The rhymes that he gives are too few to indicate the coalescence of IME /e/ and IME /i/. And \textit{gylv} and \textit{relynv} in the above rhyme pair may be assumed to have contained the reflex of IME /i/, because the variation between the reflexes of IME /i/ and IME /e/ occurred in \textit{gylv} (see Dobson, op. cit., § 10) and the variation between the reflexes of IME /i/ and IME /i/ occurred in \textit{relynv} (see Dobson, op. cit., § 12 (2)).

Secondly, his study is based on the structural linguistics of the 1950's, but the present study is based on generative phonology. For example, he assumes that IME /a/ before /s/ lengthened and merged with the reflex of IME /\text{\textae}/ in Whythorne. From the structuralist viewpoint, these two sounds are supposed to have undergone the same sound change after the merger. Thus he tries to explain the different reflexes of the two sounds in the modern Somerset dialect by a process of phonemic borrowing from another dialect. That is, he assumes that the Somerset dialect must have borrowed from another dialect another phoneme for the words originally containing IME /\text{\textae}/, thereby giving them a sound phonemically distinct from the reflex of IME /a/ before /s/. However, in terms of generative phonology, it is assumed that the underlying representations of the reflexes of IME /a/ before /s/ and IME /\text{\textae}/ must have been distinct and only the surface phonetic outputs coalesced in Whythorne. And after his time, only the reflex of IME /\text{\textae}/ is supposed to have been fronted, diphthongized and raised. Therefore the reflex in ModE in words originally containing IME /\text{\textae}/, which presents a problem for the structuralist, can in generative phonology be explained by the same mechanism as the general sound change.

\textsuperscript{3} The word boundary # is automatically inserted at the beginning and end of these lexical categories (Chomsky and Halle (1968), p. 366).
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1.2 The late Middle English (IME) vowel system assumed for the present study is that posited by Chomsky and Halle.¹

Simple Vowels

<table>
<thead>
<tr>
<th>Tense</th>
<th>Lax</th>
</tr>
</thead>
<tbody>
<tr>
<td>i time</td>
<td>ā hate</td>
</tr>
<tr>
<td>ē meet</td>
<td>ą hate</td>
</tr>
<tr>
<td>æ mean</td>
<td>a man</td>
</tr>
</tbody>
</table>

Diphthongs

<table>
<thead>
<tr>
<th>Æy day, maid</th>
<th>Æw dew</th>
</tr>
</thead>
<tbody>
<tr>
<td>5y point</td>
<td>5w blow, know</td>
</tr>
<tr>
<td>ēw new</td>
<td>āw law, draw</td>
</tr>
</tbody>
</table>

2. The Evidence

2.1 LME long vowels

2.1.1 LME /i/

(a) For the reflex of LME /i/ Whythorne usually writes ĺ and he sometimes uses ľ, i besides or instead of ļ:

Tyme, fynd, lyf, chyld, wyld, kyn, abyding, fyν, despŷz, whýt, hyred, výsε̆~výsε̆~výsε̆~výsε̆, wrýt~wrýt, hý~hy, mýht~myht~miht,² delýt~deliht, requýted~requiht, enklynedd, brydell, fier, quiet, riht

¹ Chomsky and Halle (1968), p. 252. Three-vowel-height system is adopted by Chomsky and Halle, while four-vowel-height system is suggested by Wang (1968) and Wolfe (1972). There is no need for assuming four-vowel-height system in Whythorne for the following reasons:

First, there are only three vowel heights in contrast in the underlying representation.

Secondly, there are no phonological changes that only the natural class that the following feature system provides can explain.

<table>
<thead>
<tr>
<th>α</th>
<th>ε</th>
<th>e</th>
<th>i</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>-</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>Mid</td>
<td>-</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>

² The rhymes such as miht:deliht, riht:requiht show that in LME a rule was added tensing /i/ before /h(t)/, thus /ih(t)/ became /iC(t)/. The alternation [i]-[i], which would have established the tensing rule as productive, was not found in LME. Thus it is supposed that the tensing rule led to restructuring, that is, the change from /i/ to /i/ before /h(t)/.
These spellings do not make it clear whether lME /i/ was diphthongized in Whythorne. In the present study, it is assumed that lME /i/ was diphthongized to [ey] for the following reasons: first, the diphthongization of lME /i/ was complete before 1500, and secondly, there is no evidence to show that lME /i/ and lME /e/ merged in Whythorne.2

