Baker and Bobaljik, *Introduction to Morphology*
Chapter 7, “Exotic” Word Formation

■ Goals
  - Treat noncatenative morphology as concatenative
  - By reducing these to affixal-type morphology
  - With the help of nonlinear phonology (syllabic phonology, autosegmental phonology)

■ Noncatenative morphological phenomena
  - reduplication
  - ‘root and pattern’
  - mutation and ablaut
  - infixation

■ Sources:
• nonlinear phonology: CV-phonology (Clements), autosegmental phonology (Goldsmith)


■ Reason for development: excessive power of phonological rules allows all sorts of rules which never occur in the world’s languages

■ Strategy: enrich representational capacity of theory (‘more gives you less’)

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Reduplication in Greek: the data

- Greek has 5 short vowels and 7 long vowels including half-open (lax) /ê, ō/ and half-close (tense) /ē, ō/
- present reduplication (copying 1st C of stem, inserting /i/)
  - dō, didōmi ‘I give’
- gnō, gignōskō ‘I know’
- kʰrē, kikʰrēmi ‘I borrow’

- perfect reduplication has 4 subtypes
  (i) 1 initial C OR vl C + sonorant OR vd C + /r/
   (reduplicate initial C and insert /e/)
   - lū, le-lūka ‘I have loosened’
   - sēman, se-sēmēna ‘I have signified’
   - pneu, pe-pneuka ‘I have breathed’
   - drā, de-drāka ‘I have pulled’
  (ii) any other consonant cluster (insert prefix /e/)
   - zdeug, e-zdeugmai ‘I have yoked’
   - kten, e-ktona ‘I have killed’
  (iii) V-initial stems (lengthen this vowel)
   - opʰēl, ōpʰēka ‘I have owed’
   - angel, ēngelka ‘I have announced’ (ā in Attic
Greek is raised to /\~{e}/

(iv) ‘Attic reduplication’ (reduplicate initial C and stem vowel and lengthen (initial) stem vowel)
• ol, o\l{\~{o}}la ‘I have perished’
• ako, a\k{\~{e}}koa ‘I have heard’ (initial stem vowel is /a/ which raises in Attic Greek to /\~{e}/)

Reduplication in Greek: the analysis
• reduplication is affixation to the CV-skeleton of
• a (sequence of) CV slot(s) (this is the affixal morpheme) which
• lack(s) an associated segmental ‘melody’ (either in whole or in part)
• the melody of the stem is copied over on the same tier as the melody and on the same side of the stem melody to which the affix is attached
• the segments of the melody are associated to the skeleton ς
  – no association lines cross
  – [− syllabic] segments link only to C slots
  – [+syllabic] segments link only to V slots
  – any extra melodic segments and CV slots are discarded
  – the CV slots in a skeleton may be prelinked to specific segments or features
  – the linking either goes from left to right starting with the leftmost segment of the melody or from right to left starting with the rightmost segment

• Present Reduplication
  – Prefix CV (where the V is specified as /i/) to the stem
  – Copy stem melody onto left side
– Associate C to the stem melody
– (the /i/ is preattached and on a separate tier – distinct morphemes are on separate tiers so the affixal morpheme is on a different tier from the stem – and thus the association lines don’t cross)
– Example: gign̕sk̕̕

• Perfect Reduplication
  – Prefix CV to the stem
  – Copy stem melody onto left side
  – Associate the initial segment of the melodic copy to the appropriate C or V
  – If there is an empty V slot insert an /e/
  – Examples: lel̕̕ka, gegrap̕̕a, egn̕̕k̕̕a , ̕̕p̕̕hel̕̕ka

• Attic Reduplication
  – Prefix VCV to the stem
- Copy stem melody onto left side
- Associate slots of the prefix to the segments of the melody from left to right
- Associate the remaining empty V of the affix to the (initial) stem V
- Example: ọlọla ‘I have perished’

Root and Pattern Morphology

• found in at least 3 (Egyptian, Berber, Semitic) of the 5 branches of Afro-Asiatic (absent (?) in Cushitic, Chadic)
• instead of attaching an affix before or after a root,
• the affix is interleaved among the segments of the root
• ‘affixes’ are called melodies or patterns
• McCarthy (1979) used autosegmental
representations (Goldsmith 1976) to

• separate roots from melodies through distinct consonantal and vocalic tiers.

• Prosodic templates (aka skeleta), independent morphemes themselves, connect the two tiers and associate each consonant and vowel with a specific slot

<table>
<thead>
<tr>
<th>Label</th>
<th>Form</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Root</td>
<td>k t b</td>
<td>‘write’</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skeleton</td>
<td>C V C C V C</td>
<td>‘cause to X’ (Derivl mrpheme)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pattern</td>
<td>u i</td>
<td>‘passive’ (Inflectl mrpheme)</td>
</tr>
</tbody>
</table>

output: kuttib
• derivations in root and pattern
  – follow constraints of autosegmental theory (e.g. association lines may never cross) plus
  – each slot in skeleton linked to at least one segment in pattern
  – don’t need convention that vowels link only to Vs and consonants only to Cs since vowels and consonants in different morphemes

• Current work
  – is moving away from use of autosegmental representations
  – derivation often operates on a base which has already been derived
  – vowels of base are overwritten by vowels of the affix
What remains?

- mutation
  - E.g. v.t. derived from v.i. in Nivkh by changing initial consonant from [-cnt] to [+cnt]
  - done by having transitivizing morpheme consist of a ‘floating’ (unattached) feature on the segmental tier (ior CV skeleton? – this would be more akin to Marantz reduplication theory)
  - this feature attaches to the initial consonant of a verb changing it to a continuant
  - need convention deleting features of stem that have opposite values to features of affix

- ablaut
  - E.g. tooth $\rightarrow$ teeth
  - analyze by postulating a plural allomorph which
consists only of a floating feature [-back]
– this attaches to closest available V slot

• infixation
  – E.g. Tagalog:
    sulat ‘write’  sumulat ‘wrote’  -um-
    sulat ‘write’  sinulat ‘was written’  -in-
  – analyze as prefixation /um + sulat/
  – plus rule of metathesis
  – to produce a less marked syllable structure
    (umsulat  →  sumulat).