A Diachronic Account of Old English High Vowel Deletion

Masao Okazaki

0. Introduction

This paper is devoted to an explanation of exceptions to a constraint on Old English High Vowel Deletion (henceforth, OE HVD), which is proposed in Okazaki (1987; to appear), on the basis of a survey of the data in The Anglo-Saxon Poetic Records (henceforth, ASPR).

In section 1, I will briefly review a proposal in Okazaki (1987; to appear) and point out that there are two kinds of exceptions to my proposed principle, called the Principle of Markedness for Phonological Derivation. In section 2, on the basis of an investigation into the data in ASPR, I will argue that a linguistic change arose in the early OE period which makes it possible for vowels to be deleted freely even in a case where their deletion seems to result in violation of the principle. Finally, in section 3, I will explain the problematic cases in terms of rule simplification and rule addition in the postlexical level and claim that they are not exceptions to the proposed principle.

1. A Problem

In Okazaki (1987; to appear), I proposed a universal principle governing the phenomenon of vowel deletion as in (1), called the Principle of Markedness for Phonological Derivation.

(1) Principle of Markedness for Phonological Derivation

Lexical rule application must produce a syllable structure in which the markedness value of the peak is equal to or lower than that of the immediately preceding stage in a derivation.

This principle explains exceptions to the previous generalization on OE HVD in (2), which is formulated in terms of heavy syllable (H: \( C_{\text{o}}V_{\text{c}}V_{\text{c}}; C_{\text{o}}V_{\text{c}}V_{\text{c}} \)) and light syllable (L: \( C_{\text{o}}V \)).

(2) OE HVD

A high vowel is deleted when it is contained in an L which
immediately follows one H or two L's.

We give typical exceptions to (2) below: in (3), the high vowel /u/ is retained; in (4), /i/ is retained and lowered to /e/ by the rule of i-lowering.²

(3) a. tunglu: n.a.pl. of tungol 'star'
b. tæcnu: n.a.pl. of tæcen 'token'
c. wolcnu: n.a.pl. of wolcen 'ball'
d. wundru: n.a.pl. of wundor 'wonder'

(4) a. hyngrede: pret.1.3.sg. of hyngran 'to be hungry'
b. timbrede: pret.1.3.sg. of timbran 'to build'
c. gierede: pret.1.3.sg. of gierwan 'to dress'
d. hierede: pret.1.3.sg. of hierwan 'to condemn'

In each of the above examples, if a high vowel is deleted, a syllabic consonant is derived. More specifically, the position of the peak in the second syllable of each word is occupied by a sonorant. That is, the markedness value of the peak of the second syllable becomes higher, as schematically expressed in (5).³

(5) a. \[\begin{array}{c}
\text{R} & \text{R} & \text{OE HVD and} \\
\text{XXXXX} & \text{other conventions} & \text{XXXXX} \\
\text{[[tunglu]} & \text{\(*[tunglo]*\)} & \\
0 & 0 & 0 & 1 & \text{Markedness Value}
\end{array}\]

b. \[\begin{array}{c}
\text{R} & \text{R} & \text{R} & \text{OE HVD and} \\
\text{XXXXX} & \text{XX} & \text{other conventions} & \text{XXXXX} \\
\text{[[hungre]} & \text{\(*[hunger]*\)} & \\
0 & 0 & 0 & 1 & 0 & \text{Markedness Value}
\end{array}\]

Obviously, the derivations in (5) violate principle (1). That is why the high vowels are retained in a deletion environment.⁴

An investigation into the data in ASPR reveals, however, that there are forms which seem to violate the proposed principle. The first class of exceptions are the nominative and accusative plurals of the TUNGOL-type nouns. Typical examples are:

(6) a. tungol (as n.a.pl. of tungol)
b. wolcen (as n.a.pl. of wolcen)
c. wundor (as n.a.pl. of wundor)

As shown in (7), the above examples are all derived through the deletion of /u/ and epenthesis.

(7) a. R R R b. R R R c. R R


HVD

/ o  e  o /

Epenthesis

/ g  e  n/a /

Assimilation

tuggol  wolcen  wundor

Because immediately after the deletion of /u/, a syllabic consonant is derived in each of the cases in accordance with the resyllabification convention, the markedness value of the peak in the word-final syllable becomes higher, an apparent violation of principle (1).\(^5\) (Cf. the derivation of "tungl" in (5a).)

The preterite forms of the HYNGRAN-type and GLERWAN-type verbs also appear to violate principle (1). Typical examples are given below.

(8) a. efnde (pret.1.3.sg.); efndon (pret.pl.) Cf. efnan 'to level'
b. gier(w)de (pret.1.3.sg.); gier(w)don (pret.pl.)
c. hier(w)de (pret.1.3.sg.); hier(w)don (pret.pl.)

Taken at face value, the cases in (8) are derived through the deletion of the high vowel /i/. If so, its deletion produces a syllabic consonant. This also seems to be violation of principle (1).
(Cf. the derivation of "hyngrde" in (5b).)

(9) a. R R R R R R R R R


vacuous  iü  iü

i-Umlaut

HVD

/ n/a  (g)  (g) /

H-V-Deletion

/ v  n/a  n/a /

Assimilation
We have shown above that a high vowel can possibly be deleted even if its deletion brings about violation of principle (1). Thus, our task in this paper is to answer a question as in (10).

