Correspondence basics (revised, augmented)

Plan:  
• review basic correspondence notions and constraints  
• why any theory of phonology sooner or later recognizes a theory of correspondence  
• loan adaptation  
• meter and metrical tension  
• rhyming  

• segments vs. features as the unit of correspondence  
• input vs. output context in correspondence constraints.

(1) UR /sɪkl/ - SR [sɪkl] as against SR [sɪk], [sɪkl], [sɪkt] [sɪko], [sɪlk]

(2) Ranking of correspondence constraints yielding SR [sɪkl] from a possible UR /sɪkl/

(3) No correspondence rankings needed in a rule-based grammar:  
[+son] -> [±syllabic]/ [-son]_

(4) Two misapprehensions:  
• Correspondence Theory is the direct consequence of rejecting rules  
• …and ordering or cycles

(5) Two arguments for ranked correspondence constraints in any grammar:  
• loan adaptation  
• poetic meter and rhyme

(6) Terms:  
• L₁, L₂: native language, and second language, respectively  
• loan(word), borrowing: a form from L₂ adapted and imported into L₁  
• loan adaptation: process thru which loans abide by phonological structure of L₁  
• loan phonology: the entire system that allows borrowers to adapt L₂ words

(7) Korean Hemnit < [hæmlet]; kʰapʰilli – kʰapʰiri < [kʰəpli]; pʰeksi < [fæks]  
• K [l] is either a coda or a geminate [ll]; [r] alternates with [l], is ok in V_V  
• some general processes of K:  
  a. nl → ll  
  b. Cl → Cn applies to some loans (Hamlet), not all (Copley).  
  c. CN → C[+nas] N applies to some loans

(8) The mysteries of loan phonology:  
• Most rules operative in loan phonology seem absent from L₁.  
  There’s no epenthesis in K  
• And many L₁ rules actually don’t apply to loanwords, or not always.  
• But loans tend to abide by the output constraints of L₁.  
  No Cl, CN on the surface in K loans from English  
  No complex onsets, or impermissible codas in K.  
  Most sounds in loanwords are native sounds, even if L₂ source contained nonnative sounds: E. [f] → K. [pʰ]

If L₁ rules don’t apply to loans, then in what sense are loans adapted to L₁’s phonology? And where do the L₁ speakers come up with the novel rules they do apply to loans?
(9) OT provides a different view of this: L₁ phonology is
a. a set of active or undominated phonotactic (markedness) constraints:
   e.g. *Complex onset
b. a set of correspondence constraints: e.g. MAX C/ IO, DEP V/IO
c. rankings within (a), and within (b), and between (a) and (b).

   e.g. *Complex onset >> MAX C (Japanese); MAX C >> *Complex onset (English)

OT explains how loans are adapted to L₁ phonology without undergoing L₁ “rules”.
• Loan adaptation = insuring that phonotactic constraints of L₁ are satisfied in loans.
• What differs between L₁ phonology and adaptation from L₂ to L₁?
  Ranking among correspondence constraints.

Something we won’t address:
   why the ranking of correspondence comes to differ between L₁ and L₂->L₁.

(10) Same phonotactics, different means of satisfaction in L₁ and in loans: Korean, E->K

Coda cluster resolution; coda modification; other cluster changes in K

<table>
<thead>
<tr>
<th>UR</th>
<th>Final or pre-C</th>
<th>Pre-V</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>kulm</td>
<td>kum</td>
<td>kulm-</td>
</tr>
<tr>
<td>b.</td>
<td>palp</td>
<td>pap</td>
<td>palp-</td>
</tr>
<tr>
<td>c.</td>
<td>hilk</td>
<td>hik</td>
<td>hilk-</td>
</tr>
<tr>
<td>d.</td>
<td>tols</td>
<td>tol</td>
<td>tols-</td>
</tr>
<tr>
<td>e.</td>
<td>haltʰ</td>
<td>hal</td>
<td>haltʰ-</td>
</tr>
<tr>
<td>g.</td>
<td>moks</td>
<td>mok</td>
<td>moks-</td>
</tr>
<tr>
<td>h.</td>
<td>kaps</td>
<td>kap</td>
<td>kaps-</td>
</tr>
<tr>
<td>i.</td>
<td>antf</td>
<td>an</td>
<td>antf-</td>
</tr>
<tr>
<td>j.</td>
<td>nas</td>
<td>nat</td>
<td>nas-</td>
</tr>
<tr>
<td>k.</td>
<td>nas</td>
<td>nat</td>
<td>nas-</td>
</tr>
<tr>
<td>l.</td>
<td>natf</td>
<td>nat</td>
<td>natf-</td>
</tr>
<tr>
<td>m.</td>
<td>patʰ</td>
<td>pat</td>
<td>patʰ-</td>
</tr>
</tbody>
</table>

