Overview

- transparency to spreading
- underspecification
- default values
- privative vs. equipollent features

Spreading

The no-crossing constraint prohibits spreading across an association line:

```
* X  X  X
 |  |  |
•••••
[+F] [-F]
```

The NCC therefore has the effect of requiring locality in spreading: all segments sharing a spread feature must be adjacent on that feature’s tier.

Locality is similarly assumed for segments sharing a delinked feature, and for the OCP (only feature values that are adjacent on their tier can violate the OCP).

This explains how spreading is blocked:

* Bahasa Indonesia (a.k.a. Indonesian. Austronesian, about 30 million native speakers in Indonesia, but over 140 million second-language speakers)

  mākan  ‘to eat’
  mālam  ‘night’
  tamān  ‘garden’
  māōt  ‘died’
  mūwāt  ‘fit’
  kosoŋijān  ‘art’
  kɔmātijān  ‘death’

But what about transparent segments?

- Vowel harmony skips consonants
- Navajo sibilant harmony skips consonants and vowels other than coronal fricatives
- Laryngeal transparency in vowels (Steriade 1987): total V assimilation across h and ?
Arbore (Afro-Asiatic, 1,000-5,000 speakers in Ethiopia)
/beh-o/ → boho

- Laryngeal transparency in nasal harmony

**More Indonesian**

nāe?   ‘to ascend’
māŋājā? ‘sift’
kəsəmā?ān   ‘similarity’
kəmēwāhān ‘prosperity’
pəŋājā?ān ‘enriching’

**Underspecification**
= the absence (at some point in the derivation) of feature values for some segment(s)

Arguments for underspecification:
- economy in the lexicon
- transparency to spreading (preserves assumption of locality)

Sanskrit *nati* rule:

\[ n \rightarrow [n] / \{s, t\} \ X_0 \]

can be blocked by certain intervening consonants:

kšubh-āña ‘quake’  kṛp-āña ‘hum’
kšved-āña ‘lament’  kṛt-āña ‘cut’

This is a case of inherent underspecification (Steriade’s term)
(= some segments never bear a value for some features).

**Contrastive underspecification**
= only contrastive values are specified in the lexicon

**Radical underspecification** (Kiparsky/Archangeli/Pulleyblank)
= only marked values are specified in the lexicon (unmarked value never specified, even if contrastive)

where “marked” means something like more effortful ([+round] is effortful because it’s a departure from a resting position; [-round] isn’t)

How can we tell which is right?
**Latin**

[lateral] is contrastive in liquids (/l/ vs. /r/)

<table>
<thead>
<tr>
<th>Latin</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>nav-alis</td>
<td>‘naval’</td>
</tr>
<tr>
<td>digit-alis</td>
<td>‘digital’</td>
</tr>
<tr>
<td>milit-alis</td>
<td>‘military’</td>
</tr>
<tr>
<td>lun-aris</td>
<td>‘lunar’</td>
</tr>
<tr>
<td>sepuchr-alis</td>
<td>‘funereal’</td>
</tr>
<tr>
<td>tempor-alis</td>
<td>‘temporal’</td>
</tr>
<tr>
<td>dors-alis</td>
<td>‘dorsal’</td>
</tr>
<tr>
<td>regul-aris</td>
<td>‘regular’</td>
</tr>
<tr>
<td>tripl-aris</td>
<td>‘triple’</td>
</tr>
<tr>
<td>circul-aris</td>
<td>‘circular’</td>
</tr>
<tr>
<td>later-alis</td>
<td>‘lateral’</td>
</tr>
<tr>
<td>litor-alis</td>
<td>‘littoral’</td>
</tr>
<tr>
<td>flor-alis</td>
<td>‘floral’</td>
</tr>
</tbody>
</table>

/l/, /n/ are transparent (lacking in [lateral]), but /r/ isn’t. This is an argument for contrastive underspecification (why?).

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**Japanese**

Rendaku: $C \rightarrow [+\text{voice}] / \{\text{compound-internal boundary} \}$

<table>
<thead>
<tr>
<th>Japanese</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>eda + ke</td>
<td>eda-ge ‘split hair’</td>
</tr>
<tr>
<td>unari + koe</td>
<td>unari-goe ‘groan’</td>
</tr>
<tr>
<td>mizu + seme</td>
<td>mizu-zeme ‘water torture’</td>
</tr>
<tr>
<td>ori+kami</td>
<td>ori-gami ‘origami paper’</td>
</tr>
<tr>
<td>neko+ʃita</td>
<td>neko-dʒita ‘aversion to hot food’</td>
</tr>
</tbody>
</table>

Rendaku is blocked/undone by Lyman’s Law: no two voiced obstruents in a word

$C \rightarrow [-\text{voice}] / \{\text{X_0} \rightarrow C \}$

$[-\text{son}, +\text{voice}]$

<table>
<thead>
<tr>
<th>Japanese</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>kita+kaze</td>
<td>kita-kaze ‘freezing north wind’</td>
</tr>
<tr>
<td>ʃiro+tabi</td>
<td>ʃiro-tabi ‘white tabi sock’</td>
</tr>
</tbody>
</table>

Lyman’s Law not only is not triggered by voiced sonorants, but skips right over them:

<table>
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<tr>
<th>Japanese</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>taikutsu+ʃinogi</td>
<td>taikutsu-ʃinogi ‘time-killer’</td>
</tr>
</tbody>
</table>

So sonorants underspecified for [voice], which is not contrastive in sonorants. (Which theories of underspecification is this consistent with?)

But Lyman’s Law also skips over voiceless obstruents!

<table>
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<th>Japanese</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>onna+kotoba</td>
<td>onna-kotoba ‘feminine speech’</td>
</tr>
<tr>
<td>doku+tokage</td>
<td>doku-tokage ‘Gila monster’</td>
</tr>
</tbody>
</table>

This is an argument for Radical Underspecification (why?).
**Default values**
Underspecification analyses often assume that some redundancy rule comes along later to fill in default values for underspecified segments.

When the default value for some feature is cross-linguistically consistent, it is often said to be the unmarked value.

**Markedness**
Empirical correlates of being the unmarked feature value (in approximately descending order of agreed-upon-ness):

- If a language has segments with the marked value, it must also have segments with the unmarked value.
- Within a language, the marked value should have a more limited distribution (i.e. be licensed in fewer contexts) than the unmarked value (privileged contexts typically include beginnings (vs. ends) of syllables and words, stems (vs. affixes), stressed (vs. unstressed) syllables, edge (vs. inside) of the word).
- The unmarked value corresponds to the neutral position of the articulators.
- The marked value represents greater articulatory effort, or poorer perceptual salience.
- Children produce the unmarked value earlier than the marked value (caution: babies’ vocal tracts are anatomically different from adults’).

Markedness can apply not just to feature values, but to any type of phonological structure.

**Privative features**
= features that are only present or absent

**Equipollent features**
= features that can be + or − (or absent)

Privative features obviate default-value-filling-in rules (why?).

Q: What’s the different between no [F] and [-F]?
A: Both can be referred to by rules, and both can define natural classes (well, depending on your theory), but only [-F] can spread or induce OCP effects.

**Preview of next time (Wed., April 3)**
- Locality in more detail
- Practice with autosegmental rules

**To do for next time**
- Nothing’s due; there are no new readings.