For a language that has the following inventory (see p. 148-149 for features):

\{ i e æ a ā o ō u ū p b v θ ð t d s z ʃ ʒ k g ʃ ʒ w j m n ŋ \}

**Determine what sets of segments** match the following feature descriptions:

\[[+\text{cons}] = \{\} \quad [+\text{syl}] = \{\} \]

\[[+\text{cons}, +\text{voice}] = \{\} \quad [+\text{syl}, -\text{high}] = \{\} \]

\[[+\text{cons}, +\text{voice}, -\text{cont}] = \{\} \quad [+\text{syl}, -\text{high}, +\text{round}] = \{\} \]

\[[+\text{voice}, -\text{cont}] = \{\} \]

**Determine what sets of features** defines each of the following sets of segments

\{ b d g m n ŋ \} = \{ f ŋ s ŋ \} =

\{ i e æ \} = \{ i j u w \} =

\{ o l k \} =

(one of the above may be a trick!)

**Writing Rules with features:**

The segments which undergo the rule should be a natural class; the segments which trigger the change (the environment) should be a natural class, and the change should be described in terms of feature change.

For each of the following, **translate the feature rule into prose**:

\[[+\text{voice},+\text{cont}] \rightarrow [-\text{voice}] / [-\text{voice}] ___ \]

\[[+\text{syl}] \rightarrow [+\text{nas}] / ___ [+\text{nas}] \]

\([-\text{cont}] \rightarrow [+\text{cont}] / V ___ V \]

**Translate the following rules from prose into features:**

from Kuria, p. 61: \( β \rightarrow b, \quad r \rightarrow d, \quad \text{and} \quad γ \rightarrow g \) after nasals

from Modern Greek, p. 62: \( k \rightarrow k^j \) and \( x \rightarrow x^j \) before the vowels i and e

from lots of languages: an obstruent assimilates in voicing and aspiration features to a following obstruent (use Greek variable notation)