A Generative Phonology of the Mercian Old English Verb.

Robert Alexis Terrebonne
Louisiana State University and Agricultural & Mechanical College

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A GENERATIVE PHONOLOGY
OF THE
MERCIAN OLD ENGLISH VERB

A Dissertation
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in
The Department of Linguistics

by
Robert Alexis Terrebonne
M.A., Louisiana State University, 1966
August, 1970
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ABSTRACT

This dissertation is a study of the Mercian Old English verb from the point of view of generative phonology. Its purpose was to discover the underlying forms for the different verb classes and to write the phonological rules which convert these to surface phonetic representations.

The verb forms which served as the data were collected from the 1965 edition of the *Vespasian Psalter* by Sherman M. Kuhn. A complete tabulation of the number of forms for each class of strong verb and weak verb in the various inflectional categories was made. The complete results of this survey are given in Chapter II.

Chapter III is devoted to the phonology of the present tense forms. For the strong verbs rules are written to derive the phonetic shape of the stressed vowel from the underlying vowels for the different classes, such as |i| (Class I), |eu| (II), |el| (III - V), |Al| (VI), |A, 6, 8| (VII). (Vertical lines enclose underlying segments. |A| symbolizes an archiphoneme which is a low back vowel unspecified for roundness.)
Next are the vowel rules for Class I weak verbs, whose stem consists of \(|\text{Base}+j\)\|. The rules pertaining to \(|+j\) itself are then presented. These rules account for the consonantal variation in short stem verbs like *settan*, "to set": \(\text{sete}^\#\) (ind. 3sg.) vs. \(\text{setta}^\#\) (ind. pl.).

Class II weak verbs have the underlying structure \(|\text{Base}+\bar{A}+j#\text{Tense}|\), which gives the thematic vowel -i- in most present tense endings (e.g., -ie, subj. sg.), but which results in an -a- as the vowel in the ending of the ind. 2sg., 3sg. (-as, -a$) and in the imp. sg. (-a$). The present tense stems of Class III weak verbs are usually formed with a \(|+j|\), but the ind. 2sg., 3sg., and the imp. sg. follow the Class II pattern (\(|\bar{A}+j|\)). The pres. ppl. (undeclined), inf., and ger. derive from endings whose underlying structures are \(|\text{Anl}+j#\text{e}|\), \(|\text{An}|\), and \(|\text{An}+j#\text{e}|\), respectively. Chapter III concludes with a discussion of contract verbs. Two general vowel contraction rules for non-low vowels are written, one for vowels the same in backness and one for vowels the opposite in backness.

The first part of Chapter IV gives the rules for the vowel changes for the past tense of strong verbs and the rules for the consonantal changes due to Ver- ner's Law. Weak verbs have the past tense suffix \(|-d-|\), which for Class I verbs (except those that undergo a readjustment rule for \(|+j|\) deletion) is added after
and for Class II verbs after \( |\tilde{A}+j| \). Class III weak verbs such as habban, secgan, lifgan, and hycgan are like Class I verbs with \(+j|\) deletion, and Class III contract verbs have \( |\tilde{A}+j| \) before the \(-d-\) suffix.

The most significant conclusion is the discovery of the underlying structures for the different verb classes: \( |\text{Base}\#\text{Tense}| \) (Strong), \( |\text{Base}+j\#\text{Tense}| \) (Class I weak), and \( |\text{Base}+\tilde{A}+j\#\text{Tense}| \) (Class II weak). The main phonological rules, such as those for the stressed vowels, should be of value for further study of the Mercian dialect of the ninth century, for comparison with the rules for other Old English dialects, and for the generative approach to the historical development of the English language in general. One important discovery in the rules written in this dissertation is that the sound change traditionally called "Second Fronting" can be expressed as a rule that simply raises /æ/ to /é/.
CHAPTER I

INTRODUCTION

A generative phonology of the Mercian Old English verb is the subject of this dissertation. The verb system of this dialect in the ninth century has been chosen for several reasons. One obvious reason is that there is a text, the OE gloss to the Vespasian Psalter (hereafter referred to as VP), which can provide the data for the investigation. There is an excellent new edition of this text published in 1965 by Sherman M. Kuhn.\(^1\) Secondly is the importance of the Mercian dialect for the history of the English language. Modern English is thought to be more closely related to Mercian than to the other OE dialects: "Mercian seems to be the nearest thing we have to a direct ancestor of Modern English" (Kuhn 1965:v). Despite this importance, there has been hardly any study of this dialect in terms of modern linguistics. In the preface to his edition Kuhn mentions publishing a separate introductory volume which would be, in part, a linguistic study of the gloss, but this volume has not yet appeared.\(^2\) Charles F. Hockett's article "The Stressed Syllabics of Old English" (1959)
is based on the VP gloss, but other than this article, there have been no linguistic investigations of Mercian Old English published separately. A third reason for choosing the VP dialect is that the gloss is one of the earliest OE texts that we have, and, as such, its value for historical studies is increased. Although scholars disagree about where the Mercian gloss was written, they all agree that the date is the ninth century. Kuhn gives the provenance as "Lichfield during the first third of the ninth century" (1965:vi). Kenneth Sisam argues for the late ninth or early tenth century ("somewhere between 875 and 925") and believes that the text we have is a copy of a gloss made by a Mercian scribe at Canterbury (1956:127-128). Campbell agrees with Sisam that the gloss was written at Canterbury "by a scribe of Mercian origin," but says that the date could have been during either one of two periods in the ninth century—either the first forty years of the century, when Mercian influence was dominant, or after the year 890, when Plegmund, a Mercian, became Archbishop of Canterbury (1967:82-83). Whether the place of origin is Lichfield or Canterbury, nearly every writer since Sweet in 1886 has considered the dialect to be Mercian, and the clinching argument for this judgment is a linguistic one. There is much similarity between the language of VP and that of two
Middle English texts known to be West Midland, the Corpus manuscript of the Ancrene Wisse (Cambridge, Corpus Christi College MS 402) and the Oxford manuscript of The Katherine Group (MS Bodley 34). (Campbell 1967:85, 89-90) Therefore it is reasonably certain that the language of the VP gloss represents the Mercian dialect of Old English in the ninth century.

The theoretical basis of the present investigation lies in the recent work in generative grammar by such writers as Robert T. Harms (Introduction to Phonological Theory, 1968), Robert D. King (Historical Linguistics and Generative Grammar, 1969), and particularly Chomsky and Halle (The Sound Pattern of English, 1968). According to this theory a grammar has three components—the syntactic, the semantic, and the phonological (Chomsky and Halle 1968:6-7). Since this dissertation is concerned only with the phonological component, it is assumed that all of the syntactic rules have applied and that each verb form is already marked for the inflectional category to which it belongs. Each verb consists of a stem plus a tense morpheme. Between the stem and the tense morpheme there is the word boundary # (Chomsky and Halle 1968:12-13). A verb stem consists of a base, or lexical representation, plus any stem-forming segments which may be present. The base or lexical representation
is already marked with certain features in its lexical entry, such as class and type (Class I, strong, for example), and it is further specified for the various inflectional categories (mood, number, person) by syntactic rules like those for agreement between the verb and the subject noun phrase in person and number, for example. The verb class and the inflectional categories are represented as syntactic features assigned to the base (Cf. Chomsky, 1965:170-172). First is the feature to mark the lexical category as verb [+Verb]. Next are the features for the type of verb. The present study is limited to the strong verbs and the weak verbs so that this category can be specified as [+Strong] or [-Strong]. For the verb class, numbers are used [1Class], [2Class], etc. Numbers are also used for mood so that there are:

\[
\begin{align*}
\text{[1Mood]} &= \text{Indicative} \\
\text{[2Mood]} &= \text{Subjunctive} \\
\text{[3Mood]} &= \text{Imperative} \\
\text{[4Mood]} &= \text{Participle} \\
\text{[5Mood]} &= \text{Infinitive and Gerund}
\end{align*}
\]

Number can be specified as [+Plural] or [-Plural], and the feature for person has a numerical coefficient— [1Person], [2Person], or [3Person]. At the output of the syntactic component of the grammar, then, the pres. ind. 1sg. of the Class III strong verb *geldan, "to pay, repay," for example, would be
If the verb is a compound verb, then its structure at the syntactic output of the grammar can be represented as a bracketed surface structure (Chomsky and Halle 1968:7-9). One example is *goldhordian, "to hoard gold":

\[
\text{gold} \quad \text{hordian}
\]

(Various syntactic features for the different inflectional categories would also be specified for the stem, although they are not stated explicitly in this representation.)

At the syntactic output the morphemes or "formatives" have the same form as they do in the lexicon. This form is called the "lexical representation" (Chomsky and Halle 1968:9). Before this form can serve as the input to the phonological component of a grammar, it frequently undergoes various modifications by rules called "readjustment rules" (Chomsky and Halle 1968:9-11). Such rules specify, for one thing, the phonological shape of the tense morpheme. If the verb is, say, a pres. ind. pl. form, then there would be a rule like

\[
(1) \quad \text{Pres} \rightarrow a\theta / \left[ \begin{array}{c}
+\text{Verb} \\
+\text{Strong} \\
+\text{Mood} \\
-\text{Plural} \\
+\text{Person}
\end{array} \right] \#
\]
Another function of readjustment rules is to mark exceptions to certain rules. If, for example, a certain verb (such as *habban, "to have") is an exception to a general rule (numbered Rule 20) that fronts /a/ to /æ/, then there is a readjustment rule to mark this verb as such:

(2) habban $\rightarrow [-\text{Rule 20}]$

A third type of readjustment rule is one that simply makes a necessary change in the lexical representations of verbs which are irregular in some way. An illustration of this kind of rule is one that applies to certain Class I weak verbs. Class I weak verbs regularly have a stem-forming $|j|$ as part of their lexical representation. For a small group of them this $|j|$ must be deleted in the past tense (e.g. sellan, "to give" pt. ind. 3sg. salde). A readjustment rule expresses this change:

(3) $j \rightarrow \emptyset / +$ # Pt , for certain Class I weak verbs marked [+ Rule (3)] in their lexical entries.

As a phonological investigation the present study is not concerned primarily with readjustment rules. Although the underlying forms of the inflectional endings are discussed, rules like Rule (1) are not generally written. However, since some attempt is made to account for various exceptions and irregularities,
rules like Rule (2) and Rule (3) are written whenever necessary.

After the readjustment rules have applied, the string becomes the input to the phonological component of the grammar. At this point it is called a "phonological representation" (Chomsky and Halle 1968:11). Various phonological rules then convert this underlying representation to a surface phonetic representation, the final output of the phonological component. These rules essentially assign values (usually + or -) to the distinctive features of the different segments which make up a word. They have the general form

\[ A \rightarrow B / X \_ Y, \]

which says, to A assign the feature B in the context X \_ Y. An illustration of this type of rule is one that raises /e/ to /i/ when a [+j] follows the consonant after the vowel:

\[ \begin{align*}
+ \text{vocalic} \\
- \text{consonantal} \\
+ \text{stress} \\
- \text{back} \\
- \text{round} \\
- \text{low} \\
\end{align*} \rightarrow [+\text{high}] / \_ \_ C + \begin{align*}
- \text{vocalic} \\
- \text{consonantal} \\
+ \text{high} \\
- \text{back} \\
\end{align*} \]

Sometimes a phonological rule is expressed in terms of structural description (SD) and structural change (SC):

SD: \[ X, Y, Z \]
\[ 1 \ 2 \ 3 \]
This rule involves a permutation and a deletion: $XYZ \rightarrow ZX$. Vowel contraction rules are frequently given in this form.

The main part of this dissertation, then, is a phonology of the Mercian Old English verb forms. The primary goal is to discover the underlying forms (the "lexical" and "phonological representations") and to devise the rules (both the "readjustment rules" and the "phonological rules") that convert these to surface phonetic representations. Many derivations are given to illustrate the operations of the rules. A derivation will usually begin by stating in order the rules which apply. Then the form as it appears in the manuscript is listed. Next the underlying form, the lexical or the phonological representation (most of the time the distinction between these two is not crucial), is given. Then the rules are applied, one at a time, until the last line of the derivation is (or approximates) the surface phonetic form. The derivation concludes by giving the final phonetic shape and the orthographic representation, which should correspond to the manuscript form listed at the beginning.

The method used in this study was first to go through the Mercian Glossary of Kuhn's edition of VP
and to list all of the forms of the strong and weak verbs. The tabulation of all of the forms that actually occur in the manuscript is given in Chapter II. Next is the phonological analysis of these forms. Chapter III discusses the present tense forms of the different types of verbs, including the pres. ppl., inf., and ger., and also the contract verbs. Chapter IV treats the past tense, first of the strong verbs and then of the weak verbs. Chapter V makes some general conclusions about the rules written and about the value of this kind of study for the historical development of the English language generally.

In conclusion a few words must be said about notational conventions and abbreviations. The format for the rules and the abbreviatory devices used in them are based on Chomsky and Halle (1968), especially Chapter 8. The boundary symbols used in the rules and their distinctive features are:

+—formative (morpheme) boundary, [+FB]

#—word boundary, [+WB]

=—affix boundary, [-FB]

(For the formative boundary (+) and for the word boundary (#) the features [-WB] and [-FB], respectively, are redundant.) The following notations are used for the verb forms: 6
Underlining—an OE word: *settan

*— an OE form not found in VP (other forms of the word do occur): *æbban

**— a form ungrammatical in the VP dialect:
  **hæbbe

"— the MnE gloss: "to have"

Vertical lines—an underlying form: |xAv+j#An|

Diagonal lines—a phonetic representation: /háb:an/

Square brackets—features: [+voc] [−cons] [+Verb] [−Strong] [+voc] [3Class]

Abbreviations are regularly used for features, such as [+voc] = [+vocalic], [3Pers] = [3Person], and for inflectional categories like pres. ind. 1sg. = present indicative first person singular. A complete list of abbreviations is provided in Appendix I. After each rule there is usually an explanation of its effects in terms of traditional phonetic symbols.
NOTES

CHAPTER I

1 Throughout this dissertation all references to VP are to this edition by Kuhn (1965).

2 Kuhn says that he has completed the part of this book that deals with morphology, but that he has been unable to find the time to make some necessary revisions in the other sections so that he cannot say when his work will be published. (Personal communication, Dec. 14, 1969)

3 The syntactic rules for Old English as given by Closs write the verb phrase as consisting of a main verb and an auxiliary, part of which is a mandatory tense morpheme:

\[
\begin{align*}
4.1 & \quad S \rightarrow NP - VP \\
4.2 & \quad VP \rightarrow MV + Aux \\
4.5 & \quad Aux \rightarrow \begin{cases} PP - habb, in env. V^t_{move} & (Inf - M)T \\ PP - wes, in env. V^t_{move} & (PrP - BE) \end{cases}
\end{align*}
\]

(Closs 1965:407-408)

The present study makes no attempt to deal with verb phrases; each verb form is treated in isolation.

4 Another kind of readjustment rule, called a "lexical redundancy rule" (Chomsky and Halle 1968:163, 171), is not investigated in this study.

5 A glossary of the verbs in VP has been published by Paule Mertens-Foncke (1960); but since this book is prior to Kuhn's edition (1965), I thought it best to work directly from Kuhn. Kuhn also has a glossary for the West Saxon glosses in VP, but these are excluded from the present study.

6 Adapted from Schane (1968:xv).
CHAPTER II

VERB FORMS IN THE VESPASIAN PSALTER

The verbs of the VP gloss can be classified in the traditional way into two main classes—strong and weak. The strong verbs form their past tense by ablaut, whereas the weak verbs add a dental suffix (in OE, a d). Strong verbs are divided into seven classes. \(^1\) There are three classes of weak verbs. Table I of Appendix II gives the total number of forms in VP for each verb class.

The verb is conjugated for two tenses, present and past (preterite), and three moods, indicative, subjunctive (optative), and imperative. In addition there are two participles (present and past), an infinitive and a gerund (inflected infinitive). The indicative and subjunctive moods have both present and past forms; the imperative, only present forms. \(^2\) All three moods show number distinctions (singular and plural), and in the indicative there are distinctions for person in the singular. Table II of Appendix II shows the total number of occurrences of the different verb forms.

The regular strong verb paradigm for the present
tense can be seen in the various forms of *ondrēdan
("to fear, be afraid of") which occur in VP:

pres. ind. 1sg. ondredu (-o) ppl. ondredende
2sg. ondredes inf. *ondredan
3sg. ondrede ger. to ondredenne
pl. ondreda

subj. sg. ondrede
pl. ondreden

imp. sg. ondred
pl. ondreda

For this verb the infinitive does not actually occur
(hence, the *). The usual ending of the pres. ind.
1sg. is -u, but -o occurs frequently enough so that
it cannot be considered simply as scribal variation
or an error.

The inflectional endings for the past tense of
the strong verb are provided by the forms of *āweorpan
("to throw, throw out") which appear in VP:

pt. ind. 1sg. *awearp ppl. aworpen
2sg. awurpe
3sg. awearp
pl. awurpун

subj. sg. awurpe
pl. awurpen

The pt. ind. 1sg. of this verb does not occur in VP,
but for all verbs this form is equivalent to the 3sg.

The Weak I verb paradigm shows three different
types of verbs—long stems, geminated stems, and short
stems ending in r. A typical long stem is *gehēran
("to hear"):

<table>
<thead>
<tr>
<th></th>
<th>pres. ind. 1sg.</th>
<th>2sg.</th>
<th>3sg.</th>
<th>pi.</th>
<th>subj. sg.</th>
<th>subj. pi.</th>
<th>imp. sg.</th>
<th>imp. pi.</th>
<th>ppl.</th>
<th>inf.</th>
<th>ger.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>geheru</td>
<td>geheres</td>
<td>gehereð</td>
<td>geherað</td>
<td>gehere</td>
<td>geherdun</td>
<td>geher</td>
<td>gehera</td>
<td>geher&lt;eonede</td>
<td>*gehered</td>
<td>to geherenne</td>
</tr>
<tr>
<td>pt. ind. 1sg.</td>
<td>geherde</td>
<td>geherdes</td>
<td>geherðe</td>
<td>pl. geherdun</td>
<td>sg. geherde</td>
<td>pl. *geherden</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2sg. geheres</td>
<td>2sg. geherdes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3sg. gehereð</td>
<td>3sg. geherde</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pl. geherað</td>
<td>pl. geherdun</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The pt. ppl. of this verb occurs only in an inflected form (geherde, pl.), which shows syncope. The uninflected form would be *gehered.

The forms of settan ("to set, place, establish") illustrate the conjugation of a geminated stem:

<table>
<thead>
<tr>
<th></th>
<th>pres. ind. 1sg.</th>
<th>2sg.</th>
<th>3sg.</th>
<th>pi.</th>
<th>subj. sg.</th>
<th>subj. pi.</th>
<th>imp. sg.</th>
<th>imp. pi.</th>
<th>ppl.</th>
<th>inf.</th>
<th>ger.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>settu (-o)</td>
<td>setes</td>
<td>seteð</td>
<td>*settað</td>
<td>sette</td>
<td>settun (-on)</td>
<td>sete</td>
<td>setten</td>
<td>settende</td>
<td>geseted</td>
<td>*to settenne</td>
</tr>
<tr>
<td>pt. ind. 1sg.</td>
<td>sette</td>
<td>settes</td>
<td>sette</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2sg. setes</td>
<td>2sg. settes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3sg. seteð</td>
<td>3sg. sette</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pl. *settað</td>
<td>pl. settun (-on)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This particular verb, like *ondrēdan, shows the alternate ending -o in the pres. ind. 1sg. It has alternation between u and o also in the pt. ind. pl. ending. Except for the ppl., the past tense shows syncope and assimilation throughout. Thus **setede > **setde > sette.
Short stems ending in *r* have present forms like those given below for *hergan* ("to praise") and past forms like those of *genergan* ("to save, rescue"):

<table>
<thead>
<tr>
<th>Present Ind.</th>
<th>Subject Sg.</th>
<th>Plural</th>
<th>Past Ind.</th>
<th>Subject Sg.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1sg. hergu (-o)</td>
<td>herge</td>
<td>herga</td>
<td>1sg. *generede</td>
<td>*generede</td>
</tr>
<tr>
<td>2sg. *heres</td>
<td>*heres</td>
<td>*heres</td>
<td>2sg. generedes</td>
<td>generedes</td>
</tr>
<tr>
<td>3sg. here§</td>
<td>here§</td>
<td>here§</td>
<td>3sg. generede</td>
<td>generede</td>
</tr>
<tr>
<td>Pl. herge§</td>
<td>herge§</td>
<td>herge§</td>
<td>Pl. *generedun ( -on)</td>
<td>*generedun</td>
</tr>
</tbody>
</table>

A typical verb of the Weak II class is *bledsian* ("to bless"):

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<th>Past Ind.</th>
<th>Subject Sg.</th>
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<tr>
<td>1sg. bledsiu</td>
<td>bledsie</td>
<td>bledsien</td>
<td>1sg. *bledsade</td>
<td>*bledsade</td>
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<tr>
<td>2sg. bledsas</td>
<td>bledsas</td>
<td>bledsas</td>
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<td>bledsades</td>
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<tr>
<td>3sg. bledsae§</td>
<td>bledsae§</td>
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<tr>
<td>Pl. bledsia§</td>
<td>bledsia§</td>
<td>bledsia§</td>
<td>Pl. *bledsadun</td>
<td>*bledsadun</td>
</tr>
</tbody>
</table>

This particular verb does not have a pt. ind. pl. in -adun, but for this whole class of verbs -adun appears more frequently than -adon. -edun and -edon also occur. The regular gerund form must remain uncertain. The expected regular form would be *to bledsienne*, but this ending does not occur for any Weak II verb in VP.
The Weak III verbs contain a number of variations in their paradigm so that construction of a regular conjugation is not of too much help. Nevertheless, the following forms of *secgan ("to say") do illustrate the main features of the conjugation:

pres. ind. 1sg. secgu (-o)  pt. ind. 1sg. segde
2sg. sagas  2sg. *segdes
3sg. sege\^\textcircled{o} (but hafa\^\textcircled{o}, leofa\^\textcircled{o})
  pl. secga\^\textcircled{o}
subj. sg. secge  subj. sg. *segde
  pl. secgen  pl. *segden
imp. sg. sege
  (but *hafa, *leofa)
  pl. secga\^\textcircled{o}
ppl.  secgende  ppl.  segd
inf.  *secgan
ger.  to seggenne

The pres. ind. 3sg. is sege\^\textcircled{o}, but for *habban and lifgan the ending is -a\^\textcircled{o} (hafa\^\textcircled{o}, leofa\^\textcircled{o}). Likewise the imp. sg. ends in -e for *secgan, but -a would be expected for other Class III verbs.

These paradigms thus show the regular inflectional forms in the conjugations of the different classes of verbs. There follows a detailed discussion of each inflectional category with respect to the number of regular forms that occur and the variations from the norm which appear. Variations in both the ending and the stem will be noted. As a basis for treating allographic variations in the verb stem, the infinitive stem, the one usually listed in glossaries and diction-
aries, will be taken as the regular form. It should be noted that this form is not usually the basic form in the sense that it is equivalent to the lexical representation of the stem. The discussion in this chapter is limited to the spellings of the forms as found in the manuscript.

Present Tense

Pres. Ind. 1sg.

The usual ending is -u. Weak II verbs have the stem-forming vowel -i- before the -u (bledsiu). The -u, -iu endings occur 276 times. An alternate ending is -o (-io), which appears 47 times. This figure is too large to dismiss the -o endings as scribal variation. What conditions the choice between -u and -o? It is not the context. In the gloss to Psalm 55 the pres. ind. 1sg. of *ondrädan occurs in the same context one time as ondredu, another time as ondredo, and gehyhtan likewise appears as both gehyhto and gehyhtu:

in gode/ ic gehyhto ne ondredu ic hwet doe me mon (55:4)
in gode ic gehyhtu ne ondredo ic hwet doe me monn (55:9)

The only conditioning factor seems to be the kind of syllable preceding the ending. After short monosyllables -u always occurs. After long syllables, or after more than one syllable, -u can be optionally lowered
to -o. Examples of this lowering are gebrípo, sitto, ãstígo, ãenco, secgo, and waecio (taking waecio to be three syllables, waec-i-o).

The ending -e also occurs, but it is infrequent (8x). Five occurrences are with the contract verbs -sían, *fían (gesíe, 1x, gefíe, 4x), which also have -ò 6 times (gesío, 3x, gefío, 3x). With weak verbs -e appears with selle (1x, also sellu, 3x), blísie, and lifge (1x, also lifgu, 3x). Kuhn (1965:236,252) suggests that selle and lifge may be subjunctives presumably because the scribe misread the Latin.

Other endings include -a in gebída (1x, also with -u, 3x) and forôsegga (1x, also with -u, 2x, -ò, 2x), -om (fleom, 1x, probably by analogy with eam), and -Ø (cweô, ondett, and onseg), which for cweô represents a defect in the manuscript (Kuhn 1965:164) and for the other two verbs probably a scribal omission. The contract verbs *slean, *swêan have the forms slea (ofslea, 2x, slea, 1x) and swêa (2x).

Thus the regular inflectional ending for the pres. ind. 1sg. in VP is -u (-iu for Weak II verbs), with optional lowering to -o (-io) after long stems.

The verb stem to which this ending is added is nearly always the same as the infinitive stem. There are only 21 forms that show change in the stem and most of these (17) occur with their regular stems as well.
In nearly all cases these changes represent spelling variations by the scribe. For example, there is the tendency to spell double consonants with a single letter (gebidu, uphebu, for gebiddu, uphebbu) and vice versa (upphebbo, daellu beside uphebbu, -deelu). Many spelling variants for the geminated g occur (secgu, seggu, segco, for seggco). For the regular verb paradigm, then, the conclusion is that the stem of the pres. ind. 1sg. is the same as the infinitive stem.

Pres. Ind. 2sg.

For strong verbs and weak I verbs the regular ending is -es. Weak II and III verbs have -as. The ending -es occurs 101 times; -as, 45 times. Sometimes -t is added to this ending, usually with contract verbs and Weak III verbs. Endings with -t appear a total of 13 times, 6 times with contract verbs (forsist, gesist (3x), onfoest, uphest), 3 times with Weak III verbs (hafast, Ærest, dreast (for Ærest)). The remaining 4 occurrences are with Weak I verbs (doemest (2x), getelest, selest). The contract verbs *sleān and *swean occur without -t (sles, Æwes).

Unlike the 1sg. ending, the 2sg. ending is added to a stem which is often different from the infinitive stem. The stem loses its final consonant for many weak verbs of Classes I and III and for strong verbs
with weak presents. This happens 29 times. Examples are ėgenes (< *āgenesan), generes (< *genergan), sites (< *sittan, 3x), selest (< sellan), geśreas (< *ge-
ërēgan), hafest (< *habban), asagas (< *āsecogan).

A vowel change can also occur in the stem. Strong verbs of Classes III, IV, and V exhibit this change: onstrigdes (< *onstregdan), genimes (< *genioman),
cymes (< *cuman), gebrices (< *gebreocan) (2x), ites (< eotan), trides (< *treodan), and wrices (< *wreocan).
These vowel changes are, of course, the result of umlaut.

Thus the regular ending for the pres. ind. 2sg. is -es, -as, with -est, -ast only rarely. The stem is frequently different from the infinitive stem.
Double final consonants are simplified or a final g is lost. The vowel of the stem is often umlauted.

Pres. Ind. 3sg.

The ending -eð occurs 422 times. For Weak II and III verbs the ending -eð appears 175 times. Twenty-six times -eð alone is used. This generally happens when there is vowel contraction, such as in atið (< *ātēon), oferwrið (< oferwrēan), gesið (< gesīan),
sleð (< *slēan), geheð (< *gehēan), and gefroð (< *ge-
frīgan). The VP scribe nearly always writes ð, not þ. The 3sg. ending occurs only twice with þ: gesip and ymbseleþ. Another scribal variation, however, is more
significant. This is the scribe's tendency to write d for ę. A d instead of a ę appears 24 times in the 3sg. ending. Most editors have interpreted this as a textual problem rather than a phonological one.\footnote{4}

The stem changes for this ending are the same as those for the 2sg. For Weak I and III verbs and strong verbs with weak presents, geminated clusters are simplified or a final ę is deleted. These changes occur 116 times and include examples like the following: *cweceę (< *cweccan), *getrymeę (< *getrymman), *biscereę (< *biscergan), *gebideę (< *gebiddan), *seceę (< *secjan), *swereę (< *swergan), *hefeę (< *hebban), *fiaę (< *fīgan), *segeę (< *secgan), *leofę (< lifgan). Two rw verbs drop the w: *gegerwan > gegereę (3x), *smirwan > smireę.

There can also be a vowel change in the stem. For strong verbs these variations parallel the umlaut changes discussed for the 2sg. forms. In addition to the examples given in that discussion, there are forms like *bireę (< *beoran), *geondfereę (< *geondfearan), and *gildeę (< *geldan). Some stems of Weak III verbs regularly show a vowel change as well as a consonant change, resulting in forms such as *forhogaę (< *forhyceę), and *leofę (< lifgan).

Syncopation and assimilation generally do not appear in VP in 2 and 3sg. verb forms. The following
verbs do occur, however: cwi$ (< *cweo$an, 6x), gefiht
(< *gefīan, also gefi$ā, 7x, gefih$ā), onfoehnt (< onfōn,
also onfoe$ā, 5x), and cy$ā (< *cy$ān).

To conclude, the regular ending is -e$, -a$. Syncopation and assimilation are very rare. Weak verb
stems with gemination or final g delete the final con­
sonant. The vowels of strong verb stems of classes
III, IV, V, VI frequently have umlaut. Some Weak III
verbs also show a change in stem vowel.

Pres. Ind. Pl.

This ending is regularly -a$, with -ia$ for Weak
II verbs. There are 331 forms with -a$; 93, with -ia$.
After several contract verbs -$ or -o$ occurs: fleo$,
onfo$ā (3x), gefio$ā (also gefia$ā, 10x, gefea$ā), gesio$ā
(2x, also gesia$ā, 5x, gesea$ā, gesiea$ā). As with the
3sg. ending the scribe sometimes writes d for $.
This happens 12 times (-ad, 10x, -iad, 2x). The thorn (p)
does not appear.

The pres. ind. pl. stem is nearly always identical
with the infinitive stem. In instances where it is not,
the reason is simply spelling variation by the scribe.
Only 26 stems show a change, and most of these (22)
also appear in their regular form. Some examples of
these spelling variations are (1) d for $: cweoda$ā
(< *cweo$an, also cweo$ā$ā, 17x), denca$ā (< *$āncan);
(2) simplification of double consonants: \textit{hlæhæn} (< *hlæhhan), \textit{swecæn} (< *sweccan), \textit{roceta} (< *roc-cettan, also rocceta), \textit{hæhæ} (< *habban, also habbañ, 11x); and (3) misspelling of the stem vowel, particularly when it is a digraph: \textit{estæn} (< eotan, also eotañ), \textit{bigeta} (< *bigeotan, also bigeotañ), \textit{gæowian} (< *gæowian, also \textit{giowian}).

The regular ending for the pres. ind. pl. is, therefore, \textit{-a} (< -iañ), and the stem is the same as the infinitive stem.

\textbf{Pres. Subj. Sg.}

The regular endings \textit{-e} and \textit{-ie} occur 108 and 38 times, respectively.\textsuperscript{5} The contract verbs *fian and -sian appear either with an \textit{e} (gefee, gesee, 2x) or without it (gesæ, 5x). *sleæn occurs as ofsele and as gesæn.

There is a significant change in the stem vowel for some verbs with this ending. Strong verbs of Classes IV and V change from a digraph or a back vowel in the infinitive stem to the corresponding monograph or front vowel: \textit{æo > e} (11x), \textit{u > y} (6x). Some examples are \textit{agefe} (< *ageofan, 2x), \textit{cweðæ} (< *cweðan, 6x), \textit{ongete} (< ongeotan), \textit{sprece} (< spreccan, 2x), \textit{cyme} (< *cuman, 5x), \textit{becyme} (< *bicuman). The contract verb *feolan appears as fele. Other stem changes
(in only 4 forms) can be counted as scribal variation.

Thus the pres. subj. sg. ending is -e (-ie). For weak verbs and many strong verbs the stem is the same as that of the infinitive. Some strong verbs, however, have a change in stem vowel because the infinitive stem shows back umlaut.

**Pres. Subj. Pl.**

The ending -en (-ien for Weak II verbs) is the regular form. It occurs 56 times, while -ien appears 45 times. Contract verbs have -n only: gefen (< *gefīan, 8x), gesen (< gesīan, 4x), and flen (< *flēon).

The sg. ending -ie appears twice where the plural would be expected (wynsumie we, Ps.94:1,2), but this simply results from lack of agreement in number with the subject because of inverted word order. (Cf. Campbell 1959:296-97.)

The stem of this form for most verbs is equal to the infinitive stem. However, strong verbs of Classes IV and V do show the same kind of vowel change as in the pres. subj. sg. The pl. stem, like the sg., has a front vowel or monograph where the infinitive has a back vowel or digraph due to back umlaut. Examples are cwedēn (< *cwedēan, 8x), eten (< eotan), forþberen (< *forþbeoran), sprecen (< spreocan), and cymen (< *cuman).

The few remaining stem changes (6) are due to spelling
variations.

Hence the ending for the pres. subj. pl. is -en (-ien), and the stem is the same as the infinitive stem except for strong verbs with back umlaut in the infinitive.

Imp. Sg.

The most common ending is zero (-∅, 282x), but sometimes it is -e (94x), and very often it is -a (112x). The zero ending (-∅) occurs after strong verbs and after Class I weak verbs with long stem syllables. After Weak I short syllable stems and strong verbs with weak presents -e appears. -a is used for weak verbs of Classes II and III.

There are significant differences between this stem and the infinitive stem for verbs which have the -∅ ending as well as for those with -e and Weak III verbs with -a. Strong verbs of Classes IV, V, and VI show a change in stem vowel (15x): cym (< *cuman, 2x), agæf (< *agæofan), cweð (< *cweðan), onget (< ongeotan), and fer (< *feræan) are some examples. Contract verbs appear with a final -h (26x) so that there are such forms as onwrih (< *onwreæan, 2x), geteh (< *getæon), forseh (< *forþæan, 3x), slež (< *sleþan) and ævueæh (< *æwææan). Verbs which have an infinitive stem ending in a double consonant which is not the
result of West Germanic gemination simplify the final consonant cluster before the -∅ ending. This occurs 27 times, primarily among the long stem Weak I verbs like *əcerran (acer, 11x), *əfirran (afir, 4x), and *gefyllan (gefyl), but the Class III strong verb *blinnan also follows this rule to give blin.

For the verbs with the -e ending the geminated consonant cluster becomes a single consonant or the final -g is lost after r. Of the 67 forms of this type some examples are bide (< *biddan, 2x), hefe (< -hebban, 6x), getryme (< *getrymman, 2x), here (< *hargan, 4x), and tosete (< tōsettan). A few verbs (6) end in -e but do not have a change in stem: bliccette (< *bliccettan), geliffeste (< *geliffest(i)an, also geliffesta, 9x), and gefultume (< *gefultum(i)an, 4x, also gefultuma, 1x).

Weak verbs of Class III usually end in -a and show a stem change as well. Those ending in g lose this consonant: ərea (< *ərēgan), ġerea (< *ĝērēgan), gefrea (< *gefriðan, 19x, also gefria, 1x). The imp. sg. of *secgan is sege.

The imp. sg. forms are therefore rather complex. Three different endings (-∅, -e, -a) occur. Stem changes are numerous and include changes both in the vowel of the stem (strong verbs with back umlaut in
the infinitive) and in the final consonants (primarily Weak I and III verbs with gemination).

Imp. Pl.

The regular ending is -aŋ, with -iaŋ for weak verbs of Class II. There are 158 forms with -aŋ, and 63 with -iaŋ. Contract verbs have forms with -aŋ, as in gesiaŋ (< gesian, 6x), as well as forms like gefioŋ (< *gefiān, also gefiaŋ, 3x), and onfoŋ (< onfon). Six times the scribe writes -ad for -aŋ. Once -uaŋ (wynsumuaŋ < wynsumian, also wynsumiaŋ, 7x) appears instead of -iaŋ. The verb *bledsian ("to bless") occurs eight times without an ending, but this is in Hymn 8, where every verse begins with blesiaŋ (Lat. BENEDICTE). The forms without an ending have a line above the d (bled), which probably represents a contraction of the ending just as in dryht for dryhten (Lat. DNM for DOMINUM).

There are no significant differences between the stem for the imp. pl. and the infinitive stem.

Thus the ending for the imp. pl. is regularly -aŋ (-iaŋ), and the stem is equivalent to the infinitive stem. It will be noted that this conclusion is the same as the one for the pres. ind. pl.

Pres. Ppl.

The pres. ppl. can appear in two forms: declined
end unddeclined. When declined, it has the inflectional endings of a -ja, -jō stem adjective\(^7\) (Campbell 1959: 269, 299) added to -(i)end- (239x). Undeclined it ends in -ende (117x). Weak verbs of Class II regularly have -i- before this ending, giving -iende (21x) but in 14 forms this -i- is omitted, as in blissende, elnende (2x), gesomnende, hyngrende, milsende (all of which occur also with -i-), eorsendum, gelocende, geäahtende, wuldrende, and gemonigfalldende. Contract verbs appear as fleonde (< *flēon), onfonde (< onfōn), and gesionde (< gesiān, also gesiende, 2x).

For all verbs the pres. ppl. stem is essentially the same as the infinitive stem.

The pres. ppl., then, consists of the infinitive stem + -(i)end- + e (undeclined) or + adjectival affix (declined).

Inf.

The infinitive ends in -an (60x), -ian (23x). The contracted form onfōn occurs once; gesiān appears as both gesiān (2x) and gesēan (1x). Vowel variation also shows up in ætfealan (for *ætfeolan) and ongeatan (for ongeotan, which also occurs). Otherwise the stem is simply the one listed in the glossary, although it must be borne in mind that except for the infinitives that actually occur in VP the form in
the glossary has been constructed by the editor.

Ger.

The gerund is the inflected infinitive after the word to, and therefore has the form to + stem + -enne (14x). The contract verb gesiān has the gerund to geseonne. The gerunds of Weak II verbs do not have the expected -ienne ending. There are three forms with -enne: to acunnenne (<*ācunnian), to bismerenne (<*bismerian), and to niosenne (<*nōsian). Sometimes the gerund has the ending of the pres. ppl.: to ondetende (<ondettan, 2x, also to ondetenne, 1x), to blissiende (<*blissian) and to gefultumiende (<*gefultum(i)an). Thus for strong verbs and weak verbs of Classes I and III it can be concluded that the gerund appears as to + stem + -enne. For Weak II verbs, however, the evidence is too meager to draw any definite conclusions.

Past Tense

Strong Verbs

Pt. Ind. 1sg.

The strong verbs have a zero ending (-Ø) for the pt. ind. 1sg. (114x). The vowel of the stem undergoes change according to the various grades of ablaut. For Class I ā > ā (7x) as in *ābidan > ābad. The ēo of
Class II verbs appears as ēa (5x): *āgēotan > ēgēat, for example. There are no pt. ind. 1sg. forms in VP of Class II verbs whose infinitive stem has ē. Class III forms show a number of vowel changes. Stems ending in nasel + consonant have i > o (3x), thus ēswindan > ēswond. Those with l + consonant show e > a. The only example is *āgeldan > ēgald. The change eo > ea occurs in stems with the final cluster r + consonant (*āceorfan > ēcearf, 1x only) except that by Anglian smoothing (Campbell 1959:94) *gesnercan > gesnerc. Metathesis (Campbell 1959:310-311) occurs in the verb "to run" (**rinnan) so that the vowel change is eo > o: *eornan > orn (3x). When the stem ends in two identical consonants, the scribe uses a single letter to spell the final double cluster (4x) as in *winnan > won (Cf. imp. sg. blin < *blinnan). Class IV verbs with infinitive in eo have e in this form (2x), such as *heolan > hel. *cuman appears with ō: forecōm (1x only). Class V forms regularly appear with e whether the infinitive stem is in eo (34x) or i (3x). The stems with infinitives in i (the weak presents) end with a single consonant instead of the geminated cluster. Examples are (1) eo > e: *cweōsan > cweē (25x, also ceē, 1x); (2) i > e: *biddan > bed (1x). eotan has a long vowel in this form (ēt, 2x) according to the editor (Kuhn 1965:206. See also Campbell 1959:314).
The change æ>œ occurs in regular Class VI verbs (1x only, *wiðseæcan>wiðsœc). The weak presents have e>œ, as well as consonant changes like bb>f (9x, as in uphebban>uphœf, 2x), rg>r (1x, *swergan>swœr). The strong verbs of Class VII generally appear with ëo for the stem vowel (16x): haldan>heold (5x), *oncnawæn>oncnœow (11x, also oncnœw, 1x). The following forms of the reduplicating verbs *forlētan and *ondrēdan occur: forleort (2x), ondreord (2x).