For the reflex of lME /e/ before final /t/ or /C/, Whythorne writes ee almost regularly and he sometimes spells with e besides ee:

dee, keep, preest, greef, eel, cheef, yeeld, pees, feell, believ, theef, meeter, greeved~greved,4 eevl~evel

For the reflex of lME /e/ before final /t/ or /C/, he uses ea besides ee or e:

yeer,5 cheer, wery, heer~hear,6 appeer~appear, deer~dear

(b) It is assumed that lME /e/ was raised to [I] in Whythorne for the following reasons: first, there is almost complete unanimity among orthoepists on the completion of the raising of lME /e/ to [i] by 1500,7 and secondly, a spelling with ee for French i in loan-words, e.g.

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1 It is shown by the Welsh Hymn (before 1500), Lily (c. 1521), Salesbury (1547), Hart (1551, 1569), Baret (1573), Minsheu (1599), Robinson (1617). The evidence of Palsgrave (1530), Smith (1568), Bullokar (1580), and Waad (1602) cannot be interpreted as showing that lME /i/ was still [I]. Their failure to record the diphthongization was due to the failure of practical phonetic analysis (Dobson, op. cit., pp. 659-60).

2 For the reflex of lME /e/ Whythorne almost regularly writes ee. Moreover, there is almost complete unanimity among the orthoepists on the raising of lME /e/ to [i] by 1500 (see § 2.1.2).

3 The spelling j for the reflex of lME /e/ occurs only in archyved, grýv. This spelling is considered to be a French traditional spelling taken over into English in the fifteenth century.

4 The spelling grevesth may be regarded as an error.

5 The vowel in yeer is assumed to have been /e/ in lME. This vowel originates in OE Anglian and Kentish /e/ derived from Germanic /a/.

6 The vowel in fear that rhymes with bear is assumed to have been /e/ in lME. This vowel originates in OE Anglian and Kentish /e/ derived from Germanic /a/ (see § 2.13, n. 2).

7 Dobson, op. cit., p. 651.
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esteem (<Fr. estimer) before 1450 indicates that the raising took place in the first half of the fifteenth century.

2.13 LME /æ/
(a) For the reflex of lME /æ/ Whythorne writes ea and e:

great~gret, break~brék, speak~spék, reazon~řezon, klean~klen, eger, mean, teacheth, read, repeat, pleazant, bear, wear, tear(v), tear(n), fear, learn~lern

He uses ei, ey besides ea in the following words adopted from French:

konseav~konseiv~konseyv, deseiv~deseyv, reseav~reseiv

He spells with e, ea, e before dentals:

bred~bread, dead~déd, death, breapz

(b) It is assumed that lME /æ/ was raised to [e] in Whythorne, because he used the symbol e which indicates long [e]. And from the spelling e, and the reflex in ModE, i.e. [e] it is supposed that this [e] was optionally laxed before dentals, thus lME /æ/ > [e] > [e].

2.14 LME /ā/
(a) For the reflex of lME /ā/ Whythorne almost regularly writes a, and he sometimes spells with a besides a:

sam, mak, stat, nam, brak, fas, tal, bewar, rar, spar, farwell, estat~estat, embraš~embras, parents~parents

(b) From the spelling a lME /ā/ is assumed to have been [ā] in Whythorne.

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1 The variation between the reflexes of lME /æ/ and lME /e/ is shown in this word: pleazant~plezant (see Dobson, op. cit., § 8).

2 The vowel in fear is assumed to have been /æ/ in lME. This vowel originates in OE West-Saxon /æ/, derived from Germanic /æ/ (see § 2.12, n. 6).

3 The vowel in bear that rhymes with ear is assumed to have been /æ/ in lME (see § 2.12). ME /e/ before /r/ was sometimes lowered in lME, and the variation between the reflexes of lME /e/ and lME /æ/ occurred in some words, especially in bear (Dobson, op. cit., § 126 (a) (i)).

4 In Anglo-Norman the diphthong /æy/ was monophthongized to /æ/, and both the earlier diphthongal and the later monophthongal pronunciations passed into English. The vowel in konseiv, deseivy, reseiv is supposed to have been /æ/ in lME.
2.15 LME /ɔ/
(a) For the reflex of LME /ɔ/ Whythorne writes o almost regularly, and he sometimes spells with o besides ɔ:

sop, proz, hom, stons, bst, stor, afforsaid, shor, lor, dor,1 spoken ~spoken, old~old, hoped~hoped, lord~lord

(b) It is assumed that LME /ɔ/ was raised to [ə] in Whythorne because he used the symbol o which indicates long [o].