(10) Why is it that a high vowel is deleted even if its deletion seems to result in violation of principle (1)?

2. Fluctuation Described Diachronically

We begin by investigating the relevant data in detail from a statistical and a diachronic point of view.

2.1. N.a.pl. of the TUNGOL-Type Nouns

Let us first look at the numeral and the chronological distributions of the nominative and accusative plurals of the TUNGOL-type nouns such as those in (11).

(11) dødol ‘devil’ fæcen ‘sin’
    fóðor ‘food’ tæcen ‘token’
    tungol ‘star’ wæpen ‘weapon’
    wolcen ‘ball’ wundor ‘wonder’

An exhaustive list of occurrence of the nominative and accusative plurals is given in (12)-(19). As TABLE 1 shows, there are 31 examples in total: 9 examples retain the inflectional ending -u (TYPE A), while 22 examples lack the ending and mostly have a parasite vowel in the word-final syllable (TYPE B).

(12) a. dæofol (pl.) 1 Chr.1531
    b. dæoflu (pl.) 1 Dan.749
    c. dæofl (pl.) 0
    TOTAL 2
(13) a. fóðor (pl.) 1 P.103.13
    b. fóðru (pl.) 0
    c. fóðr (pl.) 0
    TOTAL 1
(14) a. fācen (pl.) 1 P.128.2
    b. fācnu (pl.) 0
    c. fācn (pl.) 0
    TOTAL 1

(15) a. tācen (pl.) 2 Chr.1253; P.73.41
    b. tācnu (pl.) 0
    c. tācn (pl.) 0
    TOTAL 2

(16) a. tungol (pl.) 2 Chr.933; Phx.96
    b. tunglu (pl.) 4 Dan.368; Mx1.40; MB4.5. 29.4
    c. tungl (pl.) 4 MB.28.6, 12; 29.9, 12
    TOTAL 10

(17) a. wēpen (pl.) 3 Wan.100; Bwf.292; Jud.290
    b. wēpnu (pl.) 0
    c. wēpn (pl.) 0
    TOTAL 3

(18) a. wolcen (pl.) 4 P.77.251; 103.41; 113.43; 134.72
    b. wolcnu (pl.) 3 Gen.212; MB.24.10; Mx2.13
    c. wolcn (pl.) 0
    TOTAL 7

(19) a. wundor (pl.) 4 And.730; G1c.156; Bwf.2750, 3130
    b. wundru (pl.) 1 P.87.12
    c. wundr (pl.) 0
    TOTAL 5

**TABLE I**

<table>
<thead>
<tr>
<th>TYPE A</th>
<th>TYPE B</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>22</td>
<td>31</td>
</tr>
</tbody>
</table>

Turning to diachronic consideration, we can find a rather striking fact, which is shown in TABLE II. In alliterative poems written at the beginning of the eighth century or in the earliest period of OE, only TYPE A cases appear; on the other hand, in poems written in the later period, the examples of TYPE B prevail over
those of TYPE A.

**TABLE II**

<table>
<thead>
<tr>
<th>TEXT</th>
<th>WRITTEN</th>
<th>TYPE A</th>
<th>TYPE B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daniel</td>
<td>at the beginning of the 8c.</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Genesis</td>
<td></td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Beowulf</td>
<td>Early 8c.</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Andreas</td>
<td></td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Phoenix</td>
<td>Late 8c. —</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Christ</td>
<td>Early 9c.</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Guthlac</td>
<td></td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Maxim 1</td>
<td></td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Paris Psalter</td>
<td>Late 9c. —</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Meters of Boethius</td>
<td>Early 10c.</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Judith</td>
<td>10c.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Maxim 2</td>
<td></td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

On the basis of the chronological distribution exhibited in TABLE II, we can safely say that TYPE A is an older form than TYPE B. If this conclusion is plausible, it is not unreasonable to claim that a linguistic change came about probably in the early eighth century. The change, in fact, allows the high vowel /u/ to be deleted freely irrespective of the production of a syllabic consonant.

2.2. Preterite Forms of the HYNGRAN-Type and GIERWAN-Type Verbs

Let us next observe in (21)-(36) the numeral distribution of preterite forms of the HYNGRAN-type and GIERWAN-type verbs such as those indicated in (20).
(20) a. HYNGRAN-type verbs
   æfnan 'to perform'               geæfnan 'to sustain'
efnan 'to level'                  geefnan 'to level'
fræfran 'to console'               æfræfran 'to make glad'
ræfnan 'to perform'               æræfnan 'to accomplish'
timbran 'to build'                 getimbran 'to build'
b. GIERWAN-type verbs
   gierwan 'to dress'               gegierwan 'to dress'
hierwan 'to condemn'              gehierwan 'to condemn'
sierwan 'to plan'                 gesierwan 'to equip'

There are 80 preterite forms in ASPR relevant to our discussion, as indicated in TABLE III. Among them, 53 examples are synchronically derived without deleting /i/, as principle (1) requires (TYPE A); the other 27 examples are derived through the deletion of /i/ in word-medial position (TYPE B).