The stems of contract verbs retain the final h in the past tense. Examples of the pt. ind. 1sg. of contract verbs from various classes include:

I oferwrēan>ofewrāh (2x)  
II *gelifleon>geflēh  
III *ætfēolan>ætfæh  
V *foresian, gesian>foresaeh, gesæh, gesæh (4x)  
VI *ofsleæn>ofslēg, *swēæn>swēg (h>g by Verner's Law)

Thus for the strong verbs the ending of the pt. ind. 1sg. is zero (-Ø) and the stems show the different vowel grades of the various ablaut series.

Pt. Ind. 2sg.

The ending -e is used for this form of the strong verb (71x). The stem is different from the infinitive stem regularly with respect to its vowel and frequently with respect to its final consonant. Furthermore the vowel changes for Classes I to V are different from those of the 1sg. form. Class I verbs have i>i (14x).
A typical example is *gewītan > gewite. A u occurs in the stem of every Class II form (10x) regardless of whether the infinitive has ēo (*gōrhgōtan > ēorhute), īo (*bibīoden > bibude, 2x), or ū (*bilūcan > biluce). Likewise all Class III verb stems have ū (10x), such as *tōstregdan > tōstrugde, *āweorpan > āwurpe (4x), *eornan > urne. The stems of Class IV verbs appear with a long vowel so that ē occurs with the regular verbs (1x only, *gebreocan > gebrēce) and ō with -nioman and *cumen, (ge)nioman > (ge)nōme (4x), *forecumān > forecōwōme. The vowel ē is also found in Class V verbs (12x), giving forms like *bigēotan > bigēte, *gesittan > gesēte. The verbs of Classes VI and VII have the same vowels as in the 1sg. form: typical examples are (1) Class VI—*gesceppan > gescōpe (2x), *swergan > swōre and (2) Class VII—*oncnāwan > oncnēowe (4x, also oncnēwe, 1x), *forlētan > forleorte (2x).

Regular consonantal changes appear in the stems of both contract verbs and verbs with grammatical change (Verner's Law). Contract verb stems end in g:

I oferwētan > oferwīge
II *stēon > stūge (2x), *flēon > flūge
V *foresian > foresēge, gesian > gesēge (2x)
VI *slēan > slōge (2x)
VII onfōn > onfēnge (3x)

Grammatical change is seen in the following forms:
II *geceōsan > gecure
V *cweoḡan > cwede (3x).

Other stems with consonantal changes are:

IV *forecūman > forecwōme
VI *gestondan > gestōde.

The regular ending for this form, then, is -e.

The stems always have a change in vowel and many of them have consonantal changes as well.

Pt. Ind. 3sg.

For strong verbs this ending is zero (-∅) (240x).

Stem changes for this form parallel those of the 1sg. so that forms like the following occur for the different verb classes:

I ḕ > ā (24x), as in *tōslītan > tōslāt
II eo > ea (10x), as in *geceōsan > gecēas (10x)
 ēo > āa (8x), as in *bibiodan > bibēad
ū > āa (2x), as in *āscūfan > āscēaf (2x)
ē = ē (2x), as in *flēgan > flēg (2x) (by smoothing)
ū > ē (2x), as in *bilūcan > bilēc (2x) (by smoothing)
III i > o (12x), as in *drincan > dronc (nasal + consonant)
eo > ea (8x), as in *āweorpan > āwearp (r + consonant)
e > a (3x), as in *delfan > dalf (l + consonant)
ene > o (5x), as in *beornan > born (by metathesis)
e = e (2x), as in *tōstregdan > tostregd (2x)
{ī > o (2x)}, as in *blinnan > blon (cons. loss)

IV eo > e (4x), as in *gebreocan > gebrec (4x)
iō > o (6x), as in *niom → nōm (3x)
{u > o} (11x), as in *cuman > cwēm (10x)
{c > cw}
V eo > e (24x), as in spreocan > sprec
   eo > ee, ae (3x), as in *cweoðan > cweæ (2x),
   cweæ (1x), (also regular cwef, 19x)
   eo > e (8x), as in eotan > et (8x)
   cons. loss (also ett, 1x)

   {i > e (4x)}, as in *gasittan > geset

VI {e > ə (13x)}, as in *āhebban > āhōf
   cons. loss
   {o > ə (8x)}, as in *stondan > stōd (5x)
   cons. loss

VII {ə > ə (7x)}, as in *blēwan > blēow
   {ə > ə (4x)}, as in *gefōl > gefōl (3x)
   cons. loss
   Reduplicating verbs, as in *forlētan > forleort (7x)
   *ondrēdan > ondreord
   *gehātan > geheht

Typical contract verbs of the different classes are:

I *biwrēan > biwrāh
II *tōgetēon > tōgetēh
III *aetfēol > aetfalh (5x)
V *forsēan > forsaeh
VI *ofslēan > ofslōg (6x)
VII *bifōn > bifēng

These are the stem changes for the pt. ind. 3sg.

The ending is -ø. Thus this form is equivalent to the
pt. ind. 1sg. form.

Pt. Ind. Pl.

This ending is -un most frequently (160x), but
sometimes it is -on (18x). -an occurs once (gesēgan <
gesian, also gesēgun, 14x). This variation is similar
to that found in the pres. ind. 1sg. Again the -o-
occurs only after stems which are either long or poly-
syllabic, such as ēton (4x), frugnon, and āguton.
The various stem changes for this form are essentially the same as those for the 2sg. so that a listing of totals and typical examples will be sufficient. The only major difference between the 2sg. stems and those of the pl. is that the Class I plurals show back umlaut, thus *bismītan > bismite (2sg.), but bismeotun (pl.).

I  ē > eo  (12x), as in *bismītan > bismeotun (2x),  
    bismeotun (1x)  
    ē > io  (1x), as in *ābīdan > ābiodun (spelling variation?)  
    ē > e  (1x), as in *ārīsan > āresun (also āresun, 3x) (spelling variation?)

II  ēo > u  (2x), as in *āgēotan > āgutun, āguton  
    ēo > u (1x), as in *wiścēsan > wiścurun  
    ēo > u (1x), as in *onbīdan > onbudun  
    i > u  (2x), as in *sūcan > sucun

III  i > u  (19x), as in singan > sungun (2x)  
    (nasal + consonant)  
    e > u  (9x), as in *geldan > guldun  
    (1 + consonant;  
    also -gd, -ht)  
    eo > u (4x), as in *ceorfan > curfun  
    (r + consonant)  
    (also *beornan)

IV  eo > ē  (0x), (the expected regular forms)  
    io > oio  (1x), as in *fornīoman > fornōmun  
    u > oio  (3x), as in *bicūman > bicōmun  
    (9x), as in *bicūman > bicōmun (2x)

V  eo > ē  (12x), as in *bigēotan > bigētun  
    eo > ē (13x), as in *cwēōtan > cwēdun (10x),  
    cwēdun (3x)  
    i > ē  (8x), as in *gesittan > gesētun  
    (cons. loss)  
    { cons. loss }

VI  e > ē  (6x), as in *āhebban > āhōfun  
    (cons. loss)
Reduplicating verbs, as in *forlētan > forleortun (2x)
*ondrēdan > ondreordun (4x)

The following forms of contract verbs occur:

II  *flēon > flugun
IV  *aetfēolan > aetfēlun (2x)(Class III in sg.)
V   *gefian > gefēgun (3x)
     gesian > gesēgun (14x), gesgun (1x), gesēgan (1x)
VI  *ofsleian > ofslēgun (2x)
VII *bifōn, *forefōn, onfōn > bifēngun, befēngun,
     bifēngon, forefēngun, onfēngun (3x)
     *hōn > hēngun

The ending for this form, then, is -un (-on).
The stem is the same as for the 2sg. except for the
Class I stems, which have back umlaut.

Pt. Subj. Sg.

The ending is the same as for the pres. subj.,
-e, which appears 14 times. The stem to which this
ending is added is, for the small number of forms which
actually occur, equivalent to the pt. pl. stem. Thus
there are the following verb forms:

III  eo > u  (1x), as in *āweorpan > āwurpe
     e > u  (3x), as in *tōstregdan > tōstrugde (3x)
     {eo > u (2x)}, as in *forweorpan > forwurde (2x)
     {gramm. chg.}

IV  eo > ē  (1x), as in *ābeorpan > ābēre
     {u > ō } (1x), as in *cuman > cwōme
     {ō > cw}
Pt. Subj. Pl.

The number of subj. pl. forms (6) is even smaller than the number of sg. ones. For those that occur the ending is -en (=pres. subj. pl.) and the stem is the same as the pt. ind. pl.

II *fleon > flugen

III i > u, *drincan > druncen
    eo > u, *aweorpan > ðurpen

V (cons. loss), *biddan > bêden
    gesian > gesêgen

VII a > òo (for òo?), *haldan > hñolden

Pt. Ppl.

Like the pres. ppl., this form can be declined or undeclined. When it is declined, the endings of en -ä, -ō adjective (Campbell 1959:299) are added to -en (55x, -n when syncope occurs, 37x). Otherwise the ending is -en alone (118x).

In most classes of strong verbs the vowel of the ppl. stem is different from that in other pt. forms. Class I verbs have i > i (17x): *ãwrítan > ãritten (4x), for example. In Class II, both òo and û become ó (17x), as in *tögeotan > tòoten, *útâlùcan > útâlocen. The
verb *geceosan also shows grammatical change, such as
*geceosan > gecorenra (gen. pl.). Several different
vowel changes take place in Class III verbs: i > u
(10x, nasal + cons.), *swingan > swungne (pl.); e > o
(5x, l + cons., -gd), *delfan > dolfen, *töstregdan >
töstrogden; and eo > o (74x, r + cons.), *forceorfan >
forcorfen. Grammatical change is seen in å > d (67x),
such as *geweorðan > geworden. Regular Class IV verbs
have eo > o (2x), *gebreocan > gebrocen. -nioman and
*cuman both have u (6x), *fornioman > fornumen and *up-
cuman > upcumen (4x). The eo of Class V stems becomes
e (7x), as in *efenmectan > efenmeten. *cweoðan has
grammatical change (4x), *cweoðan > cweden. One Class
VI verb has ee > e,*æscæcan > æscæcen; another has æ=æ,
*ægalan > ægalæne (pl.) (-æne = ene?). The weak pres-
ents of Class VI have e = e plus consonant loss (37x),
as in *gesceppan > gescepen. The stem vowel of Class
VII plps. is equal to that of the infinitive (16x),
so that *befaldan > befalden, *bigongan > bigongen (6x),
biswæpan > biswæpen, *forlætan > forlætene (acc. sg.),
etc.

The following plps. of contract verbs occur:
I -wrēan > wrigen(e) (6x), as in *biwrēan > biwrogen
V gesı̈an > gesegen(e) (3x)
VI *sleæan, *ofsleæan > slegen, ofslegene (3x)
VII *bifōn > bifongen, bifongne (3x)
Weak Verbs

Pt. Ind. 1sg.

The person marker for this form for all weak verbs is -e, which occurs 178 times. This ending is preceded by the past tense suffix, which appears as -d- (129x), or as -t- (26x) or -Ø- (23x) when assimilation takes place in Weak I verbs (as in *gemætan > gemætte (3x), -hyhtan > hyhte). Preceding the -d- there is frequently a stem forming vowel (86x), but for some verbs of Class I (81x, usually long stems) and some of Class III (11x) this does not appear. This thematic vowel varies. When it occurs with Class I verbs, it is spelled -e- (6x, (ä)ðenede (2x), getrymede, biwerede, gegerede, smirede). The most frequent spelling for Class II is -a- (44x), but -u- is written 12 times: cleopude (5x; also with -a-, -e-), lufude (6x, also with -a-, -e-), and duolude (also with -e-); -e- appears 16 times: cleopede (12x), cleapede, grymetede, lufede, duolede. Class III stems that end in g have -o- (5x): fðode (< *fīgan, 4x), and gefrêode (< *gefrijgan).

Significant stem changes occur for verbs in Classes I and III. Geminated clusters are reduced to a single consonant (Class I, 13x, Class III, 10x), such as *sennan > ðenede, *gesettan > **gesetede > gesette, *secgan
> segde (5x). Sometimes the final consonant changes (1x only) as in *gereccan > gerehte, and sometimes there is a change in the vowel of the stem (2x) as in *getellan > getelde. *habban has both changes (> hefde, 5x). A final g is lost in stems ending in rg (1x only, *bi-wergan > biwerede) and in long vowel + g (10x, *gecēgan > gecēde (4x), *fīgan > fiode (4x)). Two stems in rw drop the w (*gegerwan > gegerede, *smirwan > smirede). Class I verbs that end in a double consonant which is not the result of gemination also delete one consonant (3x), such as *āfirran > āfirde. This probably represents the scribe’s reduction of the triple consonant cluster -rrd- to -rd-. Other stem changes occur in the Class I verbs *sēcan (> sōhte, 13x) and *gencan (> gōhte, 2x).

Thus the pt. ind. 1sg. forms are rather complex. The ending is -de (with assimilation, -te or -e) preceded by a thematic vowel (usually -e-, (Class I), -e- (Class II), and -o- (Class III)) which can be -∅- when syncope occurs. Furthermore stem changes are frequent. Final consonant clusters as well as the vowel of the stem are often different from those of the infinitive stem.

Pt. Ind. 2sg.

The personal ending is -es (208x). It occurs only
twice as -est: ācunnadest (< *ācunnian) and fēdest (< *fīgan). One Class II verb has -as: gehiowades (also gehiowades, 3x). The past tense marker appears 157 times as -d-, 32 times as -t-, and 21 times as -∅-. Stem forming vowels for the different classes are -a- (I, 23x), -a- (II, 54x), and -a- (III, 7x), also -e- (II, 7x), -o- (III, 5x). There are 113 forms without the thematic vowel, usually due to syncope after long stem Class I verbs (61x).

Changes in the stem parallel those for the 1sg. forms and include for the most part such variations as the following:

1) lack of gemination, with and without vowel change

   Class I (54x), as in *gecnyssan > gecnvses (2x)
   sellan > saldes (13x)
   *onsettan > onsettes
   Class III (2x), as in *forhyccan > forhogan (2x)

2) loss of final g and final w

   Class I (8x), as in *gecēgan > gecēdes
   *biscergan > bisceredes
   *gegerwan > gegeredes
   Class III (13x), as in *gefrīgan > gfrēades (3x)
   >gfrēedes (2x)

3) simplification of ungeminated double consonant

   Class I (10x), as in *gecerran > gecerrades > gecerdes (2x)

For this form, then, the person marker is -es.

The variations in the past tense suffix (-d-) and in
the thematic vowel are the same as those for the 1sg. form. Likewise the various consonant and vowel changes in the stem are equivalent to those of the 1sg.

Pt. Ind. 3sg.

The personal ending -e is used for the pt. ind. 3sg. of weak verbs (338x). Again this is regularly preceded by a -d- and a stem forming vowel, but there are also variations like those already discussed which are usually due to syncope and assimilation in Class I verbs. The thematic vowel for Class II varies from -e- (76x) to -e- (8x) to -u- (2x) to -∅- (1x). For Class III there are -o- (12x), -∅- (7x), -a- (5x), and -e- (2x).

The stem for this form is the same as for the other past forms so that further discussion of the variations is unnecessary. Typical examples of stem changes for the Classes I and III are as follows:

I *gefremman > gefremede (2x), *genergan > generede, *smirwan > smirede (2x), sellan > salde (28x), *āweccan > āwehte and āwahte, *cēgan > cēde, *bringen > brōhte, *sencan > sōhte, and *gefyllan > gefylde;

III *forhycgan > forhogde (5x), *habban > hefde, *secgan > segde, and *gefrīgan > gefrēode (9x), gefrīode (2x), gefrēade (2x), gefrēde (1x).

Thus this form of the verb is the same as the 1sg. form. Its structure is stem (+ vowel) + d + e. The
variations in the stem, the thematic vowel, and the suffix for this form are the same as those discussed for the 1sg. and 2sg. forms.

Pt. Ind. Pl.

The pl. ending varies for the weak verb just as it does for the strong verb: -un occurs 178 times, -on 108 times, and -an twice. Because of the structure of this form (stem (+ vowel) + un, on), this personal ending always follows a polysyllabic or a long stem. Therefore this variation between -u- and -o- is to be expected according to the conclusion reached earlier.

(See pp. 17-18. There are no weak past forms which have the structure monosyllabic short stem + un, where according to the earlier conclusion no reduction to o- would take place.)

As in the other Weak I past forms, syncope and assimilation cause variation between -d- (54x), -t- (68x) and -Ø- (18x). The thematic vowel variation is also the same: -e- (I, 8x), -a- (II, 59x), -e- (II, 37x), -o- (III, 13x), -a- (III, 1x), -e- (III, 5x).

Stem changes are identical to those already discussed for the sg. forms.

Pt. Subj. Sg.

For the past tense of weak verbs the subj. sg.
ending is -e (20x), just as it is in the present tense and in the strong past forms. The stem to which this ending is added is the same as the one used in the past indicative. The totals for the different classes along with some typical examples are as follows:

I (14x) *ahýdan > āhýdde, *gemoetan > gemoette, *sendan > sende, sellan > salde, *ācerran > ācerde;

II (6x) *geēamédian > geēamodade, *leornian > leornade

III None

Pt. Subj. Pl.

Like the present and strong past subj. forms, the weak past subj. has -en in the plural. Only seven forms occur. The stem is again the same as the one used throughout the past tense. The forms which appear are:

I āhýdden (< *āhýdan), forspilden (< forspildan), settan (< settan)

II lufeden (< *lufian), scoteden (< *scotian)

III fīoden (< *fīgan)

Pt. Ppl.

There are both declined (256x) and undeclined (290x) forms just as for the other participles. Like the strong pt. ppl., the weak one is declined as an
-o-, -e- adjective (Campbell 1959:267). Undeclined, the ppl. usually has no ending after the -d (286x), but 5 forms do occur with -e: onwende, gehérde, wiélāédde (also wiélāéded), gedróefede (also gedróefed, 18x), and wicnade (<*witnian). The -d is lacking in one form, but this may be caused by assimilation with the of the following word: gewundra ᵄu earf (Ps. 138:12). Preceding the -d the thematic vowel regularly appears because there is no syncope in these forms. However, the following Class I verbs do not have this vowel: söht (<*sœcan), töbrōht (<*töbringan), getald (<*getellan, 2x), s ald (<sellan, 3x), gereht (3x), gereht (<*gereccan), āwaeh (<*āweccan), and biboht (<*bibycgan). Class III forms normally have no vowel (*forhycgan > forhogd, *habban > hefd, lifgan > lifd, *secgan > segd), except for those like *smēgan > smēad.

When the ppl. is declined, long stem Class I verbs regularly have syncope and assimilation when a suffix begins with a vowel. Thus there are pairs like gecyspte (a.p.m.)--gecyspedra (g.p.m.), geswencte (pl., 7x)--geswencedre (d.s.f.), geinbryrde (pl., 2x)--inbryrdedne (a.s.m.), gelengdum (d.p.m.)--gelenged (undecl.), ēcende (pl., 2x)--ēcennedne (a.s.m.). Class II verbs show a tendency to write the thematic vowel -a- as -e- when declensional endings like -an, -ra are added, as in gehālgadan (wk. a.p.m. <*gehālgian), gegearwedan (wk.
d.s.nt. < *gegearwian), and gewīcnedra (g.p.m. sb. < *gewītnian¹⁰). Declined ppls. of Class III verbs do not occur, except for the one verb *gefrīgan, which has the pl. forms gefrēade, gefrēode, gefrīad, and gefrēad.

The stem for all weak pt. ppl. forms is the same as the stem for the other pt. forms.

Thus the pt. ppl. usually consists of stem + vowel + d when it is undecorined and stem + vowel + d + adjectival ending when it is declined, with the exception of those cases discussed above which appear without the vowel.

With the completion of the weak pt. forms the discussion of the verb forms which occur in VP is concluded. This chapter has been concerned primarily with the forms as they are spelled in the manuscript. The next chapter proceeds to the phonological analysis of the verb forms.
NOTES

CHAPTER II

1 In the analysis of the past tense in Chapter IV reduplicating verbs are put into a separate class so that there are actually eight classes of strong verbs.

2 That is, the imperative is part of the present tense system; it derives from underlying forms in which the tense morpheme is Pres, not Pt.

3 In particular, the infinitive forms in the glossary of the edition of VP by Kuhn (1965). I follow the infinitive forms in Kuhn's glossary except for 9 verbs: slýpan, Wk.I (Kuhn: slûpan, st.2-wk.1), smécan, Str.II (Kuhn: smécan, wk.1), Tultum(i)an, gefultum(i)an, Wk.I-II (Kuhn: tultumian, gefultumian, wk.2), geliffest(i)an, Wk.I-II (Kuhn: geliffestan, wk.1), òefest(i)an, Wk.I-II (Kuhn: òefestan, wk.1), ondett(i)an, Wk.I-II (Kuhn: ondettan, wk.1), fylgan, efterfylgan, Wk.I (Kuhn: wk.3).

4 Kuhn's note on bismerad (Ps. 2:4) is typical: "From bismera; distinguishing stroke of ð er. [erased], faded, or rubbed away" (1965:161). See also Sweet (1885:186-7), who usually corrects ð for ð in his text.

5 109 times counting geslæce (Ps. 7:2), which was made from geslæ by a later hand (Kuhn 1965:161).

6 The Class III verb *æceorfan also has eo > e (æcerf), but this is not the usual form for Class III verbs of the r + consonant type, as can be seen from the imp. sg. of *æweorpan (æweorp, 3x) and *tœweorp (tœweorp, 2x).

7 Adjectival endings will not be discussed since this study is limited to verb forms.

8 Kuhn labels to ondetende a gerund (1965:245), but does not mark to blissiende or to gefultumiende as such.
In these two verbs Kuhn takes the $c$ to be "a carelessly written $t$" (1965:220).
CHAPTER III

THE PHONOLOGY OF THE VERB FORMS:
PRESENT TENSE

The phonological analysis of the verb forms follows a generative approach. Instead of a simple listing of morphemes with their various allomorphs, underlying lexical and phonological representations are posited, and rules which convert these to surface phonetic representations are written. The derivations begin with the underlying form, which will undergo a series of changes specified by rules to become a phonetic representation.

One immediate problem is, of course, the correspondence between the sounds represented by the symbols of the analysis and the spellings used by the scribe. In general, this study follows the work on OE phonology of such writers as Moulton (1954), Stockwell (1958) and Hockett (1959). The phonetic transcriptions of OE verb forms represent only one probable interpretation of the spellings of the manuscript. They may not be accurate for all of the sounds in a word, but they are as accurate as possible in those parts of a verb form which are the subject of this study—namely, the inflectional
ending and the vowel and final consonant cluster of the stem.

The following underlying consonant system is assumed:

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<th>Labials</th>
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<th>Palatals</th>
<th>Velars</th>
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The true consonants have the following feature specifications:

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<td>+</td>
</tr>
<tr>
<td>Strident</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>

The glides j and w are specified as follows:

<table>
<thead>
<tr>
<th></th>
<th>j</th>
<th>w</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vocalic</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Consonantal</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>High</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Beck</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Round</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>Long</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

The precise nature of OE l and r is difficult to determine. The Mercian l is thought to have been close to
MnE *l* (Wright and Wright 1925:11), which Chomsky and Halle (1968:177) give as a dental sound:

\[
\begin{array}{c}
+\text{vocalic} \\
+\text{consonantal} \\
+\text{anterior} \\
+\text{coronal}
\end{array}
\]

The OE *r* was probably trilled, and since breaking occurs before *r* + consonant in the dialect of VP, it was most likely farther back than *l*. (Wright and Wright say that it was "reverted" (1925:12).) If it was palatal, it could have the same features as in MnE and would be distinguished from *l* by the feature [−anterior]. If it was far enough back to be velar, it would be marked [−back −anterior [−coronal]. However, since it is necessary for *l* and *r* to differ by only one feature in order to distinguish them, the first analysis will be assumed, that *r* is palatal or palato-alveolar. The feature specification of *r* will thus be taken to be the same as that given by Chomsky and Halle (1968:177) for MnE *r*:

\[
\begin{array}{c}
+\text{vocalic} \\
+\text{consonantal} \\
-\text{anterior} \\
+\text{coronal}
\end{array}
\]

These underlying consonants are converted to phonetic representations by several general OE sound changes, the precise formulation of which is beyond the scope of this study. First of all, |x| becomes /h/ in initial position and between voiced sounds (Moulton 1954:26). In initial position the clusters /hl, hr, hn, hw/ then become the
voiceless counterpart of the second member of the
cluster: /l, r, n, w/ (Campbell 1959:21). Secondly,
the voiced velar fricative /g/ becomes the stop /g/
initially before a back vowel or a consonant and after
/n/ (Moulton, 1954:24-25). (Gemination of /g/ is dis­
cussed with the verb rules; see below, pp. 104ff.)
Thirdly, the velars /k, g, are palatalized to /c,
g, ﬂ/ when a front vowel or j follows (Moulton 1954:
24-25). This change would, of course, occur before
any j-deletion rules would apply. The voiced palatal
fricative /g/ thus developed falls together with the
glide /j/ (Moulton 1954:25). Next, the voiceless
fricatives /f, θ, s/ show voicing assimilation so that
they become /v, ﬂ, z/ in voiced environments (Campbell
1959:20). Finally is the assimilation of the nasal /n|
in point of articulation. Before the palatals /c, ﬂ/
and the velars /k, g/ /n/ would be /ŋ/ and /ŋ/, re­
spectively (Campbell 1959:20,26).

These general developments would give the follow­
ing consonants in the phonetic representations of Old
English:2

<table>
<thead>
<tr>
<th>Labials</th>
<th>Dentals</th>
<th>Palatals</th>
<th>Velars</th>
<th>Glottals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stops—vd.</td>
<td>b</td>
<td>d</td>
<td>g</td>
<td>g</td>
</tr>
<tr>
<td>vless.</td>
<td>p</td>
<td>t</td>
<td>c</td>
<td>k</td>
</tr>
<tr>
<td>Fricatives—vd.</td>
<td>v</td>
<td>ﬂ, z</td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>vless.f</td>
<td>θ, s</td>
<td>x</td>
<td>h</td>
<td></td>
</tr>
</tbody>
</table>
It is partly by these general rules that we arrive at the final phonetic shape of a derivation, and they will regularly not be expressed as part of the derivation itself. Only those rules that are under discussion at the moment and are to be exemplified by a certain derivation will be expressed. Thus, for example, in the derivation of a verb form like *gegremman, "to provoke, enrage"* from |ge=grAm+j#A0|, the change of the first |e| to /j/ and of the second |e| to /g/ will not be explicitly mentioned in the derivation if the derivation is to illustrate the vowel changes and final consonant changes characteristic of a Class I weak verb.

The vowel system for the underlying representations (with |A| symbolizing an archiphoneme unspecified for roundness) is

<table>
<thead>
<tr>
<th>Front</th>
<th>Back</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hi ύ</td>
<td>ʊ, u</td>
</tr>
<tr>
<td>Mid</td>
<td>ɛ, e ɔ, o</td>
</tr>
<tr>
<td>Low</td>
<td>Â, A</td>
</tr>
</tbody>
</table>

The feature specifications for these are
There are two sets of vowels which are distinguished by the feature \([+\text{long}]\). This feature corresponds to the feature \([+\text{tense}]\) used in the specification of the MnE vowels (Chomsky and Halle 1968:176). It is probable that the OE vowels differed not only in length, but also in tenseness so that the difference phonetically between \(\text{o}\) and \(\text{O}\), for example, was not just /o:/ vs. /o/, but /o:/ vs. /o/. (Cf. Moore and Marckwardt 1951:19) Only one feature is needed to distinguish these two kinds of vowels, however, and the feature \([+\text{long}]\) will be used in this study.

One basic assumption of this system is that there are no front round vowels in the lexical representations of OE verbs. The occurrence of front round vowels is always due to the application of some phonological rule. In like manner the low vowels \(\text{\text{A}}, \text{A}\) are not specified for roundness because the value for this feature is also predictable by rule. When unstressed, these vowels are unround /\(\text{\text{a}}, \text{a}\) / \([+\text{back}]-\text{round}\). When they do receive stress, they become rounded to /\(\text{\text{d}}, \text{d}\) / \([+\text{back}]+\text{round}\). Short /\(\text{\text{d}}\) raises
to /o/ before a nasal consonant. Both /ɔ/ and /ɒ/
may be fronted by certain rules to become /æ, æ/ 
[back -round]. When /æ/ is retracted (by breaking or back umlaut, for example), it becomes /a/ [back -round], usually spelled ea by the scribe.

Our interpretation of the short "diphthongs" ea, eo, io follows the view of writers like Stockwell (1958) and Hockett (1959) that phonetically these represent the back unround vowels /a/, /ʌ/, /ɒ/.

The long diphthongs æa, øo, and òo will be assumed to be underlying [Au], [øu], and [iu]. For the phonetic representation of these sounds we will use Hockett's idea that they are long sounds corresponding to the short "diphthongs"—/a:/, /ʌ:/, /ɒ:/ (1959:577).

The phonetic vowel system of Old English is therefore considered to be:

<table>
<thead>
<tr>
<th>Stressed</th>
<th>Unstressed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front</td>
<td>Back</td>
</tr>
<tr>
<td>Unround Round</td>
<td>Unround Round</td>
</tr>
<tr>
<td>High i:, i</td>
<td>y:, y</td>
</tr>
<tr>
<td>Mid e:, e</td>
<td>õe:, õe</td>
</tr>
<tr>
<td>Low æe:, æe</td>
<td>æe:, æe</td>
</tr>
</tbody>
</table>

These are the consonants and vowels, then, for both the lexical representations and the surface phonetic forms. This chapter is concerned with the present tense verb forms—their underlying and surface representations and the rules for changing the one to the other.
Stress

The first group of rules deals with the vowels of the verb stems. Since these are the vowels which receive stress and since there are different rules for stressed and unstressed vowels, the first rule is the one which assigns stress. A precise formulation of stress rules is not the primary concern of this study. Here it is necessary only to follow the traditional assertion that in Old English stress falls on the first vowel of a word, except that for verbs it is on the first vowel of the base. (Campbell 1959: 30). In order that the vowel of a verb prefix does not receive stress, there is a readjustment rule to replace the formative boundary (+) with the affix boundary (=):

S-1: Verb Prefix Boundary Rule
+ \rightarrow / Pre.__Vb
(In feature specification [+FB] \rightarrow [-FB] / Pre.__Vb.)

The stress rule can then be written:

S-2: Stress Rule
V \rightarrow [1 stress] / [#(Pre=)C₀], where C₀ = no or any number of consonants
(The first vowel of a noun or adjective receives primary stress. For verbs the first vowel of the base receives
primary stress.)

Examples to illustrate stress assignment are

cweòðu, verb (pres. ind. 1sg. <*cweòðan, "to say")--
wèòðu

eardie, verb (subj. sg. <*eardian, "to live, dwell")--
edie

acer, verb (imp. sg. <*acerran, "to turn back")--
a+cer > a=cer > a=cer

upahebban, verb (inf., "to lift up")--up+a+hebban >
up+a=hebban > up+a=hebban

wiðerbrocum, noun (d.p. <*wiðerbroca, "rival, adversary")--wiðer+brocum > wiðer+brocum

unrot, adj. (n.s.m., "sad")--un+rot > un+rot

Next we can permit the stress rule to apply cyclically. After each application of the rule, innermost brackets are erased. With each new assignment of primary stress all other stresses are reduced by one (Chomsky and Halle 1968:16-17). This procedure gives derivations like the following for Class II weak verbs derived from nouns and adjectives:

goldhordað (pres. ind. 3sg. <*goldhordian, "to hoard gold")

Underlying: \[ V# [N# [N#gold#] N# [N#hord#] N# ] N# a# S# ] V

Rules:
S-2 \[ V# [N# [N#gold#] N# [N#hord#] N# ] N# a# S# ] V
S-2 \[ V# [N#gold#hord#] N# a# S# ] V
S-2 \[ V#gold#hord#a S# ] V

Phonetic: /gòldhòrdàð/
godspelliendum (pres. ppl. < *godspellian, "to preach good tidings")


Rules:

S-2 \[ V^\# [N^\# [A^\# god^\# ]_A [N^\# spell^\# ]_N ]_N ]_N iendum^\# ]_V

S-2 \[ V^\# [N^\# [A^\# god^\# spell^\# ]_N ]_N iendum^\# ]_V

S-2 \[ V^\# [A^\# god^\# spell^\# iendum^\# ]_N ]_N iendum^\# ]_V

Phonetic: /gódspəl:iendum/

gemonigfaldas (pres. ind. 2sg. < *gemonigfaldian, "to increase many times over, multiply")

Underlying: \[ V^\# ge+[V^\# [A^\# monig+fald^\# ]_A as^\# ]_V^\# ]_V

Rules:

S-1 \[ V^\# ge+[V^\# [A^\# monig+fald^\# ]_A as^\# ]_V^\# ]_V

S-2 \[ V^\# ge+[V^\# [A^\# monig+fald^\# ]_A as^\# ]_V^\# ]_V

S-2 \[ V^\# ge+[V^\# [A^\# monig+fald^\# as^\# ]_V^\# ]_V

S-2 \[ V^\# ge+[V^\# [A^\# monig+fald^\# as^\# ]_V^\# ]_V

Phonetic: /jemonijfaldas/

In goldhordaS and godspelliendum both elements of the compound receive stress so that the stress pattern of the output is 1-3, /'N/. The verb form gemonigfaldas is derived from an adjective+suffix which becomes a verb with prefix and inflectional ending. Stress is assigned to the o of monig throughout.

Now that the stress placement rules have been worked out, we can consider the alternations which
occur in the stressed vowels of verb stems. One obvious place where these occur is in the present tense of strong verbs.

**Strong Verbs**

Some of the variations noted in the preceding chapter for the vowels of strong verbs in the present tense include examples like the following forms of *beoræn, "to bear," nioman, "to take," and geotan, "to get":

<table>
<thead>
<tr>
<th>Ind.</th>
<th>Subj.</th>
<th>Imp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1sg.</td>
<td>2sg.</td>
<td>3sg.</td>
</tr>
<tr>
<td>bireŋ</td>
<td>beoræŋ</td>
<td>aberæ</td>
</tr>
<tr>
<td>/bireθ/</td>
<td>/beoræθ/</td>
<td>/aberæθ/</td>
</tr>
<tr>
<td>njomu</td>
<td>genimes</td>
<td>nimeŋ</td>
</tr>
<tr>
<td>/njimu/</td>
<td>/jenimes/</td>
<td>/njimeθ/</td>
</tr>
</tbody>
</table>
| ongeotu | ongiteŋ | bigeotæŋ | ongete | onget 
| /onjetu/ | /onjiteθ/ | /bijeotæθ/ | /onjete/ | /onjet/ |

In these strong verbs of Classes IV and V there are the following vowel changes:

<table>
<thead>
<tr>
<th>I</th>
<th>II</th>
<th>III</th>
</tr>
</thead>
<tbody>
<tr>
<td>eo /ɘ/</td>
<td>i- /i/</td>
<td>e /é/</td>
</tr>
<tr>
<td>io /i/</td>
<td>i /i/</td>
<td>i /i/</td>
</tr>
</tbody>
</table>

The vowels in Column I occur when there is a back vowel (/u/, /a/) in the ending. Column II lists the vowels of the ind. 2sg. and 3sg. forms, and the vowels of the imp. sg. and subj. forms are in Column III. The vowels of Column II appear when the vowel of the ending is /e/,
and those of Column III occur before endings with /e/ or Ø. There must be some difference between the ind. 2sg. and 3sg. forms, on the one hand, and the subj., on the other, in order for there to be a difference in the vowel of the stem. This difference is in the underlying forms of the endings. We assume that the vowel of the ind. 2sg. and 3sg. endings is an |i| and that of the subj. is an |e|. The |i| is lowered to /e/ by a rule which follows the umlaut rules. This |i| will cause raising of the preceding vowel, giving the vowels of Column II. The |e| of the subj. and the Ø of the imp. sg. produce no raising. The vowels of Column III, therefore, can be posited as the vowels in the phonological representations. Those in Column I are due to back umlaut, and those in Column II result from front vowel raising.

The phonological rules that express these vowel changes can be formalized as follows:

SV-1: Back Umlaut

\[
\begin{array}{c}
V_{\text{stress}} \\
\rightarrow [\text{+back}] / \quad C_1 \# \\
\text{[+voc] -cons} \\
\text{[+back]}
\end{array}
\]

(A stressed vowel becomes the corresponding back vowel when followed by a consonant and a back vowel in an ending.)
SV-2: Front Vowel Raising
\[ \begin{array}{c}
V \\
+\text{stress} \\
-\text{back} \\
\end{array} \rightarrow [+\text{high}] / \_C_1\# \begin{array}{c}
+\text{voc} \\
-\text{cons} \\
+\text{high} \\
-\text{back} \\
\end{array} \]
(/e/ > /i/ before a consonant followed by an /i/ in an ending.)

UV-1: Vowel Lowering
\[ \begin{array}{c}
V \\
-\text{stress} \\
-\text{back} \\
\end{array} \rightarrow [-\text{high}] \]
(Unstressed /i/ becomes /e/.)

These rules apply to the underlying forms to give derivations like the following:

Rules
S-2: Stress
SV-1: Back Umlaut
SV-2: Front Vowel Raising
UV-1: Vowel Lowering

*beoræn, "to bear"

<table>
<thead>
<tr>
<th>Form:</th>
<th>Ind.</th>
<th>Subj.</th>
</tr>
</thead>
<tbody>
<tr>
<td>bire$</td>
<td>beora$</td>
<td>-bere</td>
</tr>
<tr>
<td>Underlying:</td>
<td>ber#iθ</td>
<td>ber#aθ</td>
</tr>
<tr>
<td>Rules:</td>
<td>bér#iθ</td>
<td>bér#aθ</td>
</tr>
<tr>
<td>S-2</td>
<td>bér#iθ</td>
<td>bér#aθ</td>
</tr>
<tr>
<td>SV-1</td>
<td>bér#iθ</td>
<td>bér#aθ</td>
</tr>
<tr>
<td>SV-2</td>
<td>bér#iθ</td>
<td>bér#aθ</td>
</tr>
<tr>
<td>UV-1</td>
<td>bér#iθ</td>
<td>bér#aθ</td>
</tr>
</tbody>
</table>

Phonetic: /bíreθ/ /bíraθ/ /bére/ /béren/
Orthographic: bire\$ beora\$ -bere -beren
-niomen, "to take"

Form:  
<table>
<thead>
<tr>
<th>1sg.</th>
<th>2sg.</th>
<th>3sg.</th>
<th>pl.</th>
<th>sg.</th>
</tr>
</thead>
<tbody>
<tr>
<td>*niomu</td>
<td>*nimes</td>
<td>nimeŋ</td>
<td>*niomaŋ</td>
<td>*nime</td>
</tr>
</tbody>
</table>

Underlying:  
| nɪmu | nɪmɪs | nɪmɪθ | nɪmɪæθ | nɪmɪe |

Rules:  
S-2 |  
SV-1 |  
UV-1 |  

Phonetic:  
| /nɪmu/ | /nɪmɛs/ | /nɪmɛθ/ | *nɪmæθ/ | *nɪmɛ/ |

Ortho- 
graphic:  
| nɪomu | nɪmɛs | nimeŋ | *nime |

-geotan, "to get"

Form:  
<table>
<thead>
<tr>
<th>1sg.</th>
<th>3sg.</th>
<th>pl.</th>
<th>sg.</th>
<th>sg.</th>
</tr>
</thead>
<tbody>
<tr>
<td>-geotu</td>
<td>-giteŋ</td>
<td>-geotaŋ</td>
<td>-gete</td>
<td>*get</td>
</tr>
</tbody>
</table>

Underlying:  
| geotu | geotɪθ | geotæθ | geotæ | geotæ |

Rules:  
S-2 |  
SV-1 |  
SV-2 |  
UV-1 |  

Phonetic:  
| /jɪtu/ | /jɪteθ/ | /jɪtaθ/ | /jɛtɛ/ | /jɛt/ |

Ortho- 
graphic:  
| -geotu | -giteŋ | -geotaŋ | -gete | *get |

These three vowel rules will thus generate the correct present tense forms for these verbs of Classes IV and V.

