Chapter five

SUMMARY OF RULES

In this chapter we restate the major rules of the phonology as given in the preceding chapters, ordered in the way that is required by the facts cited in the discussion.

In the previous chapters the assumption has been made that the vowels appearing in the abstract underlying representations of English lexical items are monophthongs. Diphthongs—i.e., sequences of a vowel followed by a glide—are the result of phonological rules that insert glides in certain positions.[1] There are six lax vowels in the underlying representations, namely:

	−back −round	+back +round
+high −low	i	u
−high −low	e	o
−high +low	æ	ɔ

In some dialects there is an additional marginal subcategorization of /æ/ (see p. 205).

The tense vowels include the tense correlates of the lax vowels; and there is distinctive rounding for the low tense vowels, so that we have the full set: /ǣ/ /ɔ̄/ /ā/ /ō/. The distinctive feature complexes of the individual segments mentioned in the discussion appear in Table 1 of Chapter Four (p. 176).

The rules that we have given fall into two general classes: the rules of the readjustment component and the phonological rules. The former apply before any of the phonological rules. They express properties of lexical formatives in certain restricted syntactic contexts, and they modify syntactically generated surface structures in a variety of ways. The phonological rules are organized in a transformational cycle. A considerable number of phonological rules, however, are limited so that they apply in the cycle only when the level of word boundary has been reached. We have called the latter "rules of word-level phonology."

[1] There are, of course, sequences of vowels in the underlying representations. These may occur across a formative boundary, as in *scient-*, which is phonologically /ski+ent/ (giving *science*, *scientific* by regular processes); or they may occur, marginally, within certain formatives, such as *neo-*, *dia-*, *dial*, *fuel*, *via*.

The cyclic rules fall together in the ordering, and all but rule (16) (which changes *i* to *y* and *y* to *i*) are rules of primary stress assignment. If the ordering were revised so that (17) (the Alternating Stress Rule) and (18) (the Compound, Nuclear Stress, and Stress Adjustment Rules) preceded (16), then the rules that assign primary stress would be consecutive and would collapse into a single schema of the form:

$$V \rightarrow [1 \text{ stress}] \ / \ \ldots$$

We noted that the justification for ordering (16) before (17) is not overwhelming, and there is no relation between (16) and (18). If, furthermore, the analysis is revised in such a way as to drop rule (16) from the cycle, then the cycle would be restricted to a single elaborate schema abbreviating a complex set of rules, with intricate relations of ordering among them, all assigning primary stress in certain positions. In Chapter Three we explained why we were unable to accept this analysis, but it seems sufficiently attractive for more thought to be given to its consequences.

Among the processes of primary stress assignment, there are three that shift stress to the left: the others shift stress to the right, in general. The three processes that shift stress left are the Stressed Syllable Rule (condition (c) of the Main Stress Rule (15)), the Alternating Stress Rule (17), and the Compound Rule of (18). As we have noted several times, it is not impossible that the Compound Rule can be amalgamated with the Stressed Syllable Rule (as the Nuclear Stress Rule can be amalgamated with condition (e) of the Main Stress Rule) in terms of a general notion of "sonority" (see p. 91). Although we rejected this analysis, for reasons indicated earlier, we feel that it still merits attention. It is also worth mentioning the possibility of amalgamating the Stressed Syllable and Alternating Stress Rules, each of which shifts stress to the left within a word before a final stressed syllable (with the modifications presented in the detailed exposition earlier). Such an amalgamation, like the others just noted, has more than a superficial plausibility, but we have rejected it for several reasons. First, there are certain technical difficulties, within our framework, in formulating the schema that would incorporate both these processes. More seriously, a careful analysis of the cases suggests that there really is a fundamental distinction between them. The matter is important, both for synchronic and diachronic study of English, and some additional comment may be useful.