(21) æfnan
   a. æfnede  0
   b. æfnede  1 Bwf.1254
   c. æfnedest  0
   d. æfnedest  0
   e. æfnedon  0
   f. æfnedon  0
   TOTAL  1

(22) geæfnan
   a. geæfnede  0
   b. geæfnede  2 Chr.1429; Glc.1108
   c. geæfnedest  0
   d. geæfnedest  0
   e. geæfnedon  0
   f. geæfnedon  1 Bwf.538
   TOTAL  3

(23) efnan
   a. efnede  1 P.118.131
   b. efnede  4 Dan.186; Bwf.2133, 3007; P.118.148
c. efnedest 0
d. efndest 0
e. efnedon 1  Dan.183
f. efndon 1  Ele.713
TOTAL 7

(24) geefnan
a. geefnede 0
b. geefnde 1  Ele.1014
c. geefnedest 0
d. geefndest 0
e. geefnedon 0
f. geefndon 0
TOTAL 1

(25) frēfran
a. frēfrede 0
b. frēfrde 0
c. frēfredest 1  P.85.17
d. frēfrdest 0
e. frēfredon 0
f. frēfrdon 0
TOTAL 1

(26) áfrēfran
a. áfrēfrede 1  P.152.24
b. áfrēfrde 0
c. áfrēfredest 0
d. áfrēfrdest 0
e. áfrēfredon 0
f. áfrēfrdon 0
TOTAL 1

(27) ræfnan
a. ræfnede 0
b. ræfnde 0
c. ræfnedest 0
d. ræfndest 0
e. ræfnedon 0
<p>| | | | | | | |</p>
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<thead>
<tr>
<th></th>
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<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>f. ræfndon</td>
<td>1</td>
<td>Jud.11</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(28) ar fnan
| a. ræfnede | 2 | P.68.20.2.; 129.5.2. |
| b. ræfnede | 0 |
| c. ræfnedest | 0 |
| d. ræfnedest | 0 |
| e. ræfnedon | 0 |
| f. ræfnedon | 0 |
| TOTAL | 2 |

(29) timbran
| a. timbrede | 1 | Gen.2841 |
| b. timbrde | 0 |
| c. timbredest | 0 |
| d. timbrdest | 0 |
| e. timbredon | 0 |
| f. timbrdon | 0 |
| TOTAL | 1 |

(30) getimbran
| a. getimbrede | 2 | Exo.391; Ele.1009 |
| b. getimbrde | 0 |
| c. getimbredest | 0 |
| d. getimbrdest | 0 |
| e. getimbredon | 0 |
| f. getimbrdon | 0 |
| TOTAL | 2 |

(31) gierwan
| a. gierede | 6 | Gen.941; Chr.1166; Glc.177; Bwf.1441; R. 26.13; SnS.90 |
| b. gier(w)de | 5 | Gen.2866; P.77.31; 88.301; Fnb.13; Mch.1 |
| c. gieredest | 0 |
| d. gier(w)dest | 0 |
| e. gieredon | 2 | DrR.77; Bwf.994 |
| f. gier(w)don | 1 | PCE.1 |
| TOTAL | 14 |
(32) **gegierwan**

<table>
<thead>
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<tr>
<td><strong>ggeyrede</strong></td>
<td>10</td>
</tr>
<tr>
<td><strong>gegyrede</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>ggeyredest</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>gegier(w)dest</strong></td>
<td>0</td>
</tr>
<tr>
<td><strong>gegieredon</strong></td>
<td>0</td>
</tr>
<tr>
<td><strong>ggegier(w)don</strong></td>
<td>0</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>12</td>
</tr>
</tbody>
</table>

Jln.40; Bwf.1028, 2192; P.64.41: 92.11; 92.22; 108.181, 281: 143.152; Mch.2.26

R.73.16

P.103.22

(33) **hierwan**

<table>
<thead>
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<th>Form</th>
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<tbody>
<tr>
<td><strong>hierede</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>hier(w)de</strong></td>
<td>6</td>
</tr>
<tr>
<td><strong>hieredest</strong></td>
<td>0</td>
</tr>
<tr>
<td><strong>hier(w)dest</strong></td>
<td>0</td>
</tr>
<tr>
<td><strong>hieredon</strong></td>
<td>12</td>
</tr>
<tr>
<td><strong>hier(w)don</strong></td>
<td>1</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td>20</td>
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</table>

Xst.421

Gen.797; SnS.453; MB.7.22: 13.31; 26.8.41

Gen.15. 1855; Exo.576; Dan.256, 357, 444; And.873; Ele.892; Chr.470; Aza.68; Jln.560; rim.19

Ele.387

(34) **gehierwan**

<table>
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<tbody>
<tr>
<td><strong>gehierede</strong></td>
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<tr>
<td><strong>geherde</strong></td>
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<tr>
<td><strong>gehieredest</strong></td>
<td>0</td>
</tr>
<tr>
<td><strong>gehier(w)dest</strong></td>
<td>0</td>
</tr>
<tr>
<td><strong>gehieredon</strong></td>
<td>0</td>
</tr>
<tr>
<td><strong>gehierdon</strong></td>
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<tr>
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MB.9.15

Xst.235

(35) **sierwan**

<table>
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<tbody>
<tr>
<td><strong>syrede</strong></td>
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<tr>
<td><strong>sier(w)de</strong></td>
<td>0</td>
</tr>
<tr>
<td><strong>sieredest</strong></td>
<td>0</td>
</tr>
<tr>
<td><strong>sier(w)dest</strong></td>
<td>0</td>
</tr>
<tr>
<td><strong>syredon</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>sier(w)don</strong></td>
<td>0</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>2</td>
</tr>
</tbody>
</table>

