Phonological processes: Harmony

- Last week, we looked at phonological processes, focusing on assimilation.
- We focused on various patterns of assimilation in English.
- We also covered important issues under assimilation, including:
  
a. The nature of assimilation: co-articulation.
b. The phonological features involved in assimilation: all features
c. Segments that are involved in assimilation: triggers and targets
d. The direction of spread of the feature in assimilation: regressive, progressive and bidirectional assimilation.
e. The domain of assimilation: the syllable, morpheme, word, phrase etc.

- In today’s lecture, we will discuss harmony.
- We will show that harmony:
  a. Harmony is a kind of assimilation.
  b. All the issues central to assimilation are also central to harmony.

- We will also practice analysing vowel harmony data on three languages: Kera, Dagbani and Akan.

Harmony

- A process by which a sound becomes more like another sound or
- A process by which sounds within a domain share one feature value.
- But the two sounds do not have to be adjacent, unlike assimilation.
- The feature involved in harmony is called the harmonic feature.
- Like assimilation, harmony affects both vowels and consonants, though vowel harmony is more common and some phonologists don’t recognise or discuss consonant harmony.

- Which features can be harmonic features?
- Many features. All vowel features, some consonant features such as laryngeal features and [nasal].

More on the concept of harmony

- Because segments are not adjacent, it is not co-articulation
- Thus another name for harmony is long distance assimilation.
- Harmony is more of phonology than assimilation, which is more phonetic.
- Thus there are patterns of assimilation in every language, but not every language has harmony.
- In other words, the mechanisms involved in assimilation are dictated by phonetic considerations. By contrast, harmony is a choice a language makes to include in its phonology. The mechanisms involved in sound articulation does not require that segments that are not contiguous share one feature.
There are four other fundamental issues in harmony:
1. Trigger and target:
2. Direction of assimilation
3. Domain of assimilation.
4. Active and recessive feature values

1. Triggers and targets
   - Whatever was said about triggers and targets in assimilation also applies to harmony.
   - Additionally, there are some issues specific to harmony.
   - There is usually more than one target, unlike assimilation, where there is only one target.
   - The trigger and target do not have to be adjacent segments (as already noted).
   - In many languages, trigger-target relation is conditioned on morphology. The trigger is always a root segment while the target may be another root segment or an affix segment.
   - In other words, a segment in the affix cannot serve as the trigger.
   - Such harmony systems are known as root-controlled harmony systems.
   - In a root-controlled harmony system, it does not matter what the value of the harmonic feature is. Whatever the value of the harmonic feature in the root segment is, determines the harmonic feature value of the entire domain.
   - For instance, in root-controlled [ATR] vowel harmony, when the root vowel is [-ATR], all vowels in the domain become [-ATR]; when the root vowel is [+ATR], all vowels in the domain become [+ATR] (see a different system called dominant-recessive system below).

2. Directionality:
   - Whatever was noted regarding directionality in assimilation also applies to harmony.
   - The only difference is that, bidirectionality is more likely/prevalent under harmony than assimilation.
   - As already noted, in many languages directionality of harmony depend on morphology: root segments serve as triggers and affix segments serve as targets.

3. Domain of harmony: The issues regarding domain of assimilation also apply (in fact more strongly) to harmony.

4. Active versus recessive feature values
   - In languages where directionality does not depend of morphology, one value of the harmonic feature is dominant, the other is recessive.
   - Within the harmonic domain, segments with the dominant feature value will serve as the triggers while segments with the recessive feature value are the targets.
   - Segments with the dominant feature value (the triggers) cause those with the recessive feature value (the targets) to change.
   - In such cases, it does not matter whether the triggers are located in the root or affix, and whether the targets are in the root or affix.
   - Such harmony systems are known as dominant-recessive harmony systems.
For instance, in a dominant-recessive system where [-ATR] is the dominant value of the [ATR] harmonic feature, a vowel with a [-ATR] feature value will cause another vowel with a [+ATR] value within the harmonic domain to become [-ATR]. In this process, there are four possibilities:

- The UR [-ATR] vowel (trigger) is in the root; the UR [+ATR] vowel (target) is in the affix.
- The UR [-ATR] vowel (trigger) is in the affix; the UR [+ATR] vowel (target) is in the root.
- Both vowels are root vowels
- Both vowels are affix vowels.

An example of consonant harmony is shown below, from Kera, a Chadic language.

In this language, stops and affricates show agreement for voicing within the word, both root-internally and between roots and affixes, regardless of intervening vowels and sonorant consonants.

The data show that the nominal prefix is voiced when the base begins with a voiced obstruent, as shown in (a)

The nominal prefix is voiceless when the base begins with a voiceless obstruent, or a sonorant, as shown in (b).

The data in (c) shows that the voicing affects suffixes too, and can cross sonorant consonants to do so.

**Kera laryngeal harmony: the nominal prefix /k/-**

(a) ｇo-dàarà  ‘friend’
    ｇo-dàjgá-w  ‘jug (plur.)’

(b)  kɔ-màanà  ‘woman’
    kɔ-taatá-w  ‘cooking pot (plur.)’
    kɔ-kámná-w  ‘chief (plur.)’

(c)  sá-r-ká  ‘black (fem.)’
    dʒàr-gá  ‘colourful (fem.)’