The Class IV verb *cuman, "to come" has the following present tense forms:

<table>
<thead>
<tr>
<th>1sg.</th>
<th>2sg.</th>
<th>3sg.</th>
<th>pl.</th>
<th>sg.</th>
<th>sg.</th>
</tr>
</thead>
<tbody>
<tr>
<td>cumu</td>
<td>cymes</td>
<td>cymeŋ</td>
<td>*cumaŋ</td>
<td>cyme</td>
<td>cym</td>
</tr>
</tbody>
</table>

/kúmu/ /kýmes/ /kýmeθ/ /kúmaθ/ /kýme/ /kým/
For the verbs just discussed the stem of the subj. and imp. sg. was considered to be the underlying form. However, this verb has the front round vowel /y/ in these forms, and it is unlikely that front round vowels appear in the lexical representations of Old English. It should be possible to predict by rule the occurrence of this type of vowel. The verb *cuman, then, should have as the underlying form of its stem |kum| rather than |kym|. If there is a rule that fronts back vowels before a following front vowel (corresponding to the Back Umlaut Rule SV-1), then the subj. stem would become /kým/ since the ending is e. The imp. sg., however, is not followed by any vowel, but since its stem has /ý/ not /ú/, it would seem that the underlying form of the ending should be |e|. This |e| would be deleted by a rule that deletes |e| in the context #____#. Now the |e| of the subj. sg. is not deleted, so that its underlying representation should be a long vowel |ê|, which is shortened by a later rule. Therefore we take the subj. sg. ending to be underlying |ê| and the imp. sg. ending to be underlying |e|. These front vowels cause the |u| of |kum| to be fronted in the imp. sg. and in the subj. The following rules express these relationships:

SV-3: Vowel Fronting

\[
\begin{array}{c}
V \\
[+\text{stress}] \\
\rightarrow [-\text{back}] / \\
\end{array} \\
\begin{array}{c}
C_1 \\
[+] \text{voc} \\
[+] \text{cons} \\
[-\text{back}] \\
\end{array}
\]
(A stressed vowel becomes the corresponding nonback vowel when followed by a consonant and a nonback vowel in an ending.)

UV-2: Final |e| Deletion
\[ e \rightarrow \emptyset / \# _ - _ \#

(The ending |e| is deleted.)

UV-3: Vowel Shortening
\[ [V_{-\text{stress}}] \rightarrow [-\text{long}] / \# _ - _ \#

(Unstressed vowels in endings are short.)

Rule UV-2 must apply before Rule UV-3 or the surface phonetic form of the subj. sg. as well as of the imp. sg. would have the zero (\(\emptyset\)) ending.

Rule SV-3 has the same form as the Back Umlaut Rule SV-1 except that the value of the feature [back] is \(-\) rather than \(+\). Rules SV-1 and SV-3 can easily be combined into a "Backness Harmony" Rule by using \(\alpha\) notation (Chomsky and Halle 1968:351-357):

SV-4: Backness Harmony
\[ [V_{+\text{stress}}] \rightarrow [\alpha_{\text{back}}] / \_ C_1 \# [+\text{voc} -\text{cons} \alpha_{\text{back}}]

(A stressed vowel agrees in backness with the following vowel of the ending.)

The derivations of the forms of *cuman would go as follows:
Rules

- S-2: Stress
- SV-4: Backness Harmony
- UV-2: Final \( \varepsilon \) Deletion
- UV-1: Vowel Lowering
- UV-3: Vowel Shortening

**cuman**, "to come"

<table>
<thead>
<tr>
<th>Form:</th>
<th>Ind.</th>
<th>Subj.</th>
<th>Imp.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1sg.</td>
<td>2sg.</td>
<td>3sg.</td>
</tr>
<tr>
<td>Underlying:</td>
<td>cumu</td>
<td>cymes</td>
<td>cyme(\varepsilon)</td>
</tr>
<tr>
<td>Rules:</td>
<td>kumu</td>
<td>kum#is</td>
<td>kum#i(\varepsilon)</td>
</tr>
<tr>
<td>S-2</td>
<td>kum#u</td>
<td>kum#is</td>
<td>kum#i(\varepsilon)</td>
</tr>
<tr>
<td>SV-4</td>
<td>kym#is</td>
<td>kym#i(\varepsilon)</td>
<td>kym#a(\varepsilon)</td>
</tr>
<tr>
<td>UV-2</td>
<td>kym#es</td>
<td>kym#i(\varepsilon)</td>
<td>kym#a(\varepsilon)</td>
</tr>
<tr>
<td>UV-1</td>
<td>kym#es</td>
<td>kym#i(\varepsilon)</td>
<td>kym#a(\varepsilon)</td>
</tr>
<tr>
<td>UV-3</td>
<td>kym#es</td>
<td>kym#i(\varepsilon)</td>
<td>kym#a(\varepsilon)</td>
</tr>
</tbody>
</table>

**KUMU**

Next is the Class VI verb *fearan, "to go."* The following present tense forms appear in **VP:**

<table>
<thead>
<tr>
<th>Ind.</th>
<th>Imp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1sg.</td>
<td>3sg.</td>
</tr>
<tr>
<td>fearu</td>
<td>geondfere(\varepsilon)</td>
</tr>
<tr>
<td>/f(\varepsilon)ru/</td>
<td>/jondfere(\varepsilon)/</td>
</tr>
</tbody>
</table>

These give the vowel correspondence /\(\acute{\varepsilon}\)/--/\(\varepsilon\)/--/\(\acute{\varepsilon}\)/. In the previous examples, in which (except for *cuman*) the third vowel of the vowel correspondences was considered to be the underlying one, there was the series /\(\acute{\varepsilon}\)/--/\(\acute{i}\)/--/\(\varepsilon\)/. Thus the vowel of the imp. sg. *fer* must not be the underlying one. The underlying vowel for this verb must be /\(\acute{\varepsilon}\)/, and the vowel of the imp.
sg. must be due to the application of a rule not previously discussed. In fact, it is the result of the sound change called "Second Fronting" (Campbell 1959: 62-64) characteristic of VP by which /æ/→/e/, /á/→/e/ (with some exceptions). The first of these changes is relevant here, and it can be expressed by a rule like

SV-5: Second Fronting

\[
\begin{align*}
V & \quad [\text{stressed}] \\
+\text{stress} & \quad [\text{low}] \\
-\text{back} &
\end{align*}
\]

(Stressed front vowels are nonlow.)

This rule must follow the other stressed vowel rules SV-4 and SV-2, and since it affects stressed vowels itself, it should precede the rules for unstressed vowels UV-1, UV-2, and UV-3.

Rule SV-2 must be modified to account for the /é/ of the ind. 3sg. *fereš*. It must express the change /æé/→/é/ by raising before a following /i/:

SV-6: Raising of /æé/ to /é/

\[
\begin{align*}
V & \quad [\text{low}] \\
[\text{stressed}] & \quad [\text{low}] \\
-\text{back} & \quad C_1 # \\
+\text{voc} & \\
-\text{cons} & \\
+\text{high} & \\
-\text{back} &
\end{align*}
\]

(/æé/→/é/ before a following /i/.)

Rules SV-2 and SV-6 can be collapsed into Rule SV-7 by use of the angled bracket notation (Chomsky and Halle 1968:76-77,347):
SV-7: Front Vowel Raising

\[
\begin{align*}
V_{\text{+stress}} \\
{-\text{back}} \\
{\langle -\text{low} \rangle}
\end{align*} \rightarrow
\begin{align*}
\langle +\text{high} \rangle \\
/_{\text{+voc}} \\
/-\text{cons} \\
{\langle +\text{high} \rangle} \\
/_{\text{-back}}
\end{align*}
\] (/é/ > /ë/, /æ/ > /é/ before an ending with /i/.)

Replacing the Rule SV-2 with Rule SV-7 and adding Rule SV-5 produces the following derivations for the different forms of *fearan:

Rules

S-2: Stress
SV-4: Backness Harmony
SV-7: Front Vowel Raising
SV-5: Second Fronting
UV-2: Final |e| Deletion
UV-1: Vowel Lowering

<table>
<thead>
<tr>
<th>Form:</th>
<th>Ind.</th>
<th>Impl.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1sg.</td>
<td>3sg.</td>
</tr>
<tr>
<td></td>
<td>-fereø</td>
<td>-fearaø</td>
</tr>
</tbody>
</table>

| Underlying: | fær#u | fær#iø | fær#aø | fær#e |
| Rules:      | fær#u | fær#iø | fær#aø | fær#e |
| S-2         | fær#u | fær#iø | fær#aø | fær#e |
| SV-4        | fær#u | fær#iø | fær#aø | fær#e |
| SV-7        | fær#u | fær#iø | fær#aø | fær#e |
| SV-5        | fær#u | fær#iø | fær#aø | fær#e |
| UV-2        | fær#u | fær#iø | fær#aø | fær#e |
| UV-1        | fær#u | fær#iø | fær#aø | fær#e |

Phonetic: /fær/ /færø/ /færø/ /fær/
Orthographic: fearu -fereø -fearaø fer

Strong verbs of Class III have present tense forms like the following:
singan, "to sing"

<table>
<thead>
<tr>
<th></th>
<th>1sg.</th>
<th>3sg.</th>
<th>pl.</th>
<th>sg.</th>
</tr>
</thead>
<tbody>
<tr>
<td>singu</td>
<td>singed</td>
<td>singed</td>
<td>singed</td>
<td>singe</td>
</tr>
<tr>
<td>/singu/</td>
<td>/sènged/</td>
<td>/sènged/</td>
<td>/sènged/</td>
<td>/sènge/</td>
</tr>
</tbody>
</table>

*weorgan, "to become, happen"

<table>
<thead>
<tr>
<th></th>
<th>3sg.</th>
<th>pl.</th>
<th>sg.</th>
</tr>
</thead>
<tbody>
<tr>
<td>forweorded</td>
<td>forweorded</td>
<td>forweorde</td>
<td></td>
</tr>
<tr>
<td>/förwàrdeθ/</td>
<td>/förwàrdeθ/</td>
<td>/förwàrde/</td>
<td></td>
</tr>
</tbody>
</table>

*gelden, "to pay, return"

<table>
<thead>
<tr>
<th></th>
<th>1sg.</th>
<th>2sg.</th>
<th>3sg.</th>
<th>sg.</th>
<th>sg.</th>
</tr>
</thead>
<tbody>
<tr>
<td>geldu</td>
<td>agildes</td>
<td>gildeg</td>
<td>gelde</td>
<td>geld</td>
<td></td>
</tr>
<tr>
<td>/jeldu/</td>
<td>/a:jildes/</td>
<td>/jildeg/</td>
<td>/jelde/</td>
<td>/jeld/</td>
<td></td>
</tr>
</tbody>
</table>

*stregdan, "to scatter"

<table>
<thead>
<tr>
<th></th>
<th>1sg.</th>
<th>2sg.</th>
<th>3sg.</th>
<th>sg.</th>
<th>sg.</th>
</tr>
</thead>
<tbody>
<tr>
<td>tostregdo</td>
<td>onstrigdes</td>
<td>strigdeg</td>
<td>tostregd</td>
<td>tostregd</td>
<td></td>
</tr>
<tr>
<td>/to:strèjdo/</td>
<td>/onstrìjdes/</td>
<td>/strìjdeg/</td>
<td>/to:strèjde/</td>
<td>/to:strèjde/</td>
<td></td>
</tr>
</tbody>
</table>

*frignan, "to ask"

<table>
<thead>
<tr>
<th></th>
<th>3sg.</th>
<th>pl.</th>
<th>sg.</th>
</tr>
</thead>
<tbody>
<tr>
<td>frigned</td>
<td>frigned</td>
<td>frign</td>
<td></td>
</tr>
<tr>
<td>/friñned/</td>
<td>/friñned/</td>
<td>/friñ/</td>
<td></td>
</tr>
</tbody>
</table>

*fehtan, "to fight"

<table>
<thead>
<tr>
<th></th>
<th>Ind.</th>
<th>pl.</th>
<th>Imp. sg.</th>
</tr>
</thead>
<tbody>
<tr>
<td>oferfehta</td>
<td>oferfeht</td>
<td></td>
<td></td>
</tr>
<tr>
<td>/overféxta/</td>
<td>/overféxt/</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Some of these forms do not have any vowel change. Those with a nasal in the final consonant cluster of the stem, such as singan and *frignan, have i throughout. The r + consonant type (*weor§an) has eo /ɔ/ everywhere. Stems with l + consonant and -gd have vowel raising in the ind. 2sg. and 3sg. Neither the ind. 2sg. nor the ind. 3sg. form of *fehtan occurs in VP, but we will assume that they would be *fihte<. *fihte§ with vowel raising, since the only difference between the -ht and the -gd clusters is voicing. The imp. sg. and subj. sg. forms of *geldan, *stregdan, and *fehtan would indicate that the underlying vowel for Class III verbs is [e], the same as for Classes IV and V.

Not in any of the forms does the vowel of the stem have back umlaut when the ending contains a back vowel. This suggests that the Backness Harmony Rule SV-4 should be restricted to apply only when a single consonant (symbolized C<¹ (Chomsky and Halle 1968:61-62)) intervenes between the two vowels. Thus Rule SV-4 becomes Rule SV-8:

SV-8: Backness Harmony

\[
\begin{bmatrix}
+\text{voc} \\
\text{+stress}
\end{bmatrix} \rightarrow [\alpha \backslash \text{back}] / C<¹ \not\# \begin{bmatrix}
\text{-cons} \\
\alpha \backslash \text{back}
\end{bmatrix}
\]

The rule for vowel raising SV-7 should apply to some of these forms, but not to others. It should not
apply to the r + consonant type. Prior to vowel raising there must be a "breaking" rule that converts [é] to the back vowel /\dot{\text{a}}/ (eo) for the r + consonant stems. Then Rule SV-7 will not apply to the stems with r + consonant. Therefore prior to Rule SV-7 we add Rule SV-9:

SV-9: Breaking

\[
\begin{array}{c}
V \\
+stress \\
\text{-high} \\
\text{-low}
\end{array} \rightarrow [\text{+back}] / \_ \_ \_ rC_1
\]

([é] > /\dot{\text{a}}/ before r + consonant.)

The stems with a final nasal cluster have i throughout. This vowel is due to a rule which raises /é/ to /i/ before a nasal:

SV-10: Raising Before Nasal

\[
\begin{array}{c}
V \\
+stress \\
\text{-back} \\
\text{-low}
\end{array} \rightarrow [\text{+high}] / \_ \_ \_ C_0 [\text{+nasal}]
\]

(/é/ > /i/ before a nasal cluster.)

At this point it is not clear whether this rule applies before or after the Front Vowel Raising Rule SV-7. If it applies before, then all of the i's in the stems are due to this rule, and Rule SV-10 applies vacuously to the pres. ind. 2sg. and 3sg. forms. If it applies after Rule SV-7, then the i's of the pres. ind. 2sg. and 3sg. forms are due to Rule SV-7, and the i's of the other forms are the result of Rule SV-10.
Evidence from the weak verbs of Class I indicates that the nasal rule should follow the raising rule so that we will order Rule SV-10 after Rule SV-7.

The ind. 1sg. of *stregdan shows the alternate -o ending for this form. According to the conclusion reached in the preceding chapter, the -u of this ending can be optionally lowered to -o after long stems. This type of stem we will call a "strong cluster" (Chomsky and Halle 1968:29) and use the letter S to represent it. We will define S as follows:

\[
S = \left\{ \begin{array}{l}
\left[ \begin{array}{l}
V \\
+\text{long}
\end{array} \right] C_0 \\
\left[ \begin{array}{l}
V \\
-\text{long}
\end{array} \right] C_2
\end{array} \right. 
\]

Then the lowering of -u to -o can be written

UV-4: \( |u| \) Lowering (optional)

\[
\left[ \begin{array}{l}
V \\
-\text{stress}
\end{array} \right] \rightarrow \left[ \begin{array}{l}
-\text{high}
\end{array} \right] / S^\#
\]

\(|u| > /0/ \) in an ending after a strong cluster.)

There is already in the grammar Rule UV-1 which lowers /i/ to /e/ in endings. Rules UV-1 and UV-4 can be combined. There is the question of what is the difference between UV-1 and UV-4 so that the first is obligatory and the second optional. One obvious difference is that /u/ is [+back] and /i/ [-back]. However, it is likely that the difference is length
rather than backness. Unstressed long vowels are optionally lowered after a strong cluster; unstressed short vowels are always reduced to the mid vowel. Therefore we make the underlying form of the ind. 1sg. ending |ū| and write the vowel lowering rule as follows:

UV-5: Vowel Lowering

\[
\left[
\begin{array}{c}
V \\
\text{stress} \\
\langle \text{+long} \rangle
\end{array}
\right] \rightarrow [-\text{high}] / \langle S \rangle \#_
\]

Optional for \( \langle \text{+long} \rangle \); obligatory otherwise.

(/i/ > /e/ in endings; /ū/ > /o/ optionally after strong clusters.)

This rule must be ordered prior to Vowel Shortening UV-3.

All of the rules for generating the present tense forms of Class III verbs have now been written. Sample derivations are as follows:

Rules

S-2: Stress
SV-9: Breaking
SV-7: Front Vowel Raising
SV-10: Raising Before Nasal
UV-2: Final |e| Deletion
UV-5: Vowel Lowering
UV-3: Vowel Shortening

\textit{singan, "to sing"}

Form: \hspace{1cm} Ind. \hspace{1cm} Subj.
\begin{align*}
\text{1sg.} & \quad \text{3sg.} & \quad \text{pl.} & \quad \text{sg.} \\
\text{singu} & \quad \text{singe₃} & \quad \text{singe₆} & \quad \text{singe}
\end{align*}

Underlying: \quad \text{seng#ū} \quad \text{seng#₁θ} \quad \text{seng#₈θ} \quad \text{seng#₅}
Rules:
S-2  seng#u  seng#iθ  seng#aθ  seng#e
SV-7  sing#iθ  sing#aθ  sing#e
SV-10  sing#u  sing#eθ  sing#e
UV-5  sing#u  sing#eθ  sing#e
UV-3  sing#u  sing#eθ  sing#e

Phonetic:  /singu/  /singθe/  /singaθ/  /singe/
Orthographic:  singu  singeθ  singaθ  singe

*weorθan, "to become, happen"

Form:
    Ind.  Subj.
3sg.  -weorθeθ  -weorθaθ  -weorθe
pl.  -weorθeθ  -weorθaθ  -weorθe

Underlying:
Rules:
S-2  werθ#iθ  werθ#aθ  werθ#e
SV-9  werθ#iθ  werθ#aθ  werθ#e
UV-5  werθ#eθ  werθ#e
UV-3  werθ#eθ  werθ#e

Phonetic:  /wärθeθ/  /wärθaθ/  /wärθe/
Orthographic:  -weorθeθ  -weorθaθ  -weorθe

*geldan, "to pay, return"

Form:
    Ind.  Subj.  Imp.
1sg.  geldu  -gildes  gelde  geld
2sg.  geld#ū  geld#is  geld#e  geld#e

Underlying:
Rules:
S-2  jeld#ū  jeld#is  jeld#e  jeld#e
SV-7  jeld#ū  jeld#is  jeld#e  jeld#e
UV-2  jeld#es  jeld#es
UV-5  jeld#u  jeld#e
UV-3  jeld#u  jeld#e

Phonetic:  /jeldu/  /jildes/  /jelde/  /jeld/
Orthographic:  geldu  -gildes  gelde  geld
The derivations of the forms of *frignan are similar to those of singan; those of *fehtan to those of *stregdan.

Typical present tense forms for a Class I strong verb are the forms of *bidan, "to wait for," which appear in VP:

<table>
<thead>
<tr>
<th>Ind.</th>
<th>Imp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1sg.</td>
<td>3sg.</td>
</tr>
<tr>
<td>bidu</td>
<td>abid</td>
</tr>
<tr>
<td>/bi:du/</td>
<td>/a:bi:d/</td>
</tr>
</tbody>
</table>

The imp. sg. suggests that the underlying vowel is |i|. The ind. 1sg. and pl. forms indicate that there is no back umlaut in these forms. Therefore Rule SV-8 for backness harmony should be restricted to short vowels. Rule SV-11 thus replaces Rule SV-8:

SV-11: Backness Harmony

\[
\begin{align*}
\begin{bmatrix} V \\
\text{+stress} \\
\text{-long} \end{bmatrix} & \xrightarrow{[\alpha\text{back}]} \begin{bmatrix} +\text{voc} \\
\text{-cons} \end{bmatrix} \\
\end{align*}
\]
We cannot tell whether the Front Vowel Raising Rule SV-7 applies to these forms because the vowel of the base is already [+high] in its lexical representation.

Class II strong verbs have present tense forms like those below for *ceosan, "to choose," *geotan, "to pour," and *lúcan, "to close."

<table>
<thead>
<tr>
<th></th>
<th>Ind.</th>
<th>Imp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1sg.</td>
<td>wiðcəoseð</td>
<td>geceos</td>
</tr>
<tr>
<td></td>
<td>/wiθcɔ:zeθ/</td>
<td>/jeθɔ:s/</td>
</tr>
<tr>
<td>3sg.</td>
<td>ageotu</td>
<td>ageot</td>
</tr>
<tr>
<td></td>
<td>/a:jɔ:tu/</td>
<td>/a:jɔ:t/</td>
</tr>
<tr>
<td>sg.</td>
<td>ageotað</td>
<td>agotað</td>
</tr>
<tr>
<td></td>
<td>/a:jɔ:taθ/</td>
<td>/a:jɔ:taθ/</td>
</tr>
<tr>
<td>pl.</td>
<td>biluceð</td>
<td>biluc</td>
</tr>
<tr>
<td></td>
<td>/bilu:keθ/</td>
<td>/bilu:k/</td>
</tr>
</tbody>
</table>

The imp. sg. forms show that the verbs in this class have two different underlying vowels, the long diphthong [eul] and the long vowel [ul]. The forms of *geotan indicate that there is no vowel change when the ending has a back vowel. The imp. sg. -luc shows no fronting to /yː/. These facts support the decision made earlier to restrict the Backness Harmony Rule SV-11 to short vowels. The ind. 3sg. forms lack vowel raising. If the diphthong [eul] has already become /ʌ:/ before the Front Vowel Raising Rule SV-7, then SV-7 will not apply because it affects only front vowels. If [eul] still has /ɛ:/ as its first segment when Rule SV-7 operates,
then Rule SV-7 should probably be restricted to only short vowels so that it will not apply to a form like -ceoseð |kēus#iθ|. We will not draw any conclusion about this rule now, but turn instead to the Class VII strong verbs.

The Class VII verbs have different vowels in the base, none of which show any variation in the present tense:

<table>
<thead>
<tr>
<th>haldan, &quot;to hold&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ind.</td>
</tr>
<tr>
<td>1sg.</td>
</tr>
<tr>
<td>haldu</td>
</tr>
<tr>
<td>/hɔlda/</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>*cnāwan, &quot;to know&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>1sg.</td>
</tr>
<tr>
<td>oncnawu</td>
</tr>
<tr>
<td>/onknə:wu/</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>gongan, &quot;to go&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ind.</td>
</tr>
<tr>
<td>1sg.</td>
</tr>
<tr>
<td>gonugu</td>
</tr>
<tr>
<td>/gɔŋugu/</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>*blōwan, &quot;to bloom, flourish&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>3sg.</td>
</tr>
<tr>
<td>bloweθ</td>
</tr>
<tr>
<td>/blɔ:weθ/</td>
</tr>
</tbody>
</table>
For the moment we can take the underlying stressed vowels of these forms to be |ʊ, ō, o, ə, ɛ|. (Later it will be shown that /o/ before a nasal derives from |ʊ| and that |ʊ| < |ʌ|.) The stressed vowel rules written so far should not apply to these vowels because they do not show any change in the various forms. The Backness Harmony Rule SV-11 will not operate on |ʊ, ō, ə, ɛ| since it is restricted to short vowels. It will not apply to the |ʊ| of *haldan or the |ó| of *gongan because they are followed by two consonants, not one. The Front Vowel Raising Rule SV-7 will not affect the back vowels |ʊ, ō| and |o, ə|. Since it should not apply to the |ɛ| in verbs like *dredan, it must be restricted to short vowels. Rule SV-7 therefore becomes Rule SV-12:

SV-12: Front Vowel Raising

\[ \begin{align*}
\text{V}^{\text{+stress}} \\
\text{-long} \\
\text{-back} \\
\text{<-low>}
\end{align*} \] \[ \rightarrow \begin{align*}
\text{<-high>} \\
\text{-low}
\end{align*} / \text{C}_1^{\text{+voc}} \begin{align*}
\text{-cons} \\
\text{+high} \\
\text{-back}
\end{align*} \]

These Class VII verbs will now be unaffected by any of the stressed vowel rules written so far, and their derivations are straightforward and direct.
To generate the present tense forms of the various classes of strong verbs, we have at this point written the following rules:

1. Readjustment Rule:
   S-1: Verb Prefix Boundary
   \[ + \rightarrow = / \text{Pre}_{---} \text{Vb} \]

2. Phonological Rules:
   S-2: Stress
   \[ V \rightarrow \left( \text{stressed} \right) / \left( \#(\text{Pre}=) \right) C_0 \]
   SV-11: Backness Harmony
   \[ \begin{align*}
   \left[ \begin{array}{c}
   V \\
   +\text{stress} \\
   -\text{long} \\
   -\text{back}
   \end{array} \right] & \rightarrow \left[ \text{\text{xback} \, / \, C_1}^{\text{\#}} \right] \\
   \left[ \begin{array}{c}
   +\text{voc} \\
   -\text{cons} \\
   +\text{high} \\
   -\text{back}
   \end{array} \right] \\
   \end{align*} \]
   SV-9: Breaking
   \[ \begin{align*}
   \left[ \begin{array}{c}
   V \\
   +\text{stress} \\
   -\text{high} \\
   -\text{low}
   \end{array} \right] & \rightarrow \left[ \text{\text{back} \, / \, rC_1} \right]
   \end{align*} \]
   SV-12: Front Vowel Raising
   \[ \begin{align*}
   \left[ \begin{array}{c}
   V \\
   +\text{stress} \\
   -\text{long} \\
   -\text{back} \\
   \langle -\text{low} \rangle
   \end{array} \right] & \rightarrow \left[ \langle +\text{high} \rangle \, / \, C_1}^{\text{\#}} \right] \\
   \left[ \begin{array}{c}
   +\text{voc} \\
   -\text{cons} \\
   +\text{high} \\
   -\text{back}
   \end{array} \right] \\
   \end{align*} \]
   SV-10: Raising Before Nasal
   \[ \begin{align*}
   \left[ \begin{array}{c}
   V \\
   +\text{stress} \\
   -\text{back} \\
   -\text{low}
   \end{array} \right] & \rightarrow \left[ +\text{high} \, / \, C_0}^{\text{\#}} [\text{nasal}] \right]
   \end{align*} \]
   SV-5: Second Fronting
   \[ \begin{align*}
   \left[ \begin{array}{c}
   V \\
   +\text{stress} \\
   -\text{back}
   \end{array} \right] & \rightarrow \left[ -\text{low} \right]
   \end{align*} \]
UV-2: Final \( |e| \) Deletion

\[ e \rightarrow \emptyset \] / #___#

UV-5: Vowel Lowering

\[
\begin{bmatrix}
V \\
\{+\text{long}\}
\end{bmatrix} \rightarrow
\begin{bmatrix}
V \\
\{-\text{high}\}
\end{bmatrix}
\]

Optional for \( V \{+\text{long}\} \); obligatory otherwise.

UV-3: Vowel Shortening

\[
\begin{bmatrix}
V \\
\{-\text{stress}\}
\end{bmatrix} \rightarrow
\begin{bmatrix}
V \\
\{-\text{long}\}
\end{bmatrix}
\]

We assume that the different classes of strong verbs have the following vowels in their lexical representations in order for these rules to generate the correct surface phonetic forms:

- Class I: \( |i| \)
- Class II: \( |Eu|, |u| \)
- Classes III-V: \( |e| \)
- Class VI: \( |æ| (< |A|) \)
- Class VII: \( |ə| (< \hat{A}), |o| (< |A|), |å|, |ä| \)

How these rules apply to weak verbs is the next problem to be treated.

Weak Verbs

Class I

Weak verbs of Class I have a stem-forming \( |+j| \) between the base and the ending. This fact is evident by the forms of a verb like *hergan*, "to praise," such as pres. ind. 1sg. *hergu* /hɛrju/ vs. pres. ind. 3sg. *hereθ* /hɛreθ/. It is also this \( |+j| \) which accounts
for the variation in forms like *sett\textsuperscript{u} (pres. ind. 1sg. < *sett\textsuperscript{an}) and *sete\textsuperscript{f} (pres. ind. 3sg.), where the -tt- results from West Germanic gemination (Campbell 1959: 322). Class I weak verbs, then, have the underlying structure Base+j#Tense.

The high front segment |j| should cause fronting and raising of the preceding vowel. Do the rules written so far generate the vowels that occur in the stems of Class I weak verbs? In VP the following vowels appear in the present tense forms of the weak verbs of Class I:

**Long vowels:**

/i:/--rimu /rɪ:m\textsuperscript{u}/ (ind. 1sg. < -r\textsuperscript{iman}, "to count")

/y:/--ahydes /\textacute{a}:hy:des/ (ind. 2sg. < *h\textsuperscript{ydan}, "to hide")

/e:/--alese\textsuperscript{f} /\textacute{a}:le:se\textsuperscript{θ}/ (ind. 3sg. < *l\textsuperscript{esan}, "to set free")

/æ:/--gemoete\textsuperscript{f} /jɛm\textsuperscript{e}:te\textsuperscript{θ}/ (ind. 3sg. < *m\textsuperscript{etan}, "to meet")

/æ:/--haele\textsuperscript{f} /hæ:le\textsuperscript{θ}/ (ind. 3sg. < *h\textsuperscript{elan}, "to heal")

/ʌ:/--leoru /l\textacute{a}:ru/ (ind. 1sg. < *leorman, "to go away")

/æ:/--oteawu /o\textacute{t}:awu/ (ind. 1sg. < *s\textsuperscript{awan}, "to show")

**Short vowels:**

/i:/--gescildu /jesc\textsuperscript{ɪ}لد\textsuperscript{u}/ (ind. 1sg. < *sc\textsuperscript{idan}, "to guard")

/y:/--gehyhtu /jɛh\textsuperscript{ytu}/ (ind. 1sg. < -hy\textsuperscript{htan}, "to hope")

/e:/--sett\textsuperscript{u} /s\textacute{e}:t\textsuperscript{u}/ (ind. 1sg. < sett\textsuperscript{an}, "to set")

/æ:/--onhaeldu /onhaeld\textsuperscript{u}/ (ind. 1sg. < *ha\textsuperscript{eldan}, "to turn, bend")

/ʌ:/--gereordu /jer\textsuperscript{ɜ}rd\textsuperscript{u}/ (ind. 1sg. < *re\textsuperscript{ordan}, "to feed, fill")

With respect to the long unround back vowels the absence of /i:/ (\textnumero{10}) may be considered fortuitous.
Except for long /ʌ:/ (eo), /æ:/ (ea) and short /ʌ/ (eo), all of these vowels are front vowels. This fact suggests that the Front Vowel Raising Rule SV-12 must apply. Since this rule is restricted to short vowels, it will not affect the long ones. It does, however, operate on /êl and /æl to give /i/ and /é/ in verbs like *scildan and settan. The underlying form of *scildan has /êl because the noun "shield" is sceld. The /é/ of settan derives from /æl (ultimately /Á/) since it is a causative verb based on the form of *sittan "to sit" with the a grade of ablaut: /sát+j > /sæt+j/. Thus Rule SV-12 must be modified so that it applies within the word boundary (#) as well as across it and so that the environment includes /j/ as well as /i/:

SV-13: Front Vowel Raising

\[
\begin{bmatrix}
V \\
+stress \\
-long \\
-back \\
\langle-low\rangle
\end{bmatrix} \rightarrow \begin{bmatrix}
\langle+high\rangle \\
\langle-low\rangle
\end{bmatrix} / C_1(#) \begin{bmatrix}
-\text{cons} \\
\langle+high\rangle \\
\langle-back\rangle
\end{bmatrix}
\]

The vowel /æ/ however, does appear in these verbs (as in -hældan). Why is it not raised to /é/ by Rule SV-13? /æ/ must derive from /Á/ by virtue of a fronting rule that operates after the raising rule. (It will be shown later that all of the long low front vowels as well as all of the front round vowels are
the result of this rule.) Therefore we must add a fronting rule to the rules written so far that will effect this change:

SV-14: \[v\] Fronting

\[
\begin{array}{c}
\text{+stress} \\
\text{+round} \\
\langle +\text{low} \rangle
\end{array} \rightarrow \begin{array}{c}
\langle -\text{round} \rangle \\

\text{-cons} \\
\text{-back}
\end{array}
\]

\(/\acute{u}/ \rightarrow /\acute{j}/, /\acute{\acute{u}}/ \rightarrow /\acute{o}/, /\acute{\acute{u}}/ \rightarrow /\acute{\acute{e}}/ \) before a following \[j\].

This rule applies only to round vowels because the back unround vowels are not fronted. Class I verbs with the vowels /\acute{a}:/, /æ:/ and /ˈa/ do occur. (See above, *leoran, *eawan, and *reordan.) If the stressed low vowel is /\acute{\acute{u}}/ \[+\text{back} \]

\[+\text{round}\], then the rule must unround it as well as front it so that the result is /\acute{\acute{e}}/, not /\acute{\acute{e}}/. Finally this rule is not restricted to a certain number of consonants. It applies when as many as three consonants follow the vowel, as in the forms of *yrstan, "to thirst" (Cf. *urst, noun, "thirst"). Combinations of more than three consonants are unlikely in Old English.

Rule SV-14 must not, however, apply to strong verbs. As it was noted previously, Class VII strong verbs have forms like halde\#, cnæwe\#, gon\#ge\#, bl\#owe\#. and not **halde\#, **cnæwe\#, **gon\#ge\#, **bl\#owe\#. The reason Rule SV-14 does not operate on these forms supports the assumption that there is a \# boundary between the verb stem and the inflectional ending (Chomsky and Halle
According to the convention proposed by Chomsky and Halle (1968:12-13,364), rules do not operate across the # boundary unless it is specifically mentioned in the rule. Rules do, however, apply across the formative (+) boundary so that the + need not be written into a rule.

The question arises concerning the relationship of the \(l|j|\) Fronting Rule SV-14 to the one written earlier for strong verbs, Rule SV-3, which was later incorporated into the Backness Harmony Rule SV-11. Can they be combined? It would seem best not to combine them primarily because of the different environments in which they apply. Rule SV-11 says that only short vowels followed by a single consonant agree in backness with the vowel of the ending (preceded by # boundary). Rule SV-14, however, fronts all vowels, long and short, followed by any number of consonants followed by a high front segment in the next syllable (not one separated by a # boundary). Thus the fronting caused by the \(l|+j|\) of weak verbs of Class I is essentially different from the backness harmony of the vowels of strong verbs, and these changes will be kept apart as two separate rules.

This conclusion is therefore opposite to the one for the Front Vowel Raising Rule SV-13. There the environments in which the rule operates are essentially
the same for both |#i| and |+j|, and so the two rules can be combined into Rule SV-13.

The /æ/ of a verb like -hældan is taken to be from underlying |Á| [+back], and the /é/ of a verb like settan from underlying |æ| [-back]. Does this mean that Old English has two underlying front vowels |æ| and |Á|, or is there only one whose value for the feature [back] is predictable? The occurrence of |æ| or |Á| is in fact predictable by rule. |Á| can be specified [+back, +low, -long]. |Á| always fronts to |æ| except in two environments. One of these is before the cluster |l| + consonant, as in -hældan |hÁld+j-|. (/æ/ results from the later |j| Fronting Rule.)

Another place where |Á| remains [+back] is before a nasal consonant. It must be further marked [+round], for in VP there are verbs like strong Class VII gongan, whose stressed vowel is /o/ < |Á|. A Class I weak verb like *sendan, however, has /é/ not /o/ before the nasal, and in a verb like *gewemman, "to stain, corrupt," the /é/ corresponds to the /o/ in the noun *wom /wóm/, "a spot, blemish." The /o/ of the noun form shows that |Á| is [+back] before a nasal just as it is before |l| + consonant. Also it becomes [+round] and raises to /o/.

Does |Á| become [+round] also before |l| + consonant,
that is, /ə/ rather than /ɒ/? The view put forth here is that it does. Phonetically there are two stressed low back vowels /á/, which is [+back, -round], and /ʊ/, [+back, +round]. The scribe spells the first ea, and the second a. If /á/ were to become [+back] before l + consonant, then both stressed low back vowels would have the same feature specification [+back, -round] even though they would have different spellings. According to a generative view of scribal practice there is no objection to two different spellings for two sounds phonetically identical but with different underlying sources (King 1969:211-212). But ea and a both derive from the same underlying l Á (although by different rules), and we will hold to the idea that they are phonetically distinct.

These changes for the stressed short low vowel can be expressed as follows:

SV-15: Low Vowel Rule

\[
\begin{align*}
V \\
+\text{stress} \\
+\text{back} \\
+\text{low} \\
-\text{long}
\end{align*}
\xrightarrow{
\begin{align*}
[+\text{round}] & /\text{-cons} \text{]}/ \\
[-\text{back}] & /\text{-round} \\
\end{align*}
\}
\]

(\l Á \rightarrow /ə/ before l + consonant and before a nasal; \l Á \rightarrow /æ/ elsewhere.)

The next problem is how to account for the /é/ in verbs like *sendan and the /é/-/ə/ correspondence
in related words like *gewemman—*wom. The \( \text{j} \) Fronting Rule SV-14 will give \( /\text{j}/ \to /\text{æ}/ \) in these verbs. How does this \( /\text{æ}/ \) become \( /\text{e}/ \)? Earlier the \( \text{j} \) Fronting Rule was ordered after the Front Vowel Raising Rule SV-13 so that this change cannot be due to Rule SV-13. Is it the Second Fronting Rule SV-5? No, because this rule, too, must apply before the \( \text{j} \) Fronting Rule in order for there to be verbs with \( /\text{æ}/ \), such as -hældan. (We reject the idea that second fronting does not occur before \( \text{l} \) (Cf. Campbell 1959:63). The appearance of \( /\text{æ}/ \) before \( \text{l} \) in surface forms is the result of rule ordering.) The change of \( /\text{æ}/ \) to \( /\text{e}/ \), as well as of \( /\text{o}/ \) to \( /\text{u}/ \), is due to the following nasal. We already have Rule SV-10 that raises \( /\text{e}/ \) to \( /\text{i}/ \) before nasals. We can generalize this rule to include the other vowels:

**SV-16: Raising Before Nasal**

\[
\begin{array}{c}
\text{V} \\
\text{+stress} \\
\text{-long} \\
\alpha\text{back} \\
\text{around} \\
\text{<-low} \\
\end{array} \rightarrow \begin{cases} 
\text{(+high)} \\
\text{(-low)} \\
\text{C} \end{cases} \text{[+nasal]}
\]

(Short stressed vowels that are the same in backness and roundness raise before a nasal consonant cluster (none or one consonant + a nasal): \( /\text{æ}/ \rightarrow /\text{i}/ \), \( /\text{æ}/ \rightarrow /\text{e}/ \), \( /\text{o}/ \rightarrow /\text{u}/ \), \( /\text{æ}/ \rightarrow /\text{ö}/ \).)