2.16 LME /ə/
(a) For the reflex of LME /ə/ Whythorne writes oo almost regularly, and he uses ow in a few words:

skool, kooll, choos,2 stooll, looz, woo, behoov, remoov, proov,3 loov,4 doon, blood, book, stood, good, hoordeth, poor, swoord, word,5 show (=shoe)

(b) It is assumed that LME /ə/ was raised to [ʊ] in Whythorne, because the raising of LME /ə/ to [ʊ] was complete before 1500.6

2.17 LME /u/
(a) For the reflex of LME /u/ Whythorne writes ow almost regularly, and he sometimes spells with ou besides ow:

bow, hownd, hows, sownd, stowt, bownd, mowth, town, towch,7

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1 This word has its twofold origin. OE dura /duru/ became ME dure /dure/ and by the tensing in open syllables of dissyllabic words, LME dore /dore/. OE dor /dor/ became ME dor /dor/ and by blending dore /dore/, and from the latter form arose LME dore /dore/ by the tensing in open syllables of dissyllabic words. Whythorne's dor is assumed to have resulted from the LME form /dore/.

2 The variation between the reflexes of LME /ɔ/ and LME /æw/ is shown in this word: choos~chiuz~chuz (see Dobson, op. cit., § 159).

3 The variation between the reflexes of LME /ɔ/ and LME /ɔ/ is shown in the following two words: remoov~remov, proov~proov (see Dobson, op. cit., § 36, n. 3).

4 The spelling lqv may be regarded as an error.

5 The variation between the reflexes of LME /ə/ and LME /u/ is shown in this word: woord~word~wurd (see Dobson, op. cit., § 18).

6 It is shown by the Welsh Hymn (before 1590) and almost all 16th and 17th century orthoepists (Dobson, op. cit., p. 681).

7 The variation between the reflexes of LME /u/ and LME /u/ is shown in this word. The vowel in towch that rhymes with vowch is assumed to have been /ʊ/ in LME (Dobson, op. cit., § 19).
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powred, howr, fownd~found, akkownt~akkount, fower~four

Before /p/, and after /w/, /y/ he spells with ow or ou, and before /m/
he writes oo:

stowp, wounded, yowth, room

Before /rC/ he usually writes oo, and sometimes ow, ou besides oo:
koort, koortier~Courtier, diskoors~diskours~diskowrs

(b) It is assumed that IME /ū/ was diphthongized to [ow] except
before /rC/, /m/, /p/ and after /w/, /y/ in Whythorne for the following
reasons: first, the diphthongization of IME /ū/ to [ow] was com-
plete before 1500,1 and secondly, ow is the spelling that Whythorne
uses regularly in words containing the reflex of IME /ɔw/. And
from the reflex in ModE, i.e. [ʊ] before /p/, /m/ and after /w/, /y/, and
the spelling oo2 before /rC/ it is supposed that diphthongization did
not take place before /rC/, /m/, /p/ and after /w/, /y/.

2.2 LME short vowels

2.2.1 LME /i/
(a) For the reflex of IME /i/ Whythorne writes i or y, and he some-
times uses j besides or instead of i or y:
likor, spring, bring, skyled, twygs, dryven, sirkumstans, stir,
mirth, bird, begin~begyn, kontineweth~kontyneweth, liberty~
lyberty, deliver~delyver~delýver, derýzion, gyven~gyven3
(b) From the spellings i, y IME /i/ is assumed to have been [i] in
Whythorne.

2.2.2 LME /e/
(a) For the reflex of IME /e/ Whythorne regularly writes e:
rest, smell, correksion, letter, welth, selestiall, flesh, aksept,
sertain, dezerv

1 It is shown by the Welsh Hymn (before 1500) and almost all orthoepists: Salesbury
(1547), Cheke (1555), Hart (1551, 1569), Smith (1568), Gil (1621) (Dobson, op. cit., pp. 683-
84).