Bwf.161

And.610
TOTAL 2
(36) gesierwan
a. gesyrede 1 JI.468
b. gesier(w)de 0
c. gesierdest 0
d. gesier(w)dest 0
e. gesieredon 0
f. gesier(w)don 0
TOTAL 1

<table>
<thead>
<tr>
<th>TYPE A</th>
<th>TYPE B</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>53</td>
<td>27</td>
<td>80</td>
</tr>
</tbody>
</table>

Viewed from a diachronic perspective, some striking facts arise. First, as explicitly indicated in Table IV, the examples of TYPE A mainly appear in alliterative poems written in the early OE period; on the other hand, those of TYPE B appear in both the early OE and the late OE periods. A second fact to be noted is the change in the rate of occurrence of both types of examples: the rate of occurrence of TYPE B examples goes up from 25.4% to 52.0% towards the late OE period, while that of TYPE A examples goes down from 74.6% to 48.0%.

On the basis an observation made just above, we can safely conclude that TYPE A examples are older preterite forms of the HYNGRAN-type and GIERWAN-type verbs. This suggests that a linguistic change occurred in the early OE period which makes it possible for a word-medial /i/ to be deleted freely. We can also say that the change continued to advance through the OE period, because the fluctuation between TYPE A and TYPE B is observed in poems written in both the early OE and the late OE periods.
TABLE IV

<table>
<thead>
<tr>
<th></th>
<th>TYPE A</th>
<th>TYPE B</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early OE (700-900)</td>
<td>41 (74.6%)</td>
<td>14 (25.4%)</td>
<td>55 (100%)</td>
</tr>
<tr>
<td>Late OE (900-1150)</td>
<td>12 (48.0%)</td>
<td>13 (52.0%)</td>
<td>25 (100%)</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>53</td>
<td>27</td>
<td>80</td>
</tr>
</tbody>
</table>

2.3. Summary

We have shown above the numerical and the chronological distributions of the two types of exceptions to principle (1) and adduced enough evidence to argue that high vowels can be deleted more freely in the late OE period than in the early OE period. Thus, our real task is to characterize a change which makes free vowel deletion possible in the late OE period. Particularly, to answer a question as in (37), a modified version of (10).

(37) Why is it that a high vowel can be deleted freely in the late OE period even in a case where an apparent violation of principle (1) results?

3. An Explanation of Type B Examples
3.1. Theoretical Backgrounds

Kiparsky (1982b), Halle and Mohanan (1985) and others propose that the lexicon of a language consist of a series of levels or strata. If this proposal is plausible, it must also hold for the lexicon of OE. So far as I know, however, the organization of OE lexicon has not been studied in any detail. Even under such circumstances, we must admit the fact that in OE, as in Modern English, no affix can be attached to a lexical item after the suffixation of an inflectional ending and that OE HVD is a cyclic phonological rule mostly triggered by the suffixation of an inflectional ending. (Cf. Keyser and O'Neil (1985) and Okazaki (1987).) From these facts follows
the assumption that in OE, as in Modern English, inflection belongs to
the last level in the lexicon and that OE HVD is assigned to the same
level. Thus, we tentatively assume a lexicon for OE as in (38), where
the content of earlier levels is unspecified because of its irrevancy
to our discussion and of its necessity of further research.

(38)

Besides the lexicon, we assume the level of foot proposed by
Keyser and O'Neil (1985), which is constructed according to an algo-

(39) Foot Construction
Gather rimes from left to right into binary, quantity-
sensitive right-headed trees.

(keyser and O'Neil (1985: 6))

3.2. Postlexical u-Deletion and N.a.pl. of the TUNGOL-Type Nouns
3.2.1. u-Deletion Motivated

In OE, there existed a rule which converts /w/ into /u/ in
word-final or a preconsonantal position. We call this rule w-
Vocalization, roughly formulated as in (40).
(40) w-Vocalization

\[
\begin{array}{c}
-\text{obs} \\
+\text{cons} \\
+\text{high} \\
+\text{back}
\end{array} \rightarrow [-\text{cons}] / \underline{\text{(CX)}}
\]

This rule applies to a form to which a zero suffix is attached as well as to that which has a phonologically overt ending. Keyser and O'Neill (1985: 45) demonstrate that in OE, the former type of word behaves like a non-derived lexical item. If this speculation is correct, rule (40) is a non-cyclic phonological rule.

Take as an example the paradigm of the adjective gearu 'ready' in (41). Cf. Wright and Wright (1925: 224) and Campbell (1959: 270).