The vowel rules now written include the following, which are listed in the order in which they apply:
S-2: Stress
SV-15: Low Vowel Rule
SV-11: Backness Harmony
SV-9: Breaking
SV-13: Front Vowel Raising
SV-5: Second Fronting
SV-14: \( l \) Fronting
SV-16: Raising Before Nasal
UV-2: Final \( l e \) Deletion
UV-5: Vowel Lowering
UV-3: Vowel Shortening

The following Class I weak verb stems illustrate how these rules apply:

\[
\text{sett-} (< \text{settan}) \quad \text{sell-} (< \text{sellan}) \quad \text{haeld-} (< -\text{hael}d\text{an})
\]

<table>
<thead>
<tr>
<th>Underlying:</th>
<th>Sat+j-</th>
<th>Sal+j-</th>
<th>xAld+j-</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rules:</td>
<td>S-2</td>
<td>SV-15</td>
<td>SV-13</td>
</tr>
<tr>
<td>S-2</td>
<td>Sat+j-</td>
<td>Sal+j-</td>
<td>hAld+j-</td>
</tr>
<tr>
<td>SV-15</td>
<td>set+j-</td>
<td>sel+j-</td>
<td>hAld+j-</td>
</tr>
<tr>
<td>SV-13</td>
<td>set+j-</td>
<td>sel+j-</td>
<td>hAld+j-</td>
</tr>
<tr>
<td>SV-14</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Phonetic:   | /sét:-/ | /sél:-/ | /háeld:-/ |
| Orthographic: sett- | sell- | haeld- |

<table>
<thead>
<tr>
<th>Underlying:</th>
<th>Sand+j-</th>
<th>wAm+j-</th>
<th>wAm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rules:</td>
<td>S-2</td>
<td>SV-15</td>
<td>SV-16</td>
</tr>
<tr>
<td>S-2</td>
<td>Sand+j-</td>
<td>wAm+j-</td>
<td>wém</td>
</tr>
<tr>
<td>SV-15</td>
<td>send+j-</td>
<td>wAm+j-</td>
<td>wóm</td>
</tr>
<tr>
<td>SV-14</td>
<td>send+j-</td>
<td>wAm+j-</td>
<td>wóm</td>
</tr>
<tr>
<td>SV-16</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Phonetic:   | /sénd-/ | /wém:-/ | /wóm/ |
| Orthographic: send- | wemm- | wom |

One vowel that must be discussed separately is the \( /\( \)e\( o\) \) of *gereordan. This vowel results from the Breaking Rule SV-9. We have ordered the Breaking Rule prior to the Front Vowel Raising Rule SV-13. This ordering will prevent Rule SV-9 from operating on the
/é/ from /Á/ in Class I weak verbs because Rule SV-9 has been restricted to /é/, and at the time when it applies, the /Á/ of Weak I verbs is /æ/. That it should not apply to this type of verb is seen in a form like escerpu (<*āserpan, "to sharpen,"
|ā=skÁrp+j#ú|). Later we will want to generalize the Breaking Rule so that it does apply to /æ/, as in the pt. sg. of *weorpan, which is wearp /weárp/, not **waerp /weerp/. For the moment, however, we will let the rules stand as they are since they do generate the correct forms at this point.

It is primarily the Class I weak verbs that show allomorphic variation in the final consonant clusters of the stem. In the paradigms of the last chapter this change appeared in settan and *hergan, and it was noted that consonantal changes take place in three places in the present system—the pres. ind. 2sg. and 3sg. and the imp. sg. Historically these changes are the result of West Germanic gemination before /j/ (Campbell 1959:167). Since in verbs like *hergan /hérgan/ the /j/ still appears in Old English, the underlying stem-forming element of Class I weak verbs has been taken to be /j/.

This /j/ becomes /i/ ([+vocalic]) in some environments and does not cause gemination. Sometimes it is deleted before the gemination rule. After gemination
has occurred, |j| becomes |i| everywhere except after |
|r| and this |i| in turn is subject to a rule that
deletes short vowels after strong clusters so that it
is only in a short verb stem that ends in |r| (such
as *hergan) that the |j| appears in the surface phon-
etic representation.

First of all, then, |j| does not cause gemination
when it becomes [+vocalic] prior to the gemination rule.
This change takes place in two environments—before a
consonant (specifically before the |d| of the pt. tense,
where there is no gemination) and in word-final position.

|j| will be in word-final position in the imp. sg. if
we put the Final |e| Deletion Rule UV-2 before the gem-
ination rule. This ordering will prevent gemination
from occurring in the imp. sg. Thus the following
rule blocks gemination in the pt. tense and imp. sg.:

J-1: First |j| Vocalization

\[
\begin{array}{c}
\text{[+high]} \\
\text{[-cons]} \\
\text{[+voc]} \\
\end{array} \rightarrow [\text{+voc}] /+\# \{\text{C}\}
\]

(|j| > |i| in word final position and before an ending
beginning with a consonant.)

For the pres. ind. 2sg. and 3sg. forms gemination
does not occur because |j| is deleted before an ending
beginning with |i|. (This process parallels the his-
torical development of the forms. (Cf. Campbell 1959:}
A rule like the following expresses this relationship:

\[ J-2: \quad |j| \text{ Deletion} \]
\[ j \rightarrow \emptyset /+\text{#i} \]

One final rule that must be written to precede the gemination rule is one that excepts \(|r|\) from being doubled. A readjustment rule of the type \( A \rightarrow [-\text{rule } R] / Z \text{ - } W \) (Chomsky and Halle 1968:374-75) can be used:

\[ J-3: \quad |r| \text{ Exception} \]
\[ r \rightarrow [-\text{Rule } J-4] \]

Next is the gemination rule itself. It applies only to single consonants preceded by a short vowel. It will cause a certain consonant (\( C_a \)) to be written double (\( C_a C_a \)).^5

\[ J-4: \quad \text{Gemination} \]
\[ \emptyset \rightarrow C_a / \left[ -\text{long} \right] C_a + j \]

(A single consonant is doubled after a short vowel and before a stem-forming \(|j|\).)

After Rule J-4 \(|j|\) disappears everywhere except after short vowel + \(|r|\). This can be accomplished by changing it to \(|i|\) (\([-\text{vocalic}]\)) and then making it subject to a rule that deletes an unstressed short vowel after a boundary which follows a strong cluster:

\[ J-5: \quad |j| \text{ Exception} \]
\[ j \rightarrow [-\text{Rule } J-6] / \left[ -\text{long} \right] r^+ \]
J-6: Second |j| Vocalization

\[ \begin{align*}
\text{[-cons]} & \quad \rightarrow \text{[+voc]} /+\_ \\
\text{[+high]} & \\
\text{[-back]} &
\end{align*} \]

(|j| > |i| after a + boundary.)

UV-6: Short Vowel Deletion

\[ \begin{align*}
\text{[V]} & \quad \rightarrow \emptyset / S+\_ \\
\text{[-stress]} & \\
\text{[-long]} &
\end{align*} \]

(An unstressed short vowel following a + is deleted after a strong cluster.)

There is no allomorphic variation in the vowels of Class I weak verbs. As we have seen, these vowels are all due to the various umlaut rules which apply when a |j| follows them. It is obvious, therefore, that the consonant gemination rules must follow all of the vowel rules.

The rules written thus far can generate the surface phonetic forms of most Class I weak verbs, and a number of derivations to illustrate how these rules apply will now be given:

Rules

Readjustment:

J-3: |r| Exception
J-5: |j| Exception

Phonological:

S-2: Stress
SV-15: Low Vowel Rule
SV-13: Front Vowel Raising
SV-14: |j| Fronting
UV-2: Final ❧e❧ Deletion
J-1: First ❧j❧ Vocalization
J-2: ❧j❧ Deletion
J-4: Gemination
J-6: Second ❧j❧ Vocalization
UV-6: Short Vowel Deletion
UV-5: Vowel Lowering
UV-3: Vowel Shortening

*sēcǝν, "to seek"

Form:       Ind.                     Subj.                     Imp.
           1sg.  3sg.       sg.       sg.
soıcǝu    soıcεǝ      soıcε      soıcε

Underlying: sök+j#u sök+j#iθ sök+j#e sök+j#e
Rules:
S-2  sök+c+j#u sök+c+j#iθ sök+c+j#e sök+c+j#e
SV-14 sōc+c+j#u sōc+c+j#iθ sōc+c+j#e sōc+c+j#e
UV-2 sōc+c+iθ
J-1  sōc+c+iθ
J-2  sōc+c+iθ
UV-6 sōc+c#u sōc+c#e sōc+c#e
UV-5 sōc+c#u
UV-3 sōc+c#u

Orthographic: soıcǝu soıcεǝ soıcε soıcε

This verb is a typical long stem. It does not show any variation in the final consonant of the base in the different forms. The imp. sg. has the Ø ending.

settǝn, "to set"

Form:       Ind.                     Subj.                     Imp.
           1sg.  2sg.       sg.       sg.
settunu(-o) setes       sete

Underlying: sAt+j#u sAt+j#iθ sAt+j#e sAt+j#e
Rules:
S-2  sAt+j#u sAt+j#iθ sAt+j#e sAt+j#e
SV-15 sAt+j#u sAt+j#iθ sAt+j#e sAt+j#e
SV-13 sAt+j#u sAt+j#iθ sAt+j#e sAt+j#e
UV-2 sAt+j#u sAt+j#iθ sAt+j#e sAt+j#e
J-1  sAt+j#u sAt+j#iθ sAt+j#e sAt+j#e

This verb exemplifies the typical short stem.

The stem-forming |j| causes gemination in forms like settu(-o) and sette, but not in setes (by Rule J-2) or sete (by Rule J-1).

*hergan, "to praise"

<table>
<thead>
<tr>
<th>Form:</th>
<th>Ind.</th>
<th>Subj.</th>
<th>Imp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>3sg.</td>
<td>here§</td>
<td>herga§</td>
<td>Hereg</td>
</tr>
<tr>
<td>pl.</td>
<td>settu(-o)</td>
<td>settu(-o)</td>
<td>settu(-o)</td>
</tr>
<tr>
<td>pl.</td>
<td>settu(-o)</td>
<td>settu(-o)</td>
<td>settu(-o)</td>
</tr>
<tr>
<td>sg.</td>
<td>settu(-o)</td>
<td>settu(-o)</td>
<td>settu(-o)</td>
</tr>
</tbody>
</table>

These forms illustrate the Class I short stem ending in |r|. /j/ (spelled g) appears in the surface forms except where /j/ is deleted before /i/ (here§) or becomes [+vocalic] (here).
*cerran, "to turn

<table>
<thead>
<tr>
<th>Form:</th>
<th>1sg.</th>
<th>3sg.</th>
<th>Imp. sg.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-cerru</td>
<td>cerre§</td>
<td>-cer</td>
</tr>
</tbody>
</table>

Underlying: kArr+j#û kArr+j#iθ kArr+j#e

Rules:

- S-2: kArr+j#û kArr+j#iθ kArr+j#e
- SV-15: cêrr+j#û cêrr+j#iθ cêrr+j#e
- SV-13: cêrr+j#û cêrr+j#iθ cêrr+j#e
- UV-2: cêrr+i##
- J-1: cêrr+i##
- J-6: cêrr+i##
- UV-6: cêrr+i##
- UV-5: cêrr+i##
- UV-3: cêrr+i##

Phonetic: /cér:u/ /cér:eθ/ /cér(:)/

Orthographic: -cerru cerre§ -cer

The underlying form of this verb has a double final consonant. It is therefore a long stem and does not show any consonantal variation in the surface forms except for the imp. sg. The imp. sg. is written with a final single consonant. If this is only "graphic simplification" (Campbell 1959:27), there is not any problem. If it is actually phonological shortening of a final long consonant cluster (Wright and Wright 1925:138), then another rule must be added that deletes one of two identical consonants in word final position:

C-1: Cluster Simplification

$$C_a \rightarrow \emptyset / C_{a##}$$
Other verbs of this type in VP are *(ā)cennan, "to beget, bring forth," *āfirran, "to take away," and *gefyllan, "to fill."

The rules written so far will explain the vowels and the main consonantal variations in Class I weak verbs. There are several verbs, however, that still must be treated. One type is the long stem in which a /j/ (spelled g) appears in the surface representation. (The stop /g/ also spelled g occurs after nasals. It is not relevant to the problem being discussed here.) Is this /j/ part of the base, or is it the stem-forming |j|?

In two of these verbs *geēbylgan, "to make angry," and *(efter)fylgan, "to follow," the g appears in forms where the stem-forming |j| is deleted, as in pres. ind. 3sg. afterfylgeō, imp. sg. fylg, and pt. ppl. geebylged. Therefore it must be part of the base and not the stem-forming |j|. For *geēbylgan, this conclusion is supported by the noun ēbylgāu, "anger." The derivations for these two verbs would then follow directly from the rules already written, beginning with the underlying forms |fulg+j#| and |ge=ēbulg+j#|.

A number of these verbs have g after a long vowel: *ēdrygan, "to make dry," biwēgan, "to deceive," *cēgan, "to call," and *gebēgan, "to bend." Of these verbs only the forms of *cēgan show the deletion of g in the
This parallels the paradigm of *hərgən, and so it is evident that the g of *cəgan is the stem-forming |j|. The g of the other verbs represents a [g] which is the final consonant of the base. Therefore we must modify Rule J-5 so that |j| after a vowel will also be exempt from Rule J-6, which converts |j| to |i|:

\[
\text{J-8: } |j| \text{ Exception (replaces J-5)}
\]

\[
|j| \rightarrow [-\text{Rule J-6}] / [\text{V<long>]<r> } +
\]

The verb *cəgan would then have derivations like the following:

Rules

Readjustment:

\[
\text{J-8: } |j| \text{ Exception}
\]

Phonological:

S-2: Stress
UV-2: Final |e| Deletion
J-1: First |j| Vocalization
J-2: |j| Deletion
UV-6: Short Vowel Deletion
UV-5: Vowel Lowering
UV-3: Vowel Shortening

*cəgan, "to call"

Form:

<table>
<thead>
<tr>
<th>Ind.</th>
<th>Subj.</th>
<th>Imp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1sg.</td>
<td>3sg.</td>
<td>pl.</td>
</tr>
<tr>
<td>-cegu(-o)</td>
<td>ceə</td>
<td>cegan</td>
</tr>
</tbody>
</table>

Underlying:

<table>
<thead>
<tr>
<th>Rules:</th>
</tr>
</thead>
<tbody>
<tr>
<td>J-8</td>
</tr>
<tr>
<td>S-2</td>
</tr>
<tr>
<td>UV-2</td>
</tr>
<tr>
<td>J-1</td>
</tr>
<tr>
<td>J-2</td>
</tr>
</tbody>
</table>
Another type of Class I verb that must be discussed is the kind that ends in -rw after a short vowel. Does it behave like the -rg /rj/ of a short stem verb like *hergan? Two verbs with -rw, *generwan, "to oppress, make anxious," and *herwan, "to despise," have only pt. forms in VP, and unlike the g of *hergan, the w does appear in these forms (e.g., pt. ppl. generwed, pt. pl. herwdun). However, *gerwan, "to clothe, dress," and *smirwan, "to anoint," lose the w in the same forms where the g of *hergan disappears: pres. ind. 1sg. gegerwu, but 3sg. gegereS, smireS; pt. 1sg. gegerede, smirede. The simplest way to account for this difference is to list *generwan and *herwan in the lexicon with a w as part of the base (|ge+nArw-j-, |xArw+j-|) and to make the w of *gerwan and *smirwan a stem-forming element (a |+w|). Thus for *gerwan and *smirwan the glide |j| just become [+back +round]:

J-9: |j| Conversion

[-voc -cons] [back] /+ /+〈, for certain verbs marked [+Rule J-9] in the lexicon

(|j| > |w| for *gerwan, *smirwan.)
If we add this rule after Rule J-6, then the earlier \(|j|\) rules will not have to be modified. Moreover, rules like J-1 and J-2 would not be correct if they were modified to apply to \(|w|\) as well as \(|j|\).

Rule J-1 would become

\[
[-\text{cons}
+\text{high}] \rightarrow [+\text{voc}] /+\_\# \left\{ \frac{\#}{C_1} \right\}
\]

This would convert both \(|j|\) to \(|i|\) and \(|w|\) to \(|u|\), which would give imp. sg. **geru (or **gero with vowel lowering). The imp. sg. of this verb does not occur in VP, but for West Saxon Campbell gives giere with -e (1959: 327). Rule J-2 if modified would indicate that \(|w|\) as well as \(|j|\) is deleted before \(|\#i|\):

\[
[-\text{voc}
-\text{cons}
+\text{high}] \rightarrow \emptyset /+\_\# \left\{ [+\text{voc}
-\text{cons}
+\text{high}] \right\}
\]

But what is significant in this rule is that the glide \(|j|\) is deleted before its corresponding vowel:

\[
[-\text{voc}
-\text{cons}
-\text{back}
+\text{high}] \rightarrow \emptyset /+\_\# \left\{ [+\text{voc}
-\text{cons}
-\text{back}
+\text{high}] \right\}
\]

It would be expected, then, that \(|w|\) would contract with \(|u|\), not \(|i|\):

\[
[-\text{voc}
-\text{cons}
+\text{back}
+\text{high}] \rightarrow \emptyset /+\_\# \left\{ [+\text{voc}
-\text{cons}
+\text{back}
+\text{high}] \right\}
\]

This does not occur, however, for the pres. ind. 1sg. form appears with \(w\), not without it (-gerwu, not **geru).
Therefore, even though Rules J-1 and J-2 would be simpler (i.e., specify fewer features) if they applied to both |j| and |w|, they would not produce correct derivations. Hence, we will insert Rule J-9 after Rule J-6, and mark the two verbs *gerwan and *smirwan [*Rule J-9] in their lexical entries to account for their exceptional behavior. These rules will give the following derivations:

Rules

Readjustment:

J-3: |r| Exception
J-5: |j| Exception

Phonological:

S-2: Stress
SV-15: Low Vowel Rule
SV-13: Front Vowel Raising
UV-2: Final |e| Deletion
J-1: First |j| Vocalization
J-2: |j| Deletion
J-9: |j| Conversion
UV-5: Vowel Lowering
UV-3: Vowel Shortening

*gerwan, "to clothe"

Form: Ind. Subj. Imp.

1sg. 3sg. sg. sg.

-gerwu -gereh *gerwe *gere

Underlying: gAr+j#u gAr+j#iθ gAr+j#e gAr+j#e

Rules:

J-3 ---------------- [−Rule J-4] -----------------
J-5 ---------------- [−Rule J-6] -----------------

S-2 gAr+j#u gAr+j#iθ gAr+j#e gAr+j#e
SV-15  ğær+j#u ğær+j#iθ ğær+j#e ğær+j#e
SV-13 ğer+j#u ğer+j#iθ ğer+j#e ğer+j#e
UV-2 ğer+i##
J-1 ğer+i##
J-2 ğer+w#û ğer+iθ ğer+w#e ğer+w#e
UV-5 ğer+w#û ğer+iθ ğer+w#e ğer+w#e
UV-3 ğer+w#û ğer+iθ ğer+w#e ğer+w#e
Another group of Class I verbs that needs to be discussed separately are those that end in the suffix -ettan, such as *bliccettan, "to flash," *roccettan, "to belch forth," and *sporettan, "to kick." This suffix does not reduce to a single consonant in the pres. ind. 3sg. and in the imp. sg. Moreover, the imp. sg. ends in e, not Ø. The present tense forms of these verbs in VP are ind. 3sg. roccettef, sporettef, ind. pl. roccettef, and imp. sg. bliccette.

The differences between these verbs and the regular Class I verbs result from the fact that in this suffix the stem-forming |+j| and the ending follow an unstressed vowel. In addition the affix boundary (=) intervenes between the |+j| and the preceding stressed vowel. Some of the rules previously written will have to be modified on this basis. For example, the imp. sg. ending -e must not derive from |+j| because there is a geminated consonant cluster in this form, indicating that the First |j| Vocalization Rule J-1 has not applied. This ending must be the |e| imp. sg. ending. The Final |e| Deletion Rule UV-2, then, should be restricted so that the imp. sg. |e| is deleted only when it follows a preceding stressed vowel with no intervening [-FB] boundary.
UV-7: Final $|e|$ Deletion (replaces UV-2)

$e \rightarrow \emptyset / \left[ +\text{stress} \right] X\#\#$, where $X$ contains no $[-\text{FB}]$ boundary.

This rule and Rule J-1 will not now apply to the verbs in -ettan.

Secondly the double consonant in the ind. 3sg. ending shows that the $|j|$ Deletion Rule J-2 has not applied. This rule too must be restricted to a syllable following a stressed vowel with no intervening $[-\text{FB}]$ boundaries:

J-10: $|j|$ Deletion (replaces J-2)

$j \rightarrow \emptyset / \left[ +\text{stress} \right] X+\#\#$, where $X$ contains no $[-\text{FB}]$ boundary.

The other $|j|$ rules, such as Gemination (J-4), Second $|j|$ Vocalization (J-6), and Short Vowel Deletion (UV-6), should apply to verbs with this suffix, and so they do not need to be changed.

The vowel in this suffix is /e/. It could derive from unstressed $|a|$ by fronting and raising. If the $|j|$ Fronting Rule SV-14 applies, this $|a|$ would become /æ/. This /æ/ could become /e/ by vowel reduction, which can be expressed by changing Rule UV-5, the rule for vowel lowering. We will divide this rule into two parts, one rule that reduces all unstressed front vowels to /e/ (Campbell 1959:153-54), and another rule for the optional lowering of $|\ddot{u}|$ to $|\ddot{o}|$ after strong
clusters. These rule changes will give

V-1: \( \mid j \mid \) Fronting (replaces SV-14)

\[
\begin{align*}
& V \\
& \{\text{round} \} \\
& \{\text{+low} \} \\
\end{align*} \rightarrow \begin{align*}
[& \text{-back} \\
& \{\text{-round} \} ] \\
& \{\text{-cons} \} \\
& \{\text{+high} \} \\
& \{\text{-back} \} \\
& \{C_1 \} \\
\end{align*}
\]

(All round vowels, stressed and unstressed, are fronted by a following \( \mid j \mid \).)

UV-8: Front Vowel Reduction (replaces UV-5)

\[
\begin{align*}
& V \\
& \{\text{-stress} \} \\
& \{\text{-back} \} \\
\end{align*} \rightarrow \begin{align*}
[& \text{-high} \\
& \{\text{-low} \} \\
\end{align*}
\]

(All unstressed front vowels become /e/.)

UV-9: Vowel Lowering (optional) (replaces UV-5)

\[
\begin{align*}
& V \\
& \{\text{-stress} \} \\
& \{\text{+back} \} \\
& \{\text{+long} \} \\
\end{align*} \rightarrow \begin{align*}
[& \text{-high} \] \\
& \{S\#\} \\
\end{align*}
\]

(\( \mid u \rangle \mid o \) optionally after strong clusters.)

These new rules will now generate the following present tense forms of Class I verbs in -ettan:

Rules

S-2: Stress
V-1: \( \mid j \mid \) Fronting
J-4: Gemination
J-6: Second \( \mid j \mid \) Vocalization
UV-6: Short Vowel Deletion
UV-8: Front Vowel Reduction

Form: 3sg. Ind. pl. Imp. sg.
roccette\( \tilde{\epsilon} \) roccetta\( \tilde{\epsilon} \) bliccette

Underlying: rokk=at+j\#i\( \theta \) rokk=at+j\#a\( \theta \) blikk=at+j\#e

Rules:
S-2  
ro\( k \)=at+j\#i\( \theta \) ro\( k \)=at+j\#a\( \theta \) blikk=at+j\#e
V-1  
ro\( k \)=\( \epsilon \)t+j\#i\( \theta \) ro\( k \)=\( \epsilon \)t+j\#a\( \theta \) blikk=\( \epsilon \)t+j\#e
J-4  
ro\( k \)=\( \epsilon \)tt+j\#i\( \theta \) ro\( k \)=\( \epsilon \)tt+j\#a\( \theta \) blikk=\( \epsilon \)tt+j\#e
All of the present tense forms for the various types of Class I weak verbs have now been discussed. However, one important class of verbs has not yet been treated. These are the strong verbs with weak presents. Like the Class I weak verbs, these are entered in the lexicon with stem-forming \( |j| \). The verb \(*sittan\), for example, would be listed as \(|set+j-|\). There must be a readjustment rule which deletes the \( |j| \) in the past tense:

\[
SVb-1: \text{Strong Verb } |j| \text{ Deletion} \\
\quad j \rightarrow \emptyset / [+Verb] +[Strong] + \#Pt
\]

For the present tense all of the rules written for Class I weak verbs thus apply to strong verbs with a stem-forming \( |j| \) and the derivations are similar to those already discussed.

The following strong verbs with weak presents occur in VP:\textsuperscript{12}

Class V—\( *biddan, "to ask," *licgan, "to lie down," *sittan, "to sit" \)

Class VI—\( *hebban, "to lift," *hlaehhan, "to laugh," *sceppan, "to create, }sce\textsuperscript{a}gan, "to hurt," *swergan, "to swear" \)
Class VII—*wēpan, "to weep"

One minor change is necessary in the gemination rules. In a verb like -hebban the consonant variation is not between -bb- and -b-, but -bb- and -f- /v/: -hebbu, -hebbas, but -hefes, hefeś, and imp. sg. hefe.¹³

The underlying segment for this alternation is [v],

\[
\begin{bmatrix}
-voc \\
+cons \\
+ant \\
-cor \\
+voice \\
+cont
\end{bmatrix}
\]

which is \([+voice, +cont]\). The significant features are \([+voice, +cont]\), and the gemination rule should specify that underlying voiced continuants become stops when doubled.¹⁴ Rather than incorporate this change directly into Rule J-4, we will make it part of a consonant lengthening rule. One of the later phonological rules should specify that a cluster of two identical consonants is equivalent to one long consonant:

\[
C_aC_a \rightarrow [C_a +\text{long}]
\]

A more precise formulation in terms of structural description and structural change is

C-2: Consonant Lengthening

SD: \([+\text{cons}], [+\text{cons}]\)

\[
\begin{array}{cc}
1 & 2 \\
\end{array}
\]

SC: \[
\begin{array}{cc}
1 & 2 \\
\end{array}
\rightarrow \begin{bmatrix}
1 \\
+\text{long}
\end{bmatrix} \begin{bmatrix}
2 \\
\emptyset
\end{bmatrix}
\]

Condition: \(1 = 2\)
This rule must indicate that the underlying voiced continuants \( [v, g.| \) become stops when doubled. (This rule does not apply, of course, to the voiced continuants \( /v, g, z/ \) which derive from the underlying voiceless continuants \( /f, θ, s/ \) by a late voicing assimilation rule.) Rule C-2 must therefore include this change in the voiced continuants:

**C-3: Consonant Lengthening (replaces C-2)**

\[
\begin{align*}
SD: & \left[ \begin{array}{c}
+\text{cons} \\
\langle +\text{voice} \rangle \\
\langle +\text{cont} \rangle
\end{array} \right], \left[ \begin{array}{c}
+\text{cons} \\
\langle +\text{voice} \rangle \\
\langle +\text{cont} \rangle
\end{array} \right] \\
1 & \quad 2
\end{align*}
\]

\[
\begin{align*}
\text{SC: } & 1 \quad 2 \rightarrow \left[ \begin{array}{c}
1 \\
\langle +\text{long} \rangle \\
\langle -\text{cont} \rangle
\end{array} \right] \left[ \begin{array}{c}
2 \\
\emptyset
\end{array} \right]
\end{align*}
\]

Condition: \( 1 = 2 \)

(A sequence of two identical consonants becomes one long consonant. \( /vv| > /b:/, /gg| > /g:/ \).)

Rule C-3 will convert \( /vv| \) and \( /gg| \) to \( /b:/ \) (spelled \( bb \)), and \( /g:/ \) (usually spelled \( gg \)), respectively.

When a single \( /v| \) remains, it is identical to the \( /v/ \) that derives from the voicing of underlying \( /f| \), and the graph \( f \) is used to spell both of these \( /v/ \)'s as well as \( /f/ \).

For verbs such as `-hebban` and `-licgan`, for example, we would then get present tense forms like those of a regular Class I weak verb, and the deri-
vations for the various forms would be the same as those already discussed. The only difference would be that Rule C-3 has been added to the grammar so that near the end of the derivation (after the Vowel Shortening Rule UV-3) those forms with |i vv| would become |b:|, e.g. ind. 1sg. |xáv+j#u| > |hévv#u| > |héb:#u| > /héb:u/, spelled-*hebbu*. The forms of *licgan with |i-£g-| have /g:/, such as ind. pl. |leg+j#aθ| > |lig#aθ| > /lig:aθ/, regularly spelled *licgaθ, but ms. (dern)liggaθ.

Weak Verbs

Class II

The weak verbs of Class II are the ones which have a stem-forming -i- in most of their present tense forms, but the ind. 2sg. and 3sg. and the imp. sg. endings have the vowel -a-. The paradigm given in Chapter II for a verb like *bledsian, "to bless," has the following present tense endings:

1) with -i-: -iu, -iaθ, -ie, -ien, -iaθ
2) with -a-: -as, -aθ, -a

To account for this variation between -i- and -a-, we assume that there is a stem-forming element (actually a derivational suffix since most Class II weak verbs are derived from nouns and adjectives) which is underlying |á+j|. The |+j| would be deleted in the ind.
2sg. and 3sg. and the imp. sg. by the same rules that apply to Class I weak verbs. When |j| remains, there must be a rule that converts |\tilde{a}+j| to |\tilde{i}|. This \tilde{i} is long because it is not subject to the Front Vowel Reduction Rule UV-8. For this reason the stem-forming \tilde{a} is also taken to be long. The underlying structure of a Class II weak verb is therefore |Base+\tilde{a}+j#Tense|.

What are the rules that convert this structure into the proper surface phonetic forms?

In the first place the ind. 2sg. and 3sg. and the imp. sg. must be subject to rules that delete the \(|+j|\). The relevant rules are Final |e| Deletion (UV-7), First |j| Vocalization (J-1), and |j| Deletion (J-10). These rules will apply to the \(|+j|\) of Class II verbs because there are only formative (+) boundaries between the \(|+j|\) and the preceding stressed vowel (unlike the Class I weak verbs in -ettan which have the affix boundary (=) before the suffix).

Secondly, when \(\tilde{a}+j\) remains after Rule J-10 has applied, there must be a rule to convert it to \(\tilde{i}\) prior to the Second |j| Vocalization Rule J-6. Hence, we add the |\tilde{a}+j| contraction rule after Rule J-10:

WII-1: |\tilde{a}+j| Contraction

\[
SD: \begin{bmatrix}
+\text{voc} \\
-\text{cons} \\
+\text{back} \\
+\text{low} \\
+\text{long} \\
-\text{round}
\end{bmatrix}, +, \begin{bmatrix}
-\text{voc} \\
-\text{cons} \\
+\text{high} \\
-\text{back}
\end{bmatrix}
\]
The last rule to be added is one that will delete |i| following |ã|. It will apply in the ind. 2sg. and 3sg. and in the imp. sg. so that the surface endings will be -as, -a§, and -a:

WII-2: |i| Deletion

\[ i \rightarrow \emptyset / \tilde{\alpha} [-seg] \]

(|i| is deleted after |ã| followed by a boundary.)

This rule must be ordered prior to Front Vowel Reduction (UV-8) and Vowel Shortening (UV-3).

Typical present tense forms of a verb like *bledsian, "to bless," are as follows:

### Rules

<table>
<thead>
<tr>
<th></th>
<th>Stress</th>
<th>Final</th>
<th>First</th>
<th>Il deletion</th>
<th>ã+j# contraction</th>
<th>ã+j# e deletion</th>
<th>Vowel shortening</th>
</tr>
</thead>
<tbody>
<tr>
<td>S-2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UV-7</td>
<td>Final</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>J-1</td>
<td>First</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>J-10</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WII-1</td>
<td>ã+j#</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>WII-2</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>UV-3</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

### Form:

<table>
<thead>
<tr>
<th></th>
<th>Ind.</th>
<th>Subj.</th>
<th>Imp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1sg.</td>
<td>bledsiu</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3sg.</td>
<td>bledsaa</td>
<td></td>
<td></td>
</tr>
<tr>
<td>sg.</td>
<td>bledsie</td>
<td></td>
<td></td>
</tr>
<tr>
<td>sg.</td>
<td>bledsa</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Underlying:

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>bleds+ã+j#u</td>
<td>bleds+ã+j#iθ</td>
<td>bleds+ã+j#e</td>
<td>bleds+ã+j#e</td>
</tr>
<tr>
<td>bleds+ã+j#iθ</td>
<td>bleds+ã+j#e</td>
<td>bleds+ã+j#iθ</td>
<td>bleds+ã+j#iθ</td>
</tr>
</tbody>
</table>

### Rules:

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>S-2</td>
<td>bléds+ã+j#u</td>
<td>bléds+ã+j#iθ</td>
<td>bléds+ã+j#e</td>
</tr>
<tr>
<td>UV-7</td>
<td>bléds+ã+j#iθ</td>
<td>bléds+ã+j#iθ</td>
<td>bléds+ã+j#iθ</td>
</tr>
<tr>
<td>J-1</td>
<td>bléds+ã+j#e</td>
<td>bléds+ã+j#e</td>
<td>bléds+ã+j#e</td>
</tr>
<tr>
<td>J-10</td>
<td>bléds+ã+j#iθ</td>
<td>bléds+ã+j#iθ</td>
<td>bléds+ã+j#iθ</td>
</tr>
</tbody>
</table>
Within the conjugation of Class II weak verbs there is no allomorphic variation in the part of the stem preceding the [a+j]. Furthermore, since most of these verbs are derived from nouns and adjectives, it would take us far beyond the scope of the present study to generate all of the different verb stems. It is sufficient to mention briefly a few of the vowel rules and some of the changes between the Class II verb stems and their corresponding noun and adjective forms insofar as these occur in VP.

First of all, when a stressed front vowel occurs before the stem-forming [a+j], it undergoes back umlaut. Examples are *amarian, "to test, purify," < |-maer+a+j-|, *cleopian, "to cry out," < |klep+a+j-|, and *ge7eafian, "to agree with," < |-eaf+a+j-|.

Unstressed front vowels do not show back umlaut, such as in *nigerian, "to condemn," and *grymetian, "to roar." The form *bismerian, "to mock, ridicule," lacks the back unround vowel because it is derived from the noun *bismert, "contempt," which has stress on the prefix (unlike, say, *ge7eafian and *amarian in which
the prefixes are verb prefixes which do not receive stress). On the other hand, the verb *ondsweorian, "to answer," shows not only rounding and raising of |Á| before a nasal, but also back umlaut. Therefore both vowels must have received stress in the derivation of this form so that the underlying representation should be\textsuperscript{15}

\[ [V^[Stem^[N^[And[V^swer#]*N^+\ddagger j^\text{stem}]]_V^\text{an}]]_V \]

Cyclical application of the Stress Rule S-2 would give:

\[ [V^[Stem^[N^[And[V^sw#*N^+\ddagger j^\text{stem}]]_V^\text{an}]]_V \]
\[ [V^[Stem^[N^[And[V^sw#*N^+\ddagger j^\text{stem}]]_V^\text{an}]]_V \]
\[ [V^[Stem^[And[V^sw+\ddagger j^\text{stem}]]_V^\text{an}]]_V \]
\[ [V^[And[V^sw+\ddagger j^\text{stem}]]_V^\text{an}]]_V \]

The stressed vowel rules would then apply to both the |Á| and the |ë| to give /é/ by rounding and raising before a nasal and /ě/ by back umlaut: /ondswárian/ (\(\sim=[4\text{stress}],\) not [-stress]).

Back umlaut of |æ| does not show up before an underlying velar consonant in accordance with the sound change called "Anglian Smoothing" (Campbell 1959:93ff.). The rule for this change is discussed below. (See pp. 115ff.) This change will account for forms like cwæcian, "to quake, tremble," *plegian, "to applaud," and *waecian, "to watch, be wakeful," none of which show back umlaut.
There are other Class II verbs with back umlaut which is not the result of the stem-forming $\text{\textipa{[\textipa{a}+\textipa{j}]}}$, such as *gesteafulfestian, "to establish," and *gesweotulian, "to reveal." Because such verbs have not been studied in detail in the present investigation, they will not be discussed at this point.

Not all of the short digraphs in these verbs are due to back umlaut, of course. Many are the result of breaking before $\text{r} + \text{consonant}$, as in *afeorrian, "to separate, depart," *heardian, "to harden," eardian, "to dwell," *eorsian, "to be angry," and *weorsian, "to worship." Forms like these indicate that the Breaking Rule SV-9 should include all short front vowels, not just $\text{|é|}$ (although there are no verbs in VP to show breaking of $\text{|i|}$ to $\text{/i/}$ (io)). Furthermore, breaking should occur only when a true consonant follows $\text{r}$, for the vowels of Class I weak verbs, which have a glide following the $\text{r}$, do not break (*hergan, not **heorgan or **heargan). Finally it should be limited to stem final -rC because it does not appear in the sequence -rCC as in the Class I verb *afirran $< \text{-firr+j-}$.

The Breaking Rule, then, should be:

**SV-17:** Breaking (replaces SV-9)

\[
\begin{array}{c}
V \\
[+\text{stress}] \\
[-\text{long}] \\
\rightarrow [+\text{back}] / \_ \_ \_ \_ r [+\text{cons}] \\
\end{array}
\]

(\text{|i|} $\rightarrow \text{/i/}$, \text{|é|} $\rightarrow \text{/é/}$, \text{|æ|} $\rightarrow \text{/a/}$ before $\_ \_ \_ \_ rC$).
Some Class II weak verbs have front round vowels. Some examples are *gemyndgian, "to call to mind, remind," *genyhtsumian, "to abound, be rich," syngian, "to sin," *hyngrı̈an, "to be hungry," and *oferhygdgian, "to be proud." The verb *gešynnian, "to make thin," shows gemination in addition to vowel fronting. The underlying forms of these verbs must have a |+j| to cause vowel fronting and gemination. The corresponding noun forms of *gemyndgian, syngian, and *oferhygdgian show that this |+j| is part of the lexical representation of the base: gemyn, "mind, memory," < |ge=múnd+j|, syn, "sin, guilt," < |sún+j| (the oblique cases show gemination, as in dat. sg. synne), and oferhygd, "pride, arrogance," < |ófer+xugd+j|. The noun form of *genyht-sumian does not occur in VP, only the adjective genyhtsum. However Campbell (1959:243) does give the noun *genyht, "sufficiency," which would derive from |ge=núxt+j|. The verb *gešynnian does not have a corresponding form in VP, but it is related to the adjective *šynne, "thin" (Campbell 1959:269), which is underlying |θún+j|. The underlying form of *hyngrı̈an does not have a high front segment in the lexical representation of the base, for the noun is hungur, "hunger," which derives from |húngr|. It must derive from an adjective form *hyngrı̈g |húngr+ı̈g| with the g of the adjective ending deleted (unlike *gemyndgian (< gemyndig) and
*oferhygdgian (< *oferhygdig), which retain the g of the adjective suffix).