2 The spelling oo is Whythorne's usual spelling for the reflex of IME /ɔ/.

3 The variation between [i] and [ɪ] is shown in this word: gyven~gyven~geeven~
geving. The tense vowel in geven or geving may be due to the tensing in open syllables
of dissyllabic words in ME (see Dobson, op. cit., § 10).
(b) From the spelling lME /e/ is assumed to have been [e] in Whythorne.

2.23 LME /a/

(a) For the reflex of lME /a/ except before final /r/, /rC/ and /s/ Whythorne uniformly writes a:

fansy, apt, chapter, matter, standarz, katt, aksion, angry, shafts, faper, raper, gapēr, water, many, qualities, reward

Before final /r/ and /rC/ he spells with a and ā:

art~ārt, depart~depart, part~pārt, party~pāty, karnall, bargain, harms, lar3, Hart, dezart, far, starveth, swarv

Before /s/ he also uses a and ā:

past~pāst, mās, master, gras, fasten, pastēm, masked

(b) From the spellings it is assumed that lME /a/ was [a] except before final /r/, /rC/ and /s/, and before final /r/, /rC/ and /s/ lME /a/ was optionally tensed to [ā] in Whythorne.

2.24 LME /o/

(a) For the reflex of lME /o/ Whythorne regularly writes o:

song, long, body, doktor, lost, kost, soft, pollisy, property, sort, perform, report, enfors

(b) From the spelling lME /o/ is assumed to have been [o] in Whythorne.

2.25 LME /u/

1 For the lME lowering of ME /e/ before final /r/ and /rC/, see § 2.23.

2 The variation between [a] and [ā] is shown in faper, raper, gapēr, water and many: faper ~fāper, raper~rāper, gaper~gāper, water~water, many~many. The tense vowel in these words may be due to the tensing in open syllables of dissyllabic words in ME (see Dobson, op. cit., § 6).

3 The spelling a and the rhyme reward regard indicate that the rounding of lME /a/ did not take place after /w/ in Whythorne.

4 The restructuring from ME /e/ to /a/ before final /r/ and /rC/ took place in lME in words of Germanic origin such as bart, far, starveth, swarv, and often in words of French and Latin origin such as dezart.

5 The tense vowel in master is assumed to have resulted from the tensing in open syllables of dissyllabic words in ME (see Dobson, op. cit., § 6).
(a) For the reflex of LME /u/ Whythorne writes u or o almost regularly:

kumpany~company, stuff~stoff, suddein~sodein, suffred, ponishment, run, ʒudʒ, bekum, shiulderz, put, dull, diskover, rekovered, wonder, moʃer, return, diskurtezy, church

He sometimes spells with oo, ow besides or instead of the spellings mentioned above:

koolor~kolowr, koor3~kora3, doon~doen, woomen~women, klowches, sowpleth, towch

(b) From the spellings LME /u/ is assumed to have been [u] in Whythorne.

2.3 LME diphthongs

2.31 LME /œw/

(a) For the reflex of LME /œw/ Whythorne uses (i)u, (i)u, (i)ew:

abuz~abiuз, lüt~liut, repuʃ~repuiут, ɣz~yuz,1 assuɻ~assiuɻ~assewr, ʃʊm, exkiuɻ, inkiurabull~inkurable, miuzik~muzik, trewθ~triuth, sewt~siut, new~niew, krewell, vew, grew, dew

(b) From the spellings and rhymes such as new: shew, grew: shew2 LME /œw/ and /ɛw/ are assumed to have coalesced into [(y)uw] in Whythorne.

2.32 LME /ɛw/

(a) For the reflex of LME /ɛw/ Whythorne uses ew:

bewty, shrew, shew, few, lewd

(b) LME /ɛw/ and /œw/ are assumed to have coalesced into [(y)uw] in Whythorne. It is true that the reflex for LME /ɛw/ appears only spelled with ew, but this may be due to either by the small number of words that had the reflex for LME /ɛw/ or by the influence of the traditional spelling.

2.33 LME /ɛy/

(a) For the reflex of LME /ɛy/ Whythorne almost regularly spells

1 Whythorne uses the spellings you, yow, yoon besides these spellings: youzed, yowz, yoonz.
2 See § 2.32.
with *ai, ay* or *ei, ey*:

entertayned~enterteined, train~trein, play~pley, retayn, fain~fayn, day, way, gain, eir, heir, freiht, streiht, neybur, chain3~chan3, dain3er, strain3~stran3

(b) From these spellings LME /ˈæj/ is assumed to have been either [æj] or [ey] in Whythorne. If the latter interpretation is adopted, it is necessary to extend the Vowel Raising Rule² so that it applies to *æ* before /y/ as well. This modification, however, do not shed any new light on the evolution of the English vowel system. Therefore the former interpretation is adopted in the present study.