Reducing the Stressed Syllable Rule and the Alternating Stress Rule to their essentials, we see that each defines a context containing a stressed syllable, and each assigns primary stress in a domain that is to the left of this context. The Stressed Syllable Rule interprets this domain in terms of the Romance Stress Rule; thus it assigns primary stress to a final strong cluster or to the syllable preceding a final weak cluster, in this domain. The Alternating Stress Rule, on the other hand, assigns primary stress to the penultimate syllable of the domain, independently of the form of the final syllable of the domain. Thus the Stressed Syllable Rule is responsible for placement of primary stress in the boldface position in *anticip–atory* and *confisc–atory* (where the dash separates the domain from the context); and the Alternating Stress Rule is responsible for the position of primary stress in *anecd–ote. confisc–ate, philist–ine.*

It might be supposed that these processes can be amalgamated by assigning the feature [+D], which excludes a syllable from the domain of stress assignment (see p. 138), in the case of the Alternating Stress Rule, just as [+D] was assigned for the Stressed Syllable and Affix Rules in certain instances. At best, this would be unfortunate, since assignment of [+D] is by general rule in the latter cases, whereas in this case it would be entirely

idiosyncratic and ad hoc. Still worse, the proposal will fail because of such words as *extrapol–ate*, in which the penultimate syllable of the domain is weak and noninitial.

There is, however, a still more serious reason for suspecting that the two processes under discussion do not fall together. There is an interesting generalization that must somehow be captured by the rules in question: namely, the Alternating Stress Rule, which does not make use of the strong cluster principle, applies in a given cycle if and only if stress has been assigned to the final syllable in this cycle under one of the conditions (a)–(e) of the Main Stress Rule; whereas the Stressed Syllable Rule, which does make use of the strong cluster principle, applies in a given cycle if and only if stress has been assigned to the final syllable either in an earlier cycle under condition (e) of the Main Stress Rule or in the cycle in question under condition (a) of the Main Stress Rule. This is an important correlation between reliance on the strong cluster principle, on the one hand, and a complex interconnection of rules, on the other. It is precisely this generalization that is expressed by the ordering of condition (c) of the Main Stress Rule between conditions (a) and (e), along with the principles of cyclic application and of disjunctive and conjunctive ordering. This conclusion appears to us to be significant. It leads us to believe that the attempt to amalgamate the Stressed Syllable Rule and Alternating Stress Rule would be misguided, quite apart from any technical considerations, despite the similarity between the two processes.

We turn now to a summary of the rules.

In the list below a few readjustment rules are given first ((1)–(9)), merely as an illustrative sample. They are followed by the phonological rules ((10)–(43)). The rules that are not restricted to the level of word boundary are starred; all rules not starred in this list are rules of word-level phonology. We will give each rule with a citation of the chapter (Roman numeral) and example number of the most recent reference to it; where there are several citations, these refer to relevant comments about the form of the rule. The rules are not necessarily given in the most reduced form.

1. *Readjustment rules*

(1) $$V \rightarrow \begin{bmatrix} -\alpha\text{back} \\ -\alpha\text{round} \end{bmatrix} / \begin{bmatrix} \text{——} \\ \alpha\text{back} \end{bmatrix}$$ in a number of irregular verbs, nouns, and adjectives in certain contexts — IV (75)

(2) $$t \rightarrow [+\text{voice}] \; / = \begin{Bmatrix} mi\text{——}+ive \\ ver\text{——}+iVn \end{Bmatrix}$$ — IV (110)

(3) $$C \rightarrow C^* \; / \begin{Bmatrix} æ \\ su \end{Bmatrix}\text{——}=C^*$$ where C and C* are both coronal or both noncoronal — IV (103)

(4) $$V \rightarrow [-\text{rule (20 III)}] \; / \text{——} \begin{bmatrix} +\text{cons} \\ +\text{ant} \\ +\text{cor} \end{bmatrix} \begin{bmatrix} +\text{cons} \\ +\text{cor} \end{bmatrix} \begin{Bmatrix} [-\text{cons}] \\ [-\text{seg}] \end{Bmatrix}$$ — IV (9)

(5) $\bar{u} \rightarrow [-\text{rule (32)}] \;/\; \text{——} \left\{ \begin{matrix} C_0\# \\ [+\text{nasal}]\,C \\ V \end{matrix} \right\}$ IV (72)

(6) $\bar{a} \rightarrow [-\text{rule (34)}]$ in polysyllables IV (70)

(7) $V \rightarrow \begin{bmatrix} -\text{rule (30)} \\ -\text{rule (32)} \end{bmatrix} \;/\; \text{——}\,l$ IV p. 214