(41)

<table>
<thead>
<tr>
<th></th>
<th>msc.</th>
<th>fem.</th>
<th>ntr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>sg.</td>
<td>gearu,-o</td>
<td>gearu,-o</td>
<td>gearu,-o</td>
</tr>
<tr>
<td>acc.</td>
<td>gearone</td>
<td>gearwe</td>
<td>gearu,-o</td>
</tr>
<tr>
<td>gen.</td>
<td>gearwes</td>
<td>gearore</td>
<td>gearwes</td>
</tr>
<tr>
<td>dat.</td>
<td>gearwum</td>
<td>gearore</td>
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<tr>
<td>inst.</td>
<td>gearwe</td>
<td></td>
<td>gearwe</td>
</tr>
<tr>
<td>pl.</td>
<td>gearwe</td>
<td>gearwe</td>
<td>gearu,-o</td>
</tr>
<tr>
<td>gen.</td>
<td>gearora</td>
<td>gearwe</td>
<td>gearora</td>
</tr>
<tr>
<td>dat.</td>
<td>gearwum</td>
<td>gearwum</td>
<td>gearwum</td>
</tr>
</tbody>
</table>

In (41), the vowels /u/ and /o/ appears in word-final position or a preconsonantal position, while /w/ appears before a vowel. The stem of gearu is assumed to be /yæər-\ w/ rather than /yæəru-\ on independent grounds. If this assumptions is correct, the alternation of /w/ with the vowels can neatly be captured by w-Vocalization (40) and the rule of u-Lowering. Notice further that the latter rule applies optionally in word-final position and obligatorily in word-medial position. Observe sample derivations in (42).
(42) a. gearu    b. gearone    c. gearwe

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>R</td>
<td>R</td>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>[yərwarz]</td>
<td>[yərzwanz]</td>
<td>[yərzwanz]</td>
<td></td>
</tr>
<tr>
<td>u</td>
<td>u</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td>n/a</td>
<td>o</td>
<td>n/a</td>
<td></td>
</tr>
</tbody>
</table>

Recall that rule (40) applies in a non-cyclic manner and that the operation of inflection belongs to the last level of the lexicon, where phonological rules are supposed to apply in cyclic fashion. In fact, the rule must apply after suffixation. It then follows that the rule of w-Vocalization belongs to the postlexical level, where phonological rules apply non-cyclically. Keeping the above argument in mind, let us next consider w/σ-alternation in the paradigm of the noun [læs] 'pasture'.

(43) sg. nom.    [læs]

acc.: gen.; dat. [læswə]
pl. nom.; acc.; gen. [læswa]
dat. [læswum]

In (43), the glide /w/ surfaces in all the inflected forms other than the nominative singular, indicating that the stem is to be /læsw-/ rather than /læs-/.

How, then, can the surface form /læs/ be derived? Its underlying representation is /læsw/ and the /w/ in final position is changed into /u/ by the application of rule (40). We need another rule deleting the final /u/, which can be formulated as in (44). Note further that rule (40) feeds (44), so that the latter is also a postlexical rule.

(44) Postlexical u-Deletion

\[
\begin{bmatrix}
V \\
+high
\end{bmatrix} \rightarrow \emptyset / \begin{bmatrix}
R \\
+back
\end{bmatrix} \rightarrow R
\]

Thus, /læs/ is derived as illustrated in (45) below.
3.2.2. An Explanation of Exceptions

To account for u-deletion in TYPE B examples of (12)-(19), rule (44) seems most promising. If the high vowel /u/ in the relevant cases are deleted by a postlexical rule, its deletion is explained without modifying principle (1). For the application of a postlexical phonological rule is not constrained by principle (1).

In the underlying representations of the examples in (12)-(19), however, the high vowel /u/ follows a ternary-branching rime in the rime structure, as shown in (46). Consider the rime structures of underlying forms like /dēofl+u/ and /tunl+u/, for example.

\[
\begin{array}{c}
\text{(46) } \\
RRR \\
XXX \\
\end{array}
\]

Consequently, the deletion of /u/ in TYPE B examples of (12)-(19) cannot be accounted for by Postlexical u-Deletion (44), because the rule deletes a /u/ which follows a binary-branching rime in the rime structure.

Suppose, then, that rule simplification came about in the early eighth century, according to which rule (44) is simplified as indicated in (47).

\[
\begin{array}{c}
\text{(47) Postlexical u-Deletion (simplified version) } \\
\left[ \begin{array}{c} V \\
\text{+high} \\
\text{+back} \end{array} \right] \rightarrow \emptyset / F \\
\end{array}
\]

It should be noticed that rule (47) is able to account for the deletion of /u/ in TYPE B example of (12)-(19) as well as that in (45). To make this clear, observe as an instance the derivation of wunder as a
nominative and accusative plural.

(48) 

\[ \begin{array}{c|c|c}
\text{n/a} & \text{HVD} & \text{lexical level} \\
\hline
\sigma & \text{Rule (47)} & \text{postlexical level} \\
o & \text{Epenthesis} \\
\end{array} \]

\[ \text{wundor} \]

In spite of lack of independent motivation for the simplification of (44), to assume the simplification prevents us from treating TYPE B examples in (12)-(19) as counterexamples to principle (1) and makes it possible for us to explain an apparent exceptional deletion of /u/ by means of the independently motivated rule called Post-lexical u-Deletion. For these reasons, we assume here that the high vowel /u/ is deleted by Postlexical u-Deletion (47), not by the rule of HVD.\footnote{This implies that principle (1) properly works, though sometimes not overtly, in all the derivations of the nominative and accusative plurals of the TUNGOL-type nouns.}

3.3. Postlexical e-Deletion and Preterite Forms of the HYNGRAN-type and GIERWAN-type Verbs

3.3.1. Postlexical e-Deletion Motivated

In OE, we find e/\#-alternation, which is typically exhibited by the paradigm of the adjective \textit{wilde} 'wild' in (49). Cf. Wright and Wright (1925: 222) and Campbell (1959: 268).