The Class II weak verbs provide the opportunity for making the rules for the low vowels complete. So far we have treated only short |Á| (Rule SV-15). The corresponding long vowel |Ā| has not been included in Rule SV-15. The long vowel |Ā| in stressed position results in a vowel spelled a by the scribe. There are Class II weak verbs such as *geclāsnian, "to cleanse, purify," *gehālgian, "to make holy, consecrate," *grāpian, "to feel, touch," and *hālsian, "to beg, implore." Since this vowel is spelled a, the same as the spelling that is used for the vowel derived from short |Á| (as in haldan < |hāld#an|, ) it must be the same phonetically, except for the feature [+long]. That is, |Á| becomes phonetically /ə:/ [+back] just as |Á| becomes /ə/ when it is not fronted to /æ/ or raised to /o/.

The unstressed vowel derived from |Ā, A| is also written by the scribe as a. Unstressed |Ā| is found, for example, in the prefix ā-, as in *ācunnian, "to test, prove," and *ādilgian, "to destroy, erase." Phonetically we interpret this vowel, as well as the corresponding short vowel, as [+back -round], and we use the symbols /a:, a/ for them. The value of the feature
[round] for the low vowels [A, a] therefore corresponds to the value for [stress]. The rule for this relationship is

V-2: Low Vowel Rounding

\[
[V_{\text{low}}] \rightarrow [\text{round}] / [\text{stress}]
\]

\( [A] > [\acute{A}] ; [a] > [\acute{a}] \)

Rule V-2 can be ordered prior to SV-15. Then the first part of Rule SV-15 can be simplified by deleting the feature [round]. It needs to say only that before + consonant and before a nasal, the stressed short low vowel is an exception to the general fronting to /æ/. We can use the [next rule] notation (Harms 1968:73) so that Rule SV-15 becomes Rule SV-18:

SV-18: Low Vowel Fronting (replaces SV-15)

\[
[V_{\text{stress}}]_{\text{low}} \rightarrow \left\{ \begin{array}{c}
(-\text{next rule}) / \text{-cons} \\
(-\text{back}) / \text{-round}
\end{array} \right\}
\]

\(/\acute{\acute{e}}/ /\acute{\acute{e}}/ \text{except before } \text{LC and before a nasal.} \)

Since we have posited no underlying |æ|, wherever /æ:/ appears in a verb it must derive from |A|. In fact, the only time /æ:/ occurs is when |A| has undergone |j| Fronting (Rule V-1). This rule accounts for all of the /æ:/'s in Class I weak verbs like *abräðan, "to widen," *stræran, "to raise up," *lǣdan, "to lead," and *hǣlan, "to heal." In Class II weak verbs, the
/æː/'s which occur must be due to an underlying high front segment in the following syllable. Thus *æmetgian, "to be unoccupied, be at leisure," for example, must be underlying |ˈAmitɡ+ʌ+ᵊ#An|, *fættian, "to become fat," derives from |f𝐀tt+j+ʌ+ᵊ#An| (Cf. fæt, adj., "fat," n.p.m. faette), and *geðwaerian, "to be kind, be agreeable," is underlying |ge=ɬwAr+j+ʌ+ᵊ#An|. In *æmetgian, the |i| would be lowered to /e/ in an unstressed syllable (Rule UV-6), and in *fættian and *geðwaerian, the |+j| is first converted to |i| (Rule J-6), which drops after a long syllable (Rule UV-6).

The rules for short |a| need to be modified further at this point. The problem lies with the Second Fronting Rule SV-5, which we wrote to account for the /é/ in imp. sg. fer (< *fearan, "to go"), instead of **far. There are Class II weak verbs which have /æ/ by smoothing, such as cweecian, "to tremble, quake," *plaegian, "to applaud," *weæcian, "to watch," and *gefæhtian, "to consult together, deliberate." Why is this /æ/ not raised to /é/ by the Second Fronting Rule? One solution would be to exempt /æ/ from this rule when it occurs before underlying velar consonants:

\[ V \rightarrow [-\text{Rule SV-5}] / _{-\text{voc}} [+\text{cons}] [+\text{back}] \]

But this procedure is incorrect because Second Fronting does occur before an underlying velar consonant, as can
be seen in the sg. forms of the noun "day," such as n.s. deg, g.s. deges.

Another solution is to assume that at the point when Second Fronting occurs, the vowel in these words is not /æ/ but something else. The Backness Harmony Rule SV-11 will apply to these verbs (except *geʃæhtian) to give /a/ (ea). Then we can write a Smoothing Rule which will convert /a/ (ea) back to /æ/:

SV-19: Smoothing
\[
\begin{align*}
V & \quad \text{+stress} \\
& \quad \text{-round} \\
\rightarrow & \quad \text{[-back]} / \_ \_ \_ \_ \_ \_ \_ \\
& \quad \text{[-voc} \_ \_ \_ \_

\text{+cons} \_ \_ \_ \_ \_ \_ \_ \_ \\
& \quad \text{+back} \\
\end{align*}
\]

The Second Fronting Rule would apply after the Backness Harmony Rule but before the Smoothing Rule so that when it operates, the /æ/ of these forms would not be /æ/ but /a/. This explanation will work for cwæecian, *plaegian, and *waecian, but not for *geʃæhtian because a vowel followed by two consonants is not subject to the Backness Harmony Rule.

The /æ/ of *geʃæhtian, however, does result from smoothing. It could be /a/ (ea) at the point when Second Fronting operates, if breaking occurs before |x|. Therefore the Breaking Rule should be written:

SV-20: Breaking (replaces SV-17)
\[
\begin{align*}
V & \quad \text{+stress} \\
& \quad \text{-long} \\
\rightarrow & \quad \text{[+back]} / \{ \text{f[+cons]} \} \\
& \quad \text{Xc} \\
\end{align*}
\]
Then the order in which the rules apply is

SV-18: Low Vowel Fronting
SV-11: Backness Harmony
SV-20: Breaking
SV-5: Second Fronting
SV-19: Smoothing

The next question is the ordering of the \[j\] Fronting and Front Vowel Raising Rules (V-1, SV-13), which operate primarily on Class I weak verbs. Class I weak verbs with \[Á]\ include sellan [sÁl+j-], *gefaellan, "to fell" [fÁll+j-], *sendan [sÁnd+j-], settan [sÁt+j-], and *reccan, "to rule" [rÁk+j-]. The first rules that apply to these forms are the Low Vowel Rules V-2 and SV-18, which would give: [sÁl+j-], [fÁll+j-], [sÁnd+j-], [sÁt+j-], and [rÁk+j-]. Since the /e/ of the surface forms of these verbs is due to Front Vowel Raising rather than Second Fronting, the Front Vowel Raising Rule SV-13 must precede the Second Fronting Rule SV-5. If Second Fronting applies before \[j\] Fronting (by which \[/ó/ > /e/\] in *gefaellan), then there will be no need to restrict the Second Fronting Rule so that it does not apply before \[1\] (Cf. Campbell 1959:63), and this rule will therefore be simpler. We assume, then, the following order for these major vowel rules:

V-2: Low Vowel Rounding
SV-18: Low Vowel Fronting
SV-11: Backness Harmony
SV-20: Breaking
SV-13: Front Vowel Raising
SV-5: Second Fronting
These rules are the main vowel rules and they will explain the various changes in the low vowel for the types of verbs discussed so far. It should be noted at this point that the sound change called Second Fronting is only a simple rule that raises /æ/ to /e/.

Before this section on the Class II weak verbs can be concluded, there are four verbs that require special comment. These are *plantian, "to plant," *gegadrian, "to join, unite," *twitælgian, "to dye twice," and *hneappian, "to sleep." For the first of these the rules would generate **plontian. (Cf. *gewonian, "to make less, diminish" |ge=\text{w}\text{\-}\text{An}+\text{\-}j#\text{An}| \text{< *won, adj. "wanting, lacking" |w\text{\-}\text{An}|}.) The verb *plantian is obviously borrowed from Latin (plantāre, "to plant"), and quite frequently foreign words do not undergo the same phonological rules as native words. They would be marked in the lexicon with a "diacritic feature" like [+Foreign], which would exempt them from certain rules (Chomsky and Halle 1968: 373).

According to the rules the verb *gegadrian should be **gegedrian with /é/ like *gewetrian, "to water" (\text{< weter, "water" |wátr|}). It occurs only once in VP
(ind. pt. 2sg. gegadredes), and Campbell considers this form to be an error in the manuscript (1959:86 n.3). Neither Kuhn (1965) nor Sweet (1885), however, has any note on this form, and Mertens-Fonck lists it without comment in her glossary (1960:135). If it is not considered an error, it could be explained by considering the prefix ge- to be added to the adjective form, where it would receive stress:

$$[A^\#g\dot{e}+g\text{Adr\#}]_A$$

Then the verb would be formed from this adjective:

$$[V^\#[\text{Stem}^\#[A^\#g\dot{e}+g\text{Adr\#}_A \text{Adr\#} + j\#]\text{Stem}^\#\text{Adr\#}]_V$$

Since A never receives stress, it is not subject to the phonological rules for $\dot{A}$, and so it becomes /a/. Campbell, on the other hand, says that the prefix ge- is never stressed in Old English (1959:31), which means that the = boundary always follows it: + $\rightarrow$ = /ge__/. Therefore stress would fall on the a in *gegadrian |ge=g\dot{e}Adr+\text{Adr\#}An|, and it is probably best to consider the one form in VP as an error.

The verb *twítælgian, "to double dye, dye twice," has stressed /æ/ in the surface phonetic representation /twítælgian/, not stressed /e/ as in *aldian, "to grow old." Since this /æ/ appears before l + consonant, it must have the same underlying representation as the /æ/ in *gefællan and -hældan. That is,
it must have a stem-forming \[ j: |twį#tAlg+j+A+j#An\]. The \[ j\] Fronting Rule V-1 produces \[ twį#tAlg+j+A+j#An\]. Then the \[ j\] becomes \( i \) and is deleted after the long syllable, giving /twistælgian/.

The problem in *hneappian is that the vowel /a/' appears before a double consonant. If we examine the forms that actually occur in the manuscript, however, we find six forms with -p- (neapiu, hneap‡ (2x), hneapede, hneapedon, hneapedun) and four with -pp- (heppas, hneappan, hneappade (2x)). It could be argued that for the VP scribe it was optional for this verb stem to have a geminated \( j\) or a single \( j\). The former would give /nëpp/- and the latter /náp/-.

Thus if the lexical representation of this verb is \( jxₕɛp+j+A+j\), all but three of the forms (hneappan, hneappade (2x)) can be accounted for.

Weak Verbs

Class III

There are two different types of verbs that Kuhn (1965) classifies as Class III weak verbs. The first kind is what Campbell calls "Contracted Verbs" (1959: 334), such as *šrēgan, "to accuse, blame," and *smēgan, "to meditate upon, examine." The second group consists of the four verbs *habban, "to have," *hycgan, "to think," lifgan, "to live," and *secgan, "to say." The first
type will be discussed below with the other contract verbs. The second type is conjugated as in the paradigm for *secgan given in the preceding chapter. The main thing to note about this paradigm is that it contains variation in both the stressed vowel and the final consonant cluster so that there are present tense forms like

<table>
<thead>
<tr>
<th></th>
<th>Ind.</th>
<th>Subj.</th>
<th>Imp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1sg.</td>
<td>seçgu</td>
<td>seçge</td>
<td>seçe</td>
</tr>
<tr>
<td>2sg.</td>
<td>sagas</td>
<td>seçe</td>
<td>sege</td>
</tr>
<tr>
<td>3sg.</td>
<td>seçga§</td>
<td>seçge</td>
<td>sege</td>
</tr>
<tr>
<td>pl.</td>
<td>/ség:u/</td>
<td>/ség:é/</td>
<td>/ség:e/</td>
</tr>
<tr>
<td>sg.</td>
<td>/sagos/</td>
<td>/sêjeθ/</td>
<td>/sêje/</td>
</tr>
</tbody>
</table>

(The absence of stress in sagas is explained below.)

The various present tense forms of *habban, however, do not show any vowel change:

<table>
<thead>
<tr>
<th></th>
<th>Ind.</th>
<th>pl.</th>
<th>Imp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2sg.</td>
<td>hafast</td>
<td>/havast/</td>
<td></td>
</tr>
<tr>
<td>3sg.</td>
<td>hafa§</td>
<td>/havaθ/</td>
<td></td>
</tr>
<tr>
<td>pl.</td>
<td>habba§</td>
<td>/hab:åθ/</td>
<td></td>
</tr>
<tr>
<td>pl.</td>
<td>habba§</td>
<td>/hab:åθ/</td>
<td></td>
</tr>
</tbody>
</table>

(On the lack of stress in these forms, see below.)

The present forms of lifgan have vowel change, but do not have a geminated final consonant cluster:

<table>
<thead>
<tr>
<th></th>
<th>Ind.</th>
<th>Subj.</th>
<th>3sg.</th>
<th>1sg.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1sg.</td>
<td>lifgu</td>
<td>leofa§</td>
<td>lifga§</td>
<td>lifge</td>
</tr>
<tr>
<td>2sg.</td>
<td>/livju/</td>
<td>/lêvaθ/</td>
<td>/livjaθ/</td>
<td>/livje/</td>
</tr>
</tbody>
</table>

Only two present tense forms of *hycgan appear in VP: 21

<table>
<thead>
<tr>
<th></th>
<th>Ind.</th>
</tr>
</thead>
<tbody>
<tr>
<td>3sg.</td>
<td>hoga§</td>
</tr>
<tr>
<td>pl.</td>
<td>/hogaθ/</td>
</tr>
</tbody>
</table>
The most striking feature of these verbs is that they have forms like Class II verbs in the pres. ind. 2sg. and 3sg. (except for sege#) and forms like Class I verbs elsewhere. That is, the pres. ind. 2sg. and 3sg. endings have the vowel /a/. The other forms (except for those of *habban) have vowels with front umlaut and (except for the forms of lifgan) final consonants which have been doubled. In the imp. sg. only one form occurs, sege, which like sege# is Class I rather than Class II.

These facts suggest that the underlying representations of the present tense forms of these verbs are like those of the Class I weak verbs—|Base+j#Tense|—except for the ind. 2sg. and 3sg. For these forms there must be a readjustment rule that changes them from the Class I pattern to the Class II type:

\[ \text{WIII-1: Weak III Rule}^{22} \]

\[ \emptyset \rightarrow +\bar{A}/\left[ +\text{Verb} \quad -\text{Strong} \quad 3\text{Class} \right] \rightarrow +j\#i\{s\} \]

Optional for *secgan.

(Insert |+\bar{A}| before |+j| for a Class III weak verb with the endings |is| and |i\theta|.)

Since sege# occurs as well as sagas, this rule must be marked optional for *secgan.

Another problem with these forms is the \( a \) which occurs in the stem of sagas and in the present tense
forms of *habban. According to the usual rules, this vowel should front to /æ/ and then become /e/ by Second Fronting. This vowel is exempt from the various vowel rules, and to account for this we can say that this vowel does not receive stress.²³ The /a/ in the pl. habbað will also have to be marked as an exception to the [j] Fronting Rule V-1 because this rule applies to both stressed and unstressed vowels. There must be readjustment rules to mark these exceptions, and if the stress exception rule follows the readjustment rule for the ind. 2sg. and 3sg. forms, then we can make it apply to segas and *sagað only, not to the whole conjugation of *secgan by writing |sAg+A+j| to the left of the arrow:

WIII-2: |A| Exception

A \[\rightarrow [-\text{Rule V-1}] / \text{for } *\text{habban}]

WIII-3: Stress Exception

\[\begin{align*}
\{xAv \\
sAg+A+j
\end{align*}\] \[\rightarrow [-\text{Rule S-2}]

The ind. 2sg. form of *habban also presents a point for discussion in that it occurs with a -t added to the ending (hafast, not *hafas). As it was noted in the last chapter, the -st ending occurs only thirteen times in VP. These forms can be accounted for by assuming an optional rule that adds -t to the ind. 2sg. ending
so that it becomes $-is(t)$:

so t E-1: $is(t)$ Ending (optional)

$\emptyset \rightarrow t / #is#$

Another exception to the regular rules is in the forms of *lifgan* where the $|j|$ remains instead of causing consonant gemination. This parallels the Class I short stems ending in $|r|$ so that like them $|lep+j|$ can be marked an exception to the Gemination Rule J-4 and the Second $|j|$ Vocalization Rule J-6:

WIII-4: *lifgan* Exception

$lep+j \rightarrow \{[-Rule J-4],[Rule J-6] \}$

The last problem in these forms is the vowel of *hycgan*. When there is front umlaut it appears as /ɨ/; when there is back umlaut, it is /ʊ/. According to the rules already written the underlying vowel that would give these surface phonetic forms is front round /o/. Since we have assumed that there are no front round vowels in the lexical representations of OE verbs, there could be a readjustment rule that converts underlying $|xog|$ to $|xog|$ before the phonological rules apply:

WIII-5: *hycgan* Exception

$\begin{bmatrix}
V \\
-\text{high} \\
-\text{low} \\
+\text{round}
\end{bmatrix} \rightarrow [-\text{back}] / \text{for *hycgan}$
A better solution is to add to the grammar an early rule which lowers \( |\acute{u}| \) to \( |\grave{o}| \) when it is followed by a nonhigh vowel. (Cf. Campbell 1959:43.) More evidence for the need for such a rule will be given later in the discussion of the pt. ppl., and at this point the rule can be simply written

**SV-21: \( |\acute{u}| \) Lowering**

\[
\begin{bmatrix}
V \\
+\text{stress} \\
+\text{back} \\
-\text{long}
\end{bmatrix} \rightarrow [-\text{high}] / C_1 [V]
\]

(\( |\acute{u}| \rightarrow |\grave{o}| \) when a nonhigh vowel follows.)

With this rule the forms with \( |+j| \) following the base have /\( \grave{y} \)/ for the stressed vowel, but those with the stem-forming \( |\acute{A}+j| \) have /\( \grave{o} \)/, since \( |\acute{A}| \) is a nonhigh vowel.

With these new rules to account for the exceptional behavior of the Class III verbs, we can now give sample derivations for the present tense forms of \(*secgan\), *habban, lifgan, and *hycgan:\n
**Rules**

**Readjustment:**

- **WIII-1:** Weak III Rule (optional for *secgan)
- **WIII-2:** \( |\acute{A}| \) Exception
- **WIII-3:** Stress Exception
- **WIII-4:** lifgan Exception
- **E-1:** \( |is(t)| \) Ending (optional)

**Phonological:**

- **S-2:** Stress
- **SV-21:** \( |\acute{u}| \) Lowering
- **V-2:** Low Vowel Rounding
**secgan**, "to say"

<table>
<thead>
<tr>
<th>Form:</th>
<th>Ind.</th>
<th>Subj.</th>
<th>Imp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1sg.</td>
<td>sAg+j#ũ</td>
<td>sAg+j#is</td>
<td></td>
</tr>
<tr>
<td>segu(-o)</td>
<td>sagas</td>
<td>sAg+j#e</td>
<td></td>
</tr>
<tr>
<td>2sg.</td>
<td>sAg+j#ũ</td>
<td>sAg+j#is</td>
<td></td>
</tr>
<tr>
<td>sege</td>
<td>sAg+j#e</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3sg.</td>
<td>sAg+j#ũ</td>
<td>sAg+j#is</td>
<td></td>
</tr>
<tr>
<td>sege</td>
<td>sAg+j#e</td>
<td></td>
<td></td>
</tr>
<tr>
<td>sg.</td>
<td>sAg+j#ũ</td>
<td>sAg+j#is</td>
<td></td>
</tr>
<tr>
<td>sege</td>
<td>sAg+j#e</td>
<td></td>
<td></td>
</tr>
<tr>
<td>sg.</td>
<td>sAg+j#ũ</td>
<td>sAg+j#is</td>
<td></td>
</tr>
<tr>
<td>sege</td>
<td>sAg+j#e</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Underlying:** sAg+j#ů

**Rules:**

WIII-1

V-2 sag+a+j#ů sag+a+j#is sag+a+j#iθ

WIII-3

S-2 sAg+j#ů sAg+j#is sAg+j#iθ

SV-18 sēg+j#ů sēg+j#is sēg+j#iθ

J-1 sag+a+j#ů

J-10 sag+a+j#is

J-4 sēg+ã+j#ů

J-6 sēg+ã+j#ů

WII-2

UV-7

J-1

J-10

J-4

J-6

WII-2

UV-6

UV-8

UV-9 (sēg#ô)

UV-3 sēg#ô(u(-o)) sag+a#s

C-3 sēg:#u(-o)

**Phonetic:**

/sēg:u(-o)//sagas/ /sējeθ/ /sēg:e/ /sēje/

**Orthographic:**

secgu(-o) sagas segeθ secge sege
*habban, "to have"

<table>
<thead>
<tr>
<th>Form:</th>
<th>Ind.</th>
<th>3sg.</th>
<th>pl.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2sg.</td>
<td>3sg.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>hafast</td>
<td>hafaŋ</td>
<td>habbaŋ</td>
</tr>
</tbody>
</table>

Underlying:
| Rules: |
| WIII-1 | xAv+j#is |
| WIII-2 | xAv+Á+j#is |
| WIII-3 | xAv+Á+j#iθ |

[C-Rule V-1]

| E-1 | xAv+Á+j#ist |

| V-2 | hav+ā+j#ist |
| J-1026 | hav+ā#ist |

[-Rule S-2]-------------------

| J-4 | hav+ā#ist |
| J-6 | havv+j#aθ |

[-Rule S-2]-------------------

| WII-2 | havv+j#aθ |
| UV-6 | hav+a#st |
| UV-3 | hav+a#0 |
| C-3 | hab:#aθ |

[-Rule J-6]-------------------

| Phonetic: | /havast/ | /havaθ/ | /hab:aθ/ |

| Orthographic: | hafast | hafaŋ | habbaŋ |

lifgen, "to live"

<table>
<thead>
<tr>
<th>Form:</th>
<th>1sg.</th>
<th>3sg.</th>
<th>Subj.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2sg.</td>
<td>3sg.</td>
<td>sg.</td>
</tr>
<tr>
<td></td>
<td>lifgu</td>
<td>leofaŋ</td>
<td>lifge</td>
</tr>
</tbody>
</table>

Underlying:
| Rules: |
| WIII-1 | lef+j#ū |
| WIII-4 | lef+j#iθ |

[-Rule J-4]-------------------

| S-2 | lef+j#ū |
| V-2 | lef+ā+j#iθ |
| SV-11 | lef+ā+j#iθ |
| SV-13 | lef+ā+j#iθ |
| J-10 | lif+j#ū |
| WII-2 | lif+ā#iθ |
| UV-3 | lif+ā#0 |

[-Rule J-6]-------------------

| Phonetic: | /livju/ | /lāvaθ/ | /lāvje/ |

| Orthographic: | lifgu | leofaŋ | lifge |
**hycgan**, "to think"

<table>
<thead>
<tr>
<th>Form:</th>
<th>Ind.</th>
<th>pl.</th>
</tr>
</thead>
<tbody>
<tr>
<td>_hoga#</td>
<td>-hycg#</td>
<td></td>
</tr>
</tbody>
</table>

| Underlying: | xug+j#i\@ | xug+j#A\@ |
| Rules: | WIII-1 | xug+\#i+j#i\@ |
| | S-2 | hug+\#a+j#i\@ |
| | SV-21 | hog+\#a+j#i\@ |
| | V-2 | hog+\#a+j#i\@ |
| | V-1 | hog+\#a+j#i\@ |
| | J-10 | hog+\#i\@ |
| | J-4 | hog+\#i\@ |
| | J-6 | hog+\#i\@ |
| | WII-2 | hog+\#i\@ |
| | UV-6 | hog+\#i\@ |
| | UV-3 | hog+\#i\@ |
| | C-3 | hog+\#i\@ |

| Phonetic: | /hoga\@/ |
| Orthographic: | -hoga\# |

Present Participle, Infinitive, Gerund

The present participle, infinitive, and gerund can be considered part of the present tense system. In the last chapter it was noted that there are no significant changes in the stem for these forms. Therefore the rules written so far will generate all of the forms. The only problem is with the endings: -ende (undecl.), -an, -enne. The vowel of the stem shows back umlaut when the Backness Harmony Rule SV-11 is applicable. There are strong verb forms like Class V **cweo\#ende** (< **cweog\#en**, "to say"), ongeotan, to ageot-\#enne (< -geotan, "to get"). The underlying vowel in
the participle and the gerund must therefore be a back vowel. For the gerund, which is the inflected infinitive, this vowel is \(|A|\), the same as in the infinitive. This \(|A|\) will become /e/ by the \(|j|\) Fronting Rule V-1 and by Front Vowel Reduction UV-8 (just like the /e/ in Class I verbs in -ettan) if a high front segment follows in the next syllable. The double \(n\) (as opposed to the single -\(n\) in the inf. ending) indicates that gemination has occurred and that this high front segment is \(|+j|\). This \(|+j|\) must not be in word final position (\(|+j##|\)) or the First \(|j|\) Vocalization Rule J-1 will apply and block the Gemination Rule J-4. It must be followed by an ending. We will take this ending to be \(|e|\), although it could be any front vowel later reduced to /e/ by the Front Vowel Reduction Rule UV-8, or \(|\ddot{e}|\) later shortened to /e/ by the Vowel Shortening Rule UV-3.27 This \(|e|\) is not deleted by the Final \(|e|\) Deletion Rule UV-7 because the \# boundary precedes the ending and thereby intervenes between the \(|e|\) and the preceding stressed vowel.

The participle is similar to the gerund. To account for back umlaut of the preceding stressed vowel in the stem, the underlying vowel will be considered to be \(|A|\). This \(|A|\) is fronted to /\(\ddot{a}\)/ by a following high front segment (a \(|+j|\)) and /\(\ddot{a}\)/\(\nearrow/e/\) by vowel reduction. As in the gerund the \(|+j|\) must be followed by an ending
(even when the ppl. is undeclined) because after |j| becomes |i|, it will be deleted after the strong cluster by Rule UV-6 for short vowel deletion. The ending for the undeclined ppl. can be taken to be |e|.

The underlying structures for these three forms, then, are

\[
\begin{align*}
\text{pres. ppl.} & \quad \text{Stem}#\text{An}+j\#e
\end{align*}
\]

\[
\begin{align*}
\text{inf.} & \quad \text{Stem}#\text{An} \\
\text{ger.} & \quad \text{Stem}#\text{An}+j\#e
\end{align*}
\]

Typical derivations for the strong verb forms are as follows:

Rules

- S-2: Stress
- V-2: Low Vowel Rounding
- SV-11: Backness Harmony
- V-1: |j| Fronting
- J-4: Gemination
- J-6: Second |j| Vocalization
- UV-6: Short Vowel Deletion
- UV-8: Front Vowel Reduction

Form: Pres. ppl. (undecl.) Inf. Ger.
cweo#ende -geotan -geotenne

Underlying: kwe#An#+j#e #get#An #get#An+j#e

Rules:

- S-2: kwe#An#+j#e j#et#An j#et#An+j#e
- V-2: kwe#And+j#e j#et#an j#et#an+j#e
- SV-11: kwa#And+j#e j#at#an j#at#an+j#e
- V-1: kwa#And+j#e j#at#e+j#e
- J-4: j#at#e+j#e
- J-6: kwa#And+i#e j#at#e+j#e
- UV-6: kwa#And+i#e j#at#e+j#e
- UV-8: kwa#And+j#e j#at#enn#e

Phonetic: /kwa#ende/ /j#an/ /j#ten:e/

Orthographic: cweo#ende -geotan -geotenne
The derivations of these forms for Class I weak verbs are the same as those for the strong verb except that there are the regular stem changes in the vowel and final consonant cluster. The same is true for the Class III weak verbs since they follow the Class I pattern in these forms. Class II weak verbs would be expected to have the stem-forming \( <\ddagger A+j\) in these forms. All of the infinitives (23x) do. Most of the pres. ppl. forms (55x) also have \( i \), but fifteen do not. All of those that lack \( i \) are long stems so that there must be an optional rule that deletes \( i \) after a strong cluster:

WII-3: Ppl. \( i \) Deletion (optional)

\[
i \rightarrow \emptyset / S_{+}\#end\#C_{0}V
\]

This rule follows the Vowel Shortening Rule UV-3 so that it is short \( i \) that is deleted. It accounts for alternate forms like blissiende, blissende (\( <\ast blissian\), "to rejoice").

As was noted in the preceding chapter, the gerunds of Class II weak verbs are so rare in VP that any treatment of them can only be tentative. There are three forms in -enne (all long stems without \( i \), e.g. to acunnenne (\( <\ast acunnian\), "to test, prove") and two other forms with the pres. ppl. ending -(i)ende (such as to blissiende \( <\ast blissian\)). For the first
type we can modify the \(|i|\) deletion rule given above so that it includes the gerund:

\[\text{WII-4: Ppl./Ger. }|i|\text{ Deletion (optional)}^{28}\]

\[i \rightarrow \emptyset / S+{}^{n}en \{d\} \#G \text{ V}\]

The second type of gerund can be derived by a readjust-
ment rule that changes the form from a gerund to a participle:

\[\text{WII-5: Ger. Conversion (optional)}\]

\[
\begin{array}{c}
[5\text{Mood}] \rightarrow [4\text{Mood}] \\
\text{for certain weak verbs like } \text{*ondett-} \\
\text{(i)an, *blissian,} \\
\text{*gefultumian,} \\
\text{where } [4\text{Mood}] = \text{Ppl.} \\
\text{and } [5\text{Mood}] = \text{Inf.},
\end{array}
\]

or, if this change is phonological rather than syntactical,

\[\emptyset \rightarrow d / #\text{An}^{+j\#}\text{e} / \text{for certain verbs as above}\]

(Insert a \(|d|\) in the gerund ending for certain weak verbs.)

These rules will now generate the correct forms of the pres. ppl., inf., and ger. for the different verb classes.

**Contract Verbs**

Strong verbs are called "contract verbs" when the lexical representation of the base ends in \(|x|\). When there is an ending beginning with a vowel, \(|x|\) is intervocalic and is deleted. Then vowel contraction takes place between the stressed vowel of the
base and the vowel of the ending.

The following strong verbs are contract verbs with present tense forms in VP:

I: *wrēan "to cover"  V: *sīan "to see"
II: *fleōn "to flee"  *fīan "to rejoice"
    *tēon "to draw"  VI: *slēan "to slay"
III: *fēolan "to enter"  *fēwēan "to wash"
VII: -fōn "to take"

That the underlying forms of these verbs have \(x\) is evident from imp. sg. forms, such as onwrih /onwri:x/ (< *wrēan), geseh /jeséx/ (< -sīan), gefeh /jefex/ (< *fīan), sleh /slēx/ (< *slēan), afweah /a:θwēx/ (< *fēwēan), and onfoh /onfo:x/ (< -fōn). (The past tense forms also appear with the final consonant as in gesēah, gesegun (< -sīan), with /s/ by grammatical change.) Since the imp. sg. appears with the final /x/, loss of intervocalic \(x\) must occur after the Final \(e\| Deletion Rule UV-7 has applied. The underlying forms of these verbs must therefore be similar to the imp. sg. forms.

Since \(x\) is a velar consonant, the Breaking Rule SV-20 and the Smoothing Rule SV-19 operate on these forms. As they are now ordered, the rules are

- **SV-18**: Low Vowel Fronting
- **SV-11**: Backness Harmony
- **SV-20**: Breaking
- **SV-13**: Front Vowel Raising
- **SV-5**: Second Fronting
- **SV-19**: Smoothing
We have argued that the Breaking occurs before Front Vowel Raising because the pres. ind. 2sg. and 3sg. forms of a verb like *weorpan (\l{w\text{"}erp}-l) are -weorpes and -weorpe\text{\`{e}}, which do not show raising of /é/ to /i/, but breaking to /\text{"}a/. However, the pres. ind. 2sg. and 3sg. forms of -\text{s}i\text{\`{e}}n (\l{\text{s}e\text{"}x}-l) are -\text{s}ist and -\text{s}i\text{\`{e}}\text{\`{e}}, and of *sl\text{\`{e}}an (\l{sl\text{"}Ax}-l), sl\text{\`{e}}s and sl\text{\`{e}}\text{\`{e}}. The /i:/ would most likely result from the contraction of |i| + |i|, not |\text{"}e| + |i|. The /é:/ would come from |\text{"}e| + |i|, and not |\text{"}\text{"}e| + |i|. Therefore the vowels of these forms must undergo Front Vowel Raising, |é| > |i| in the forms of -\text{s}i\text{\`{e}}n, |\text{"}e| > |\text{"}e| in those of *sl\text{\`{e}}an.

On the other hand, these verbs must have been subject to Breaking and Smoothing because the imp. sg. forms of *sl\text{\`{e}}an and *\text{s}w\text{"}e\text{\`{e}}n are sl\text{\`{e}}h /sl\text{"}ex/ and -\text{s}\text{\`{e}}\text{\`{e}}eh /-\text{\`{e}}\text{\`{e}}\text{\`{e}}\text{\`{e}}x/. The /\text{"}e/ in these forms does not raise to /é/ by Second Fronting because at the point when Second Fronting applies, this vowel is /\text{"}a/ (ea), having been broken before |x|. It becomes /\text{"}\text{"}e/ again by Smoothing.

These contract verbs must therefore undergo Front Vowel Raising, Breaking, and Smoothing, in that order. This means that the Breaking Rule SV-20 must be divided into two parts: (1) Breaking Before |r| [+cons]| (Rule SV-22) and (2) Breaking Before |x|c\text{\`{e}}| (Rule SV-23).
The first part applies before Front Vowel Raising (SV-13); the second follows Front Vowel Raising.

The order of the rules, then, is

- SV-18: Low Vowel Fronting
- SV-11: Backness Harmony
- SV-22: Breaking Before \([r\ [+\text{cons}]\]
- SV-13: Front Vowel Raising
- SV-23: Breaking Before \([x^C_o]\]
- SV-5: Second Fronting
- SV-19: Smoothing

The Smoothing Rule affects the long as well as the short "diphthongs." This fact is evident from a Class II verb like the verb "to lie, deceive," which does not have /Á:/ (eo), but /é:/, such as pres. ind. 1sg. legu (< *légan |lēug-|, not **léogan). Since we did not limit this rule to \([-\text{long}]\) earlier (p. 116), it will apply in its present form to both long and short back unround vowels so that all stressed unround vowels become nonback before a velar consonant.

Next is the rule that deletes intervocalic \([x]\). This rule should not only delete \([x]\) between vowels, but also show compensatory lengthening of the first vowel. Historically, Campbell says that compensatory lengthening takes place when \([x]\) is lost before or after a consonant (1959:104). For intervocalic \([x]\) he puts vowel lengthening together with vowel contraction (1959:98). Luick also distinguishes between loss of intervocalic \([x]\), which leads to contraction, and
loss of $|x|$ next to a consonant, which causes lengthening of the preceding vowel (1940:869). For the rules written here, however, greater simplicity will result if vowel lengthening is part of the $|x|$ deletion rule. The feature $[+\text{long}]$ will be part of the structural change of this one rule, and it will not be necessary for it to appear in the structural change of every vowel contraction rule. Therefore the $|x|$ deletion rule will be written as follows:

C-4: Intervocalic $|x|$ Deletion

\[
\begin{align*}
\text{SD: } & \begin{bmatrix} V \\
[+\text{stress}] \end{bmatrix}, x, \# , V \\
1 & 2 & 3 & 4 \\
\text{SC: } & 1 \ 2 \ 3 \ 4 \rightarrow \begin{bmatrix} 1 \\
[+\text{long}] \end{bmatrix} \begin{bmatrix} 2 \end{bmatrix} 3 \ 4 \\
\end{align*}
\]

($|x|$ is lost between vowels. The first vowel lengthens.)

After $|x|$ deletion comes vowel contraction. To determine what the vowel contraction rules should be, it is necessary to go through the derivations of the different contract verbs and to note what kinds of vowel contraction do occur in VP. Interpreting the spellings of the scribe is particularly difficult at this point. In the pres. ind. pl. of gesi'an, for example, where the contraction should be between $|\hat{a}|$ and $|a|$, the following spellings of the vowel appear: $\text{ia}$ (5x), $\text{ea}$ (1x), $\text{io}$ (2x), and $\text{iea}$ (1x).
The Class I verb -wreän occurs in three present tense forms:

<table>
<thead>
<tr>
<th>Inf.</th>
<th>Ind. 3sg.</th>
<th>Imp. sg.</th>
</tr>
</thead>
<tbody>
<tr>
<td>oferwreen</td>
<td>oferwriθ</td>
<td>onwriθ</td>
</tr>
</tbody>
</table>

The derivations of these forms down to the point where vowel contraction occurs is as follows:

Rules

S-2: Stress
UV-7: Final |e| Deletion
C-4: Intervocalic |x| Deletion

Underlying: wrix#an wrix#iθ wrix#e
Rules: wrix#an wrix#iθ wrix#e
wrix#e

The final phonetic shape of these forms would be /wri:an/ (or /wre:an/), /wri:θ/, and /wri:x/. The ind. 3sg. would have |i| + |i| = /i:/. The phonetic sequence that results from the inf. |i#a| is spelled ea by the scribe. It is unlikely that this ea spelling represents the long low diphthong /a:/ (< |ʌu|). It could, however, indicate a lowering of the first vowel to /é:/, giving /é:a/. It is not certain at this point, then, whether this ea spelling is /i:a/ or /é:a/.

The two Class II contract verbs in VP are *fleön, "to flee," and *teön, "to draw, pull." The pres. tense forms of *fleön are ind. 1sg. fleom /flʌ:m/, ind. 3sg. fleōθ /flʌθ/, subj. pl. fleν /flé:n/, and
ppl. *fleonde* /flAːnde/. The verb *tēon* appears in the pres. ind. 3sg. *atī* /a:ti:θ/ and imp. sg. *geteh* /jetē:x/. The ind. 1sg. *fleom* is unusual in that it has the -m ending which regularly occurs in the anomalous verbs "to do" (dom) and "to be" (eam). The three forms *fleom, fleoeth, and fleonde* do not show smoothing of the diphthong, but *flen* does. One way to account for this difference is to say that this verb has two alternate underlying forms, one with |x| (|fleux-|) and one without it (|fleu-|). The first three forms derive from underlying |fleu#m|, and |fleu#iθ|, and |fleu#and+j#e|. The |x| appears in *flen*, however, whose underlying representation would be |fleux#en|. Smoothing, deletion of |x|, and vowel contraction would give /fle:n/. (Alternatively we could say that *flen* also lacks |x| (|fleu#en|) and that the /é:/ is due to contraction of /ʌ:/ + /e:/, but the explanation with |x| and smoothing is more plausible.)

The long i /i:/ of -tī§ presents a problem. If this form is |tēux#iθ|, then it should be |tē#iθ| at the point when vowel contraction occurs. This would mean that contraction of |ei| + |i| gives /i:/.

Another solution is to posit alternate lexical representations also for this verb. One would have the vowel |ēu|; the other would have |īu|. Some Class II verbs in fact would seem to have |īu|, such as *bīodan, "to command"
(pres. ind. 1sg. bibiōdu, imp. sg. onbiōd) and *flēgan, "to fly" (ind. 1sg. flīgu, but also |ēu| as in the ppl. flegendum). The underlying form of -tiē would then be |tiux#iθ|, which would become /tī#iθ/ at the point when vowel contraction occurs. The /i:/ of -tiē would result from contraction of |i| + |i|, a more satisfactory explanation, it would seem, than the combination of |ē| + |i|. The imp. sg. -teh would derive from |tēux#e| in a straightforward manner by smoothing and loss of final |e|.

The alternation in these verbs between forms with i, io and those with e, eo could, of course, be simply taken as spelling variation by the scribe. Campbell takes the view that in VP io and eo have become one sound, eo, which can be spelled eo or io (1959:102,125). Hockett too sees the spelling variation between io and eo as indicating a coalescing of /i/ and /ʌ/ (2959:597). Therefore, instead of positing alternate underlying forms for Class II verbs, we could assume that all of them have the underlying vowel |ēu|, which becomes phonetically /ʌː/, spelled eo or io. When |ʌ| undergoes smoothing, the usual result is /e:/ spelled e, but since |i| is not distinct from |ʌ|, |i| could be smoothed to /iː/. In other words, the smoothing of |ʌ| could result in either /eː/ or /iː/.

