

Formalizing phonological rules: more notations**NOTATIONS:**

C: Represents the features $\left[\begin{array}{l} -\text{syllabic} \\ +\text{consonantal} \end{array} \right]$

V: Represents the features $\left[\begin{array}{l} +\text{syllabic} \\ -\text{consonantal} \end{array} \right]$

Zero subscript **C₀** represents zero or more consonants

$V \rightarrow [-\text{back}] / \text{---} C_0 \left[\begin{array}{l} V \\ +\text{high} \\ -\text{back} \end{array} \right]$

$\text{---} C_0 \left[\begin{array}{l} V \\ +\text{high} \\ -\text{back} \end{array} \right]$ is an abbreviation for:

$\text{---} \left[\begin{array}{l} V \\ +\text{high} \\ -\text{back} \end{array} \right]$

$\text{---} C \left[\begin{array}{l} V \\ +\text{high} \\ -\text{back} \end{array} \right]$

$\text{---} C C \left[\begin{array}{l} V \\ +\text{high} \\ -\text{back} \end{array} \right]$

etc.

BRACE NOTATION: {

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

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

Combined rule:

$$V \rightarrow [+long] / \text{---} \left\{ \begin{array}{c} \text{C} \\ \left[\begin{array}{c} - \text{sonorant} \\ + \text{voice} \end{array} \right] \\] \text{ word} \end{array} \right. \quad (\text{or, } \#)$$

#	word boundary
σ	syllable boundary
+	morpheme boundary

PARENTHESIS NOTATION: ()

Parentheses are used as a formal device for collapsing two similar rules when one contains a specification lacking in the other.

- a. $\left[\begin{array}{c} - \text{continuant} \\ - \text{voice} \end{array} \right] \rightarrow [+SG] / \sigma \text{---} \begin{array}{c} \text{V} \\ [+stress] \end{array}$
- b. $\left[\begin{array}{c} - \text{continuant} \\ - \text{voice} \end{array} \right] \rightarrow [+SG] / \sigma \text{---} \left[\begin{array}{c} + \text{sonorant} \\ - \text{syllabic} \\ - \text{nasal} \end{array} \right] \begin{array}{c} \text{V} \\ [+stress] \end{array}$

Combined rule:

$$\left[\begin{array}{l} - \text{continuant} \\ - \text{voice} \end{array} \right] \rightarrow [+SG] / \sigma \text{ — } \left[\begin{array}{l} +\text{sonorant} \\ +\text{syllabic} \\ -\text{nasal} \end{array} \right] \begin{array}{l} V \\ [+stress] \end{array}$$

Where *braces* are used, each rule to be collapsed contains restrictions not found in the other. With *parentheses*, only one of the rules has an additional restriction.

These notations are employed only for collapsing rules involving the *same processes*, and *not* any two rules.

French:

petit ami [pətit_ami] petit tabloux [pəti tablo]
 nos amis [noz ami] nos tableaux [no tablo]

Ø : indicates deletion of a segment.
 $C \rightarrow \emptyset / \text{ — } \#C$

A word-final consonant is deleted if the following word begins with a consonant.

VARIABLE FEATURE VALUES: α notation

If two rules are identical except for the values of the *same feature*, then the two rules can be replaced by a single rule. The values which are different in the two rules are replaced by a variable -- the Greek letter *alpha* -- in the new rule.

e.g., Nasalization in Malay:

mèwǎh	‘luxurious’
mǎỹǎŋ	‘stalk’
mārah	‘ascend’
nǎě?	‘scold’
mǎlaraŋ	‘forbid’
mākan	‘eat’
rumāh	‘house’
kəreta	‘car’

$[-\text{consonantal}] \rightarrow [\alpha \text{ nasal}] / [\alpha \text{ nasal}] \text{ — }$

Rules with multiple variables: α , β

Turkish (Poss. Suffix)

dif	<i>tooth</i>	difim	<i>my tooth</i>
ev	<i>house</i>	evim	<i>my house</i>
gönül	<i>heart</i>	gönülüm	<i>my heart</i>
göz	<i>eye</i>	gözüm	<i>my eye</i>
baş	<i>head</i>	başım	<i>my head</i>
kol	<i>arm</i>	kolum	<i>my arm</i>

-im, -üm, -ım, -um -- Assimilation: Vowel Harmony!

$$V_{[+high]} \rightarrow \left[\begin{array}{c} \alpha \text{ back} \\ \beta \text{ round} \end{array} \right] / \left[\begin{array}{c} V \\ \alpha \text{ back} \\ \beta \text{ round} \end{array} \right] Co + Co \text{ ———}$$

English:

Voicing Assimilation
Alveolar Place Reinforcement } Study pp. 133-135.