WRITING RULES

Rule format for features – use square brackets:

[ ] → [ ] / [ ] _____

1. To capture a natural class.
The natural class can be a group of sounds changing:

ex. /β ð ɣ/ → [b d g] class of voiced fricatives = [-son, +cont, +voice]

The natural class can be a group of sounds in the environment:

ex. / ____ [u o ɔ ɑ] class of back vowels = [+syllabic, +back]

2. To capture an assimilation.
An *assimilation* occurs when a sound or sounds takes on the feature(s) of another sound or sounds, so they share the feature(s). Assimilations will show a match between the feature(s) that is(are) changed and the feature(s) in the environment:

ex. [+syllabic] → [+nasal] / ____ [+nasal] *vowel nasalization*

3. To show that a change is minor.
Only one or two features are changing; all other features remain unchanged

/b/ → [+nasal, +son] / ____ [-syllabic, +nasal] *labial consonant nasalization*

Simplifying rules.
Voicing assimilation rule:

[-son, -voice] → [+voice] / ____ [-son, +voice]

can be simplified as:

[-son] → [+voice] / ____ [-son, +voice]

It is assumed that if [+voice] is changing, then the sounds must have been [-voice] in order to change to [+voice]. This rule 'vacuously' applies to any [+voice] obstruents.
Many phonologists do this – I will not be picky about enforcing this.

Alpha notation can be used to refer to the value of the feature when two rules do essentially the same thing but use opposite values: + → - and - → +

ex. /l/ → [r] / ___ [r]
= [+cons, +approx. -lateral] → [+lateral] / ____[+lateral (+cons, +approx.)]

/r/ → [l] / ____ [l]
= [+cons, +approx. +lateral] → [-lateral] / ____[-lateral, +cons, +approx.]

can be generalized as:

[+cons, +approx] → [αlateral] / ____ [αlateral, +cons, +approx]

This can also be used for place features even though they are non-binary

n → [αplace] / ____ [-syllabic, αplace]

means that n → m before labials and n → ŋ before velars, etc..

Insertion and deletion of segments are indicated by using a Ø symbol:

Insertion	Ø	-->	[i] / C ___ C #	($_{word}$] or [$_{word}$ can be used instead of #)
Deletion	V	-->	Ø / ____ V	

Parentheses and braces are used to collapse two almost identical rules together

Parentheses are used to indicate *optionality*

/u/ --> [+front] / ____ C (C) [+front, +syllabic]

This collapses two rules by recognizing that the context of one rule is a proper subset of the other. In this case, the rules are identical except for the context of the additional consonant. This consonant may or may not be present to trigger the phonological change:

/u/ --> [+front] / ____ C [y]
/u/ --> [+front] / ____ C C [+front, +syllabic]

A variation on the parenthesis is the use of **subscripts** and **superscripts**. Rules often have the property of being able to skip over irrelevant intervening material. In general, $(X)_a^b$ stands for all the strings of X's of length *a* through length *b*, inclusive. Absence of a superscript means that the string is unbounded in length. A common expression found in many rules is C_0, which means "ignore any number of intervening consonants".

Braces are used to indicate *alternate environments*

Ø --> [i] / C __ C $\left\{ \begin{matrix} \# \\ C \end{matrix} \right\}$

In this example, braces collapse two rules by recognizing that the rules are identical except for the context following the second consonant.

Ø --> [i] / C __ C #
Ø --> [i] / C __ C C