This nondistinctness of |i| and |ʌ| can be expressed
by a rule that optionally changes one to the other:

\[
SV-24: \begin{array}{c}
\frac{1}{4} \rightarrow \frac{\alpha}{5} \\
\text{Conversion (optional)}
\end{array}
\]

\[
\begin{array}{|c|}
\hline
\text{V} & \text{+stress} \\
\alpha_{\text{high}} & \alpha_{\text{high}} \\
\text{+back} & \alpha_{\text{high}} \\
\text{-low} & \alpha_{\text{high}} \\
\text{-round} & \alpha_{\text{high}} \\
\text{+long} & \alpha_{\text{high}} \\
\hline
\end{array}
\rightarrow [-\alpha_{\text{high}}]
\]

\(|\frac{1}{4}| > |\frac{\alpha}{5}|; |\frac{\alpha}{5}| > |\frac{1}{4}|.\)

If this rule is ordered prior to the Smoothing Rule SV-19, then it will account for the smoothing of \(|\frac{1}{4}|\) being both /é:/ and /í:/ and will explain the alternation of í, íö and e, eo in these Class II verbs.²⁹

In the present tense the Class III verb *feolan, "to enter," appears as ind. 3sg. aetfileg and subj. sg. fele. Kuhn (1965) considers the stressed vowel of these forms to be long (/í:/, /é:/) and classifies this verb as Class III with deleted \(\alpha\) (underlying \(|\text{felx-}|\)). It is evidently Class III in the pt. sg. (aetfelh), but the pt. pl. stem is Class IV (aetfélun). The inf. aetfealen (with ea for eo?) also occurs. One way to account for aetfileg and fele is to take the stressed vowel to be long and to derive them from underlying \(|\text{felx-}|\). It would then be necessary to modify the Intervocalic \(\alpha\) Deletion Rule C-4 so that \(|\alpha\) drops between \(|1|\) and a vowel and causes the preceding stressed vowel to lengthen:
C-5: Intervocalic |x| Deletion

SD: \[
\begin{array}{cccccc}
V & +\text{stress} & , & (1) & , & x , & # , & V \\
1 & (2) & 3 & 4 & 5
\end{array}
\]

SC: \[1 \ (2) \ 3 \ 4 \ 5 \rightarrow \begin{bmatrix} 1 \ 1 \ (2) \ 3 \end{bmatrix} \begin{bmatrix} 4 \ 5 \end{bmatrix} \]

(|x| is deleted between a stressed vowel + |l| and a vowel in the ending. |x| is also deleted intervocally. The stressed vowel lengthens.)

The derivations for -file§ and fele would then be:

Rules

S-2: Stress
SV-13: Front Vowel Raising
C-5: Intervocalic |x| Deletion
UV-g: Front Vowel Reduction
UV-3: Vowel Shortening

Form: Ind. 3sg. Subj. sg.

--file§ -fele

Underlying: felx#iθ felx#e

Rules:

S-2 felx#iθ felx#e
SV-13 filx#iθ filx#e
C-5 fil#iθ fêl#ë
UV-8 fil#eθ fêl#ë
UV-3

Phonetic: /fí:leθ/ /fê:le/

Orthographic: -file§ -fele

The inf. *feolan (ms. -fealan) cannot be explained in this way as deriving from |felx-|. The eo cannot be from the Backness Harmony Rule SV-11 because this rule does not apply when more than one consonant follows
the stressed vowel. If the eo is from breaking, then
the Breaking Rule SV-23 must be changed to include the
cluster |lx|. Then breaking would also occur in set-
file and fele so that these two forms must undergo
smoothing later in order not to appear as **setfile
and **feole. But if the Smoothing Rule SV-19 applies,
why would the inf. not become **felan? Campbell says
"the x was lost too early to occasion smoothing if a
back vowel followed; if a front vowel followed, the x
causw smoothing before it was lost" (1959:97). We
could modify our rules so that they would correspond
to this historical account, but since we are writing
a synchronic grammar, the simplicity measure would
assign a higher value to another, less complex expla-
nation.

This explanation is that the stressed vowels in
setfile and fele are short. That is, *feolan is a
Class IV verb in the present tense as well as in the
pt. pl. Even in the pt. sg. it has the same under-
lying vowel (|A|) as a Class IV verb. Therefore this
verb could simply be considered Class IV with the lexi-
cal representation |fel-|. A readjustment rule would
add |x| for the pt. ind. 1sg. and 3sg. The pres. tense
forms of *feolan would then correspond exactly to those
of a verb like ongeotan, "to perceive, understand":
In the simplest grammar *feolan would not be a contract verb at all in the present tense in VP, but a Class IV verb.

Two Class V contract verbs in VP are -sian, "to see," and *gefian, "to rejoice." It is with these two verbs that it becomes difficult to account for the different results of the vowel contraction rules, because there is so much variation in the forms which occur. The following present tense forms appear in VP:

<table>
<thead>
<tr>
<th>Ind.</th>
<th>Subj.</th>
<th>Inf.</th>
</tr>
</thead>
<tbody>
<tr>
<td>3sg.</td>
<td>ongite</td>
<td>ongeotan</td>
</tr>
<tr>
<td>aetfile</td>
<td>fele</td>
<td>aetfealan</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1sg.</th>
<th>2sg.</th>
<th>3sg.</th>
<th>pl.</th>
</tr>
</thead>
<tbody>
<tr>
<td>gesio (3x)</td>
<td>gesist (3x)</td>
<td>gesið (7x)</td>
<td>gesiað (5x)</td>
</tr>
<tr>
<td>gesie</td>
<td>gesip</td>
<td>geseað</td>
<td>gesieað</td>
</tr>
<tr>
<td>forsist</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Subj.</th>
<th>Imp.</th>
<th>pl.</th>
<th>sg.</th>
<th>pl.</th>
</tr>
</thead>
<tbody>
<tr>
<td>gese (5x)</td>
<td>gesen (4x)</td>
<td>geseh (9x)</td>
<td>geseað (6x)</td>
<td></td>
</tr>
<tr>
<td>gesee (2x)</td>
<td>forseh (3x)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>gesiende (2x)</td>
<td>gesian (2x)</td>
<td>to gesonne</td>
</tr>
<tr>
<td>gesionde</td>
<td>gesean</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1sg.</th>
<th>3sg.</th>
<th>pl.</th>
<th>sg.</th>
<th>pl.</th>
</tr>
</thead>
<tbody>
<tr>
<td>gefio (3x)</td>
<td>gefif (7x)</td>
<td>gefiað (10x)</td>
<td>gefee</td>
<td>gefen (8x)</td>
</tr>
<tr>
<td>gefie (4x)</td>
<td>gefiht</td>
<td>gefioð</td>
<td>gefeað</td>
<td></td>
</tr>
</tbody>
</table>
The problem with these forms is interpreting the spellings. For example, do they represent uncontracted vowels? This hypothesis could explain a form like ind. 3sg. gesie#. The two forms gefih# and gefiht are somewhat unusual in VP because they show syncope of the vowel of the ending instead of loss of inter-vocalic |x|.

The imp. sg. forms are easy to explain. They derive from |sex#e| and |fex#e| in a simple and direct way to give /sex/, /fex/.

The forms next easiest to account for are the ind. 2sg. and 3sg., whose regular forms are -sist and -si#, -fi#. Like hafast (< *habban) the 2sg. shows the optional -t ending. The vowels result from the simple contraction of |i| + |i| = /i:/ as follows:

**Rules**

<table>
<thead>
<tr>
<th>Rule</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-1</td>
<td>is(t) Ending (optional)</td>
</tr>
<tr>
<td>S-2</td>
<td>Stress</td>
</tr>
<tr>
<td>SV-13</td>
<td>Front Vowel Raising</td>
</tr>
<tr>
<td>SV-23</td>
<td>Breaking Before</td>
</tr>
<tr>
<td>SV-19</td>
<td>Smoothing</td>
</tr>
<tr>
<td>C-4</td>
<td>Intervocalic</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Form:</th>
<th>Ind.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2sg.</td>
<td>3sg.</td>
</tr>
<tr>
<td>Underlying:</td>
<td>sex#is</td>
</tr>
</tbody>
</table>
Rules:

E-1  
S-2  
SV-13  
SV-23  
SV-19  
C-4  
Vw. Contr.  

Phonetic: /si:st/ /si:0/ /fi:0/  
Orthographic -sist -si: -fi:  

The subj. forms usually have e, which must be long e /é/. The ee spellings can be taken as uncontracted forms or, more likely, as alternate spellings for /é:/.
The derivations of these forms involve contraction of |ê| + |ê| = /é:/ so that from underlying |sex#ê(n)|, |fêx#ê(n)| we get /se:(n)/, /fê: (n)/, spelled -se(e), -sen, -fe(e), and -fen.

Next are the ind. 1sg. forms, which show contraction of |ê| + |u|. The result of this contraction is spelled io (6x) and ie (5x). Both of these spellings must be considered regular. The alternation between io and ie shows that the result of this contraction is not the long diphthong /iː:/ (_<iũ>). The first segment of this sequence becomes /iː/, [+high]. The second element we will consider to become a central vowel /o/ (spelled o), which can optionally be further reduced to unround /æ/, (spelled a). A later rule changes these postvocalic mid back vowels to glides ([-vocalic]) so that phonetically they become centering off-glides.
The rules for these changes are:

**VC-1:** | e # ū | Contraction

| SD: | V |  
| +stress |  
| -high |  
| -back |  
| -low |  
| -round |  
| +long |  


(| e # ū | > | i o |

**UV-10:** | o | Reduction (optional)

| V |  
| -stress |  
| -high |  
| +back |  
| -low |  
| -long |  

| → [ -round ] / [ +stress ] ]

(| o | > | a | after a stressed vowel.)

**UV-11:** Glide Conversion

| -cons |  
| -stress |  
| -high |  
| +back |  
| -low |  
| -long |  

| → [ -voc ] / [ +stress ] ]

(| o | and | a | become glides after a stressed vowel.)

The next group of forms shows contraction of | ë | + | a |. The result of this contraction is spelled | ia | (24x), | io | (4x), | ea | (2x), and | iea |. These spellings suggest that when | ë | contracts with | a | it becomes /i:/ just as it
does when contracted with \( \ddot{u} \). The \textit{ea} and \textit{iea} spellings can be considered irregular.

It would seem best not to account for this change between /iː:/ and /eː:/ as being the result of an interchange between \( \ddot{a} \) and \( \ddot{u} \) before smoothing, as we did earlier for the Class II verbs with \( \ddot{eu} \). If this alternation between high and nonhigh occurred before smoothing, then the imp. sg. and subj. forms would also be expected to show interchange of \textit{e} and \textit{i}. These forms are always spelled with \textit{e}, never \textit{i}. Therefore the variation between /eː:/ and /iː:/ must result from contraction with a low back vowel.

The second segment of this sequence is most frequently spelled \textit{a}. That is, it remains a low back vowel. Sometimes it is spelled \textit{o}, which means that it has become a centering off-glide like \( \ddot{u} \) in the contraction of \( \ddot{e} \) + \( \ddot{u} \). (Although no \textit{e} spellings appear for the second segment in these forms, they do occur for the ppls. See next section.)

The rules for the contraction of \( \ddot{e} \) + \( \ddot{a} \) are as follows:

\[
\text{VC-2: } |\ddot{e}| \# |\ddot{a}| \text{ Contraction}
\]

\[
\begin{array}{c}
\text{SD:} \\
\left[ \\
\begin{matrix}
V \\
\text{+stress} \\
\text{-high} \\
\text{-back} \\
\text{-low} \\
\text{-round} \\
\text{+long}
\end{matrix}
\right], \ #, \\
\left[ \\
\begin{matrix}
V \\
\text{-stress} \\
\text{+back} \\
\text{+low} \\
\text{-round} \\
\text{-long}
\end{matrix}
\right]
\end{array}
\]

\[1 \quad 2 \quad 3\]
Some examples to illustrate the contraction of $|\varepsilon| + |\ddot{u}|$ and $|\varepsilon| + |a|$ are as follows:

**Rules**

- **S-2**: Stress
- **SV-11**: Backness Harmony
- **SV-19**: Smoothing
- **C-4**: Intervocalic $|x|$ Deletion
- **VC-1**: $|\varepsilon| # |\ddot{u}|$ Contraction
- **VC-2**: $|\varepsilon| # |a|$ Contraction
- **UV-12**: $|a|$ Reduction (optional)
- **UV-10**: $|o|$ Reduction (optional)
- **UV-11**: Glide Conversion

**Form:**

<table>
<thead>
<tr>
<th>1sg.</th>
<th>Ind.</th>
<th>pl.</th>
</tr>
</thead>
<tbody>
<tr>
<td>-sio, -sie</td>
<td>-sia$\ddag$ (-sea$\ddag$), -sio$\ddag$</td>
<td></td>
</tr>
</tbody>
</table>

**Underlying:**

- **S-2**: sex$\#\ddot{u}$
- **SV-11**: sex$\#\ddot{u}$
- **SV-19**: sex$\#\ddot{u}$
- **C-4**: se$\#\ddot{u}$
- **VC-1**: sio
- **VC-2**: sia$\ddag$
- **UV-12**: (sia$\ddag$)
- **UV-10**: sio$\ddag$, (sia$\ddag$)
- **UV-11**: sio$\ddag$, (sia$\ddag$)

**Phonetic:** /si:o/, /si:a/ /si:a$\ddag$/, /si:o$\ddag$/

**Orthographic:** -sio, -sie -sia$\ddag$, (sea$\ddag$), -sio$\ddag$
The last group of forms for Class V verbs consists of the pres. ppl. and ger. There is a question about whether vowel contraction in these forms is between \( |\dot{e}| + |\text{ae}| \) or \( |\dot{e}| + |a| \). If the deletion of \( |x| \) and vowel contraction occur before \( |j| \) Fronting, then the vowels in these forms would result from \( |\dot{e}| + |a| \). If \( |j| \) Fronting applies first, then vowel contraction would be between \( |\dot{e}| + |\text{ae}| \). The spellings that appear for the vowel in these forms are \textit{ie} (2x), \textit{io}, \textit{eo}. The \textit{i} for the first segment suggests that contraction is with a back vowel. Furthermore, it would be difficult to account for the \textit{o} spellings if the second segment results from contraction with \( |\text{ae}| \). Therefore we assume that there is contraction between \( |\dot{e}| \) and \( |a| \) in the ppl. and ger. just as there is in the forms just discussed. This means that \( |j| \) Fronting occurs after vowel contraction and that there is the following rule order:

UV-7: Final \( |e| \) Deletion
C-4: Intervocalic \( |x| \) Deletion
Vowel Contraction Rules
V-1: \( |j| \) Fronting

The contraction rules already written for \( |\dot{e}| + |a| \) will apply to the ppl. and ger. The absence of \textit{a} spellings for the second element could be due to the influence of the following nasal consonant (or, more precisely, nasal + consonant) since \textit{a} always appears
for the inf. That is, Rule UV-12 could be obligatory when a nasal + consonant follows. The derivations for the ppl. and ger. are as follows:

Rules

S-2: Stress  
SV-11: Backness Harmony  
SV-19: Smoothing  
C-4: Intervocalic [xi] Deletion  
VC-2: |es # al| Contraction  
UV-12: |a| Reduction  
UV-10: |o| Reduction (optional)  
UV-11: Glide Conversion

Form:  

Underlying:  

Rules:

S-2  
SV-11  
SV-19  
C-4  
VC-2  
UV-12  
UV-10  
UV-11

(\{j\} Rules, etc.)

Phonetic: /si:°nde, -si:3 nde/ /si:°n:e/  
Orthographic: -sionde, -siende *sionne  
(ms. -seonne)

The verbs *slēan, "to slay," and *swēan, "to wash," are Class VI contract verbs in VP, and they have the following present tense forms:

<table>
<thead>
<tr>
<th></th>
<th>Ind.</th>
<th>Subj.</th>
<th>Imp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1sg.</td>
<td>slea</td>
<td>sle</td>
<td>sleh</td>
</tr>
<tr>
<td>2sg.</td>
<td>ofslea</td>
<td>sle</td>
<td>sleh</td>
</tr>
<tr>
<td>3sg.</td>
<td>sles</td>
<td>sleį</td>
<td>ofsleį</td>
</tr>
<tr>
<td>pl.</td>
<td>sles</td>
<td>sle</td>
<td>sleh</td>
</tr>
<tr>
<td>sg.</td>
<td>sle</td>
<td>sle</td>
<td>sleh</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>1sg.</th>
<th>2sg.</th>
<th>3sg.</th>
<th>pl.</th>
<th>sg.</th>
</tr>
</thead>
<tbody>
<tr>
<td>sliwea</td>
<td>*iwea</td>
<td>įwe</td>
<td>įwe</td>
<td>įwe</td>
<td>ėwaeh</td>
</tr>
</tbody>
</table>
The /æ/ of the imp. sg. results from smoothing of |a| after other |æ|'s have become |é| by second fronting. The imp. sg. forms would derive from |slá|x#e|, |θwá|x#e| to give /sláx/ sleh, /θwáx/-quæh.

The subj. sg. shows contraction of |æ| + |e| = /é/. Thus |e| raises to |e| in contracting with a higher following vowel:

\[
\text{VC-3: } |\text{æ} \# \text{e}| \text{ Contraction}
\]

\[
\text{SD: } \begin{bmatrix} V \\ +stress \\ -back \\ +low \\ +long \end{bmatrix}, \#, \begin{bmatrix} V \\ -stress \\ +stress \\ -high \\ -back \\ -low \\ +long \end{bmatrix}
\]

\[
\text{SC: } 1 \rightarrow 2 \rightarrow 3 \rightarrow \begin{bmatrix} 1 \\ -low \end{bmatrix}, \begin{bmatrix} 2 \\ \emptyset \end{bmatrix}, \begin{bmatrix} 3 \\ \emptyset \end{bmatrix}
\]

(|æ| + |e| = /é/.)

The derivation of -sle would begin with |slá|x#e|. When |x| deletion occurs, there would be |slá|x#e| > |slá|x#e|, and vowel contraction would give /slé:/ -sle.

The ind. 2sg. and 3sg. forms have /é/. Here |æ| raises to |e| by the Front Vowel Raising Rule SV-13 so that the contraction is between |e| and |i|, which gives /é/. The derivation is as follows:

Rules

S-2: Stress
V-2: Low Vowel Rounding
SV-18: Low Vowel Fronting
SV-13: Front Vowel Raising
The remaining forms show contraction of \[ \mathrm{\textit{ea}} \] with a back vowel. There are the ind. 1sg. \text{\textit{sle}}a (< \[ \mathrm{\textit{ea}} \] + \[ \mathrm{\textit{u}} \]) and ind. pl. -\text{\textit{sle}}a\# (< \[ \mathrm{\textit{ea}} \] + \[ \mathrm{\textit{a}} \]). The result of both of these contractions is spelled \textit{ea}. What does this represent phonetically? The first segment would be /\mathord{\mathrm{\textit{e}}}:/, just like in the \textit{ea} spellings of Class V verbs and in the Class I inf. -\text{\textit{wre}}\#\text{\textit{an}}. The second segment can also be taken to be the same as in the earlier interpretation of \textit{ea}, \textit{ia} spellings--namely, /\mathord{\mathrm{\textit{a}}}/. When \[ \mathrm{\textit{e}}\# \] contracts with a back vowel, it raises to \[ \mathrm{\textit{e}}\# \] (much like \[ \mathrm{\textit{e}}\# \] raises to \[ \mathrm{\textit{i}}\# \]), and the back vowel becomes low, \[ \mathrm{\textit{a}}\# \]. The rule for these changes can be formalized in the following way:
VC-4: |æ| + Back Vowel Contraction

SD: \[
\begin{bmatrix}
V \\
+\text{stress} \\
-\text{back} \\
+\text{low} \\
+\text{long} \\
\end{bmatrix}
\] , \# , \[
\begin{bmatrix}
V \\
-\text{stress} \\
\end{bmatrix}
\]

SC: 1 2 3 \rightarrow \[
\begin{bmatrix}
1 \\
\text{low} \\
\end{bmatrix}
\begin{bmatrix}
2 \\
\emptyset \\
\end{bmatrix}
\begin{bmatrix}
3 \\
\text{low} \\
\text{round} \\
\text{long} \\
\end{bmatrix}
\]

(\|æ| + \text{Back Vowel} = \|\hat{e}a|.)

(\|æ| + \text{Back Vowel} = \|\hat{e}a|.)

The derivations of the ind. 1sg. and pl. are:

Rules

S-2: Stress
V-2: Low Vowel Rounding
SV-18: Low Vowel Fronting
SV-11: Backness Harmony
SV-19: Smoothing
C-4: Intervocalic |x| Deletion
VC-4: |æ| + Back Vowel Contraction

Form:

<table>
<thead>
<tr>
<th></th>
<th>Ind.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1sg.</td>
<td>pl.</td>
</tr>
<tr>
<td>slea</td>
<td>slea®</td>
<td></td>
</tr>
</tbody>
</table>

Underlying:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>slea</td>
<td>slea®</td>
</tr>
</tbody>
</table>

Rules:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>S-2</td>
<td>slea®</td>
</tr>
<tr>
<td>V-2</td>
<td>slea®</td>
</tr>
<tr>
<td>SV-18</td>
<td>slea®</td>
</tr>
<tr>
<td>SV-11</td>
<td>slea®</td>
</tr>
<tr>
<td>SV-19</td>
<td>slea®</td>
</tr>
<tr>
<td>C-4</td>
<td>slea®</td>
</tr>
<tr>
<td>VC-4</td>
<td>slea®</td>
</tr>
</tbody>
</table>

Phonetic:

/Čle:a/ /Čle:a®/

Orthographic:

slea slea®
The only Class VII contract verb with present tense forms in VP is -fōn, "to take." The underlying form of the stem can be considered to be |fōx-|. The finite forms that occur are:

<table>
<thead>
<tr>
<th></th>
<th>Ind.</th>
<th>Subj.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1sg.</td>
<td>onfo</td>
<td></td>
</tr>
<tr>
<td>2sg.</td>
<td>onfoest</td>
<td></td>
</tr>
<tr>
<td>3sg.</td>
<td>onfoes (5x)</td>
<td>onfoen (3x)</td>
</tr>
<tr>
<td>pl.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>sg.</td>
<td>onfoon</td>
<td></td>
</tr>
<tr>
<td>pl.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>onfoen (3x)</td>
</tr>
</tbody>
</table>

The nonfinite forms are:

<table>
<thead>
<tr>
<th>Pres. pple.</th>
<th>Inf.</th>
</tr>
</thead>
<tbody>
<tr>
<td>onfonde</td>
<td>onfon</td>
</tr>
</tbody>
</table>

The ind. 3sg. foeht /fō:xt/ is irregular for VP because it shows syncope (instead of lxl deletion) and fronting of a long vowel by -|i| (Cf. blōwe|, not **blōwe|). The ind. 1sg. fou is unusual since it has uncontracted |o| + |u| = ou.

The imp. sg. derives from |fōx#e| in a straightforward manner.

The other forms have o when contraction is with a back vowel and oe when it occurs with a front vowel. The first of these changes suggests that a back vowel is simply deleted when it contracts with |o|:
VC-5: |o| + Back Vowel Contraction

\[
\begin{bmatrix}
V \\
-\text{stress} \\
+\text{back}
\end{bmatrix} \rightarrow \emptyset / \begin{bmatrix}
V \\
+\text{stress} \\
-\text{high} \\
+\text{back} \\
-\text{low} \\
+\text{round} \\
+\text{long}
\end{bmatrix}
\]

(A back vowel following |o| is deleted.)

This contraction rule will account for the vowel of the ind. 1sg., ind. pl., imp. pl., pres. ppl., and inf.

The oe spelling for the contraction of |o| + a front vowel could be either the front round /œ:/ or /o:/ + a centering off-glide. Since we have interpreted the contraction of a nonlow front vowel with a nonlow back vowel as resulting in a front vowel with a centering glide, it seems best to consider the contraction of |o| with a nonlow front vowel as producing a corresponding change, that is /o:/ + centering glide. This centering glide could be front /oː/ or back /oː/ since it would be spelled e in either case, but we will take it to be front because the underlying vowel that it derives from is front. The rules for contraction of |o| with a nonlow front vowel are written as follows:

VC-6: |o| + Front Vowel Contraction
Rule UV-13 can be combined with the earlier glide conversion rule (UV-11) to express the generalization that mid vowels become glides immediately following a stressed vowel:

UV-14: Glide Conversion

\[
\begin{bmatrix}
\text{-cons} \\
\text{-stress} \\
\text{-high} \\
\text{-back} \\
\text{-low} \\
\text{-long}
\end{bmatrix}
\rightarrow
[\text{-voc}] / \begin{bmatrix}
\text{V} \\
\text{+stress}
\end{bmatrix}
\]

(\text{|e|, |æ|, |o| become glides after a stressed vowel.})

Typical derivations for the forms of -fôn illustrate vowel contraction with \text{|ô|}:
With the conclusion of the strong contract verbs it is helpful to bring together the various vowel contraction rules written so far and to draw some conclusions from them. First of all, when a long nonlow stressed vowel that is the same in backness and roundness ([aback]) contracts with a following vowel that is the same in backness, the second vowel is simply deleted:

**VC-7: First Vowel Contraction Rule**

\[
\begin{array}{c}
V \\
\text{+stress}
\end{array} \rightarrow \emptyset /
\begin{array}{c}
V \\
\text{-stress}
\end{array}
\]

\[
\begin{array}{c}
\text{aback} \\
\text{low}
\end{array}
\]

\[
\begin{array}{c}
\text{around} \\
\text{+long}
\end{array}
\]
Examples to illustrate this rule are

| i | + | i | = | i | -offerwri /-wri:/ (< -wran)
| e | + | e | = | e | -flen /flé:n/ (< *fían)
| e | + | i | = | e | -sle /slé:/ (< *slían)
| o | + | u | = | o | -onfo /-fó:/ (< -fun)
| o | + | a | = | o | -onfo /-fó:/ (< -fun)

Secondly a long nonlow stressed vowel the same in backness and roundness ([a-back]) can contract with a vowel the opposite in backness ([a-back]). If the first vowel is front, it raises. If the second vowel is high, it becomes nonhigh (|u| > |o|, |i| > |e|). It always becomes short. This rule is

VC-8: Second Vowel Contraction Rule

SD:

\[
\begin{bmatrix}
V \\
+\text{stress} \\
\alpha\text{high} \\
\alpha\text{back} \\
-\text{low} \\
\alpha\text{round} \\
+\text{long}
\end{bmatrix}, \quad \# \quad \begin{bmatrix}
V \\
-\text{stress} \\
-\alpha\text{back}
\end{bmatrix}
\]

1 2 3

SC: 1 2 3 \rightarrow \begin{bmatrix}
\gamma\text{high} \\
\phi \\
-\text{high} \\
\end{bmatrix}

Condition: If \( \alpha = + \), then \( \beta = \gamma \); if \( \alpha = - \), then \( \beta = - \) and \( \gamma = + \).

Typical examples that are derived according to this rule are given below:

| e | + | u | = | io | gesio (< -sian)
| e | + | a | = | ia | gesia (< -sian)
| o | + | i | = | oe | onfo (< -fо)
| o | + | e | = | oe | forefoe (< -fоn)
Many of the vowels that result from Rule VC-8 are further subject to reduction and glide conversion. Sometimes |a| is reduced to |o| (Rule UV-12) as in gesio§. Every mid vowel after a long stressed vowel becomes an off-glide by Rule UV-14 so that phonetically forms like gesio§, gesio, gesie, onfo§ are /-si:0θ/, /-si:0/, /-si:3/, /-fo:0θ/, or, if there is no distinguishing roundness or backness in these off-glides, /-si:3θ/, /-si:3/, /-fo:3θ/.

The third main type of vowel contraction involves the low vowel |æ|. There are only two types of contraction with |æ| discussed so far. One is with the front vowel |i|, which gives /e:/ (as in sie /sie:/ < *slein). The generalization for this contraction would probably be that when |æ| combines with a nonlow front vowel, it rises to |e|:

VC-9: Low Vowel + Front Vowel Contraction

\[
\begin{align*}
&\text{SD:} \quad \begin{bmatrix} V \\ +\text{stress} \\ -\text{back} \\ +\text{low} \\ +\text{long} \end{bmatrix}, \\
&\quad \begin{bmatrix} V \\ -\text{stress} \\ -\text{back} \\ -\text{low} \end{bmatrix} \\
&\quad 1 \quad 2 \quad 3 \\
&\text{SC:} \quad 1 \quad 2 \quad 3 \quad \begin{bmatrix} 1 \quad 2 \quad 3 \end{bmatrix} \\
&\left( |\ddot{æ}| \right) \quad \text{SC:} \quad 1 \quad 2 \quad 3 \quad \begin{bmatrix} 1 \quad 2 \quad 3 \end{bmatrix} \\
&\left( |\ddot{æ}| + \left\{ |i| \right\} = |\ddot{e}|. \right)
\end{align*}
\]

When |æ| contracts with a back vowel (|u| or |a|),
short, and unround. These changes have already been expressed in a general form in Rule VC-4 so that no new rule needs to be written.

Among the weak verbs of Class I only one contract verb appears in VP, *hēsan, "to raise up." It has two present tense forms, ind. 2sg. uphest /-hé:st/ and ind. 3sg. gehe£ /-hé:θ/. This verb is related to the adj. hēh, "high," so that the underlying representation of the stem would be |xēx+j-|. The Intervocalic |x| Deletion Rule C-4, which applies before the various |j| rules, should delete the second |x| in the context before |+j|; it must be changed as follows:

C-6: |x| Deletion (replaces C-4)

SD: \[V\text{[+stress]}\times[-\text{seg}][-\text{cons}]\]

1 2 3 4

SC: 1 2 3 4 → [1(+long)] [2] 3 4

(|x| is deleted following a stressed vowel and before a boundary and a nonconsonantal segment.)

After this rule applies, there is the sequence |ē+j#i| in these forms. Now on the basis of the contraction of |ē| + |a| in the ppl. and ger. in Class V strong verbs, we have argued that vowel contraction precedes any of the |j| rules, like |j| Fronting, |j| Deletion, etc. Therefore there is no vowel contraction
of $|\hat{e}+j#/|$ at this point in the derivation. Later $|j|$ is deleted by the $|j|$ Deletion Rule J-10, leaving the sequence $|\hat{e}##|$. The $|i|$ Deletion Rule WII-2 deletes $|i|$ after $|a|$ for Class II weak verbs. We can generalize this rule so that it deletes $|i|$ after any long vowel.

$\text{UV-15: } |i|$ Deletion (replaces WII-2)  

\[
i \rightarrow \emptyset / \left[ V \begin{array}{c} +\text{long} \\ \text{-seg} \end{array} \right] \]

The derivations for the forms of $*\text{hean}$ are as follows:

<table>
<thead>
<tr>
<th>Rules</th>
<th>2sg.</th>
<th>3sg.</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-1:</td>
<td>$</td>
<td>\text{is(t)}</td>
</tr>
<tr>
<td>S-2:</td>
<td>Stress</td>
<td>x$\tilde{e}$x+j$#is$</td>
</tr>
<tr>
<td>C-6:</td>
<td>$</td>
<td>x</td>
</tr>
<tr>
<td>J-10:</td>
<td>$</td>
<td>j</td>
</tr>
<tr>
<td>UV-15:</td>
<td>$</td>
<td>i</td>
</tr>
</tbody>
</table>

| Phonetic: | /h$\hat{e}$:st/ | /h$\hat{e}$:0/ |
| Orthographic: | -hest | -he$\emptyset$ |

The last type of contract verb is the kind that Kuhn (1965) classifies as weak Class III. This group includes $*\text{frigan}$, "to hate," $*\text{gefrigan}$, "to set free,"
deliver, "*smēgan, "to meditate, examine," and *fērēgan, "to accuse, blame." The present tense forms which occur are:

<table>
<thead>
<tr>
<th>Ind.</th>
<th>2sg.</th>
<th>3sg.</th>
<th>pl.</th>
<th>Subj. sg.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1sg.</td>
<td>gefrigu</td>
<td>gefreas</td>
<td>gefreaf</td>
<td>gefrewg</td>
</tr>
<tr>
<td>2sg.</td>
<td>gefreas</td>
<td>gefreaf</td>
<td>gefrewg</td>
<td>gefrewg</td>
</tr>
<tr>
<td>3sg.</td>
<td>gefreaf</td>
<td>gefrewg</td>
<td>gefrewg</td>
<td>gefrewg</td>
</tr>
<tr>
<td>pl.</td>
<td>gefrewg</td>
<td>gefrewg</td>
<td>gefrewg</td>
<td>gefrewg</td>
</tr>
</tbody>
</table>

The endings are much the same as the other Class III weak verbs, paralleling the Class I endings except in the ind. 2sg. and 3sg., where the Class II endings appear. The Class II ending -a occurs also in the imp.

There are two kinds of stem changes in these forms. First is the presence or absence of g /j/, which follows the same pattern as Class I weak verbs that have short stems ending in -r (*hērēgan) or stems with a long vowel and no consonants (*cēgan). Second is the variation between e and i in the stressed vowel of *gefrīgan, but not in *smēgan and *fērēgan.
sg. (For the other Class III verbs the only imp. sg.
form is sege, which is a Class I type.) These endings
indicate that the underlying structure of these verbs
involves an interchange between the Class I pattern
(Base+j#Tense) and the Class II (Base+Ā+j#Tense).
The readjustment rule written earlier for this alter­
ation (Rule WIII-1) did not include the imp. sg.
Therefore it must be revised to apply to this form.
Again this rule must be marked optional for *secgan.

WIII-6: WIII Rule (optional for *secgan)
(replaces WIII-7)

\[ \emptyset \rightarrow + Ā / \left[ \begin{array}{c}
+ \text{Verb} \\
- \text{Strong} \\
3 \text{Class} \\
\end{array} \right] + j# \left[ \begin{array}{c}
V \\
- \text{back} \\
- \text{long} \\
\end{array} \right] \]

(Insert [+Ā] after a Class III weak verb when the end­
ing is a short front vowel.)
This rule together with the various |j| rules will
account for the presence or absence of g /j/ in these
forms.

The next problem is the stressed vowels in these
verbs. It has been noted that *smēgan and *frēgan
have e in all forms. We will take the underlying forms
of these verbs to be smAx+j- and 0rAx+j-). In the
forms that have /j/ remaining phonetically, the /e:/
results from fronting to |æ| (Low Vowel Fronting SV-18),
raising to |ē| (Front Vowel Raising SV-13), and lengthen­
ing when |x| drops out. In the forms that lack /j/
there is contraction between |ə| and |a|, which according to Vowel Contraction Rule VC-4 would result in /é:a/. The following derivations illustrate typical forms of *smēgan and *grēgan:

**Rules**

<table>
<thead>
<tr>
<th>III-6:</th>
<th>Weak III Rule</th>
</tr>
</thead>
<tbody>
<tr>
<td>J-8:</td>
<td></td>
</tr>
<tr>
<td>S-2:</td>
<td>Stress</td>
</tr>
<tr>
<td>V-2:</td>
<td>Low Vowel Rounding</td>
</tr>
<tr>
<td>SV-18:</td>
<td>Low Vowel Fronting</td>
</tr>
<tr>
<td>SV-11:</td>
<td>Backness Harmony</td>
</tr>
<tr>
<td>SV-13:</td>
<td>Front Vowel Raising</td>
</tr>
<tr>
<td>SV-23:</td>
<td>Breaking Before</td>
</tr>
<tr>
<td>SV-19:</td>
<td>Smoothing</td>
</tr>
<tr>
<td>UV-7:</td>
<td>Final</td>
</tr>
<tr>
<td>C-6:</td>
<td></td>
</tr>
<tr>
<td>VC-4:</td>
<td></td>
</tr>
</tbody>
</table>

Rules, etc.

<table>
<thead>
<tr>
<th>Form:</th>
<th>Ind.</th>
<th>Subj.</th>
<th>Imp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1sg.</td>
<td>smegu</td>
<td>smegu</td>
<td>smegu</td>
</tr>
<tr>
<td>3sg.</td>
<td>smegu</td>
<td>smegu</td>
<td>smegu</td>
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<tr>
<td></td>
<td>smegu</td>
<td>smegu</td>
<td>smegu</td>
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<td>smegu</td>
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<td></td>
<td>smegu</td>
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<tr>
<td></td>
<td>smegu</td>
<td>smegu</td>
<td>smegu</td>
</tr>
</tbody>
</table>

Orthographic: smešu /sme:ju/ smege /smé:je/ grea /gré:a/
The verb *gefrīgan shows alternation between e and i for the stressed vowel. The forms with g /j/ have i; those without g /j/ most frequently have e usually followed by a (27x, by o, 1x) but ia appears twice. The ea spelling will be considered to be the regular form. Because the stressed vowel in forms with /j/ is i, not e, this ea cannot result from the contraction of |ē| + |ā|, as in *smēgan. If the contraction is between |ē| + |ā|, then the result should be ia by Rule VC-8 (Cf. -sīgan). Therefore the contraction in this verb must be due to |ī| + |ā|, just as in the inf. of the Class I strong -wreān. The underlying form of this verb must be |frī+j-|. We must modify Rule VC-8 so that it lowers |ī| to |ē| before a back vowel as well as raises |ē| to |ī|. Rule VC-8 becomes Rule VC-10:

VC-10: Second Vowel Contraction Rule

SD:  
\[
\begin{bmatrix}
V  \\
\text{+stress} \\
\text{βhigh} \\
\text{αback} \\
\text{-low} \\
\text{αround} \\
\text{+long}
\end{bmatrix}
\begin{bmatrix}
\text{[-seg]} \\
\text{\text{-stress}} \\
\text{\text{-αback}}
\end{bmatrix}
\]

SC: 1 2 3 → [1] \begin{bmatrix}
\text{γhigh} \\
\text{∅} \\
\text{-high} \\
\text{-long}
\end{bmatrix}

Condition: If α = +, then β = γ; if α = -, then β = -γ.

(In contraction, nonlow back vowels remain the same)
height. Nonlow front vowels switch the value for [high].)

Typical derivations for the forms of *gefrīgan are

### Rules

<table>
<thead>
<tr>
<th>Rule</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>WIII-6</td>
<td>Weak III Rule</td>
</tr>
<tr>
<td>J-8</td>
<td>[j] Exception (to Second [j]) Vocalization</td>
</tr>
<tr>
<td>S-2</td>
<td>Stress</td>
</tr>
<tr>
<td>UV-7</td>
<td>Final [e] Deletion</td>
</tr>
<tr>
<td>VC-10</td>
<td>Second Vowel Contraction Rule [j] Rules, etc.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Form:</th>
<th>Ind.</th>
<th>1sg.</th>
<th>3sg.</th>
<th>sg.</th>
<th>Imp.</th>
<th>pl.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>-frigu</td>
<td>-frea</td>
<td>-frea</td>
<td>-friga</td>
<td></td>
</tr>
<tr>
<td>Underlying:</td>
<td></td>
<td>frī+j#ū</td>
<td>frī+j#iθ</td>
<td>frī+j#e</td>
<td>frī+j#Aθ</td>
<td></td>
</tr>
<tr>
<td>Rules:</td>
<td></td>
<td>frī+A+j#iθ</td>
<td>frī+A+j#e</td>
<td>frī+A+j#e</td>
<td>frī+j#Aθ</td>
<td></td>
</tr>
<tr>
<td>WIII-6</td>
<td>[-Rule J-6]</td>
<td>frī+j#iθ</td>
<td>frī+j#e</td>
<td>frī+j#e</td>
<td>frī+j#Aθ</td>
<td></td>
</tr>
<tr>
<td>J-8</td>
<td>[-Rule J-6]</td>
<td>frī+ā+j#iθ</td>
<td>frī+ā+j#e</td>
<td>frī+ā+j#e</td>
<td>frī+j#iθ</td>
<td></td>
</tr>
<tr>
<td>S-2</td>
<td>[-Rule J-6]</td>
<td>frī+ā+j#iθ</td>
<td>frī+ā+j#e</td>
<td>frī+ā+j#e</td>
<td>frī+j#iθ</td>
<td></td>
</tr>
<tr>
<td>UV-7</td>
<td></td>
<td>frī+ā+j#</td>
<td>frī+ā+j##</td>
<td>frī+ā+j##</td>
<td>frī+ā+j##</td>
<td></td>
</tr>
<tr>
<td>VC-10</td>
<td></td>
<td>frēa+j# iθ</td>
<td>frēa+j##</td>
<td>frēa+j##</td>
<td>frēa+j##</td>
<td></td>
</tr>
<tr>
<td>[j] Rules, etc.</td>
<td></td>
<td>frēa+j#</td>
<td>frēa+j##</td>
<td>frēa+j##</td>
<td>frēa+j##</td>
<td></td>
</tr>
</tbody>
</table>

| Orthographic: |      | -frigu | -frea | -frea | -friga |

The ind. 3sg. form gefreo$^\$ shows reduction of [a] to [ə] (Rule UV-12) and ind. 3sg. gefria$^\$ and imp. sg. gefria simply show spelling variation.