2.34 LME /ˈæw/

(a) For the reflex of LME /ˈæw/ except before final /l/ or /ṭ/ or in words of French origin containing a plus consonant Whythorne regularly writes *aw*:

lawyer, cawz, sawsy, fawts, withdraw, assawt, pawz, lawh³

Before final /l/ or /ṭ/ he spells with *a, aw, a*:

all~all, kal~kawl~kal, gall~gawll, small~small, wal~wall, walk, tall, stalk, fall, salm

In words of French origin containing a plus consonant he writes *aw* or *au*:

awnt, chauns,⁴ dauns, dawnt, graunt, haunt~hawnt, demaunded, tawnts

(b) From the spellings *aw* and *au* LME /ˈæw/ is assumed to have been [aw] except before final /l/ or /ṭ/. And from the spellings *a, aw*

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¹ The development of ME /a/ to LME /ˈæj/ is shown before /nʃ/ in chain3, dain3er, strain3. This change is due to a special southern development (Dobson, *op. cit.*, §63).

² See Rule (12) in Ch. 3.

³ The variation between the reflexes of LME /ˈæw/ and LME /a/ is shown in this word: lawh~lah. LME /a/ is due to the laxing of ME /ˈæw/ before final /h/ (see Dobson, *op. cit.*, §28).

⁴ The variation between the reflexes of LME /ˈæw/ and LME /a/ is shown in this word: chauns~chans (see Dobson, *op. cit.*, §62). This variation is assumed to have resulted from the reflected forms of Old French ã in ME as /an/ and /āwn/.
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IME /āw/ before final /l/ or /IC/ is supposed to have been optionally monophthongized to [ā].

2.35 LME /5w/

(a) For the reflex of LME /5w/ Whythorne usually writes ow:

sowll, bloweth, ownerz, sown, low (=lo)

He sometimes uses ō, and the length mark is regularly omitted when it occurs in final position or immediately before another vowel:

groeth, gro (=grow), groth, lo, knoeth

Before /ht/ he spells with ow, ou or aw:

brouht, dawhter

(b) From the spellings ow and ō and the rhyme fo (<IME /æf/): gro LME /āw/ is assumed to have been optionally monophthongized to [ō] except before /ht/. And from the spelling aw in dawhter, the rhyme broht : towht (=taught, <IME /āw/) and the spelling ow in towht LME /5w/ before /ht/ is supposed to have become [aw] in Whythorne.

2.36 LME /5y/

(a) For the reflex of LME /5y/ Whythorne regularly writes oi, oy or occasionally oy:

boy~boý, 3oy~3oi~3oy, appointed, point, broill

(b) From the spellings LME /5y/ is assumed to have been [oy] in Whythorne.

In LME a rule was added inserting a back-glide between ME /a/ and final /l/ or /IC/, thus /al/ or /alC/ became [awl] or [awlC]. The alternation [a]–[aw], which would have established the glide insertion rule as productive, was not found in LME. Thus it is supposed that the glide insertion rule led to restructuring, that is, the change from /a/ to /āw/ before final /l/ or /IC/. /āw/ is postulated as the underlying representation of the phonetic reflex [aw], because it results in the simplest grammar. If the underlying representation is assumed to be /aw/, it would be necessary to add to ModE an ad hoc rule tensing /aw/ before monophthongization (see Rule (10) in Ch. 3).

The variation between the reflexes of LME /5w/ and LME /a/ is shown in this word: dawhter~dahter (see Prins (1972), § 4.59).
3. Whythorne’s Pattern

The main phonetic reflexes of the LME vowels and diphthongs in Whythorne’s speech are given in (1) (with optional variations enclosed in parentheses).