(49) \[ \begin{array}{l|l|l|l}
\text{sg. nom.} & \text{fem.} & \text{ntr.} \\
\hline
\text{masc.} & \text{wild} & \text{wild}, \text{wild} & \text{wild} \\
\text{acc.} & \text{wild} & \text{wild} & \text{wild} \\
\text{gen.} & \text{wild} & \text{wild} & \text{wild} \\
\text{dat.} & \text{wild} & \text{wild} & \text{wild} \\
\text{inst.} & \text{wild} & \text{wild} & \text{wild} \\
\end{array} \]
pl. nom./acc. wilde wilde wilde, -o
gen. wildra wildra wildra
dat. wildum wildum wildum

In (48), the vowel /e/ appears only in word-final position; otherwise it does not surface. To describe this alternation, we need a rule as in (50), called e-Deletion.

(50) e-Deletion

\[
\begin{array}{c}
\text{V} \\
\text{V-high} \\
\text{V-low} \\
\text{V-back}
\end{array} \rightarrow \begin{array}{c}
\text{R} \\
\text{F}
\end{array}
\]

This rule accounts for the e/ə-alternation as illustrated in (51).

(51) a. F R R X [wilde]u
b. F R R X [wilde]a
c. F R R X [wilde]u

\[\begin{array}{c}
\text{Rule (50)}
\end{array}\]

\[\begin{array}{c}
\text{wildu} \\
\text{wildra} \\
\text{wildum}
\end{array}\]

I have some more points to make on the proposed rule. First, rule (50) must be ordered after Postlexical u-Deletion, which was proposed in the previous section. For, as shown in (52), if the application of the former precedes that of the latter, an unattested form like *wild is derived. Thus, it is natural to conclude that the rule of e-Deletion is a postlexical phonological rule.

(52)

\[\begin{array}{c}
\text{E-Deletion (50)}
\end{array}\]

\[\begin{array}{c}
\text{Postlexical u-Deletion (47)}
\end{array}\]

*wild

A second point to be made is that rule (50) was introduced into OE grammar in the middle of the eighth century. That is because it
has been said that the vowel /i/ in an unstressed syllable is lowered to /e/ in the middle of eighth century. Cf. Nakao (1985: 310). That is, at the beginning of the eighth century, the stem of wilde was /wildi-/ and it was changed into /wilde-/ in the middle of the century. In the earliest period of OE, the inflected forms in (49) to which the phonologically overt suffixes are attached are derived through the application of HVD, and in the later period they surface through that of e-Deletion.

3.3.2. An Explanation of Exceptions

It is worthy of note here that vowel deletion in TYPE B examples in (21)-(36) can be accounted for straightforwardly by rule (50), which is motivated on completely independent grounds. For example, preterite forms like gier(w)de and hier(w)don are derived as indicated in (53), where the rule of e-Deletion is ordered between i-Lowering and w-Deletion.

(53) a.  
X X X X  
iü  n/a   
[[yแร้w]i]de]

b.  
X X X X X X X  
iü  n/a   
i-Umlaut  
[[haแร้w]i]don]

\begin{tabular}{|l|l|l|l|}
\hline
        &      &       &       \\
\hline
       e    &   e   &       &       \\
\hline
       &   \$    & e-Deletion & lexical \\
\hline
(\$) & (\$) & w-Deletion & level \\
\hline
\end{tabular}

Accordingly, I claim here that TYPE B examples of preterite forms of the NYNGRAN-type and GIERWAN-type verbs are not derived through HVD, but rather through the deletion of /e/.

I believe that this analysis has the following three advantages. First, a unified account of exceptional cases is possible without modifying or rejecting principle (1).

Second, it becomes feasible to explain the reason for an
apparent violation of principle (1). Because e-Deletion is a post-
lexical rule, its application is not constrained by a principle on 
lexical rule applications. That is, the example of TYPE B in 2.2. 
are no counterexamples to principle (1).

Third, the assessment of the date can be made when TYPE B exam-
pies began to increase in number. On the grounds that e-Deletion is 
added to OE grammar in the middle of the eighth century, it seems 
natural to assume that TYPE B cases began to appear in the late 
eighth century. It is interesting that this assumption is not incom-
patible with the fact that they mainly appear in alliterative poems 
written in the late OE period like Paris Psalter and Meters of Boe-
thius.

4. Concluding Remarks

In the preceding sections, we have argued that exceptional high 
vowel deletion is divided into two distinct processes: exceptional 
deletion of /u/ in word-final position is taken as Postlexical u-
Deletion; exceptional vowel deletion which seems to be i-Deletion in 
word-medial position is in fact interpreted as Postlexical e-Dele-
tion.

We have also claimed that the liberation of vowel deletion in 
the late OE period is due to two phonological changes: one is the 
simplification of Postlexical u-Deletion in the early eighth century; 
the other is the addition of Postlexical e-Deletion in the middle 
of the eighth century. Notice that the two relevant changes are 
instances of rule simplification and rule addition, both of which have 
been thought of as typical phonological changes. Cf. Kiparsky (1982a: 
16) and Nakao (1985: 21f.). In this sense, our explanation of apparent 
exceptions to principle (1) is quite natural. Moreover, because the 
simplification of u-Deletion happened earlier than the addition of 
e-Deletion, we can safely say that as indicated in (54), there are 
at least three stages which are concerned with a diachronic change of 
nominative and accusative plurals of the TUNGOL-type nouns and of 
preterite forms of the HYNGRAN-type and GIERWAN-type verbs.
(54) a. at the beginning of the 8c.: no change
b. in the early 8c.: simplification of u-deletion
c. in the middle of the 8c.: unstressed i-Lowering
  addition of e-Deletion

Finally, it can be said that no data adduced in section 2 are counterexamples to principle (1). That is because the vowels in the data are deleted by either of the two postlexical phonological rules mentioned just above and because postlexical rule applications are not constrained by principle (1). As a consequence, it is natural to assert that the Principle of Markedness for Phonological Derivation was working through the OE period, overtly in the early eighth century and covertly in the later period.

