# Phonological Rule statement notations

Phonological rules state how phonemes in a language are actually pronounced in different environments within a word

### Phonological rule notation

- · Abstractly, we can represent this in the following
- notation: X → Y/\_\_\_ Z
- • Basic definitions:
- the '→' means 'changes to';
- - the slash '/' means 'in the environment of'; and
- - the '\_\_\_' positions the input in relation to other
- elements in the phonological environment (e.g., before
- or after).
- • What this rule simply says is "An input X changes to
- Y when it occurs before Z."

## \*• Y/ZPhonological rule statement notation

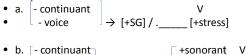
- • Suppose instead that we want to say that X
- changes to Y after (rather than before) Z.
- How do we do that in rule notation?
- • Well, a simple change will get us the
- required result:
- $X \rightarrow Y/Z$

# Phonological rule notation

- By convention, we will use "." to indicate a
- syllable boundary, and "#" to indicate a word
- boundary.
- • Now, read the following abstract rules.
- $X \rightarrow Y / . ___$
- X → Y / \_\_\_\_.
- X → Y / \_\_\_ #
- . .

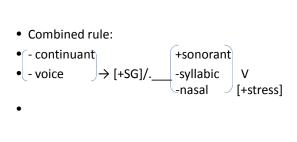
#### • PARENTHESIS NOTATION: ()

 Parentheses are used as a formal device for indicating optional elements in the environment of a rule. For instance, the following two rules for the same process may be combined



• | - voice | → [+SG] /. | -syllabic | -nasal | -sall | -syllabic | -syllabic | -nasal | -syllabic |

- SG in the output of the above rules stand for Spread Glottis feature (aspiration)
- The second rule above accounts for aspiration of initial voiceless stops in words like plum, pram, clean, crumb etc.
- The second rule above differs from the first only with respect to the additional presence of a consonant in the environment for the rule.
   Hence we may be combine both the above rules in a single rule by putting the additional consonant element in a parenthesis.



- 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.

## • BRACE NOTATION: {

 Brace notation is employed when the same rule applies to more than one environment.
 The notation entails that the environment given stand in an 'either or' relation.

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For instance look at the following rules. Vowels are lengthened before a voiced obstruent and also word finally
a. V → [+long] / ______ = conorant +voice
b. V → [+long] / _____ #
Combining rules a. and b., using braces we can have it as:
C _______ = conorant +voice
V → [+long] / _____ = conorant +voice
w it is a conorant +voice +voice
w it is a conorant +voice<
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## Exercise

- In American English /r/ is dropped in two environments.
- Word finally as in car, war, mar, bar etc.
- Before a word final consonant as in park, work, mart, surf, nerd, etc.
- Deletion is expressed as Ø. So write an r deletion rule using parenthesis and brace convention