(1) LME    \[i \; e \; a \; 5 \; 6 \; u \]
    Whythorne ey i e (ê)\(^1\) a o u ow ū\(^2\)

LME    \[i \; e \; a \; o \; u \]
    Whythorne i e a (â)\(^3\) o u

LME    \[ëw \; æw \; æy \; əw \; 5w \; 5y \]
    Whythorne (y)uw æy aw (â)\(^4\) əw (õ)aw\(^5\) oy

Whythorne gives numerous phonological alternations such as the following:

(2) [ei] — [i] devyd—divizion, wýz—wizdom, sýn—signyfieth
    [ow] — [u] hows—huzband
    [I] — [ê] keep—kept, redeemer—redempsion
    [ê] — [æ] mean—ment, siuprem—siupremasy
    [â] — [a] kompr̆—komparizon, natiur—natiurall
    [û] — [o] looz—lost

Examples of the alternation [õ]-[ö] (e.g. cone-conic) is lacking, but there is little doubt that such an alternation was present in Whythorne’s speech. From these alternations it is tentatively assumed that the underlying representations of Whythorne’s vowel system were essentially identical with those of LME.\(^6\)

The underlying representations of Whythorne’s vowel system are assumed to have been subject to the following rules.

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1. The change occurs before dentals.
2. The change occurs before /rC/, /m/, /p/ and after /w/, /y/.
3. The change occurs before final /r/ or /rC/ and /s/.
4. The change occurs before final /l/ or /lC/.
5. The change occurs before /lnt/.
6. The underlying representations of Whythorne’s vowel system are revised later in this chapter.
(3) Laxing\(^1\)

\[
V \leftarrow [-\text{tense}] / \_\_ C^1 \left[ \begin{array}{c} V \\ \text{stress} \end{array} \right] C_0 V C_0 # \]

(Vowels are laxed before consonant clusters or in the antepenultimate.)

(4) Tensing\(^2\)

(I) \(V \rightarrow [+\text{tense}] / \_\_ [-\text{consonantal}]\)

(Vowels are tensed before vowels.\(^3\))

(II) (optional)

\[
\begin{array}{l}
+\text{syllabic} \\
+\text{sonorant} \\
-\text{consonantal} \\
+\text{low}
\end{array}
\rightarrow \begin{array}{l}
+\text{tense} \\
\end{array} / \_\_ \\
\left\{ \begin{array}{c}
-\text{syllabic} \\
+\text{sonorant} \\
-\text{consonantal} \\
-\text{nasal} \\
-\text{low} \\
-\text{stress} \\
-\text{strident} \\
+\text{anterior} \\
+\text{coronal} \\
-\text{voiced}
\end{array} \right\}
\]

(Low vowels are optionally tensed before final /\(r\)/ or /\(rC\)/ and /\(s\)/, thus \(a > \tilde{a}\).)

---

\(^1\) The feature system is borrowed from Schane (1973).

\(^2\) The following Tensing Rule, which is productive in ModE, does not occur in Whythorne.

\[
V \rightarrow [+\text{tense}] / \left[ \begin{array}{l} -\text{cons} \\
-\text{back} \\
-\text{low} \\
-\text{stress} \end{array} \right] C^1[C^1 \begin{array}{c}
+\text{syllabic} \\
+\text{sonorant} \\
-\text{consonantal}
\end{array}]
\]

Thus he gives lax vowels in gloriouz, okkazion, experienced.

\(^3\) Word pairs such as social-society, algebra-algebraic are not found in Whythorne. These phonological alternations are, however, attested for the sixteenth century, and tensing before vowels has been productive before and after Whythorne. Therefore it is assumed that this Tensing Rule must have been productive in Whythorne, e.g. poet, frier, lyon, vowell.

\(^4\) As rules applying to vowels come in blocks consisting of several rules, it is possible to factor out the feature complex \([+\text{syllabic}]
\]

and count it once in evaluating the complexity of the entire block. Therefore these three features to the left of the arrow are omitted in the following rules.
(5) \( \alpha \)-Raising

\[
[-\text{back}] \rightarrow [-\text{low}] / \quad \begin{bmatrix}
-\text{syllabic} \\
+\text{sonorant} \\
-\text{consonantal} \\
+\text{back}
\end{bmatrix}
\]

(Front vowels are nonlow before /w/, thus \( \ddot{a}w > \ddot{e}w \).)