NOTES

* This paper is a radically revised version of Chapter 4 of my M.A. thesis submitted to the University of Tsukuba in December, 1987. I am particularly grateful to Tekeru Nonma, Kazuhiko Tanaka and Shin-ichi Tanaka for their invaluable comments and criticisms.

1 Throughout this paper, I will use the following abbreviations: n(om).: nominative; a(cc).: accusative; dat.: dative; gen.: genitive; inst.: instrumental; sg.: singular; pl.: plural; pret.: preterite; 1: the first person; 3: the third person; masc.: masculine; fem.: feminine; ntr.: neuter; n/a: not applicable. Other abbreviations are self-explanatory.

For abbreviations for the OE alliterative poems mentioned in this paper, see Appendix.

2 The rule of i-Lowering may roughly be formulated as in (i).

(i) i-Lowering

\[ \begin{align*}
+ \text{syll} \\
+ \text{high} \\
- \text{back} \\
- \text{stress} \\
\end{align*} \rightarrow [\text{high}] / \quad \text{(CX)} \# \\
\]

This rule accounts for i/e- and u/e-alternations in the paradigms of Class I weak verbs. The i/e-alternation is observed in the paradigm of the PERIAN-type verbs, and the u/e-alternation, in that of the FREMMAN-type, HYNGRAN-type and GIERWAN-type verbs. For details of
the paradigms of the above-mentioned types of verbs, see Wright and Wright (1925: 276-85) and Campbell (1959: 321).

Notice that rule (i) is further generalized as the rule of Lowering as indicated in (ii). Cf. Keyser and O'Neil (1985).

(ii) Lowering

\[
\begin{array}{c}
\begin{array}{c}
\text{+syl} \\
\text{+high} \\
\text{+stress}
\end{array}
\end{array}
\rightarrow \begin{array}{c}
\text{-high] / ___ (CX)#}
\end{array}
\]

(Keyser and O'Neil (1985: 102))

Rule (ii) accounts for w/o-alternation in the paradigms of adjectives like _gearu,-o_ 'ready'. This alternation is discussed in section 3.2. Thus, see the section for further details.

It should be noted, however, that there is no explanation of the optional application of rule (ii) in word-final position of adjectives like _gearu,-o_ and of its non-application in word-final position of nominative and accusative plurals of the TUNGOL-type nouns. This problem must therefore be left for future research.

I assume in this paper that syllabification in OE obeys a convention and a constraint as in (i) and (ii), respectively.

(i) In a string of segments, a syllable is a maximal substring such that:

a. No segment is lower on the hierarchy than both its neighbors.

b. No two segments of equal ranking on the hierarchy are adjacent.

N.B. hierarchy: vowel>glide>sonorant>fricative>stop

(Lowell (1981: 593))

(ii) At most one syllable-initial consonant can occur in morpheme-medial and morpheme-final syllables.


I further assume that an output structure of the application of a phonological rule is always resyllabified in accordance with the following convention.
(iii) Resyllabification Convention

The output of every rule is resyllabified according to the syllable structure rules examined up to that point in the derivation.

(Clements and Keyser (1983: 54))

* For further details of this analysis, see Okazaki (1987; to appear). For the marking conventions on which this analysis is essentially based, see Cairns and Feinstein (1982).

* See the Resyllabification Convention in note 3.

* A chronology of the OE alliterative poems referred to in this paper is thoroughly dependent on commentaries in Krapp and Dobbie (1931-42). See also Appendix, where an exhaustive chronological list is given.

Notice further that the poem The Wanderer (abbreviated as Wan) is excluded from TABLE II. For, according to Krapp and Dobbie (1931-42), there is little direct evidence for deciding when the poem was composed.

* Following Lass and Anderson (1975: 9-14; 223f.), I assume here that OE /y/ and /w/ are both interpreted as liquids. Thus, the feature specification for /w/ is to be [-obs, +cons, +high, +back], not to be [-voc, -cons, +high, +back] as in Modern English.

* One might argue that the stem of gearu is /yæaru/ instead of /yæarw/. This argument does not stand, however. As indicated in (i), the derivational history of the verb gierwan becomes longer by one step in a case where the former is selected as the stem than the history is in a case where the latter is selected.

(i) a. yæaru+i+i’an  b. yæarw+i+i’an

<table>
<thead>
<tr>
<th></th>
<th>Glide Formation</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>w</td>
<td>n/a</td>
<td>iü</td>
<td>iü</td>
</tr>
<tr>
<td>iü</td>
<td>i-Umlaut</td>
<td></td>
<td></td>
</tr>
<tr>
<td>yürwan</td>
<td>HVD</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

yiürwan  yiürwan  Output

Other things being equal, derivation (ib) is selected in accordance with what Kiparsky calls the Derivational Simplicity Criterion, which is restated in (ii).
(ii) Derivational Simplicity Criterion
Among alternative maximally simple grammars select that which has the shortest derivations.
(Kiparsky (1982b: 52))

Therefore, /yɛʀɤw/ is selected as the stem of gearu. For further details of this argument, see Okazaki (1987; to appear).

