

**Topic: Optimality Theory (OT), cont'd**

**1. Constraints fall in two categories:** markedness and faithfulness constraints.

Markedness constraints encode cross-linguistically attested preferences.

Faithfulness constraints aim at an output that is as similar “as possible” to the input.

**2. OT as a model of language typology: a toy example**

(Suppose that) languages of the world fall in three categories:

1. stress on first syllable: *hócus-pocus*
2. stress on last syllable: *hocus-pocús*
3. stress on penultimate syllable: *hocus-pócus*.

But never on second syllables as a rule: *\*hocús-pocus*.

Suppose three constraints in CON:

- STRESSFIRST: Stress must fall on first syllable.  
 Assign one violation mark per syllable intervening between left edge of the word and stressed syllable.
- STRESSLAST: Stress must fall on last syllable.  
 Assign one violation mark per syllable intervening between stressed syllable and right edge of the word.
- \*FINAL: Stress must not fall on last syllable.  
 Assign one violation mark to candidate, iff stress on last syllable.

An OT tableau for this model:

Hierarchy (aka ranking) is \*FINAL >> STRESSFIRST >> STRESSLAST.

/ab.ra.ca.dab.ra/	*FINAL	STRESSFIRST	STRESSLAST
☞ <i>áb.ra.ca.dab.ra</i>			****
<i>ab.rá.ca.dab.ra</i>		*!	***
<i>ab.ra.cá.dab.ra</i>		*!*	**
<i>ab.ra.ca.dáb.ra</i>		*!***	*
<i>ab.ra.ca.dab.rá</i>	*!	****	

- \*FINAL >> STRESSFIRST >> STRESSLAST: ☞ *áb.ra.ca.dab.ra*
- \*FINAL >> STRESSLAST >> STRESSFIRST: ☞ *ab.ra.ca.dáb.ra*
- STRESSFIRST >> \*FINAL >> STRESSLAST: ☞ *áb.ra.ca.dab.ra*
- STRESSFIRST >> STRESSLAST >> \*FINAL: ☞ *áb.ra.ca.dab.ra*
- STRESSLAST >> \*FINAL >> STRESSFIRST: ☞ *ab.ra.ca.dab.rá*
- STRESSLAST >> STRESSFIRST >> \*FINAL: ☞ *ab.ra.ca.dab.rá*

Important to note: no permutation of the constraints yields *ab.rá.ca.dab.ra* or *ab.ra.cá.dab.ra*!

They are *harmonically bounded* candidates.

Conclusion: this OT model accounts for language typology, including observed and unobserved patterns.

### 3. Metrical stress in Optimality Theory

**Foot** (from poetry, cf. *metrical phonology* in the 1980s): a unit above the syllable level and below the phonological word level.

Standard (though, not necessarily universally held) assumptions:

- a. Syllables in a phonological word are either parsed into a foot, or are unparsed.
- b. A word has exactly one head/main foot, and may have further feet.
- c. A foot contains one or two syllables (unary vs. binary; NB: sometimes moras count).
- d. A foot has exactly one head syllable.
- e. Primary stress = head syllable of the main foot.
- f. Secondary (tertiary, etc.) stresses = head syllable of further feet.

<i>Underlying form:</i>	<i>ab.ra.ca.dab.ra</i>	(includes segments and syllabification)
<i>Surface form:</i>	<i>[áb.ra].ca.[dab.rà]</i>	(includes segments, syllabification, feet and stress)
<i>Overt form:</i>	<i>áb.ra.ca. dab.rà</i>	(includes segments, syllabification and stress)

Frequently used constraints in OT metrical stress (more constraints also possible, while some of these are subject to criticism):

- **Foot Binariness (FootBin):** Each foot must be either bimoraic or bisyllabic. Thus, assign one violation mark per foot that is composed of a single light syllable.
- **Weight-to-Stress Principle (WSP):** Each heavy syllable must be stressed. Thus, assign one violation mark per every heavy syllable that is not stressed.
- **Parse-Syllable (Parse):** Each syllable must be footed. Thus, assign one violation mark per syllable unparsed into some foot.
- **Main-Left:** Align the head-foot with the word, left edge. Assign one violation mark per each syllable intervening between the left edge of the word and the left edge of the head foot.
- **Main-Right:** Align the head foot with the word, right edge. Assign one violation mark per each syllable intervening between the right edge of the head foot and the right edge of the word.
- **All-Feet-Left:** Align each foot with the word, left edge. For each foot, assign one violation mark per each syllable intervening between the left edge of the word and the left edge of that foot.
- **All-Feet-Right:** Align each foot with the word, right edge. For each foot, assign one violation mark per each syllable intervening between the right edge of that foot and the right edge of the word.
- **Word-Foot-Left (WFL):** Align the word with some foot, left edge. Assign one violation mark to the candidate iff the left edge of the word does not coincide with the left edge of some foot.
- **Word-Foot-Right (WFR):** Align the word with some foot, right edge. Assign one violation mark to the candidate iff the right edge of the word does not coincide with the right edge of some foot.
- **Iambic:** Align each foot with its head syllable, right edge. Assign one violation mark per foot whose last (single or second) syllable is not stressed (that is, per binary trochees).
- **Foot-Nonfinal (FNF):** Each head syllable must not be final in its foot. Assign one violation mark per foot whose last (single or second) syllable is stressed (that is, per monosyllabic feet and binary iambs).
- **Nonfinal:** Do not foot the final syllable of the word. Thus, assign one violation mark to the candidate iff the last syllable of the word is footed.