(8) $u \rightarrow [-\text{round}] \;/\; \begin{bmatrix} -\text{nasal} \\ +\text{ant} \\ -\text{cor} \end{bmatrix} \text{——} \left\{ \begin{matrix} l \left\{ \begin{matrix} l \\ \# \end{matrix} \right\} \\ \begin{bmatrix} -\text{ant} \\ +\text{cor} \\ -\text{voc} \end{bmatrix} \end{matrix} \right\}$ IV (66)

(9) $C \rightarrow [+\text{cor}] \;/\; \bar{u}\,\text{——}\,[-\text{seg}]$ IV (54)

2. *Phonological rules*

(10) $[u, i] \rightarrow \phi \;/\; +\,\text{——}\,\#$ III (129) and note 84

(11) $\phi \rightarrow u \;/\; \begin{bmatrix} -\text{cont} \\ -\text{voc} \\ +\text{cons} \end{bmatrix} \text{——}\,l + VC\,[-\text{seg}]$ IV (56)

(12) $\phi \rightarrow w \;/\; \left\{ \begin{matrix} æ\text{——} \left\{ \begin{matrix} rC \\ \left(\left\{ \begin{matrix} r \\ lm \end{matrix} \right\} \right) \# \end{matrix} \right\} \\ \begin{bmatrix} +\text{round} \\ -\text{voc} \\ +\text{cons} \end{bmatrix} \text{——} \end{matrix} \right\}$ IV (91), (112)

(13) VELAR SOFTENING

$$\begin{bmatrix} -\text{cont} \\ -\text{ant} \\ +\text{deriv} \\ \langle -\text{voice} \rangle \end{bmatrix} \rightarrow \begin{bmatrix} +\text{cor} \\ +\text{strid} \\ \langle +\text{ant} \rangle \end{bmatrix} \;/\; \text{——} \begin{bmatrix} -\text{back} \\ -\text{low} \\ -\text{cons} \end{bmatrix}$$ IV (114)

*(14) $\begin{bmatrix} +\text{tense} \\ V \end{bmatrix} \rightarrow [1\ \text{stress}] \;/\; +\,\text{——}\,C_0\#$ III (158)

*(15) MAIN STRESS

$$V \rightarrow [1\ \text{stress}] \;/\; \left[X \text{——} C_0 \left(\begin{bmatrix} -\text{tense} \\ \gamma\text{stress} \\ V \end{bmatrix} C_0^1 \left(\begin{bmatrix} \alpha\text{voc} \\ \alpha\text{cons} \\ -\text{ant} \end{bmatrix} \right) \right) \qquad \text{III (101), (122), (136), (151)}$$

$$/ \text{——} \left\langle \left(\begin{Bmatrix} (fik)At \\ [+D]C_0 \end{Bmatrix} \right) \begin{Bmatrix} \langle_1 + C_0 \rangle_1 \begin{bmatrix} -\text{stress} \\ -\text{tense} \\ -\text{cons} \end{bmatrix} [+\text{cons}]_0 \\ \langle_1 \begin{bmatrix} -\text{seg} \\ \langle_2 -\text{FB} \rangle_2 \end{bmatrix} \rangle_1 C_0 [\beta\text{stress}] C_0 \langle_2 V_0 C_0 \rangle_2 \end{Bmatrix} \right\rangle \Big]_{\langle \text{NSP} \langle_1 \text{VA} \rangle_1 \rangle}$$

Conditions: $\beta = \begin{Bmatrix} 2 \\ 1 \end{Bmatrix}$
$\gamma \leq 2$
X contains no internal #

*(16)

$$\begin{bmatrix} -\text{back} \\ +\text{high} \\ -\text{cons} \end{bmatrix} \rightarrow \begin{Bmatrix} [+\text{voc}] \;/\; C \text{——} [-\text{seg}] \\ [-\text{voc}] \;/\; \begin{bmatrix} +\text{cor} \\ C \end{bmatrix} + \text{——} \begin{bmatrix} \alpha\text{stress} \\ V \end{bmatrix} \end{Bmatrix} X \Big] \qquad \text{IV (118)}$$

Conditions: $\alpha = -$, or $\alpha \neq 1$
X contains no internal #

*(17) ALTERNATING STRESS

$$V \rightarrow [1\ \text{stress}] \;/\; \text{——} C_0 (=) C_0 V C_0 [1\ \text{stress}] C_0]_{\text{NAV}} \qquad \text{III (75)}$$

