Homework

- Read Chapter 10
- For Monday 4/18
- Do exercise 10.1, 10.3
Clitics

- Clitics are much more promiscuous than affixes
- Clitics also rarely have lexical gaps or idiosyncrasies
- Syntactic rules don’t treat words+clitics as atomic units
- Phonological rules sometimes treat clitics as separate words
- English reduced auxiliaries are simple clitics, but the contracted *n’t* is an affix
- Verbal clitics
- Second position clitics (prosodic inversion)
- Clitics as phrasal affixes
Most of the models we’ve seen place morphology before phonology.

This would imply that morphological rules can’t be sensitive to derived phonological process.

But, remember the paradox Halle ran into:

- blacken, whiten, toughen
- soften, fasten, moisten
Phonology

- **German nominalizations:**
  - -erei is added to verb stems with final stressed syllables
  - -ei is added to other verb stems (Hall 1990)
- **For example:**

<table>
<thead>
<tr>
<th>Verb Stem</th>
<th>Nominalization</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>sín-g-en</td>
<td>Sing-eréi</td>
<td>‘singing’</td>
</tr>
<tr>
<td>lackíer-en</td>
<td>Lackier-eréi</td>
<td>‘lacquering’</td>
</tr>
<tr>
<td>spion-íer-en</td>
<td>Spion-ier-eréi</td>
<td>‘spying’</td>
</tr>
<tr>
<td>árbèit-en</td>
<td>Arbeit-eréi</td>
<td>‘working’</td>
</tr>
<tr>
<td>ségel-n</td>
<td>Segel-éi</td>
<td>‘sailing’</td>
</tr>
<tr>
<td>trődel-n</td>
<td>Trödel-éi</td>
<td>‘loitering’</td>
</tr>
<tr>
<td>bügel-n</td>
<td>Bügel-éi</td>
<td>‘ironing’</td>
</tr>
</tbody>
</table>
Phonology

• Notice that the relevant phonological property is:
  • not present at the level of underlying representation
  • not present at the surface (phonetic) representation
  • only present at an intermediate level

• This implies that phonology is both before and after morphology
Derived environments

• Some rules apply only across morpheme boundaries

• Finnish $[t] \rightarrow [s] / \_ \_ [i]$:  

  halut-a 'to want', halus-i 'wanted'  
  tila 'room', äiti 'mother'

• But, this rule applies to $[ti]$ sequences derived by the rule  
  $[e] \rightarrow [i] / \_ \_ [#]$  

  joki 'river' joke-na essive sg.  
  äiti 'mother' äiti-nä  
  vesi 'water' vete-nä  
  käsi 'hand' käte-nä
Derived environments

- Sanskrit *ruki* rule: \([s] \rightarrow [\mathfrak{s}] / \{r, u, k, i\}\)

- This rule applies in many contexts:
  
  2sg  \(da\-dā\-si\) ‘you give’, \(bi\-bhar\-śi\) ‘you carry’
  aorist  \(a\-yā\-s\-am\) ‘I went’, \(a\-bhār\-ś\-am\) ‘I carried’
  future  \(kraṃ\-syā\-ti\) ‘he will go’, \(vak\-ṣya\-ti\) ‘he will say’
  desid.  \(di\-dā\-sa\-ti\) ‘he wants to give’, \(ni\-nī\-ṣa\-ti\) ‘he will say’
  dat pl  \(senā\-su\) ‘armies’, \(agni\-ṣu\) ‘fires’
  compound  \(sad\) ‘sitting’, \(pari\-ṣad\) ‘convention’
  clitic  \(sma\) ‘indeed’, \(gacchanti \ṣma\) ‘they do (did) go’

- But:

  \(kisalaya\), ‘tip’, \(brsaya\) ‘a demon’, \(busa\) ‘mist’
Derived environments

- As in the Finnish case, the *ruki* rule is fed by other phonological processes
  - Ablaut:
    - *sās* ‘instruct’, *śiṣ-ṭa* ‘taught’
  - Reduplication:
    - *ghas* ‘eat’
    - *ja-kṣ-ati* [ga + ghas + anti]
Cyclicity

- Cyclic rule application was proposed to solve an ordering paradox (Mascaró 1970)

- Catalan

  - ‘grind’
  - ‘sell’
  - mol
  - bεn
  - 3sg
  - mol-s
  - bεn-s
  - 2sg
  - mol-k
  - bεŋ
  - 1sg

- Two ordered rules:
  - Assimilate nasal to following stop
  - Delete word-final stop after nasal
Cyclicity

• But:

