

Typology and Naturalness

Reading: Odden Chapter 8

Markedness

Was a concern of the Prague school -- **Trubetskoi and Jakobson**.

They observed that:

- not all physically possible feature combinations are **equally probable** in languages of the world (statistically, frequency based observations)
- Jakobson noted that more widely found sounds are the first to be **acquired by children** and the last to be **lost by aphasics**.

Trubetskoi called one member of a two-way opposition "marked" if there are certain implications:

- Having the marked member in your inventory implies having the unmarked; e.g., all languages that have nasalized vowels also have oral ones, so "nasal" is a mark that can be **added to a system** (not "oral"). Similarly "voice" -- very few languages have only /b d g/, while many have /p t k/ and lots have both.
- In most cases of **neutralization** where one member of the opposition was realized, it was the unmarked one, e.g., word-final obstruent devoicing gives you the unmarked obstruents.

In SPE (1968, Chomsky and Halle), Chapter 9 suggested ways to face the problems with their proposed distinctive feature system and the use of simplicity as the measure of evaluation, problems like:

- some rules could be written with fewer features yet they were less "natural"
- their system allows less natural classes to be defined more "simply" by fewer features:
 - voiced segments vs. voiced obstruents
- entire inventories are evaluated as equally "simple" despite the fact that they were rare: one with round front vowels + back unrounded (vs. front unround + back round)

Evaluation by simplicity alone fails: Chomsky and Halle suggest reincorporating markedness to help evaluate the naturalness of rules and inventories (I recommend this chapter to the graduate students especially, and others if interested).

Markedness applies not only to segments, but also to syllables structures, feet, words, etc., and is a major factor in phonology today, as a factor in explaining Inventories, Segmental and Prosodically-based (suprasegmental) processes.

		less marked		more marked
Inventories	place	Coronal	Labial, Velar	others (pharyngeal)
	manner	Stops	Fricatives	
	voicing	Voiceless Obstruents		Voiced obstruents
		Voiced sonorants		Voiceless sonorants
	vowels	High vowels		Mid vowels
		front unrounded, back round		front round, back unrounded
		Triangular vowel systems		asymmetric vowel systems

For Odden's discussion of Prosodically-based processes, a brief introduction to some prosodic structures:

The Syllable (σ)

SPE (1968) didn't use syllables: they marked σ boundaries, but stated rules in terms of Cs and Vs only.

Starting almost immediately after SPE, people argued for bringing syllables back into phonology (Anderson (J. not S.) 1969, Fudge 1969, Hooper 1972, Kahn 1976). They argued that syllables are important for capturing several types of generalizations:

Phonotactics -- what languages allow in the distributions or sequences of sounds. We often need to refer to syllable structure to state these generalizations simply; stating them in terms of sequences of Cs and Vs leads to repetitive and unenlightening lists.

e.g., English: *bnick vs. abnormal and *tlemk vs. atlantic, potemkin

With syllables, you can make predictions like: syllables can't have clusters at the beginning like [tl], can't have clusters at end like [mk], therefore words can't have clusters in the middle like [mktl].

Allophonic Rules refer to σ :
 common to find lenition in coda (syllable-final) Cs
 common to find fortition in onset (syllable-initial) Cs
 common to find shortening/laxing Vs in C-final syllables

Epenthesis, deletion, and other **rules conspire to make well-formed syllables: CV(C)**
 lots of languages have rules inserting a vowel into C __CC or C __C# or #C__C
 other cases where Cs are deleted in same circumstances
 children first produce simple CV σ ; borrowed words may be fixed to fit CV patterns

Other rules depend on **σ count** or **σ size**:

Some languages require that all content words (as opposed to function words) have at least two syllables; this is called a **Minimal Word Requirement**.

Stress rules refer to syllables (by counting and landing on alternative syllables; also stress often prefers to land on syllables that end with a consonant).

Compensatory Lengthening: size of syllable is maintained when a segment is lost

There are two approaches to thinking about syllables (each with merit):

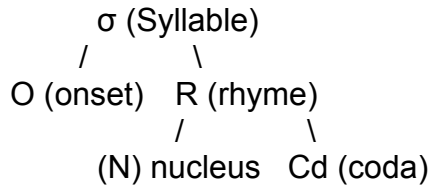
Sonority Patterns

vs. **Heirarchical/Organizational**

Sonority heirarchy: Vowels > glides > liquids > nasals > obstruents
 (low>mid>high) (frics>affrics>stops)

Sonority Sequencing Principle: (SSP) Onsets rise in sonority as approach the nucleus, and codas fall in sonority as leave the nucleus.

Minimal Sonority Distance requirements: (MSD) specify how much the sonority must rise or fall between two adjacent segments.

Hierarchical structure approach:**What is allowed in sub-syllabic constituents?**

Onsets: may be complex; rise in sonority towards nucleus; may require MSD between C's; may place restrictions on the number or the place of articulation of Cs in the onsets.

Rhyme: may be complex; decrease in sonority away from nucleus; may require MSD, may restrict number/quality of segments in the Nucleus, Coda, or combination.

The structural and collocational restrictions **within** the rhyme provide a justification for the use of this subsyllabic constituent (no such restrictions between the onset and rhyme).

Markedness: CV is the least marked syllable type, CVC and V more marked, VC most marked

One universal: languages can **require onsets**, languages can **prohibit codas**,
(Jakobson) but languages do not prohibit onsets, or require codas

Another universal: the unmarked syllabification for VCV sequence is as V.CV

How do we get syllables to look like this?

- 1) rule ordering when building up syllables -- build onsets before building codas
- 2) soft constraint that onsets are preferred.

Feet, Stress and Metrical Phonology**What is stress?**

Phonetically: can include pitch, amplitude, duration, non-reduction of vowels, aspiration in Cs, various correlates varying in different languages.

Metrical Phonology:

Syllables bear stress. To get degrees of stress (primary, secondary, etc), we need to express a relationship among syllables. One way is to use a grid, with asterisks on higher levels representing increased stress/prominence.

strong and weak syllables together are bound into a “**Foot**”

the dominant side of the foot is the “**head**”: right-headed (W-S), left-headed (S-W)

Metrical grids and **parameters** along which they are built gives us **Predictions** about the **range** of stress systems in the world:

- 1) syllable level: **quantity sensitive vs. quantity insensitive**
- 2) foot level: **binary vs. unbounded, left-headed vs right-headed feet**
- 3) word level: **initial or final**
- 4) interactions: **secondary stress, stress clash**
- 5) word edges: **extrametricality**