*(18) COMPOUND, NUCLEAR STRESS, STRESS ADJUSTMENT

$$V \rightarrow [1\ \text{stress}] \;/\; [\# \# X \begin{bmatrix} \overline{\quad} \\ 1\ \text{stress} \end{bmatrix} Y \langle \# \# Z \rangle \# \#]_{\langle \text{NAV} \rangle} \qquad \text{III (52), (68), (70)}$$

where $Y \neq \ldots [1\ \text{stress}] \ldots$; $Z \neq \ldots \# \# \ldots$

(19)

$$[2\ \text{stress}] \rightarrow [3\ \text{stress}] \;/\; \text{——} C_0 [1\ \text{stress}] \qquad \text{III (117)}$$

(20) LAXING

(I) AUXILIARY REDUCTION—I

$$V \rightarrow \begin{bmatrix} -\text{stress} \\ -\text{tense} \end{bmatrix} / \begin{Bmatrix} \langle VC_0 \rangle \begin{bmatrix} \overline{\quad} \\ \alpha\text{stress} \\ \langle +\text{tense} \rangle \end{bmatrix} C_0^1 (=C_0) \begin{bmatrix} \beta\text{stress} \\ V \end{bmatrix} \\ \left(\begin{bmatrix} \overline{\quad} \\ \gamma\text{stress} \end{bmatrix} \right) \\ [1\ \text{stress}] C_0 \text{——} C_0 [\text{—cons}] \end{Bmatrix} [-\text{stress}]_0 \# \Bigg\} \qquad \text{III (118)}$$

Conditions: $\beta = 1, 2, 3$
α is weaker than β
γ is weaker than 2

(II) $V \rightarrow [-\text{tense}] \;/\; + \text{——} r + i\,[-\text{seg}]$ — III (142); IV p. 202

(III)[2] $V \rightarrow [-\text{tense}] \;/\; \text{——}\,[+\text{cons}]\begin{bmatrix}+\text{cons}\\-\text{voc}\end{bmatrix}$ — IV (8)

(IV) $\begin{bmatrix}V\\ \alpha\text{round}\\ \alpha\text{back}\end{bmatrix} \rightarrow [-\text{tense}] \;/\; \text{——}\,C\left\{\begin{matrix}C_0+ic, +id, +ish\\ (C_1+)\begin{bmatrix}-\text{stress}\\ V\end{bmatrix} C_0\,[-\text{cons}]\end{matrix}\right\}$ — IV (19), note 16, and p. 192

(21) $\text{ɔ} \rightarrow [3\ \text{stress}] \;/\; \text{——}\,\#$ — IV (45)

(22) $g \rightarrow [+\text{cont}] \;/\; \text{——}\,[+\text{nasal}]\#$ — IV p. 234

(23) TENSING

(I) $\begin{Bmatrix}\text{æ}\\ u\end{Bmatrix} \rightarrow [+\text{tense}] \;/\; \begin{bmatrix}\text{———}\\ 1\ \text{stress}\end{bmatrix} nge$ — IV (60a)

(II) $\text{ɔ} \rightarrow [+\text{tense}] \;/\; \text{——}\,CV\,[-\text{seg}]$ — IV (60b)

(III)[3]
$$\begin{bmatrix}-\text{tense}\\ +\text{back}\\ V\end{bmatrix} \rightarrow \begin{bmatrix}+\text{tense}\\ -\text{round}\end{bmatrix} \Bigg/ \left\{\begin{matrix}\begin{bmatrix}\text{———}\\ +\text{high}\end{bmatrix} C_0^1 \left(\begin{bmatrix}\alpha\text{voc}\\ \alpha\text{cons}\\ -\text{ant}\end{bmatrix}\right)[-\text{cons}]\\ \begin{bmatrix}\text{———}\\ -\text{high}\\ -\text{low}\end{bmatrix}\left\{\begin{matrix}\begin{bmatrix}-\text{voice}\\ +\text{cont}\\ +\text{ant}\end{bmatrix}\\ [+\text{sonor}]\,C\end{matrix}\right\}\end{matrix}\right\}$$
— IV (77), (79), (84)

[2] The preconsonantal laxing rule as given here incorporates a refinement over the formulation in Chapter Four (rule (8)). Laxing does not take place in consonant clusters ending with a liquid. Thus, when a true consonant precedes a liquid, we find both tense and lax vowels: there is *supple*, *bubble*, *calibre*, *massacre*, in which the vowel is lax, as well as *maple*, *noble*, *Cyprus*, *migrate*, *meter* (cf. *metric*), *acre*, in which the vowel is tense.