The underlying form of *fīgan can be taken to be similar to that of *gefrīgan, [fī+j-]. The ind. pl. figa$^\$ and ppl. figend- would derive from [fī+j-] in the same manner as the forms of *gefrīgan with g /j/.
The ia spellings for ind. pl. fia© and imp. pl. fia© could be due to the close phonetic similarity between /fi:jaθ/ and /fi:αθ/. The ind. 3sg. form should be *fea© if the forms of this verb parallel those of *gefrigan. The only occurrence of this form is fia©, and at this point it can be considered simply as a spelling variant of *fea©, just like gefria© (1x) for gefrea© (7x).33

To sum up the main rules for contract verbs, we have first Rule C-6 that deletes |x|. Next are the two main vowel contraction rules for nonlow vowels. The first (VC-7) is for vowels that are the same in backness. It simply deletes the second vowel. The second rule (VC-10) applies to a sequence of two vowels the opposite in backness. For stressed unround front vowels there is an interchange of |i| and |e|. Stressed round back vowels remain the same height. If the second vowel is high, it becomes mid—|i| > |e|, |u| > |o|. Unstressed low vowels are unchanged. A later optional rule (UV-12) can reduce |a| to the mid vowel |o|, which in turn can be optionally unrounded to |æ| (Rule UV-10). The mid vowels |e|, |æ|, |o| are converted to glides when they follow immediately a stressed vowel (Rule UV-14). The two rules VC-9 and VC-4 give the contraction of the low vowel |æ| with a nonlow front vowel
and with a back vowel. In each case $|\dot{e}|$ raises to $|\acute{e}|$.

When the second vowel is a back vowel, this vowel always becomes $|a|$. 
NOTES

CHAPTER III

1 These changes, which usually involve allophones of taxonomic phonemes, are discussed in all of the standard OE grammars, although there is some disagreement about their details. For complete discussions see Moulton (1954), Campbell (1959), and Wright and Wright (1925).

2 We leave open the question of whether \( sk \) had become \( /f/ \), and whether \( cc, gg \) had become \( /t/, /d_3/ \) by the time of VP. (Cf. Campbell 1959:177, 197)

3 This system is based primarily on Hockett (1959), except for the low back vowel. He uses the symbol \( a \) for this sound and lists it in his chart as back and round, although he says that it may not have been round "in the physiological sense" (p. 576). For the stressed mid back unround vowel he uses \( A \), rather than \( a \).

4 Justification for including \( /o/ > /u/ \) is seen in the pt. ppls. of Class IV strong verbs such as for-numen (< -nioman) vs. siðborenum (< *beorán).

5 Alternatively this rule could assign the feature \([+\text{long}]\) to the consonant. However, for verbs with underlying double consonants it seems best just to write these double in the lexical representations. Then there can be a late rule that marks two identical consonants equivalent to a single long consonant: (See pp. 104-105.)

\[
C_a C_a \rightarrow [C_a [+\text{long}]].
\]

This procedure permits us to simplify the definition of a strong cluster—\( S = [V [-\text{long}]] C_2 \), rather than

\[
S = [V [-\text{long}]] (C_2 [+\text{long}]).
\]

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To apply to this form, this rule must be changed so that the # is optional (enclosed in ()). Later this rule is replaced by a general vowel reduction rule. See p. 102.

A more precise formulation of this rule in terms of structural description and structural change is:

SD: [+cons] , [+cons] , # , #

SC: 1 2 3 4 → [1] 2 3 4

Condition: 1 = 2

The -fu is a suffix like the one Wright and Wright list in a word like lengð(o), "length." (1925:318).

Another verb which Kuhn (1965) lists with g after a long vowel is *inlægan, "to kindle, inflame," but the only form in VP is inlegagede (pt. 3sg.), which is either Class II or Class I depending on what the scribe intended to write. If it is Class I with a long vowel, the pt. 3sg. should be *inlegde, not **inlegede.

Mertens-Fonck (1960) even lists this verb in her glossary with -rg (smirgan) since not any of the forms that actually appear in VP have -rw. Campbell (1959: 59), however, gives smirwan.

Further justification for all of these rule changes involving syllables with unstressed vowels is seen in the discussion of the pres. ppl., inf., and ger. forms. See pp. 128ff.

No pres. tense forms of *sceppan actually occur in the ms. The only pres. form of *hlæhan in VP is an ind. pl., and it appears with only one h (hlæhan).

A similar kind of alternation between -cg- (=|gg|) /g:/ and -g- /j/ would be expected in a verb like *licgan, but the relevant forms do not occur in VP. For *licgan only forms with gemination appear (pres. ind. pl. and pres. ppl.). However, the Class III weak verb *seagan, "to say," does show variation between -cg- and -g-, and so gemination of |g| will be included in the discussion at this point.
Old English had no underlying voiced dental continuant $\tilde{\xi}$ because all $\tilde{\xi}$'s had become stops $[d]$ (Campbell 1959:168).

Ultimately, the second part of this compound would probably have the same underlying base as the Class VI strong verb *swergan, "to swear," $[\text{swAr}+j]$. These Class II weak verbs require a change in the Backness Harmony Rule SV-11 so that it applies across the $+$ boundary as well as across the $#$ boundary:

**SV-11: Backness Harmony**

$$\begin{align*}
V \\
\text{[+stress]} \quad \rightarrow \quad \alpha \text{back} \\
\text{[-long]} \quad \rightarrow \quad \alpha \text{back}
\end{align*}$$

Historically some eo's represent io's, as in *eorsian, derived from eorre, "anger," < *io rre. Such eo's for io's either mean that there should be a late rule to change /i/ to /a/ or simply indicate spelling variation of eo for io.

The Class I verb *gereordan would be subject to a readjustment rule that deletes $[+j]$.

The second u would be a "parasite vowel" (Cf. gen. sg. hungres, d.s. hungre) which is added by a rule that inserts a vowel between a consonant and a sonorant consonant in final position:

$$\begin{align*}
\emptyset \\
\rightarrow \left[ V \\
\text{[+high]} \quad \rightarrow \quad \alpha \text{back} \\
\text{[+stress]} \quad \rightarrow \quad \alpha \text{back} \\
\text{[+sonorant]} \quad \rightarrow \quad \alpha \text{round}
\right]
\end{align*}$$

(Cf. Chomsky and Halle 1968:85-86.) This would add /u/ after back vowels (e.g., hungur) and /i/ (later lowered to /e/) by the reduction rule UV-8) after front vowels (weter, "water").

If the palatalizing of $[k, g, g]$ has already occurred, the environment of this rule would be $[\text{-voc}, \text{+cons}]$. Class IV and V strong verbs seem to be exempt from this rule, for there are forms like breocu (< *breocan) and spreocan, spreocu, spreoco, spreocende.

That this is $[x\tilde{\xi}]$ and not "x + consonant" is evident from slæh /slæx/, imp. sg. of *slæan, which also has /æ/ by smoothing.
The imp. pl. hogia$ also occurs, but Kuhn (1965) lists it under the Class II verb *hogian, "to think."

This rule could be given as a change in syntactic features:

\[ \begin{align*} 
&[+\text{Verb}] \\
&[3\text{Class}] \\
&[\text{-Strong}] \\
\rightarrow \left\{ \begin{array}{c} 
[2\text{Class}] / [1\text{Mood}] \\
[\text{-Pl}] / [\alpha \text{Pers}] \\
\text{Pres} \end{array} \right\}, \text{ where } \alpha = 2, 3.
\end{align*} \]

Campbell (1959:63) explains the lack of Second Fronting in *habban this way. The pt. tense does have /e/ < |A|, however.

In the discussion of the pt. tense (see pp. 203f.) it will be shown that the underlying form of this verb is actually |lif+j-|, not |lef+j-|.

In its present shape this rule does not actually apply to this form nor to the ind. 2sg. and 3sg. of *habban since there is no stressed vowel in these forms. Either the rule could be modified so that it would apply when the vowel of the stem is not stressed (it still should not operate after an unstressed vowel following a [-FB] boundary), or these two verbs could simply be marked [+Rule J-10] by a readjustment rule.

See preceding note.

Historically it is the dative of an old -ja declension (Campbell 1959:299).

This rule could be generalized into another unstressed vowel deletion rule similar to Rule UV-6. If it applies at the same time as Rule UV-6 (when the $< 1\text{a}^*+j|$ |l$|$ is still long), it could be merged with Rule UV-6:

\[ \begin{align*} 
&\left[ V \right] \\
&[\text{-stress}] \\
&[\text{+long}] \\
\rightarrow \emptyset / S+_{\text{C}_0 \text{V}_1 \text{C}_0 \text{V}} (\text{optional}) \end{align*} \]

Combined with Rule UV-6:

\[ \begin{align*} 
&\left[ V \right] \\
&[\text{-stress}] \\
&[<\text{+long}>] \\
\rightarrow \emptyset / S+_{\text{C}_0 \text{V}_1 \text{C}_0 \text{V}} \langle \text{C}_0 \text{V} \rangle \end{align*} \]

Optional for $<\text{+long}>$; obligatory otherwise.
The interpretation given here is that the scribe does spell allophonic differences in the pronunciation of taxonomic phonemes. When the scribe spells a word with *io or *eo, then this is phonetically /ʌ/ or /ʌ/, respectively. Even though the two sounds /ɪ/ and /ʌ/ have fallen together into a single point in the system and are classified as a single (taxonomic) phoneme, they still exist phonetically; and a difference in spelling indicates a difference in sound. This view directly opposes Hockett's assumption about spelling variation: "I reject the notion that a difference in spelling can correlate with a merely ALLOPHONIC [his emphasis] difference in pronunciation." (1959:579)

Luick says that both here and in the pl. forms there has been a change in the stressed vowel from e to i so that *seuhu, *seuhob >*siuhu, *siuhob>*sihül *sinob. Vowel contraction therefore results from i + u, i + o, which give io (sic), ia (sia, sian). (Luick 1921:225) Campbell considers io, ia to be "inverted spellings" for eo, ea (1959:103).

Later in the discussion of the past tense (feng-) it will be argued that the lexical representation is [fAnx-], which becomes [fōx-] by vowel rounding and raising before the nasal, and by vowel lengthening by loss of the nasal before [x].

Our rules will generate three different centering off-glides: /e/ [−back, −round], /ə/ [−back, −round], and /o/ [+back, +round]. The first two are spelled e; the third o. It is possible, of course, that there is only one centering off-glide /ə/, spelled e or o.

But later in the discussion of the past tense it will be shown that the underlying form is actually [fex+j−] so that *fia* is phonetically /fi:aθ/ and not just a spelling variant for *fex*.
CHAPTER IV

THE PHONOLOGY OF THE VERB FORMS:

PAST TENSE

In the past tense, strong verbs undergo the various vowel changes which were described in detail in Chapter II. The rules for these forms are primarily rules to change the features of the vowels. There is a readjustment rule to mark the vowel of a strong verb in the past tense with a special feature (*) to show that it is subject to later rules that convert it to a different vowel (Chomsky and Halle 1968:10-11):

SVb-2: Vowel Marking

\[
V \rightarrow^* / \overline{[+\text{Verb}] [+\text{Strong}] X\#Pt}
\]

(Mark the vowel of a strong verb in the past tense with an *.)

It should be noted that this rule will mark both vowels of Class II verbs with underlying \(\text{\v{e}u}\) so that they become \(\text{\v{e}*u*}\).

According to the convention that marks each unit of a lexical entry with all of the nonphonological features of that entry (Chomsky and Halle 1968:374),
this vowel is already marked for all of the syntactic features of a certain verb form. These syntactic features specify the verb class and the inflectional category in the manner explained in Chapter I so that a pres. ind. 3sg. form of a strong Class V verb, for example, is specified:

\[
\text{+Verb} \\
\text{+Strong} \\
\text{5Class} \\
\text{1Mood} \\
-\text{Pl} \\
\text{3Pers}
\]

A pt. subj. pl. of a Class II weak verb is:

\[
\text{+Verb} \\
-\text{Strong} \\
\text{2Class} \\
\text{2Mood} \\
+\text{Pl}
\]

One difference between the verb classification used here and the traditional verb classes is that the reduplicating verbs, which are usually grouped under Class VII (Campbell 1959:320), are put into a separate class, Class VIII.

The vowel of a strong verb does not change for every different inflectional category. Traditionally a strong verb has four principal parts. If we take the \(\acute{o}\) of the pt. ppl. in Classes II and III to be due to a later rule that lowers \(\acute{l}\), then only Class IV verbs actually show different vowels for all four principal parts. Strong verbs have the following
underlying vowel changes:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>i</td>
<td>ā</td>
<td>i</td>
</tr>
<tr>
<td>II</td>
<td>ëu</td>
<td>āu</td>
<td>u</td>
</tr>
<tr>
<td>III</td>
<td>e</td>
<td>A</td>
<td>u</td>
</tr>
<tr>
<td>IV</td>
<td>e</td>
<td>A</td>
<td>ë</td>
</tr>
<tr>
<td>V</td>
<td>e</td>
<td>A</td>
<td>ë</td>
</tr>
<tr>
<td>VI</td>
<td>A</td>
<td>ō</td>
<td>ō</td>
</tr>
<tr>
<td>VII</td>
<td>A, ā, ō</td>
<td>ëu</td>
<td>ūu</td>
</tr>
<tr>
<td>VIII</td>
<td>ā, ō</td>
<td>e</td>
<td>e</td>
</tr>
</tbody>
</table>

It is the pt. pl. stem that is used for most of the past tense forms. For all strong verbs it is found in the ind. 2sg., ind. pl., and subj. forms. In Classes I - III it is also used in the ppl. Classes VI - VIII have the same vowel in the sg. and pl.

In Classes V - VIII the vowel of the pt. ppl. is equivalent to that of the pres. stem. To express these similarities, we can write various "syncretism rules." ¹

These rules specify certain features for the vowel of a strong verb in the past tense (marked with an * by Rule SVb-2). This vowel is marked ind. pl. except in the places noted above so that the rules are stated as exceptions to a general rule that specifies V* as

\[
\begin{array}{c}
\text{SVb-3: Pt. Sg. Exception (I - V)}
\end{array}
\]

\[
V^* \longrightarrow \text{[-Rule SVb-6]} / \left\lfloor \begin{array}{c}
\alpha \text{Class} \\
- \text{Mood} \\
+ \text{Pl} \\
\beta \text{Pers}
\end{array} \right\rfloor \\
\text{where } \alpha = 1, 2, 3, 4, 5, \text{ and } \beta = 1, 3
\]
(This rule exempts the pt. 1sg. and 3sg. of Classes I - V.)

SVb-4: Pt. ppl. Exception (IV)

\[ V^* \rightarrow \text{[-Rule SVb-6]} \bigg/ \left[ \text{4Class} \right] \]

(The ppl. of Class IV verbs is an exception.)

SVb-5: Pt. ppl. Exception (Classes V - VIII)

\[ * \rightarrow \emptyset \bigg/ \left[ \text{Class} \right] \]

(This rule deletes the special feature * for the ppl. of Classes V - VIII, thus making this vowel the same as that of the lexical entry (pres. stem).)

SVb-6: Syncretism Rule

\[ V^* \rightarrow \left[ 1\text{Mood} +\text{Pl} \right] \]

(All other vowels of strong verbs in the pt. tense are marked ind. pl.)

Now that V* has been specified with the correct features, we can write the rules for converting it to the vowels of the different stems. For the pt. sg. of Classes I - V there is the following rule:

SV*-1: Pt. Sg. (I - V)

\[ \left[ \begin{array}{l} V^* \\ \text{[-back]} \end{array} \right] \rightarrow \left[ \begin{array}{l} \text{[high]} \\ \text{+back} \\ \text{[low]} \end{array} \right] \bigg/ \left[ \text{Class} \right] \]

\[ , \text{where } \alpha = 1, 2, 3, 4, 5 \]

This rule accounts for vowel changes like the following:

| Class | |V| | | | | |
|-------| | | | | | |
| I     | |I| | | | | |
| II    | |au| | | | | |

\[ *\text{abidan} \rightarrow \text{abat} /\text{a:\b:b\d}/ \]

\[ *\text{geotan} \rightarrow \text{geat} /\text{a:j\t}/ \]
Class III | e | > | A |  *ägeldan > agald /a:ɡ ald/,  
*äspringan > asprong /a:sprəŋ/,  
*äweorpan > awarp /a:warp/

Class IV | e | > | A |  *äbeoran > aber /a:ber/

Class V | e | > | A |  ongeotan > onget /onjet/

In the Class III verbs the phonetic vowels are due to later rules, such as the /ɔ/ of asprong by rounding (V-2) and raising before nasals (SV-16), and the /a/ of awarp by breaking (SV-22). The /é/ of Classes IV and V is the result of fronting (SV-18) and second fronting (SV-5).

The next rule is for the ppl. of Class IV verbs:

V*-2: Ppl. (IV)

\[ V^* \rightarrow [+\text{back}, \text{round}] / [\text{Class} 4, \text{Mood} 4] \]

The ppl. gebrocen (< *gebreocan, with |ē|) illustrates this change.

All other vowels marked V* are specified [\text{Mood} 1] +\text{Pl}, and the following rules apply to them:

V*-3: Class I

\[ V^* \rightarrow [-\text{long}] / [\text{Class} 1] \]

\(|i| > |i|\)

V*-4: Class II

\[ V^* \rightarrow \emptyset / \text{u}^* \]

\(|ēu| > |u|\)
V*-5: Class III

\[ V^* \rightarrow \begin{cases} +\text{high} \\ +\text{back} \\ +\text{round} \end{cases} / \begin{cases} \text{3Class} \end{cases} \]

\(|e| > |u| .)

V*6: Classes IV and V

\[ V^* \rightarrow \begin{cases} +\text{long} \end{cases} / \begin{cases} \alpha \text{Class} \end{cases} , \text{where } \alpha = 4, 5 \]

\(|e| > |\ddot{e}| .)

V*-7: Class VI

\[ V^* \rightarrow \begin{cases} +\text{back} \\ -\text{low} \\ +\text{round} \end{cases} / \begin{cases} \text{6Class} \end{cases} \]

\(|\ddot{a}| > |\ddot{\ddot{e}}| .)

V*8: Class VII

a) \phi \rightarrow u \begin{cases} \text{V*} \\ \text{7Class} \end{cases} 

b) \text{V*} \rightarrow \begin{cases} -\text{back} \\ -\text{low} \\ -\text{round} \\ +\text{long} \end{cases} / \begin{cases} \text{7Class} \end{cases} 

\(|\ddot{a}| > |\ddot{e}| .)

V*9: Class VIII

\[ V^* \rightarrow \begin{cases} -\text{back} \\ -\text{low} \\ -\text{long} \end{cases} / \begin{cases} \text{8Class} \end{cases} \]

\(|\ddot{a}| > |e| .)

Typical Class I forms (by Rule V*-3) are provided by the verb *bismītan, "to defile":

<table>
<thead>
<tr>
<th></th>
<th>Ind. 2sg.</th>
<th>Ind. pl.</th>
<th>Ppl.</th>
</tr>
</thead>
<tbody>
<tr>
<td>bismite</td>
<td>bismeotun</td>
<td>bismiten</td>
<td></td>
</tr>
</tbody>
</table>
In the ind. pl., where back umlaut occurs, most of the forms that appear in VP have the spelling eo (12x, vs. io, 1x, and o, 1x.) All of the ind. 2sg. forms (15x) have i, however, so that it is best to take the underlying vowel as ̃ĩ, not ̃ẽ. The eo spellings of the pl. could be variants for io, or they could be due to a late rule that converts /i/ to /å/.

Rule V*-4 for Class II verbs simply deletes ̃ẽ, leaving ̃ũ. This ̃ũ is not subject to fronting by the Backness Harmony Rule SV-11, for the ind. 2sg. forms do not have /y/, but /u/, such as ûorhûute -gû#î (¢ *geotan, "to pour"), not **jorhgyte. In the ppl. ̃ũ is lowered to ̃õ, which is not subject to fronting either. The ppl. of *ágeotan is agoten -got#en. There must be a readjustment rule to mark ̃ũ as an exception to Rule SV-11 when it is in the past tense of a strong verb. If we write this rule to apply to any V* that is [+back], then it will also apply to the ̃õ in Class IV ppls:

V*-10: V* Exception

\[ V^* \rightarrow [-\text{Rule SV-11}] \]

The rule for lowering ̃ũ should be a general phonological rule that lowers ̃ũ to ̃õ everywhere when followed by a nonhigh vowel. It is the same rule that was written earlier for the Class III weak
verb *hycgan*, but which is modified to apply across the # boundary when the vowel of the ending is short:

SV-25: \[ \text{\u0103} \] Lowering (replaces SV-21)

\[
\begin{array}{c}
\text{V} \\
+\text{stress} \\
+\text{back} \\
-\text{long}
\end{array} \rightarrow \text{[-high]} / \text{C} \langle \# \rangle \left( \begin{array}{c}
\text{V} \\
-\text{high} \\
-\langle \text{long} \rangle
\end{array} \right)
\]

Because the \[ \text{\u0103} \] of the pt. ind. 2sg. does not lower to \[ \text{o} \], the underlying form of this ending must be \[ \text{i} \], not \[ \text{e} \]. The \[ \text{\u0103} \] of the subj. endings has no effect on the preceding \[ \text{\u0103} \] because it is \[ +\text{long} \].

For Class III verbs V* becomes \[ u \] by Rule V*-5. This \[ \text{\u0103} \] is also subject to Rule SV-25 in the ppl.

However, when a nasal cluster follows the vowel, \[ \text{o} \] becomes /\u0103/ again by raising before nasals (Rule SV-16).

Examples of Class III past tense forms are

<table>
<thead>
<tr>
<th>Ind. 2sg.</th>
<th>Ind. pl.</th>
<th>Subj. sg.</th>
<th>Ppl.</th>
</tr>
</thead>
<tbody>
<tr>
<td>awurpe</td>
<td>awurpun</td>
<td>awurpe</td>
<td>aworpen</td>
</tr>
<tr>
<td>dulfun</td>
<td>dolfen</td>
<td>druncun</td>
<td>druncen</td>
</tr>
</tbody>
</table>

Rule V*-6 applies to Classes IV and V, both of which have \[ \text{\u0103} \]. The following forms illustrate this change:

<table>
<thead>
<tr>
<th>Ind. 2sg.</th>
<th>Ind. pl.</th>
<th>Subj. sg.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class IV</td>
<td>gebrece</td>
<td>bere</td>
</tr>
<tr>
<td>Class V</td>
<td>ongete</td>
<td>ongetun</td>
</tr>
</tbody>
</table>

The Class VI verbs have \[ \text{o} \] by Rule V*-7 so that for a verb like -hebban \[ xA\text{v}+\text{j} \] there are pt. ind.
forms like 1sg., 3sg. ahoft, 2sg. ahofe, and pl. uphofun. For verbs such as -hebban that have weak presents we have already written Rule SVb-1 that deletes the +j for the pt. tense forms.

Class VII verbs require two rules, V*-8a and V*-8b, because they have a diphthong in the past tense. Rule V*-8a inserts ąl after V*, and V*-8b converts V* to ąe|, giving ąeu|. Examples of these changes are seen in forms of *flōwan, "to flow," haldan, "to keep, hold to," and *oncnāwan, "to know":

<table>
<thead>
<tr>
<th>Ind.</th>
<th>Subj.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1sg.</td>
<td>2sg.</td>
</tr>
<tr>
<td>fleowun</td>
<td>heold</td>
</tr>
<tr>
<td>oncnēow</td>
<td>oncnēowe</td>
</tr>
</tbody>
</table>

Class VIII includes the reduplicating verbs. In VP there are three such verbs: *hātan, "to call," *drēdan, "to fear," and *lētan, "to let, allow." Rule V*-9 changes the vowel in these verbs to ąel. There are also consonant changes. In *hātan |x| is inserted after the vowel; in *drēdan and lētan, |r|. The rule for the consonants can be written:

SVb-7: Consonant Insertion (VIII)

\[
\emptyset \rightarrow \begin{cases} 
\{ x \} / \begin{cases} 
\{ x + \text{voc} \} \\
\{ + \text{cons} \}
\end{cases} & \text{e*} \\
\end{cases}
\]

(|xet| > |xext|, |dred| > |drerd|, |let| > |lert|.)
The |é| in all of these forms undergoes breaking (Rules SV-22, SV-23), but in |xéxt| it also is subject to smoothing (Rule SV-19) so that the phonetic forms are, for example, ind. 3sg. geheht /-héxt/, ondreord /-drárd/, and forleort /-lárt/.

Several exceptions to these general rules must be discussed at this point. First are the Class II verbs that have |ü| in the pres. stem instead of |éu|. For the pt. stems the vowels are the same as for other Class II verbs, such as ind. 3sg. asceaf (<*scüfan, "to shove"), ind. pl. sucun (<*sücan, "to suck"), and ppl. utalocen (<*lücan, "to close, lock"). Therefore we can give these verbs the nucleus |éu| in their lexical entries. Then the rules just written for the vowels of the pt. forms will apply to them. After these rules have applied, there is the following rule:

**SVb-8:** Class II in |ü|

| SD: | [V*]  
|     | [+long]  
| 1  | 2 |
| SC: | 1 2 → [1] [2] [+long] |

(|éu| > |ü|.)

Class II verbs with |ü| will be marked [+Rule SVb-8] in their lexical entries.

Other verbs that do not follow the regular rules are the Class IV verbs *cuman and -nioman. Their pt.
tense forms have \( \ddot{o} \) in both the sg. and pl., the same as a Class VI verb. Furthermore, *cuman usually has a \( w \) in the forms with \( \ddot{o} \) (22x vs. 4x without \( w \)). This \( w \) must be part of the lexical representation, and a later rule would delete postconsonantal \( w \) before \( \ddot{u} \):

\[
C-6: \quad w \rightarrow \emptyset / [+\text{cons}] \ddot{u}
\]

This would be a phonological rule that applies before the lowering of \( \ddot{u} \) to \( \ddot{o} \) in the pt. ppl. (Rule SV-25) and before fronting of \( \ddot{u} \) to /y/ by the Backness Harmony Rule SV-11.

In the ppl. *cuman and -nioman remain Class IV and are subject to the special ppl. rule for this class (Rule V*-2), which would apply vacuously to *cuman (ppl., upcumen) since it already has a back round vowel in its lexical representation. The \( i \) of -nioman becomes \( u \), giving numene, ppl. (pl.). Therefore there must be a readjustment rule to mark *cuman and -nioman as [6Class] except in the ppl.:

\[
SVb-9: \quad \text{cuman/nioman Rule}
\]

\[
\begin{align*}
\left[ \text{V*} \right]_{\text{Mood}} & \rightarrow \text{[6Class]} / \text{[\{kw\_m\} \text{\text{, where } } n\_m} \right) \alpha \neq 4
\end{align*}
\]

This rule must precede the Pt. Sg. Exception Rule SVb-3 for Classes I - V.

One minor change must now be made in the Class VI V* Rule (V*-7), which will have to add the feature

\([-\text{high}]\).
V*-11: Class VI (replaces V*-7)

\[
V^* \rightarrow \begin{bmatrix}
-\text{high} \\
-\text{back} \\
-\text{low} \\
-\text{round} \\
+\text{long}
\end{bmatrix} / \begin{bmatrix}
6\text{Class}
\end{bmatrix}
\]

Derivations for the pt. ind. 3sg. and pt. ppl. of *cuman and -nioman are as follows:

**Rules**

**Readjustment:**
- SVb-2: Vowel Marking
- SVb-9: cuman/nioman Rule
- SVb-4: Pt. ppl. Exception (IV)
- SVb-6: Syncretism Rule
- V*-2: Ppl. (IV)
- V*-11: Class VI
- V*-10: V* Exception (to Rule SV-11)

**Phonological:**
- S-2: Stress
- C-6: |w| Deletion
- SV-25: |ú| Lowering
- SV-16: Raising Before Nasal

**Form:**

<table>
<thead>
<tr>
<th>Ind. 3sg.</th>
<th>Ppl.</th>
</tr>
</thead>
<tbody>
<tr>
<td>cwom</td>
<td>nom</td>
</tr>
</tbody>
</table>

**Underlying:**

<table>
<thead>
<tr>
<th>Rule</th>
<th>Underlying</th>
<th>Derived</th>
</tr>
</thead>
<tbody>
<tr>
<td>SVb-2</td>
<td>kwum[4\text{Class}]#</td>
<td>kwu*m[4\text{Class}]#en</td>
</tr>
<tr>
<td>SVb-9</td>
<td>ni*m[4\text{Class}]#</td>
<td>ni*m[4\text{Class}]#en</td>
</tr>
<tr>
<td>SVb-4</td>
<td>kw[1\text{Mood}\text{+Pl}]m</td>
<td>-- [-Rule SVb-6]----</td>
</tr>
<tr>
<td>SVb-6</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>V*-2</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>V*-11</td>
<td>kwō*m</td>
<td>nō*m</td>
</tr>
<tr>
<td>V*-10</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>S-2</td>
<td>kwōm</td>
<td>nōm</td>
</tr>
<tr>
<td>C-6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SV-25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SV-16</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Another special class of verbs with respect to the vowel changes for the pt. tense are the Class VII verbs with e instead of eo in the past. There are two such verbs in VP, -fön, "to take," and *hōn, "to hang" (e.g. ind. 3sg. onfeng, ind. pl. hengun). Either we could mark them [7Class] and then not add |u| by Rule V*-8a before | -ng|, or we could specify them [8Class] and then mark the |e| (by Rule V*-9) [+long] before | -ng|. There is no real evidence to support choosing one of these over the other, but since it seems best to reserve Class VIII for reduplicating verbs only, we will leave -fön and *hōn in Class VII and mark them an exception to Rule V*-8a:

V*-14: Class VII Exception

\[ \begin{array}{c}
V^* \\
7\text{Class}
\end{array} \rightarrow [-\text{Rule V*-8a}] / ___ \text{ng} \]

One final exceptional vowel change is in the Class V verb eotan, "to eat." Kuhn (1965) marks the e of the pt. sg. stem long. (Campbell agrees (1959:314), but Mertens-Fonck does not give e in the sg. (1960:105).) If the pt. sg. does indeed have e, then this verb could simply be specified as an exception to the pt. sg. exception rule, [-Rule SVb-3].

Next are the rules for the consonant changes in the past tense of certain strong verbs. These are the
changes due to Verner's Law. Typical examples are

Class I:  -drīfan--adræf (ind. 1sg.), adrifē /-drive/ (ind. 2sg.), adrifene /-drivene/ (ppl. pl.)
(The /v/ is due to grammatical change and not to voicing assimilation of |f|.)

Class II: *ceōsan--geceas (ind. 1sg.), geceure (ind. 2sg.), geceorene (ppl. pl.) (/r/ < |z|.)

Class III: *weorǭan--forwearǭ (ind. 3sg.), forwurde (subj. sg.), geworden (ppl.) (}`). /d/ to /r/.

Class V:  -siēn |sex-|--gesaeh (ind. 1sg.), gesegun (ind. pl.), gesegun (ppl.) (g = /g/)

Class VI: *slēan |slAx-|--sloe (ind. 2sg.), sleg (ind. 3sg.) slegen (ppl.) (g = /g/)

Class VII:  -fōn |fAnx-|--onfeng (ind. 3sg.), onfengun (ind. pl.), befongen (ppl.) (g = /g/)

From these examples it is evident that there is in
these forms a regular interchange between the voice-
less continuents |f, θ, s, x| and their voiced counter-
parts |v, ʂ, z, ʐ| when these are in stem final position.
Later rules convert |ʂ| to /d/ and |ʐ| to /r/.

This interchange does not, however, take place in the ind. 1sg. and 3sg. forms for Classes I - V. It
does appear in the pt. ppls. of Classes V - VII. Ex-
cept for these ppls., the grammatical change occurs in precisely those forms in which V* is marked [Mood]
by Rule SVb-6. The ppl. exception rule SVb-5 does not necessarily have to be ordered prior to Rule SVb-6.
Essentially it says that the vowels in these forms are the same as those for the pres. stems, and it does this by deleting the feature * so that none of the V* rules will apply to these forms. Consequently it could follow Rule SVb-6 so that even the vowels in the ppls. of Classes V - VIII are marked \( [1\text{Mood} + \text{Pl}] \). Then the rule for Verner's Law will apply to all forms where the V* is specified ind. pl., and it can be written simply as

\[
\text{SVb-10: Verner's Law} \quad [\text{-voc} \quad +\text{cons} \quad +\text{cont}] \rightarrow [\text{+voice}] / [\text{V*} \\
\quad 1\text{Mood} + \text{Pl}] \quad c_0 \quad \# \\
\]

(Stem final continuants become voiced after a past tense strong verb vowel marked ind. pl.)

There must be a later phonological rule to operate on the two voiced dental continuants which result from this rule. The one that is \([+\text{strident}] (|z|)\) becomes \(|r|\); \(|\delta|\) \((-\text{strident})\) becomes the stop \(|d|\):

\[
\text{C-7: Voiced Continuant Rule} \quad [\text{+cor} \quad +\text{voice} \quad +\text{cont} \quad \alpha\text{strid}] \rightarrow [\text{+voc} \quad -\text{gant} \quad \alpha\text{cont} \quad -\text{strid}] \\
\]

(When \(\alpha = +, |z| > |r|\); when \(\alpha = -, |\delta| > |d|\).)

Thus there is a /d/ in the forms using the pt. pl. stem in a verb like *weorgدن (e.g., subj. sg. forwurbede) and an /r/ in the pt. pl. stem of *ceosan (e.g., ind. 2sg. geucure).
The \(|\mathbf{g}\| < |\mathbf{x}|) from Verner's Law, like the other \(|\mathbf{g}\|, becomes a stop after a nasal so that in the pt.
of \(-\mathbf{f\ddot{o}n}\), for example, there are forms such as ind. 3sg. 
\textit{onfeng} /-\mathbf{fe\ddot{e}ng}/, but the pt. of a verb like \(*\mathbf{s\ddot{e}\ddot{a}n}\) has
\(|\mathbf{g}|, such as ind. 3sg. \textit{slog} /\mathbf{slo\ddot{o}g}/.

Phonetically \(|v|\) is identical to the \(/\mathbf{v}/\) that re-
sults from the voicing assimilation of \(|f|\), and both
are spelled \(f\). Consequently in a verb like \(-\mathbf{drif\ddot{a}n}\)
some forms have \(/f/<|f|\) (such as pt. ind. 1sg. \textit{adrif}\(\,-|f|\), others have \(/v/<|f|\) (as in inf. \textit{adrifan}
\(/-\mathbf{dri\ddot{e}van}/, and still others have \(/v/<|\mathbf{v}|\) (e.g., pt.
ind. 2sg. \textit{adrif}\(\,-|\mathbf{drive}/). The spelling \(f\) is used
for all of these.

The rules now written will generate all of the
past tense of forms of strong verbs. At this point,
however, it is necessary to write the phonological
rule that accounts for the variation between the pres.
and the pt. forms of a verb like \(-\mathbf{f\ddot{o}n}\). As we have
seen, the pt. stem is \(-\mathbf{f\ddot{e}ng}-\), with the \(\ddot{e}\) by the \(V\star\)
rules and the \(g\) by Verner's Law. The pres. stem we
earlier took to be \(|\mathbf{f\ddot{o}x}|. (See above, p. 154.) The
lexical representation of this verb should be \(|\mathbf{fAnx}|. The
\(|\ddot{A}|\) becomes \(/\ddot{o}/\) by rounding and raising before \(|n|\).
Then there must be a rule that deletes \(|n|\) before \(|x|\)
and lengthens the preceding vowel. Historically this
change occurs for every nasal followed by a voiceless
homorganic fricative, \(|mf|, |n\theta|, |ns|, \) and \(|nx|\)
(Campbell 1959:44,47), and so the rule will be written
in this general form:

C-8: Nasal Deletion

\[
\text{SD: } [V], \begin{bmatrix}
-voc \\
+cons \\
+nasal \\
\alpha \text{ant} \\
\beta \text{cor} \\
\gamma \text{back}
\end{bmatrix}, \begin{bmatrix}
-voc \\
+cons \\
-voice \\
+cont \\
\alpha \text{ant} \\
\beta \text{cor} \\
\gamma \text{back}
\end{bmatrix}
\]

\[
\]

\(1 \rightarrow [1_{\text{long}}] \rightarrow [2] \rightarrow [3]
\)

\(|V| + \text{nasal} + |x| > |v| + |x|.
\)

There is now a problem with respect to rule or­
dering. Earlier in the discussion of contract verbs
we argued that vowel contraction must precede \(|j|\)
Fronting (V-1) because of the eo spellings in the pres.
ppl. and ger. of -slan. These result from the contrac­
tion of \(|e| \text{ } + |a|\) rather than \(|e| \text{ } + |ae|\). And for Class
I weak verbs we said that vowel raising before a nasal
(Rule SV-16) occurs after \(|j|\) Fronting so that a verb
like *sendan \(|s\text{\'nd}+j-|\) would derive \(|s\text{\'nd}+j-| > |s\text{\'nd}+j-| > |s\text{\'nd}+j-|\). Now for -fôn it is obvious that the change
of \(|\text{\'A}|\) to /\text{\'O}/ before the nasal must occur prior to nasal
deletion, and all of these changes must take place before
vowel contraction.

The best solution would seem to be to divide the
rule for |j| Fronting (V-1) into two rules, one that applies to stressed vowels (SV-26) and one that applies to unstressed ones (UV-16). The one that applies to stressed vowels is an early rule that applies before vowel contraction. It is followed by the rule for vowel raising before nasals (SV-16). The |j| fronting rule for unstressed vowels, which operates on the pres. ppl. ending |And+j#e| and the ger. ending |An+j#e|, is a late rule that applies after vowel contraction. Therefore there is the following rule order:

S-2: Stress  
V-2: Low Vowel Rounding  
SV-18: Low Vowel Fronting  
SV-19: Smoothing  
SV-26: |j| Fronting (V)  
SV-16: Raising Before Nasal  
C-8: Nasal Deletion  
C-6: |x| Deletion  
Vowel Contraction Rules  
UV-16: |j| Fronting (V)

To conclude the past tense of the strong verb, we will give a list of the underlying forms which the endings should have to generate the correct surface forms:

<table>
<thead>
<tr>
<th></th>
<th>Ind.</th>
<th>Subj.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sg.</td>
<td>Pl.</td>
</tr>
<tr>
<td>1</td>
<td>ø</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>-i</td>
<td>-ün</td>
</tr>
<tr>
<td>3</td>
<td>ø</td>
<td></td>
</tr>
</tbody>
</table>

The ind. 2sg. ending must be |i|, not |e|, so that it is not deleted by the Final |e| Deletion Rule UV-7,
which deletes the imp. sg. ending, and also so that the \( \text{ú} \) Lowering Rule SV-25 does not apply to the preceding vowel. The ind. pl. ending sometimes shows lowering to /o/ after long stems (e.g., forecwomon), indicating that the optional Vowel Lowering Rule UV-9 has applied. The subj. endings are the same as in the pres., \( |\text{-e} \) and \( |\text{-en} \). The ending of the ppl. is \( |\text{en} |\), to which the endings of an \(-\text{a}, -\text{ō} \) adjective may be added when it is declined (Campbell 1959:267). When the base is a long stem (Class III and some Class VII verbs) and the adjectival ending is a vowel or begins with a vowel, the \(|\text{e}|\) of the participial ending is syncopated (e.g., gebundne (n.p.m.) vs. gebundenra (g.p.m.)). This change can be stated as follows:

\[
\text{UV-17: Pt. ppl. Syncope} \\
\text{e} \rightarrow \emptyset / S\# \_n\# V C_e \#
\]

\(|\text{e}| \) in the ending \(|\text{en}| \) is deleted after a strong cluster when there is an ending beginning with a vowel.)