(6) Glide Insertion (a) (optional), Diphthongization (b)

\[
\phi \rightarrow \begin{bmatrix}
-\text{syllabic} \\
+\text{sonorant} \\
-\text{consonantal}
\end{bmatrix} \quad \left\{ \begin{bmatrix}
-\text{round} \\
[\alpha \text{ back}] \\
-\text{consonantal}
\end{bmatrix} \quad \begin{bmatrix}
-\text{syllabic} \\
+\text{sonorant} \\
-\text{consonantal} \\
-\alpha \text{ back}
\end{bmatrix} \right\}
\]

\[
[\alpha \text{ back}] \rightarrow \begin{bmatrix}
+\text{tense} \\
+\text{high} \\
[\alpha \text{ back}]
\end{bmatrix}
\]

\( (\ddot{e}w > \ddot{y}w \) by (6a) and \( i > \ddot{i}y \) and \( u > \ddot{u}w \) by (6b).)

(7) Vowel Shift

\[
[\alpha \text{ high}] \rightarrow [-\alpha \text{ high}] / \quad \begin{bmatrix}
-\text{syllabic} \\
+\text{sonorant} \\
+\text{stress}
\end{bmatrix}
\]

(Tense, stressed, nonlow vowels exchange their highness values, thus \( \ddot{i}y > \ddot{e}y, \ddot{u}w > \ddot{o}w, \ddot{e} > \ddot{i}, \ddot{o} > \ddot{u} \).)

This rule applies to nonlow vowels, unless /\ddot{u}/ occurs before /rC/, /m/, /p/ and after /w/, /y/. Therefore to block Vowel Shift Rule here, the following readjustment rule (8) is incorporated into the grammar.

(8) Mark /\ddot{u}/ before /rC/, /m/, /p/ and after /w/, /y/ as exempt from Vowel Shift (7).

(9) Unrounding

\[
[+\text{low}] \rightarrow [-\text{round}] / \quad \begin{bmatrix}
-\text{syllabic} \\
+\text{sonorant} \\
-\text{consonantal} \\
+\text{continuant} \\
+\text{back}
\end{bmatrix}
\]

\( (\ddot{e}w > \ddot{a}w \) before /ht/.)

---

1 Since the Glide Insertion Rule has certain terms in common with the Diphthongization Rule, both are incorporated into a single rule. As these environments are disjoint, there is no reason for ordering them as in (6).
The Vowel System of Thomas Whythorne

(10) Monophthongization (optional)

\[
\begin{array}{c}
\text{[-syllabic} \\
+ \text{sonorant} \\
- \text{consonantal} \\
+ \text{back}
\end{array} \rightarrow \phi / \begin{array}{c}
\text{[-low} \\
\langle - \text{round} \rangle
\end{array}
\begin{array}{c}
\text{[-syllabic} \\
+ \text{sonorant} \\
+ \text{consonantal} \\
- \text{nasal} \\
+ \text{lateral}
\end{array}
\begin{array}{c}
\text{\#} \\
\{ C \}
\end{array}
\]

(\( \ddot{a}w > \dddot{a} \) before final /l/ or /lC/ and \( \dddot{w} > \dddot{\ddot{a}} \).)

(11) Diphthong Laxing

\[ V \rightarrow [-\text{tense}] / \begin{array}{c}
\text{[-syllabic} \\
+ \text{sonorant} \\
- \text{consonantal}
\end{array} \]

(Vowels are laxed before semivowels.)

(12) Vowel Raising

\[ \begin{array}{c}
\alpha \text{ back} \\
\alpha \text{ round}
\end{array} \rightarrow [-\text{low}] / \begin{array}{c}
\text{[-tense} \\
[-\text{strident} \\
+ \text{anterior} \\
+ \text{coronal}]
\end{array} \]

(Tense vowels agreeing in rounding and backness are nonlow.)

(13) Laxing (optional)

\[ \begin{array}{c}
[-\text{back} \\
- \text{high}
\end{array} \rightarrow [-\text{tense}] / \begin{array}{c}
[-\text{strident} \\
+ \text{anterior} \\
+ \text{coronal}
\end{array} \]

(Nonback, nonhigh vowels are laxed before dentals.)

(14) \( i \rightarrow u \)

\[ \begin{array}{c}
[-\text{high} \\
+ \text{back} \\
+ \text{round}
\end{array} \rightarrow [+\text{back}] / \begin{array}{c}
\text{[-syllabic} \\
+ \text{sonorant} \\
- \text{consonantal} \\
+ \text{back}
\end{array} \]

(High vowels are backed and rounded before /w/.)