* See note 2.

There are eight diphthongs in OE, both short and long. Their prominent feature is that their metrical behavior is exactly parallel with that of their respective counterparts. That is, metrical behavior of short diphthongs is completely the same as that of short monophthongs, and long diphthongs, as that of long monophthongs. For this reason, I assume phonological representations for OE diphthongs as in (i), following a proposal made by Lass (1984).

(i) a. short diphthong b. long diphthong

[(X) \[V_1 V_2\]] (X) \(\dagger\) \(\dagger\) \[V_1 V_2\]

N.B. \(V_1\) is not the same vowel as \(V_2\).

11 In chapter 7 of their 1985 book, Keyser and O'Neil also discuss the derivations of such nominatiave and accusative plurals as wunder and wuldor in Vespasian Psalter (VP), which was written in the the Mercian dialect of OE in the middle of the ninth century. They argue that those forms are derived through HVD and the later rule of epenthesis. This analysis is, however, untenable on the grounds that the deletion of /u/ in such underlying forms as /wundr+u/ and /wuldr+u/ brings about violation of principle (1). I maintain here that wunder and wuldor in VP are also derived through Postlexical u-Deletion (47) and epenthesis, the former of which is formulated on the basis of the data in the West-Saxon Dialect.

12 It might be possible to adopt here a parameter-based analysis, which explains language change as a change of a parameter-value which a language-learner selects. In fact, a parameter can be formulated which explains difference between a language where a marked peak can be derived and that where it cannot. In terms of this parameter, OE in
the earliest period is characterized as the latter type, and OE in the later period, as the former. Under this analysis, two kinds of exceptional vowel deletions are interpreted as a single phenomenon, i.e. HVD. There is, however, little independent motivation for the parameter mentioned above, so that I do not adopt a parameter-based analysis at present.

APPENDIX

A Chronology of the OE alliterative Poems in Section 2

<table>
<thead>
<tr>
<th>TEXT</th>
<th>ABBREVIATION</th>
<th>WRITTEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andreas</td>
<td>And.</td>
<td>L8c.</td>
</tr>
<tr>
<td>Azalias</td>
<td>Aza.</td>
<td>E0E</td>
</tr>
<tr>
<td>Beowulf</td>
<td>Bwf.</td>
<td>E8c.</td>
</tr>
<tr>
<td>The Battle of Finnsburg</td>
<td>Fnb.</td>
<td>8c.</td>
</tr>
<tr>
<td>Christ</td>
<td>Chr.</td>
<td>L8c.-E9c.</td>
</tr>
<tr>
<td>Christ and Satan</td>
<td>Xst.</td>
<td>L8c.-E9c.</td>
</tr>
<tr>
<td>Daniel</td>
<td>Dan.</td>
<td>beginning of 8c.</td>
</tr>
<tr>
<td>The Dream of the Rood</td>
<td>DrR.</td>
<td>L8c.</td>
</tr>
<tr>
<td>Eleene</td>
<td>Ele.</td>
<td>L8c.</td>
</tr>
<tr>
<td>Exodus</td>
<td>Exo.</td>
<td>beginning of 8c.</td>
</tr>
<tr>
<td>Genesis</td>
<td>Gen.</td>
<td>beginning of 8c.</td>
</tr>
<tr>
<td>Guthlac</td>
<td>Glc.</td>
<td>L8c.-E9c.</td>
</tr>
<tr>
<td>Judith</td>
<td>Jud.</td>
<td>10c.</td>
</tr>
<tr>
<td>Juliana</td>
<td>Jln.</td>
<td>L8c.</td>
</tr>
<tr>
<td>Maxim 1</td>
<td>Mx1.</td>
<td>L8c.-E9c.</td>
</tr>
<tr>
<td>Maxim 2</td>
<td>Mx2.</td>
<td>middle of 11c.</td>
</tr>
<tr>
<td>The Meters of Boethius</td>
<td>MB.</td>
<td>L9c.-E10c.</td>
</tr>
<tr>
<td>The Metrical Charms</td>
<td>Mch.</td>
<td>9c.</td>
</tr>
<tr>
<td>The Metrical Epilogue to the</td>
<td></td>
<td>9c.</td>
</tr>
<tr>
<td>Pastoral Care</td>
<td>PEC.</td>
<td>L9c.-E10c.</td>
</tr>
<tr>
<td>Paris Psalter</td>
<td>P.</td>
<td>L8c.</td>
</tr>
<tr>
<td>Phoenix</td>
<td>Phx.</td>
<td>L8c.</td>
</tr>
<tr>
<td>Riddle</td>
<td>R.</td>
<td>8c.</td>
</tr>
<tr>
<td>The Riming Poem</td>
<td>Rim.</td>
<td>L10c.</td>
</tr>
<tr>
<td>Solomon and Saturn</td>
<td>SnS.</td>
<td>?</td>
</tr>
<tr>
<td>The Wanderer</td>
<td>Wan.</td>
<td></td>
</tr>
</tbody>
</table>
N.B. c.: century; E: early; L: late

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