PHONOLOGY (Continued)

PHONOLOGICAL RULES

formalized statements on the distribution of allophones

Phonological Representation:
UNPREDICTABLE = underlying or basic

Phonetic Representation:
PREDICTABLE = derived by rules

PHONOLOGICAL DERIVATIONS:

UR (= Underlying Representation)
PR (= Phonetic Representation)

UR       #bllk# ‘blick’       #plejs# ‘place’

Liquid    --        #pəejs#
and Glide
Devoicing

Aspiration     --        #pʰəejs#
PR       [blick]        #pʰəejs#
THE FORM AND NOTATION OF RULES

A → B / X ____ Y

A = input (Underlying Representation)
B = output  (Phonetic Representation)

X ____ Y (environment)

The rule should be read as follows:

A becomes B, between X and Y

Notations:

σ or $ SYLLABLE BOUNDARY

# WORD BOUNDARY

Co or Cø ANY NUMBER OF CONSONANTS (zero, or more)

V

[ -consonantal
  +syllabic ]

C

[ +consonantal
  -syllabic ]

Liquid-Glide Devoicing Rule: STUDY Figure 3.23 on p. 102
**BRACE NOTATION:**

This notation combines two or more rules that have identical parts:

a. \[ V \rightarrow [+\text{long}] / \quad \left\{ \begin{array}{c} \text{C} \\ -\text{sonorant} \\ +\text{voice} \end{array} \right\} \sigma \]

b. \[ V \rightarrow [+\text{long}] / \quad \# \]

Combined rule:

\[ V \rightarrow [+\text{long}] / \quad \left\{ \begin{array}{c} \text{C} \\ -\text{sonorant} \\ +\text{voice} \\ \# \end{array} \right\} \]

Vowels become long before a voiced obstruent in the same syllable and word-finally.

**FORMALIZING DELETION RULES:**

Schwa deletion in English:

\([ə]\) may be deleted in an open syllable (CV) when it is followed by a stressed syllable.

\[ [ə] \rightarrow \emptyset / \quad C\phi \quad \sigma \quad [+\text{stress}] \]

For example: \textit{police} \quad [p\text{\textperiodcentered}l\text{\textperiodcentered}is]
EPENTHESIS AND ALPHA RULES

In English, the glides that follow tense vowels that are [-low] are predictable:
/i/ and /e/ are followed by /j/
/u/ and /o/ are followed by /w/.

NOTE: this prediction is only valid in the variety of English where boy is
pronounced as [ɔj].

ALPHA NOTATION: If two rules are identical except for the values for the
features (+ or -), then the two rules can be replaced by a single rule.

The Greek letter α is a variable that may stand for either feature value.

STUDY Figure 3.25 on p. 103

PHONOTACTICS
↓
the arrangement of segments in a sequence; it is part of a speaker’s knowledge of
the grammar

Examples (phonetic details such as aspiration, devoicing etc. are not relevant here):


[pɾ] pride [tɾ] train [kɾ] crown

The word-initial phonotactic constraints in English may be summarized as follows:

\[
\sigma \begin{cases}
  p \\
  r \\
  (w) \\
  (l) \\
  s \\
  t \\
  k \\
  j
\end{cases}
\]

**ACCIDENTAL GAPS:** non-occurring possible forms.

Examples: *flurp, wibbles* etc.

**SYSTEMATIC GAPS:** gaps that are results of phonotactic constraints.

Examples: *btlet, mcapthv*

Phonotactic constraints are language-specific:

- **BANTU:** * nto, ‘person’
- **BULGARIAN:** * vnuk, ‘grandson’
- **TIBETAN:** * งabdצ, ‘fifty’

**SYLLABLES:** a phonological unit composed of one or more segments; it must contain a nucleus.
Setting up syllables: e.g., *extreme*

Step (a): link a vowel to N (nucleus); above each vowel place an R (rhyme); above each R, place a σ symbol.

\[
\begin{array}{c|c|c|}
\sigma & \sigma & \varepsilon k s t r i j m \\
\hline
| & | & \\
R & R & \\
| & | & \\
N & N & \\
| & | & \\
\end{array}
\]

Step (b): find the ONSET (the longest sequence of consonants to the left of the nucleus that conforms to the phonotactic constraints. Link these consonants to an O.

\[
\begin{array}{c|c|c|}
\sigma & \sigma & \varepsilon k s t r i j m \\
\hline
| & | & \\
R & R & \\
\hline
| & | & \\
N & O & N \\
\hline
| & | & \\
\end{array}
\]

Step (c): Find the CODA (any remaining consonants to the right of the nucleus).

\[
\begin{array}{c|c|c|}
\sigma & \sigma & \varepsilon k s t r i j m \\
\hline
| & | & \\
R & R & \\
\hline
| & | & \\
N & O & N \\
| & | & \\
\end{array}
\]
RHYME (R): The NUCLEUS and the CODA of a syllable.

Step (d): Syllables are part of the word (Wd)

STUDY Figures 3.7, 3.8, 3.9, and 3.10 on pp. 77-78.