[3] We have modified this rule and the tensing rule (23IV) that follows it by introducing an optional $\begin{bmatrix}\alpha\text{voc}\\ \alpha\text{cons}\\ -\text{ant}\end{bmatrix}$, just as we did in defining "weak cluster" for purposes of stress placement (cf. Chapter Three, (49)). This was done in order to account for the fact that here, too, a consonant followed by [r] or a glide behaves like a single consonant. With this extension we can account for tensing in the boldface position in words such as *cupric*, *putrify*, *Ukraine*, *inebriate*, *appropriate*, *opprobrium*, *repatriate*, *colloquial*, *obsequious*.

Clearly, we are leaving unexpressed an important generalization, namely, that in many different respects, consonant-liquid and consonant-glide strings function as single consonants. Actually, the situation is still more complex. We recall that we were forced to include the "weak cluster" option not only in the Main Stress Rule and Tensing Rules, but also in the Auxiliary Reduction Rule (120) of Chapter Three (see (24) here). As noted, this repetition indicates that we have failed to capture important properties of strong and weak clusters and thus points to a defect in our theory that merits further attention.

(IV)[4]

$$V \rightarrow [+\text{tense}] \Big/ \left\{ \begin{array}{l} \left[\begin{array}{c}\overline{\quad}\\ \alpha\text{low}\\ \beta\text{stress}\end{array}\right] \left\{ \begin{array}{l} V \\ \left[\begin{array}{c}-\text{seg}\\ -\text{FB}\end{array}\right] \text{where } \beta = + \text{ if } \alpha = + \end{array} \right\} \\ \left[\begin{array}{c}\overline{\quad}\\ -\text{high}\end{array}\right] C_1^1 \left(\left[\begin{array}{c}\alpha\text{voc}\\ \alpha\text{cons}\\ -\text{ant}\end{array}\right] \right) \left[\begin{array}{c}-\text{low}\\ -\text{back}\\ -\text{cons}\\ -\text{stress}\end{array}\right] V \end{array} \right\} \qquad \text{IV (20)}$$

(V)

$$\left[\begin{array}{c}+\text{high}\\ V\end{array}\right] \rightarrow \left[\begin{array}{c}+\text{tense}\\ -\text{round}\end{array}\right] / \text{——} [x, \gamma] \qquad \text{IV (130)}$$

(24) AUXILIARY REDUCTION—II

$$\left[\begin{array}{c}\alpha\text{stress}\\ V\end{array}\right] \rightarrow [2\ \text{stress}] \Big/ \# \left\{ \begin{array}{l} [-\text{stress}]_0 \text{——} C_0 \left(\left[\begin{array}{c}-\text{tense}\\ -\text{stress}\\ V\end{array}\right] C_0^1 \right) \bar{C}_0 \left[\begin{array}{c}\beta\text{stress}\\ V\end{array}\right] \bar{C}_0 \left[\begin{array}{c}\gamma\text{stress}\\ V\end{array}\right] \bar{C}_0 \left\{ \left[\begin{array}{c}\#\\ \delta\text{stress}\\ V\end{array}\right] \right\} \\ C_0 \left\{ \left[\begin{array}{c}\text{——} C_2\\ \overline{\quad}\\ +\text{tense}\end{array}\right] \right\} \end{array} \right\}$$

where $\bar{C}$ is a consonant or a boundary — III (120)

$\alpha \neq 1$

β is weaker than 2

δ is weaker than γ

(25)

$$\left[\begin{array}{c}+\text{cor}\\ +\text{strid}\\ +\text{cont}\end{array}\right] \rightarrow [+\text{voice}] \Big/ \left\{ \begin{array}{l} V = \text{——} V \\ \left[\begin{array}{c}+\text{tense}\\ V\end{array}\right] \text{——} [-\text{cons}] \\ Vk \text{——} \acute{V} \end{array} \right\} \qquad \text{IV (119)}$$