The order in which the above rules are given can be justified only in part. The relative order of Diphthongization and Vowel Shift can be justified on the ground that in the distinctive feature system the class \([i, u]\) are referred to by fewer features than the class \([e, o]\). \( \alpha \)-Raising must precede Vowel Shift, but need not be ordered before Glide Insertion. Monophthongization must follow Unrounding, but it must precede Diphthong Laxing, since otherwise vowels will be laxed in the reflexes of the low diphthongs. Diphthong Laxing must obviously follow Diphthongization, but it must precede Vowel Raising.
since otherwise vowels will be raised in the reflexes of the low diphthongs. Vowel Raising must follow Vowel Shift since the vowels raised are not subject to Vowel Shift. Finally Laxing and the \( i \rightarrow u \)

Table 1

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<thead>
<tr>
<th></th>
<th>( i )</th>
<th>( é )</th>
<th>( æ )</th>
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<td>Vowel Shift (7)</td>
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<td>Unrounding (9)</td>
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Table 2

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The Vowel System of Thomas Whythorne

Rules must follow Vowel Shift but need not be ordered after any later rules.

In Table 1 the derivation of the phonetic reflexes from underlying

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representations essentially identical with those of IME is illustrated.

The set of rules illustrated in the derivations of Table 1 presupposes that the underlying representations of Whythorne's dialect were essentially identical with those of IME. This assumption, however, is not correct. In Whythorne's speech the following two pairs of entities, distinct in IME, were merged: /æw/ and /ēw/, /āw/ and /ōw/ before /ht/. There were in the language no phonological processes that would require that the merged entities be assigned distinct underlying representations. Therefore in place of the pair /æw/ and /ēw/, /ēw/ is postulated, because this underlying representation results in the simplest grammar, that is, by this restructuring æ-Raising Rule can be immediately dispensed with. If it is assumed that the underlying representation is /āw/, it would be necessary to add an ad hoc æ-Raising Rule. In place of the pair /āw/ and /ōw/ before /ht/, /āw/ is postulated because the reflex of IME /ōw/ before /ht/ in ModE is the same as that of IME /āw/. If it is assumed that the underlying representation is /ōw/ before /ht/, it would be necessary to add an ad hoc Unrounding Rule.

According to Chomsky and Halle's interpretation, the merger of IME /æw/ and IME /ēw/ took place in Cooper's dialect (1687). However, as is shown above, the merger is assumed to have already taken place in the speech of Whythorne who was a contemporary of Hart.

With these modifications, Whythorne's dialect emerges with the underlying system as in (15).

\[(15)\] Tense Lax Diphthongs
\[
\begin{array}{ccccccccc}
\text{i} & \text{u} & \text{i} & \text{u} \\
\text{ē} & \text{ō} & \text{ē} & \text{o} \\
\text{æ} & \text{ā} & \text{ā} & \text{a} & \text{æy} & \text{āw} & \text{ōw} & \text{ōy}
\end{array}
\]

The appropriate phonetic reflexes can then be derived by the following rules:

\[(16)\] (I) Special readjustment rule (8)
(II) Laxing (3)
(III) Tensing (4)
(IV) Glide Insertion (6a) (optional), Diphthongization (6b)
(V) Vowel Shift (7)
(VI) Monophthongization (10) (optional)
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(VII) Diphthong Laxing (11)
(VIII) Vowel Raising (12)
(IX) Laxing (13) (optional)
(X) i → u (14)

Thus the derivation of the phonetic reflexes in Whythorne’s dialect from the underlying representations that have undergone restructuring proceeds as shown in Table 2 on pp. 150–51.1

REFERENCES


Received April 9, 1977

1 The derivation of the phonological alternations: devýd-divizion, hows-huzband, keep-kept, mean-ment, kompár-komparizon, looz-lost goes as follows:

Underlying / devïd / divizion / huzband / kip / kept / löz / lost / ment / komparizon /
Rule (3) / devïd / divizion / huzband / kept / lost / ment / komparizon /
Rule (6b) / devïyd / hûws / kip / lûz /
Rule (7) / devëyd / höws / kip / lûz /
Rule (11) / deveyd / hows / kompar / komparizon /
Phonetic / [deveyd / divizion / huzband / kip / kept / lûz / lost] /
Underlying / mën / mænt / kompär / komparizon /
Rule (3) / mën / komparizon /
Rule (12) / mën / ment / kompär / komparizon /
Phonetic / [mën / ment / kompär / komparizon]