Discussion, February 23, 2012

1.0 Writing Rules Formally:

/A/ → [B] / [X] __[Y]

/A/ → [A] / elsewhere

- A = the form of the element in the UNDERLYING OR MENTAL REPRESENTATION
  the features of the phoneme or phonemes undergoing the change
- B = the form of the element in the SURFACE OR SPOKEN REPRESENTATION
  the change in features the phoneme undergoes to become the allophone that looks different from the phoneme
- X and Y : the environment
  Either X or Y may be absent depending on where the phone of interest is in the word or the environment
  # = a word boundary

2.0 Syllable Structure and Phonological Rules

- We've learned about phonological rules that care about what phones can occur together…environments that just care about what phones occur next to the phoneme in question.

- We also learned about syllable structure. Syllable structure also matters for some phonological rules. If a word can't be syllabified in a given language, it undergoes changes that make it syllabifiable.

- On assignment 2, I asked you about the following strings of phones. Could they be syllabified as English words obeying English phonotactic constraints? If not, how would you change them?

a. [mgla]

b. [trægvdɛl]

- Neither could be syllabified as an English word. You correctly identified the problematic consonant clusters as [mg] and [gv] or [vd], respectively.
  - Many of you said that you could fix these impossible/ungrammatical words in two possible ways:
    - You could delete a consonant
    - You could insert a vowel

- DELETION: gets rid of something that was present in the underlying form

- EPENTHESIS: adds something that was not present in the underlying form

  - Two types of phonological rules that we haven't seen examples of yet are EPENTHESIS and DELETION.
    - These processes are either motivated by similar phonetic reasons as other phonological rules, or by phonotactic constraints (restrictions on possible syllables).

  - The use of epenthesis and deletion as a way to resolve phonotactic constraint problems is often easiest to see with loanwords because languages have different phonotactic constraints. We'll view the form from the "borrowed-from" language as the "underlying" representation of the word.

English:	**Vowel Epenthesis in Hawaiian:**
palm /pɑm/	[pama]
heel /hil/	[hila]
English:	**Consonant Deletion in Hawaiian:**
school /skul/	[kula]
blue /blu/	[polu]

2.1 Example epenthesis problems

- Epenthesis is often triggered when a language borrows a word from another language. We've seen that different languages permit different phonotactic structures.

- Some varieties of English show the following pattern: (Newfoundland English, Scottish English, Irish English)

English Orthography	Standard American English	Newfoundland English
film	[fɪlm]	[fɪ.ləm]
filmstrip	[fɪlm.stʃrɪp]	[fɪ.ləm.stʃrɪp]
milk	[mɪlk]	[mɪ.lək]
milkshake	[mɪlk.ʃek]	[mɪ.lək.ʃek]
girl	[gɪrl]	[gɪ.rəl]
girlfriend	[gɪrl.frɛnd]	[gɪ.rəl.frɛnd]
elm	[ɛlm]	[ɛl.ɛm]
worm	[worm]	[wo.rəm]
barm (yeast)	[barm]	[ba.rəm]
kelk (stone)	[kɛlk]	[kɛ.lək]
tarmac	[tar.mæk]	[tar.mæk] *[ta.rə.mæk]

- The following epenthesis rule applies. It account for the data set that we have.

  Ø → [ə] / [+voiced, +continuant, +approximant, +sonorant] __ [-vocalic] σ
  Ø → / elsewhere

- Notice in the environment, I have written "σ" at the end. This indicates that there is a syllable boundary there. The [+voiced, +continuant, +approximant, +sonorant] sound must occur together in a coda with the [-vocalic] sound. Epenthesis applies and we get two syllables, where the epenthesized vowel [ə] is the nucleus of the new syllable.

  - Why do we want this in our rule?
  - Because of the case of "tarmac." Here, [r] and [m] would trigger the rule, except that they are in different syllables ([r] is a coda, [m] is the onset to the next syllable). Since the epenthesized form *[ta.rə.mæk] is not attested, we do not want epenthesis to apply here.

2.2 Example deletion problems

- You will have an example of deletion on your homework from English.
    - Deletion rule will look like this: /phoneme in features/ → Ø / environment

Japanese (Simplified)

Underlying	**Surface Form**		**Translation**
/toiki/	[toik]	*[toiki]	'sigh'
/mukaʃi/	[mukaʃ]	*[mukaʃi]	'old times'
/ukatsu/	[ukats]	*[ukatsu]	'careless'
/kesatsu/	[kesats]	*[kesatsu]	'police'
/kjokatsu/	[kjokats]	*[kjokatsu]	'threat'
/hendʒimatʃi/	[hendʒimatʃ]	*[hendʒimatʃi]	'waiting for a reply'
/osʃoŋatsu/	[oʃoŋats]	*[oʃoŋatsu]	'new year'
/kana/	[kani]	*[kan]	'crab'
/mate/	[mate]	*[mat]	'wait!'

- Final deletion of [i,u] (+high) vowels seems to happen after [-voiced] consonants.
    - Deletion of [i,u] doesn't happen after [+voiced] consonants: [kani]
    - Deletion of [e] (a [-high] vowel) doesn't happen after [-voiced] consonants.

- We can write our two rules:

Where the change happens: /+vocalic, +high, +tense/ → [Ø] / [-voiced]__#

Elsewhere: /+vocalic, + high, +tense/ → [+vocalic, +high, +tense] / elsewhere

3.0 Overview of Phonological Rules

- While it is not the case that all phonological rules will fall into one of the following categories, these are cross-linguistically pervasive types of phonological rules. These rules are pervasive because they are grounded in something about grammar (the mental structure of a language) plus the physical apparatus (vocal tract).

- **Assimilation of Place of Articulation**
    - *Southern Kongo (Kikongo)*
      /z, s/ → [ʒ, ʃ] / __[i]
      /+strident, +coronal, +alveolar/ → [+post-alveolar] / __ [+vocalic, +front, +high]
    - *Japanese*
      /s/ → [ʃ] / __[i]

- **Assimilation of Manner of Articulation**
    - Swampy Cree (voiced)
    - Zoque (voiced)
    - Gascon (continuant)

- **Epenthesis**
    - Newfoundland English
- **Deletion**
    - Japanese