**Weak Verbs**

All weak verbs have the past tense suffix -\( \text{d} \). To this suffix are added endings with the following underlying representations:

<table>
<thead>
<tr>
<th></th>
<th>Ind.</th>
<th></th>
<th>Subj.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sg.</td>
<td>Pl.</td>
<td>Sg.</td>
</tr>
<tr>
<td>1</td>
<td>-( \text{e} )</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>-( \text{i}s )</td>
<td>-( \text{ũn} )</td>
<td>-( \text{ė} )</td>
</tr>
<tr>
<td>3</td>
<td>-( \text{e} )</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The ind. 2sg. ending is the same as in the pres. tense. The 1sg. and 3sg. ending is taken to be |e|, although the e of the surface form could result from the reduction of some other underlying vowel (e.g., |i| or |e|). The ind. pl. |-un| is the same as the strong verb ending. Again it is subject to optional lowering to /o/ by Rule UV-9. In the subj. there are |-e| and |-en|, the same as elsewhere. The ppl. ending is Ø so that -d alone appears in this form when it is not declined as an adjective.

Except for certain verbs which have the |+j| deleted in the pt. tense, Class I verbs show the same vowels in the pt. as in the pres. tense. Therefore the stressed vowel rules already written for the pres. tense will apply. Geminated consonant clusters do not, however, appear in the pt. tense forms. The reason for this is that the First |j| Vocalization Rule J-1 always applies to the sequence |Base+j#d| so that |j| > |i| prior to the Gemination Rule J-4.* The next rule that applies is the Short Vowel Deletion Rule UV-6, which deletes |i|(< |j|) after a long stem. Consequently there is an alternation between long stems and short stems with respect to the thematic vowel e. Long stems have no e, such as pt. ind. 3sg. geherde (< *geheran); short stems do have e, e.g., pt. ind. 3sg. gefremede (< *gefremman). Long stems that end in an underlying
double consonant do not have e and in addition show
simplification of the double cluster before |#d|.
For example, *cennan becomes pt. ind. 1sg. cende.
The Cluster Simplification Rule C-1 should therefore
include this environment:

C-9: Cluster Simplification (replaces C-1)
\[ C_a \rightarrow \emptyset / \underline{C_a^\#} \]

(One of two identical consonants is deleted either
finally or before an ending beginning with a consonant.)

In long stems, where the thematic e does not appear,
the |-d| suffix undergoes a further change to show voicing assimilation with the preceding consonant. After a
voiceless consonant it becomes /t/, as in pt. ind. 3sg.
abroette (< *abraetan), bisencte (< *bisencan). The
rule for this change is

C-10: |d| Assimilation
\[ d \rightarrow [-\text{voice}] / \underline{[+\text{cons} -\text{voice}]^\#} \]

When the base itself ends in a dental stop preceded
by a consonant, then the |d| (or |t| by Rule C-10) is
deleted, producing forms like pt. ind. 1sg. onhælde
|-hæld#de| (< *onhældan) and gehyhte |-hyht#de| (< *ge-
hyhtan). The following rule expresses this change:

C-11: |d| Deletion
\[ C_d \rightarrow \emptyset / CC_d^\# \)

where \( C_d \) is a nonnasal
dental stop \( \begin{array}{l}
+\text{ant} \\
+\text{cor} \\
-\text{cont} \\
-\text{nasal}
\end{array} \)
This rule may be optional when there is no consonant but a long vowel preceding the dental stop of the base. In a verb like *gelaedan, for example, there are six pt. forms with -dd- and four pt. forms with -d-.

This variation could simply be due to spelling, particularly since two of the forms (Ps. 22:3, 77:15) were originally written with one d, and the second d is added above the line (Kuhn 1965:165,173). Instead of modifying Rule C-11 to include stems with long vowels, we will interpret this change as spelling variation.

This interpretation is supported by the fact that for all pt. tense forms of the base *laedan there are 33 forms with -dd- vs. 5 forms with -d-.

Short stem Class I verbs that end in a dental stop delete the thematic vowel |e| (< |+j|) before the pt. tense suffix. The only verb in VP that illustrates this change is settan, which has forms like ind. 1sg. sette, ind. pl. settun, and subj. pl. setten. The rule for deleting this vowel applies before reduction of |i| to |e| so that it is

UV-18: |i| Syncope (Short Stem)

\[ i \rightarrow \emptyset / \begin{array}{c}
+\text{cons} \\
+\text{ant} \\
+\text{cor} \\
-\text{cont} \\
-\text{nasal} \\
\end{array} + \#d \]

(|i| is lost between a dental stop and the pt. tense suffix |d|.)
This rule must be ordered prior to the one for \(|d|\) Assimilation (C-10) so that the pt. forms of *settan* derive \(|sёт+i#д-| > |sёт#д-| > |sёт#t-|\).

The pt. ppl. does not follow the patterns just described with respect to the appearance or absence of the thematic vowel. When the ppl. is undeclined, the *e* (\(< |+j|\)) is regularly present even after long stems, such as *doemed* (\(< дөмен\)), and after short stems ending in a dental stop, as in *toseted* (\(< -сэттан\)). When the ppl. is declined, the *e* appears when the ending is \(\emptyset\) or begins with a consonant (e.g., *-ра*, *-ре*, *-не*). Syncope of the vowel occurs when the ending is a vowel (\(-е\)) or begins with a vowel (e.g., *-ум*).

These facts suggest that Rules UV-6 and UV-18, which delete the vowel derived from \(|+j|\), should be revised. Rule UV-6 should delete the vowel after a long stem when the ending (1) is a vowel or begins with a vowel (pres. tense endings, inf., and ger.), (2) is \(\emptyset\) (imp. sg.), and (3) is \(|d|\) followed by a vowel or by an ending that is a vowel or begins with a vowel. This rule can be written with these environments abbreviated as follows:

UV-19: Short Vowel Deletion (replaces UV-6)

\[
\begin{bmatrix}
V
-\text{stress} \\
-\text{long}
\end{bmatrix} \rightarrow \emptyset / S+\#((d(#))VC_0)^{\#}
\]
The expansion of the environment of this rule is:

1) \#d\#VC₀# (pt. ppl., declined)
2) \#dVC₀# (pt. endings)
3) \#VC₀# (pres. endings)
4) ## (imp. sg.)

Rule UV-18 should add the environment (#)VC₀ after the |d| suffix. It will then apply to all the pt. tense endings and to the declined pt. ppl. with endings that consist of vowel + consonant or vowel only:

UV-20:  |i| Syncope (Short Stem) (replaces UV-18)

\[
i \rightarrow \emptyset / \begin{array}{c}
+\text{cons} \\
+\text{ant} \\
+\text{cor} \\
-\text{cont} \\
-\text{nasal}
\end{array}
\] +\#d(#)VC₀#

In a complete grammar of the VP dialect the deletion rule (UV-19) and the syncope rule (UV-20), as well as the syncope rule for the strong pt. ppl. (Rule UV-17), could probably be collapsed into one general vowel deletion rule. We will not attempt to write such a rule at this point because to do so would require evidence from the inflectional endings of the noun and the adjective as well as from the verb.

The rules now written will generate all of the regular Class I forms. There is a large group of Class I forms, however, that are not regular because they have undergone a readjustment rule that deletes the |+j| in the past tense. There is in the grammar
already a rule (SVb-1) to delete [+j] for the past
tense of strong verbs with weak presents. All that
is necessary is that certain Class I weak verbs be
marked [+Rule SVb-1] in their lexical entries.

The lack of [+j] in the pt. tense will explain
vowel changes for the pt. tense like ind. 2sg. saldes
(< sellan), ind. 1sg. getalde (< *tellan), and ind.
1sg. söhte (< *sœcan).

The verb *sœcan shows an additional change in the
final consonant— |k| > |x|. Historically this change
is a Germanic shift by which all velar consonants
followed by t become ht (Campbell 1959:329). We can
write a rule to convert a velar to |x| before |#d|
without intervening [+j]:

C-12: Velar Shift

\[ \text{[+cons} \rightarrow \text{[+cont]} \] / __#d

(Velar consonants become |x| before|#d|.)

The |d| Assimilation Rule C-10 later causes |d| > |t|
after |x|. In addition to *sœcan examples of these
changes due to lack of [+j] after a velar consonant
are ind. 1sg. gereht (< *reccan), ind. 2sg. awahtes,
awehtes (< *weccan), ind. pl. biðehton (< *bœccan),
and ppl. awaheht (< *weccan).

The stressed vowel in these forms varies between
e and æe. Phonetically it results from the smoothing
of /æ/ /ə/, which is /æ/. The alternation between e and ae probably represents spelling variation. The e could result from a kind of "spelling smoothing" by which the scribe spells the smoothing of ea by simply writing e rather than ae.

Another verb of this type that involves a vowel change as well as a consonantal change is *bycgan, which appears in VP as ind. 2sg. bibohtes, ppl. biboht. The underlying vowel is |ú|. In the pres. tense |ú| remains because of the following |+i|. In the past tense the |ú| Lowering Rule SV-25 applies so that |ú| > |ó|.

Thus the changes for this verb are similar to those for the Class III verb *hycgan.

An additional change is seen in the forms with |n| preceding the velar consonant. After Rule C-12 has applied, these have the sequence |Vnx#|, to which the Nasal Deletion Rule C-8 will apply. The |n| will drop out, and the vowel will lengthen. These changes are seen in pt. tense forms like ind. 1sg. *sohte, ind. pl. *sohtun, *sohton /θō:xt-/ (< *sencan). The pt. tense forms of *bringan in VP are ind. 3sg. brohte and ppl. tobroht. According to our rules such pt. tense forms would correspond to pres. tense **brengan |brÁng+j-|. The traditional explanation for this irregularity is that *bringan is a strong verb that has only pres. forms. In the past tense it becomes weak (Campbell 1959:331).
This change could be expressed by a readjustment rule that changes \[ \text{breng-} \left[ +\text{Verb} \right] \left[ +\text{Strong} \right] \text{3Class} \text{ to } \text{brAng-} \left[ +\text{Verb} \right] \left[ -\text{Strong} \right] \text{1Class} \].

Since there is no \(+j\), it is not necessary for this verb to be marked for \(+j\) deletion by the readjustment rule SVb-1.

The pt. tense forms of all Class I weak verbs, both those with \(+j\) and those without \(+j\), can now be derived by the rules written in the grammar.

Class II weak verbs have the underlying sequence \(\tilde{A}+j\) between the base and the pt. tense suffix \(-d-\). This \(\tilde{A}+j\) becomes the thematic vowel /a/ by Rules J-1 (First \(j\) Vocalization) and UV-15 (\(i\) Deletion) so that there are pt. tense forms like ind. 2sg. bledsades, 3sg. bledsade, pl. bledsadon, and ppl. bledsad. There is no syncope of the thematic -a- of Class II verbs. The reason is that this a is long at the point when the syncope rules apply. It becomes short afterwards by Rule UV-3, which shortens unstressed long vowels.

The thematic vowel is, however, subject to optional vowel reduction, for sometimes it is spelled -e- (79x) and sometimes -u- (14x). The e spellings would represent /a/. It is likely that the u spellings also symbolize this vowel, but they could repre-
sent a high back vowel sometimes. This is particularly true in the forms of *lufian, "to love," where -u- appears for the thematic vowel eight times. Since the stressed vowel of this verb is u, these u spellings could represent a tendency towards vowel harmony, but we will take them to represent /ə/. For the reduction of |ā| to |e| there is the following rule:

UV-21: |ā| Reduction (optional)

\[
\begin{align*}
V & \quad & \longrightarrow & \quad [-\text{low}] / C_0V_C_1^{+\text{long}} \\
-\text{stress} & \quad & \text{optional}
\end{align*}
\]

(|ā| > |e| optionally after a syllable with a stressed vowel and before a syllable which is an ending.)

(|ā| > |e| by Rule UV-3.)

With this rule added to the grammar, all of the Class II pt. tense forms can be derived in a regular fashion.

The Class III weak verbs *habban, *secgan, lifgan, and *hycgan have pt. tense forms like ind. 1sg. hefde, ppl. hefd; ind. pl. segdun, ppl. segd; ppl. lifd; and ind. 2sg. forhogdes, ppl. forhogd. (*hycgan also has some regular Class II forms (e.g. ind. 1sg. hogade) just as it does in the pres. tense.) The lack of thematic vowel shows that these verbs are subject to the readjustment rule SVb-1 for |j| deletion in the pt. tense, and so their lexical entries should be marked
The /e/ in the forms of *habban and of *secgan results from first fronting of |Â| to |æ| (SV-18) and second fronting of |æ| to |e| (SV-5) (The pt. forms of these two verbs are not exempt from the Stress Rule S-2.) The ppl. lifd indicates that the underlying vowel in this verb is |i|, not |e| as it was taken to be earlier in the discussion of the pres. tense. The eo spellings of the pres. forms with back umlaut (for example, ind. 3sg. leofað (4x, also liofað, 2x)) must represent /i:/ or reflect a late optional change of /i/ to /a/. The /o/ in the forms of *hycgan results from the rule for |ú| lowering (SV-25). One further specification for *hycgan is that it must be marked an exception to the Velar Shift Rule C-12 [-Rule C-12], by which velar consonants become |x| before |#d| (Cf. pt. ind. 2sg. -bohtes |bug#des| < *bycgan |bug+j#-|). Failure to do this would result in pt. tense forms with **hoht- instead of hogd-.

The Class III contract verbs have pt. tense forms like ppl. smead (< *smégan); ind. 2sg. feature, 3sg. feature, pl. freadun (< *frēgan); ind. 1sg. gefreode, 2sg. gefreades (3x), gefreodes (2x), 3sg. gefreade (2x), gefreode (9x), gefriode (2x), ppl. (pl.) gefreade, gefreode, gefriad, gefread (< *frīgan); ind. 1sg. fioode, 2sg. fiodes (2x), feodes (1x), 3sg. fioode, fiede, pl.
fiodun (12x), fiodon (1x), fiedon (5x); subj. pl. fioden (< *figan). These forms indicate that the stem-forming element for these verbs is \( \tilde{a}+j \) in the pt. tense. A conversion rule similar to WIII-6 for the pres. tense should apply so that these verbs follow the Class II pattern in the past tense:

**WIII-7: WIII Pt. Rule**

\[
[\text{3Class}] \rightarrow [\text{2Class}] / \left[ \begin{array}{c} +\text{Verb} \\ -\text{Strong} \end{array} \right] \#\text{Pt},
\]

for Class III contract verbs, which are specified [+Rule WIII-7].

The forms of *smēgan and *sōrēgan derive from \( sm\tilde{a}x+\tilde{a}+j#d-1 \) and \( s\tilde{a}r\tilde{a}x+\tilde{a}+j#d-1 \) and show vowel contraction of \( \tilde{a}e+\tilde{a}l = /e:\tilde{a}/ \) by vowel contraction rule VC-4 for contraction of \( \tilde{a}e \) + back vowel.

In the discussion of the pres. tense we took *frīgan and *fīgan to have similar underlying forms: \( fr\tilde{i}+j-1 \) and \( f\tilde{i}+j-1 \). The pt. tense forms of these verbs, however, usually have different vowels. The first vowel in the forms of *frīgan is predominantly \( e \); for the pt. forms of *fīgan it is nearly always \( i \). This \( i \) suggests that the vowel contraction in *fīgan is \( \tilde{e} + \) back vowel, not \( \tilde{i} \). The underlying vowel must therefore be \( e \). Is this short \( e \) or long \( e \)? The pres. forms of *fīgan with \( +j \) have \( i \) in their spellings (e.g. ind. pl. figa\( g \), ppl. figende.)
The i must derive from |é| by the Front Vowel Raising Rule SV-13. Since Rule SV-13 does not apply to long vowels the |é| must be short. The i of these forms is phonetically long /iː/. Either we could say that this vowel becomes long when it contracts with the following vowel (the usual historical explanation; cf. Campbell 1959:98), or we could postulate an underlying form for *fɪɡan that ends in |x|: |fex+j-|. The first alternative would involve adding the feature [+long] to the structural change of the vowel contraction rules, thus making them more complex. The second alternative does not require the adding of any features to the rules already written. Hence it is simpler, and therefore the lexical representation of *fɪɡan will be considered to be |fex+j-| instead of |fi+j-|.

The pt. tense forms of *fɹiɡan, then, show contraction of |ɪ| + |a| = /eːa/, with optional reduction of |a| to |o| to give /eːo/ sometimes. The verb *fɪɡan in the pt. tense should have contraction of |é| + |a| = /iːa/, which by reduction and glide conversion could become /iːo, iːo/. No ia spellings appear. The forms that do occur have mostly io and ie spellings, indicating that the |a| has in fact undergone reduction and glide conversion in every case.
NOTES

CHAPTER IV


2 Except for Rules V*-4 and V*-8a, Rules V*-3 to V*-9 could be combined into one general V* rule with a number of conditions imposed on the values of the variables:

\[ V^* \text{ Ind. Pl. (I, III-VIII)} \]
\[
V^* \rightarrow \begin{bmatrix}
\alpha \text{high} \\
\beta \text{back} \\
-\text{low} \\
\text{around} \\
\gamma \text{long}
\end{bmatrix} / \begin{bmatrix}
\delta \text{Class}
\end{bmatrix}
\]

where \( \alpha = +, \beta = -, \gamma = -, \text{ when } \delta = 1 \)
\( \alpha = +, \beta = +, \gamma = -, \text{ when } \delta = 3 \)
\( \alpha = -, \beta = -, \gamma = +, \text{ when } \delta = 4, 5, 7 \)
\( \alpha = -, \beta = +, \gamma = +, \text{ when } \delta = 6 \)

3 ageten, which does occur once, may show fronting to \( \text{ôel} \) and unrounding to \( \text{êl} \), but it is probably just a scribal error.

4 The numbered braces are equivalent to the square brackets used in earlier transformational work and indicate that items on the same line are taken together (Harms 1963:59).

5 The rule for assimilation of \( \text{n} \) in point of articulation must have already applied at this point.

6 Strictly speaking, the \( \text{ú} \) Lowering Rule SV-25 must add \#C to its environment to apply to the pt. forms of *bycgan |bux#d-|:

\[
\begin{bmatrix}
V \\
+\text{stress} \\
+\text{back} \\
-\text{long}
\end{bmatrix} \rightarrow [-\text{high}] / C_1 \begin{bmatrix}
\#C \\
\langle#\rangle [-\text{high}] \\
\langle\text{long}\rangle
\end{bmatrix}
\]

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In a complete grammar this rule could probably be combined with the optional [a] Reduction Rule UV-12 written earlier for vowel contraction.
CHAPTER V

CONCLUSION

If there are any significant conclusions to be drawn from the present study, they result from the fact that it is both a generative study of a system of verb inflections and a historical study of a major dialect of Old English. The value of studying an inflectional paradigm from a generative point of view is twofold. First such a procedure often reveals a regularity in the underlying structures which is not apparent in the surface forms. Secondly it frequently leads to the discovery of phonological rules which are significant generalizations about the sound system of the language (or dialect) as a whole.

With respect to the underlying structures it has been shown that each type of verb has a distinct phonological representation in terms of the stem-forming elements for the different verb classes. These structures can be represented as follows:

1) Strong verbs (all classes) -- |Base#Tense|
2) Class I weak verbs -- |Base+j#Tense|
3) Class II weak verbs -- |Base+ā+j#Tense|

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The Class III weak verbs are a combination of the Class I and Class II patterns. In the present tense they follow the Class I structure |Base+j#Tense| everywhere except in the ind. 2sg. and 3sg. and the imp. sg., which are Class II forms |Base+Ā+j#Tense|. In the past tense the Class III contract verbs have the |Ā+j| element, but *habban, *secgan, lifgan, and *hycgan are like the Class I verbs that undergo deletion of the |+j| for the past tense. That is, they are |Base#Tense|, the same as the strong verb pattern, although the past tense morpheme is the weak dental suffix |-d-|. As it has been shown in the derivations throughout this dissertation, there are three types of underlying structures—|Base#Tense|, |Base+j#Tense|, and |Base+Ā+j#Tense|—which can generate all of the surface forms for the strong and the weak verbs.

The lexical representations of the strong verbs have the following vowels for the different classes:

<table>
<thead>
<tr>
<th>Class</th>
<th>Vowel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class I</td>
<td>i</td>
</tr>
<tr>
<td>Class II</td>
<td>ēu</td>
</tr>
<tr>
<td>Classes III-V</td>
<td>e</td>
</tr>
<tr>
<td>Class VI</td>
<td>ā</td>
</tr>
<tr>
<td>Class VII</td>
<td>ā, ā, ē</td>
</tr>
<tr>
<td>Class VIII</td>
<td>ā, ē</td>
</tr>
</tbody>
</table>

(Reduplicating verbs)

The various surface phonetic vowels are derived from these underlying segments.
A second important aspect of this investigation has been the discovery of rules which are relevant to further study of the phonological structure of the VP dialect as a whole. The rules written for stressed vowels, for example, are important for any investigation of the other parts of speech. By way of summary a list of the main rules for the stressed vowels, together with a brief explanation of their effects, is given below. The rules apply in the order listed, and their form is the final one which they assumed in the process of being refined and being made more precise in the course of the investigation.

Stress Placement

\[ V \rightarrow [1 \text{ stress}] / \#(\text{Pre}=)C_0 \]

The first vowel receives primary stress, except that for verbs this vowel cannot be in a prefix. Cyclical application of this rule can generate the stress patterns of compound words.

|ú| Lowering

\[
\begin{align*}
\text{V} & \quad \text{+stress} \\
\text{+back} & \quad \text{-long}
\end{align*}
\rightarrow [-\text{high}] / C_1 \left\{ \begin{array}{c}
\text{#} \\
\text{\langle \# \rangle} \quad \text{V} \\
\text{\langle \text{-high} \rangle} \quad \text{\langle \text{-long} \rangle}
\end{array} \right\}
\]

|ú| > |ó| before a consonant and before a nonhigh vowel.

Low Vowel Rounding

\[
\begin{align*}
\text{V} & \quad \text{+low}
\end{align*}
\rightarrow [\alpha\text{round}] / \text{\underline{\alphastress}}
\]

|\acute{A}| > |\ddot{u}|; |\ddot{A}| > |a|.
Low Vowel Fronting

\[
\begin{align*}
V & \quad +\text{stress} \\
+\text{low} & \quad -\text{long} \\
\rightarrow & \quad \begin{cases} 
[-\text{next rule}] & \quad \{1 [+\text{cons}]\} \\
[-\text{back}] & \quad \{[-\text{nasal}]\} \\
\end{cases} \\
\end{align*}
\]

\(|\acute{u}| > \acute{\acute{e}}|\) except before |l| and before a nasal consonant.

Backness Harmony

\[
\begin{align*}
V & \quad +\text{stress} \\
-\text{long} & \quad \rightarrow [\text{αback}] \quad / \quad C_1^4 [-\text{seg}] \\
+\text{voc} & \quad -\text{cons} \\
\end{align*}
\]

A short stressed vowel agrees in backness with a following vowel.

Breaking Before |rC|

\[
\begin{align*}
V & \quad +\text{stress} \\
-\text{long} & \quad \rightarrow [+\text{back}] \quad / \quad r [+\text{cons}] \\
\end{align*}
\]

A short stressed vowel becomes the corresponding back vowel before |r| + consonant.

Front Vowel Raising

\[
\begin{align*}
V & \quad +\text{stress} \\
-\text{long} & \quad -\text{back} \\
\rightarrow & \quad \langle[+\text{high}]\rangle C_1(\#) \quad [-\text{cons} [+\text{high}]] \\
\end{align*}
\]

All stressed short front vowels raise ([+low] become [+high], [+low] become [-low]) before a following high front nonconsonantal segment (|j| or |i|).

Breaking Before |xC_o|

\[
\begin{align*}
V & \quad +\text{stress} \\
-\text{long} & \quad \rightarrow [+\text{back}] \quad / \quad xC_o \# \\
\end{align*}
\]
A short stressed vowel becomes [+back] before |x| or |x| + consonant.

Second Fronting

\[
\begin{align*}
V \\
+\text{stress} \\
-\text{back}
\end{align*}
\rightarrow
-\text{low}
\]

|æ| > |é|.

Smoothing

\[
\begin{align*}
V \\
+\text{stress} \\
-\text{round}
\end{align*}
\rightarrow
[\text{-back}] / \quad [\text{-cons}] \\
\]

Unround stressed vowels front before a velar consonant.

|j| Fronting

\[
\begin{align*}
V \\
+\text{stress} \\
+\text{round} \\
\langle\text{+low}\rangle
\end{align*}
\rightarrow
\langle\text{-round}\rangle / \quad C_1 \quad \langle\text{-cons}\rangle \\
\]

All stressed round vowels are fronted before a following |j| (or |i|). Low vowels are also unrounded.

Raising Before Nasal

\[
\begin{align*}
V \\
+\text{stress} \\
-\text{long} \\
\text{a} \text{back} \\
\text{a} \text{round} \\
\langle\text{-low}\rangle
\end{align*}
\rightarrow
\langle\text{+high}\rangle / \quad C^1_0 \quad \langle\text{+nasal}\rangle
\]

All stressed short vowels the same in backness and roundness (i.e. front unround, back round) are raised before a nasal or a consonant + nasal.

These are the main vowel rules. Major consonant rules can also be expected to apply to all words in the
VP dialect and not just verbs. For example, nouns and adjectives with a stem-forming |+j| should undergo the various |j| rules like gemination and the two |j| vocalization rules. The rule for intervocalic |x| deletion should also apply, as well as the rules for the simplification of clusters with two identical consonants in final position and for changing two identical consonants into a single consonant marked [+long].

Major rules like these consonant and vowel rules, which were written to generate the different verb forms, express linguistically significant generalizations which are important for the VP dialect as a whole. They therefore have value beyond their status as phonological rules for verbs alone.

Finally what has been discovered about the phonology of the VP dialect, Mercian Old English of the ninth century, is valuable for the historical study of the development of the English language. Recent work in linguistics, such as that by Kiparsky, King, and Chomsky and Halle, indicates that the use of generative methods and theory in studying language change and dialect differences can lead to new insights in these fields. With respect to the present study specifically, now that some conclusions have been made about the rules and the underlying structures for the Mercian
Old English verb, it should be fruitful to compare these to the verb system of early West Midland Middle English, for example. This Middle English dialect is from the same region as VP, but is about 300 years later in time. Another significant comparison would be with the verb inflections of West Saxon Old English (approximately the same period in time, but different geographical region). Such comparisons should reveal changes in the rules and in the lexicon which are important for the history of the English language.

On the basis of the present study one example of a new view of OE dialect differences as a result of using a generative approach is in the sound change called Second Fronting. This change is characteristic primarily of the VP dialect only. The traditional account of this change says that it involves change of \( \text{æ} \) to \( e \) and \( a \) to \( æe \) everywhere except before \( l \) so that the usual OE variation \( \text{deæg, dagæs} \) becomes in VP \( \text{deg, deægas} \) (Campbell 1959:62-64). By careful rule ordering, we have in our rules reduced this change to simply \( /æ/ \rightarrow /e/ \), with no exception before \( l \), thus minimizing the difference between the VP dialect and the other OE dialects. In fact, Second Fronting could be thought of as an example of rule addition (King 1969: 39-46) in the VP dialect as compared to the other dialects.
Detailed comparisons of dialects, both regional and historical, from the point of view of generative grammar must await the writing of grammars for those dialects and even of a more complete grammar of the VP dialect. It is hoped that the present investigation of the phonology of the verbs of the VP dialect will make a significant contribution to such further study.
BIBLIOGRAPHY


Kuhn, Sherman M. 1959. "The Vespasian Psalter Gloss: Original or Copy?" *PMLA* 74.161-177.


APPENDIX I

ABBREVIATIONS AND SYMBOLS

a., acc., accusative
A, adj., adjective
Af А, adjectival affix
C, any nonvowel segment;
  includes true conso-
  nants, liquids, and
  glides
Cа, a specific consonant
Cd, a dental consonant
Ci (where i and j are
  arabic numerals),
  a certain number of
  consonants, such as
  Cд = at least one
  consonant, but no
  more than three con-
  sonants
Ce, no consonants or any
  number of consonants
cons., consonant
d. , dat., dative
decl., declined
f., fem., feminine
g., gen., genitive
ger., gerund
gramm. chg., grammatical
  change
imp., imperative
ind., indicative
inf., infinitive
m., masc., masculine
N, noun
n., nom., nominative
nt., neuter
Pers, person
P1, pl., p., plural
ppl., participle
Pre, prefix
Pres, present tense
pres., present
Pt, past tense
pt., past
S, strong cluster (long stem)
s., sg., singular
sb., substantive
SC, structural change
SD, structural description
subj., subjunctive (optative)
undecl., declined
V, vowel
V, Vb, verb
vd., voiced
vless., voiceless
vw., vowel
wk., weak
x, times (e.g. 3x = 3 times)
X, a cover symbol for a
  string or part of a
  string
ø, zero
+, formative (morpheme)
  boundary
#, word boundary
=, affix boundary
>, becomes
<, derives from
α, β, γ . . . (Greek let-
  ters); cover symbols for
  feature values, such as
  + and -, 1, 2, 3, etc.
FEATURE ABBREVIATIONS

ant  = anterior
cons = consonantal
cont = continuant
cor  = coronal
FB   = formative boundary (+)
seg  = segment
strid = strident
voc  = vocalic
WB   = word boundary (#)

RULE NUMBERING SYMBOLS

C = a consonant rule
E = a rule for the inflectional ending
J = a |+j| rule
S = a stress placement rule
SV  = a stressed vowel rule
SVb = a rule for strong verbs
UV  = an unstressed vowel rule
V   = a rule for either stressed or unstressed vowels
VC  = a vowel contraction rule
V*  = a rule for the vowel of a strong verb in the past tense
WII = a rule for Class II weak verbs
WIII = a rule for Class III weak verbs
APPENDIX II

TABLE I

THE VERB CLASSES

<table>
<thead>
<tr>
<th>Class</th>
<th>No. of Verbs</th>
<th>No. of Forms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strong</td>
<td>195</td>
<td>1917</td>
</tr>
<tr>
<td>Weak I</td>
<td>238</td>
<td>2018</td>
</tr>
<tr>
<td>Weak II</td>
<td>176</td>
<td>1169</td>
</tr>
<tr>
<td>Weak III</td>
<td>13</td>
<td>284</td>
</tr>
<tr>
<td>Mixed: Strong III-IV</td>
<td>2</td>
<td>12</td>
</tr>
<tr>
<td>Weak I-II</td>
<td>8</td>
<td>141</td>
</tr>
<tr>
<td>Textually Uncertain</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>634</td>
<td>5543</td>
</tr>
</tbody>
</table>

The classes listed here are the ones included in this study. Other types like pt.-pres. verbs and anomalous verbs and those whose main entry in the glossary is as a participle rather than as an infinitive are not counted.

2 *ætfgelan, *fgelan.


4 *geslēan--Strong VI, *gesleccan--Weak I.
## TABLE II
TOTAL OCCURRENCES OF THE VERB FORMS

### Present:

<table>
<thead>
<tr>
<th>Form</th>
<th>Str.</th>
<th>Wk.I</th>
<th>Wk.II</th>
<th>Wk.III</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ind. 1sg.</td>
<td>130</td>
<td>133</td>
<td>49</td>
<td>31</td>
<td>343</td>
</tr>
<tr>
<td>2sg.</td>
<td>34</td>
<td>80</td>
<td>42</td>
<td>6</td>
<td>162</td>
</tr>
<tr>
<td>3sg.</td>
<td>200</td>
<td>266</td>
<td>157</td>
<td>37</td>
<td>660</td>
</tr>
<tr>
<td>pl.</td>
<td>203</td>
<td>119</td>
<td>96</td>
<td>27</td>
<td>445</td>
</tr>
<tr>
<td>Subj. sg.</td>
<td>63</td>
<td>47</td>
<td>42</td>
<td>8</td>
<td>160</td>
</tr>
<tr>
<td>pl.</td>
<td>57</td>
<td>19</td>
<td>46</td>
<td>4</td>
<td>126</td>
</tr>
<tr>
<td>Ppl.</td>
<td>148</td>
<td>138</td>
<td>69</td>
<td>37</td>
<td>392</td>
</tr>
<tr>
<td>Inf.</td>
<td>35</td>
<td>26</td>
<td>23</td>
<td>1</td>
<td>85</td>
</tr>
<tr>
<td>Ger.</td>
<td>7</td>
<td>6</td>
<td>5</td>
<td>1</td>
<td>19</td>
</tr>
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<td>Imp. sg.</td>
<td>142</td>
<td>233</td>
<td>90</td>
<td>23</td>
<td>488</td>
</tr>
<tr>
<td>pl.</td>
<td>76</td>
<td>79</td>
<td>72</td>
<td>11</td>
<td>238</td>
</tr>
<tr>
<td>Total</td>
<td>1095</td>
<td>1146</td>
<td>691</td>
<td>186</td>
<td>3118</td>
</tr>
</tbody>
</table>

### Past:

### Strong:

<table>
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<tr>
<th>Form</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
<th>V</th>
<th>VI</th>
<th>VII</th>
<th>Total</th>
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</thead>
<tbody>
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<td>6</td>
<td>14</td>
<td>3</td>
<td>45</td>
<td>16</td>
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<td>114</td>
</tr>
<tr>
<td>2sg.</td>
<td>15</td>
<td>10</td>
<td>10</td>
<td>6</td>
<td>12</td>
<td>8</td>
<td>10</td>
<td>71</td>
</tr>
<tr>
<td>3sg.</td>
<td>36</td>
<td>26</td>
<td>37</td>
<td>21</td>
<td>50</td>
<td>36</td>
<td>34</td>
<td>240</td>
</tr>
<tr>
<td>pl.</td>
<td>14</td>
<td>7</td>
<td>34</td>
<td>15</td>
<td>53</td>
<td>12</td>
<td>44</td>
<td>179</td>
</tr>
<tr>
<td>Subj. sg.</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>14</td>
</tr>
<tr>
<td>pl.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Ppl.</td>
<td>23</td>
<td>18</td>
<td>90</td>
<td>8</td>
<td>10</td>
<td>42</td>
<td>20</td>
<td>211</td>
</tr>
<tr>
<td>Total</td>
<td>97</td>
<td>68</td>
<td>193</td>
<td>55</td>
<td>174</td>
<td>115</td>
<td>133</td>
<td>835</td>
</tr>
</tbody>
</table>
### Weak:

<table>
<thead>
<tr>
<th>Form</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>Total</th>
<th>Total Str. &amp; Wk.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ind. 1sg.</td>
<td>87</td>
<td>75</td>
<td>16</td>
<td>178</td>
<td>292</td>
</tr>
<tr>
<td>2sg.</td>
<td>133</td>
<td>62</td>
<td>15</td>
<td>210</td>
<td>281</td>
</tr>
<tr>
<td>3sg.</td>
<td>227</td>
<td>86</td>
<td>27</td>
<td>340</td>
<td>580</td>
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<tr>
<td>pl.</td>
<td>164</td>
<td>96</td>
<td>29</td>
<td>289</td>
<td>468</td>
</tr>
<tr>
<td>Subj. sg.</td>
<td>14</td>
<td>6</td>
<td>0</td>
<td>20</td>
<td>34</td>
</tr>
<tr>
<td>pl.</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>7</td>
<td>13</td>
</tr>
<tr>
<td>Ppl.</td>
<td>352</td>
<td>184</td>
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<td>546</td>
<td>757</td>
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<td>512</td>
<td>98</td>
<td>1590</td>
<td>2425</td>
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</table>

### Total Present and Past:

<table>
<thead>
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<th>Strong</th>
<th>Weak I</th>
<th>Weak II</th>
<th>Weak III</th>
<th>Total</th>
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<tr>
<td>1930</td>
<td>2126</td>
<td>1203</td>
<td>284</td>
<td>5543</td>
</tr>
</tbody>
</table>
APPENDIX III

INDEX OF RULES

The following list gives the major rules in the order in which they apply. It includes only those rules which have assumed a final form in the course of the dissertation. Rules which have been later rewritten to become more precise are excluded. Also excluded are rules written to account for exceptional forms, unless the number of exceptions is large and forms a special class by itself, such as the strong verbs with weak presents, for example. The final rule number and rule name are given, together with the number of the page on which the rule appears in the body (not the conclusion) of the dissertation.

<table>
<thead>
<tr>
<th>Rule No.</th>
<th>Rule Name</th>
<th>Page</th>
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</thead>
<tbody>
<tr>
<td>S-1</td>
<td>Verb Prefix Boundary Rule</td>
<td>56</td>
</tr>
<tr>
<td>SVb-1</td>
<td>Strong Verb</td>
<td>j</td>
</tr>
<tr>
<td>SVb-2</td>
<td>Vowel Marking</td>
<td>174</td>
</tr>
<tr>
<td>SVb-6</td>
<td>Syncretism Rule</td>
<td>177</td>
</tr>
<tr>
<td>SVb-10</td>
<td>Verner's Law</td>
<td>188</td>
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<td>V*-Rules</td>
<td>Vowel rules for strong verbs</td>
<td>177-179,</td>
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<td></td>
<td>in the past tense</td>
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<td>WIII-6</td>
<td>Weak III Rule</td>
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<td>WIII-7</td>
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<td>r</td>
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<td>J-8</td>
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</tbody>
</table>

223
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<th>Rule Name</th>
<th>Page</th>
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<td><strong>Phonological Rules:</strong></td>
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</tr>
<tr>
<td>C-7</td>
<td>Voiced Continuant Rule</td>
<td>188</td>
</tr>
<tr>
<td>C-12</td>
<td>Velar Shift</td>
<td>198</td>
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<tr>
<td>S-2</td>
<td>Stress Rule</td>
<td>56</td>
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<tr>
<td>SV-25</td>
<td></td>
<td>ú</td>
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<td>V-2</td>
<td>Low Vowel Rounding</td>
<td>114</td>
</tr>
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<td>SV-18</td>
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APPENDIX IV

INDEX OF VERBS

Below is a list of verbs whose forms appear in the derivations of Chapters III and IV.

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VITA

Robert Alexis Terrebonne was born in New Orleans in 1940. He attended the public schools of Covington and Baton Rouge and graduated from Baton Rouge High School in 1958. After receiving his B.A. from Concordia Senior College, Fort Wayne, Indiana, in 1963, he entered the graduate school of Louisiana State University, where he completed an M.A. in English in 1966. During the year 1966-67 he taught as an instructor at the University of Southwestern Louisiana. In 1967 he enrolled in the interdepartmental linguistics program at LSU to work towards the Ph.D. In the coming year he will be an assistant professor at Wright State University, Dayton, Ohio.
Candidate: Robert Alexis Terrebonne

Major Field: Linguistics

Title of Thesis: A Generative Phonology of the Mercian Old English Verb

Approved:

William R. Van Riper
Major Professor and Chairman

Dean of the Graduate School

EXAMINING COMMITTEE:

Thomas A. Kirk

W. A. Pickens

C. L. Shawer

William W. Evans

Date of Examination:

July 21, 1970