  *bin*  ‘twenty’
  *bint-έ*  ‘twentieth’
  *bim pans*  ‘twenty breads’
  *biŋ kaps*  ‘twenty heads’

• Here, cluster simplification must come before assimilation

• The solution:

  \[ [bɛn+k] \quad [bint][kaps+s] \quad \text{first cycle} \]
  \[ [bɛŋk] \quad [bint][kaps] \quad \text{nasal assimilation} \]
  \[ [bɛŋ] \quad [bin][kaps] \quad \text{cluster simplification} \]
  \[ [bin kaps] \quad [biŋ kaps] \quad \text{second cycle} \]
  \[ [biŋ kaps] \quad \text{nasal assimilation} \]
Cyclicity

- More cyclic rules
  - De-stress vowels before a stressed vowel
  - Reduce unstressed vowels
- De-stressing precedes vowel reduction

\[ n\acute{\text{obl}}-\text{e} \text{ ‘noble’} \]
\[ n\acute{\text{obl}}-\acute{\text{e}}\text{-z-}\text{e} \rightarrow n\text{obl}-\acute{\text{e}}\text{-z-}\text{e} \rightarrow n\text{ubl}-\acute{\text{e}}\text{-z-}\text{e} \text{ ‘nobility’} \]
Cyclicity

• Another rule turns an unstressed high vowel into a glide following another vowel:

  sál i pá ‘salt and bread’  pá y sál ‘bread and salt’
  fěř-u ‘iron’  dé-w ‘God’
  fěř-ik ‘ferrous’  əlʒəbrá-yk ‘algebraic’

• This rule must precede destressing:

  rəim-ét → rəim-ét ‘grape (dim.)’
  ruín-ós → ruin-ós ‘ruinous’ (not ruynós)
Cyclicity

- But, sometimes destressed vowels do get turned into glides:

  à wbrír ‘in order to open’
  nò ynstár ‘not to instantiate’

  [à [[óbr] ír]]   [nò [[ínst] ár]]
  [óbr]           [ínst]           first cycle
  [óbr-ír]        [íinst-ár]        second cycle
  —               —                devocalization
  [obr-ír]        [inst-ár]         destressing
  [ubr-ír]        —                reduction
  [à ubrír]       [nò instár]       third cycle
  [à wbrír]       [nò ynstár]       devocalization
  —               —                destressing
  —               —                reduction
Cyclicity

- So, cyclicity explains why some unstressed vowels become glides and others don’t
- But:

  \textit{ruinuzízim} ‘very ruinous’

  \begin{align*}
  \text{[ruinós-ísim]} & \quad \text{third cycle} \\
  - & \quad \text{devocalization} \\
  \text{ruinosísím} & \quad \text{destressing} \\
  \text{ruinusísím} & \quad \text{reduction} \\
  \text{ruinuzízim} & \quad \text{other rules}
  \end{align*}

- Why doesn’t devocalization apply to [ui] here?
Cyclicity

- **Strict Cycle Condition**
  A cyclic rule may apply to a string just in case either of the following holds:
  
  - the rule makes crucial reference to information in the representation that spans the boundary between the current cycle and the preceding one, or
  
  - the rule applies solely within the domain of the previous cycle but crucially refers to information supplied by a rule operating on the current cycle.

- In other words, rules can’t apply to material that fully there in a previous cycle
Cyclicity

- This accounts for *ruynuzízim, and also gives us derived environment effects:

<table>
<thead>
<tr>
<th>[halut]-i</th>
<th>[vete]</th>
<th>[tila]</th>
<th>first cycle</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>raising</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t → s</td>
</tr>
<tr>
<td>[halut-i]</td>
<td>[vete#]</td>
<td>[tila]</td>
<td>second cycle</td>
</tr>
<tr>
<td></td>
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<tr>
<td>halusi</td>
<td>vesi</td>
<td></td>
<td>t → s</td>
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</table>
Interfaces

• One picture of the phonology/morphology interface
  • Lexicon builds a bracket structure
  • Phonology applies to successively larger units, respecting the Strict Cycle Condition
• But, morphological rules only seem to be sensitive to the outermost layer of derivation
  • the suffix -ity only attaches to Latinate stems (*weirdity vs. equality), but -ity can also attach to words in -able, regardless of the underlying root.
  • un- can’t attach to stems that begin with dis-, as in *undistinct or *undissonant. But, un- can attach to undismayed and undiscovered
Interfaces

- A morphological solution: Bracket Erasure
- In order to preserve cyclicity, we need to interleave morphology and phonology
- Lexical phonology: some phonological rules apply in the lexicon