(26) SPIRANTIZATION

$$\left[\begin{array}{c}+\text{cor}\\ +\text{ant}\\ -\text{sonor}\end{array}\right] \rightarrow \left[\begin{array}{c}+\text{cont}\\ +\text{strid}\end{array}\right] \Big/ \left\{ \begin{array}{l} \left[\begin{array}{c}\overline{\quad}\\ +\text{voice}\end{array}\right] + ive \\ \left\{\begin{array}{c}[+\text{sonor}]\\ [-\text{cont}]\end{array}\right\} \text{——} \Big/ \left\{ \begin{array}{l} \left[\begin{array}{c}\overline{\quad}\\ -\text{voice}\end{array}\right] + \left[\begin{array}{c}-\text{cons}\\ -\text{back}\\ -\text{stress}\end{array}\right] [-\text{seg}] \\ \text{——} + y \end{array} \right\} \\ \left[\begin{array}{c}\overline{\quad}\\ +\text{strid}\end{array}\right] \end{array} \right\}$$

IV (120)
and p. 233

[4] We have extended this rule over (20) of Chapter Four by generalizing the pre-boundary case of tensing to all boundaries other than formative boundary, thus to = as well as #. Recall that = appears in forms such as /pre=tend/, /re=sist/ (cf. Chapter Three, Section 10), where tensing would otherwise not take place in the prefix. See also note 6 below.

(27) $k \rightarrow \phi \;/\; +C_1\bar{i}\text{——}\#$ IV (62)

(28) CLUSTER SIMPLIFICATION

$C \rightarrow \phi \;/\; \text{——}\textit{identical consonant}$ III (156); IV p. 222 and note 60

(29)

$$\phi \rightarrow y \;/\; \text{——}\begin{bmatrix} +\text{tense} \\ -\text{round} \\ +\text{high} \\ +\text{back} \\ V \end{bmatrix}$$ IV (50) and p. 196

(30) $\bar{\Lambda} \rightarrow [+\text{low}]$ IV (78)

(31) DIPHTHONGIZATION

$$\phi \rightarrow \begin{bmatrix} -\text{voc} \\ -\text{cons} \\ +\text{high} \\ \alpha\text{back} \\ \alpha\text{round} \\ \beta\text{rule 32} \end{bmatrix} \Big/ \begin{bmatrix} +\text{tense} \\ \alpha\text{back} \\ \beta\text{rule 32} \\ V \end{bmatrix}\text{——}$$ IV (21) and p. 208

(32) GLIDE VOCALIZATION

$$\begin{bmatrix} -\text{cons} \\ +\text{back} \end{bmatrix} \rightarrow [+\text{voc}] \;/\; \begin{bmatrix} \alpha\text{round} \\ \alpha\text{high} \\ V \end{bmatrix}\text{——}$$ IV (74)

(33) VOWEL SHIFT

$$\begin{bmatrix} \gamma\text{back} \\ \gamma\text{round} \\ V \end{bmatrix} \rightarrow \left\{ \begin{array}{l} [-\alpha\text{high}] \;/\; \left[\begin{array}{c} \text{———} \\ \alpha\text{high} \\ -\text{low} \end{array}\right] \\ [-\beta\text{low}] \;/\; \left[\begin{array}{c} \text{———} \\ \beta\text{low} \\ -\text{high} \end{array}\right] \end{array} \right\} \Big/ \left\{ \begin{array}{l} \left[\begin{array}{c} \text{———} \\ +\text{tense} \\ +\text{stress} \end{array}\right] \\ \left[\begin{array}{c} \text{——} \\ +\text{F} \end{array}\right] \\ \left[\begin{array}{c} \text{———} \\ -\text{tense} \\ +\text{high} \\ +\text{back} \end{array}\right] \end{array} \right\}$$ IV (43); IV (61); IV (63)

(34) ROUNDING ADJUSTMENT

$$\begin{bmatrix}\alpha\text{round}\\ +\text{back}\\ \text{V}\end{bmatrix} \rightarrow [-\alpha\text{round}] \Big/ \left\{\begin{bmatrix}\text{———}\\ -\text{tense}\end{bmatrix}, \begin{bmatrix}\text{———}\\ \beta\text{low}\\ \beta\text{round}\\ +\text{tense}\end{bmatrix}\right\} \quad \text{IV (93)}$$

(35) BACKNESS ADJUSTMENT[5]

$$\begin{bmatrix}+\text{low}\\ \text{V}\end{bmatrix} \rightarrow [+\text{back}] \;/\; \text{——}[-\text{cons}] \quad \text{IV (88)}$$

(36) $$\text{a} \rightarrow [+\text{tense}] \quad \text{IV (89)}$$

(37) PALATALIZATION

$$\begin{bmatrix}-\text{sonor}\\ +\text{cor}\end{bmatrix} \rightarrow \begin{bmatrix}-\text{ant}\\ +\text{strid}\end{bmatrix} / \text{——} \begin{bmatrix}-\text{back}\\ -\text{cons}\\ -\text{voc}\end{bmatrix} \begin{bmatrix}-\text{cons}\\ -\text{stress}\end{bmatrix} \quad \text{IV (121)}$$

(38)

$$\begin{bmatrix}-\text{cons}\\ -\text{voc}\end{bmatrix} \rightarrow \phi \Big/ \left\{\begin{bmatrix}+\text{cor}\\ -\text{ant}\\ -\text{sonor}\end{bmatrix}\text{——}, \begin{bmatrix}+\text{cor}\\ +\text{cons}\end{bmatrix}\begin{bmatrix}\text{———}\\ -\text{back}\end{bmatrix}[+\text{stress}]\right\} \quad \begin{matrix}\text{IV (122)}\\ \text{IV (123)}\end{matrix}$$

(39) $$\text{z} \rightarrow [-\text{voice}] \;/\; \text{——} + \textit{ive} \quad \text{IV (124)}$$

(40)

$$\begin{bmatrix}-\text{cor}\\ -\text{ant}\\ +\text{cont}\\ -\text{voc}\end{bmatrix} \rightarrow \begin{Bmatrix}\phi\\ \text{h}\end{Bmatrix} / \left\{\begin{matrix}\text{C}\text{——}\\ \text{——C}\end{matrix}\right\} \quad \begin{matrix}\text{IV (129)}\\ \text{and p. 234}\end{matrix}$$

[5] Note that this formulation of Backness Adjustment is for the dialect with [āw] rather than [æw] as the reflex of underlying /ū/. (See rule (39) and note 48 in Chapter Four.) This rule when stated in its fully general form should incorporate the rule that converts stressed [ā] into [æ] in forms such as *Alabama, alabaster* (see Chapter Three, p. 152). We omit rule (40) of Chapter Four, which, in dialects that have [æw] from [āw], laxes [ā] produced by Backness Adjustment.

(41) *e*-ELISION[6]

$$\begin{bmatrix} -\text{back} \\ -\text{high} \\ -\text{low} \\ -\text{cons} \end{bmatrix} \rightarrow \phi \; / \text{——} [-\text{seg}] \qquad \text{III (155)}$$

(42) $$\phi \rightarrow \text{ə} \; / \; \text{C——}[+\text{sonor}]\# \qquad \text{III p. 85}$$

(43) VOWEL REDUCTION[7]

$$\begin{bmatrix} -\text{stress} \\ -\text{tense} \\ \text{V} \end{bmatrix} \rightarrow \text{ə} \qquad \text{III (121)}$$

[6] This rule deserves a more extensive study than we have given it. In particular, its position in the ordering is open to some question. Our only justification for placing it here is that, for reasons mentioned in note 18 of Chapter Four, it may follow Vowel Shift so as to account for nonelision in the boldface position in words such as *simultaneous*. The rule of *e*-Elision should be distinguished from a rule that drops both /e/ and the glides /y/ and /ɛ/ before various affixes, as in *telescopic*, *telescopy*, *harmonic*, and *harmonize*. The latter is, presumably, a lexical rule.

We have noted (see p. 195 of Chapter Four) that the rule of *e*-Elision can be used to account for the fact that the first syllable is short in words such as *issue*, *tissue*, *value*, *menu*. As pointed out to us by S. J. Keyser, it can be used to explain the lax vowel in the first syllable in words such as *pity*, *city*, if we derive these from /piteɛ/, /siteɛ/. Stress will be placed on the first syllable by the usual rule for nouns, and the trisyllabic laxing rule will guarantee that the stressed vowel is lax. The [e]'s will tense, and the glide [ɛ] will elide. By the rule mentioned in note 18, Chapter Four, final [ĕy] will become [ĭy]. This idea has further consequences that might be explored.

[7] We leave open the question of just how the reduced vowel is actualized phonetically in various contexts.

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PART III
HISTORY