8. Corresponding rules in K(L₁), applied in this order:
   i.  [+lateral] -> Ø/[-syllabic, -coronal]₀
   ii. [-syllabic] -> Ø/[-syllabic]₀
   iii. [+cons] -> [-cont, -spread glottis, -strident]/ _₀

9. Other general properties of K, whether or not supported by alternations:
   • no CC codas/onsets; no diphthongs; no fricatives other than s.
   • no consonantal continuants (e.g. s) in coda, or affricates (e.g. tf)
   • the only C in coda are unaspirated, voiceless stops or nasals.
10. Coda cluster resolution in E->K (L sub 2 -> L sub 1), and other C transformations

<table>
<thead>
<tr>
<th>English</th>
<th>Nativized in K as</th>
<th>Not as</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. pʰæs &lt;pass&gt;</td>
<td>pʰesi</td>
<td>pet</td>
</tr>
<tr>
<td>c. grael &lt;graph&gt;</td>
<td>kirapʰi</td>
<td>kirap</td>
</tr>
<tr>
<td>d. ɻv &lt;love&gt;</td>
<td>robi</td>
<td>rop</td>
</tr>
<tr>
<td>e. fæks &lt;fax&gt;</td>
<td>pʰɛksi</td>
<td>pʰɛk, pʰɛkit</td>
</tr>
<tr>
<td>f. pʰlɛp &lt;pulp&gt;</td>
<td>pʰɭpʰi</td>
<td>pʰɭp, pʰɭl, pʰɭlɛp</td>
</tr>
</tbody>
</table>

11. Some “rules” involved in E->K(L sub 2 -> L sub 1):

i. [+cont,-voice, +cons] -> [+spread glottis, -cont] (f -> pʰ)
ii. [+cont,+voice, +cons] -> [-spread glottis, -cont] (v -> b)
iii. [-cont, -voice] -> [+spread glottis] (p, t, k -> pʰ, tʰ, kʰ)
iv. [+lateral] -> [+long] V V
   - [+lateral] #
   - (film -> pʰillim)
   - (love -> robí)
v. Ø -> i/ [+strident, +anterior] (C, #)
   - (pass -> pʰesí)
vi. Ø -> i/ [+cont, +voice] #
   - (love -> robí)
   - [+cont, +spread glott] #
   - (graph -> kirapʰi)

12. A different picture in an OT analysis:

• **Korean undominated phonotactics:**
  *Complex onset;
  *Complex coda,
  If [–son] then [-cont, -voice, -sp.gl]; If [+cont, -son] then [+strident]
  *Cl, *[+nasal][-syll, -nasal]
  These and others are always satisfied by adapted loans.

• **Korean L sub 1 system**
  *Complex onset
  *Complex coda
  If C then [-cont, -voice, -sp.gl]
  If [+cont, +cons] then [+strident]
  MAX/DEP/Ident IO

• **English-to-Korean (L sub 2 -> L sub 1) system**
  MAX IO, DEP V /= i, Ident F IO
  *Complex onset
  *Complex coda
  If C then [-cont, -voice, -sp.gl]
  If [+cont, +cons] then [+strident]
  DEP i

13. A preliminary analysis of graph -> kirepʰi

<table>
<thead>
<tr>
<th>L2</th>
<th>K-phonotactics</th>
<th>Ident F</th>
<th>MAX C</th>
<th>DEP i</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. kref</td>
<td><em>!</em>(kr, f)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. kep</td>
<td></td>
<td></td>
<td>*!(r)</td>
<td></td>
</tr>
<tr>
<td>c. kirep</td>
<td></td>
<td>*!(f -&gt; p)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*d. kirepʰi</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
</tr>
</tbody>
</table>

3
14. A preliminary analysis of fax $\Rightarrow$ p\textsuperscript{h}eksi

<table>
<thead>
<tr>
<th></th>
<th>fæks</th>
<th>K-phonotactics</th>
<th>Ident F</th>
<th>MAX C</th>
<th>DEP i</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>p\textsuperscript{h}eks</td>
<td>(\ast ! \ast ) (CC\textsubscript{0}, s\textsubscript{1})</td>
<td>(\ast )</td>
<td>(\ast )</td>
<td>(\ast )</td>
</tr>
<tr>
<td>b.</td>
<td>p\textsuperscript{h}ek</td>
<td>(\ast )</td>
<td>(\ast ! (s))</td>
<td>(\ast )</td>
<td>(\ast )</td>
</tr>
<tr>
<td>c.</td>
<td>p\textsuperscript{h}eksi</td>
<td>(\ast \ast )</td>
<td>(\ast )</td>
<td>(\ast )</td>
<td>(\ast )</td>
</tr>
</tbody>
</table>

15. Summary of this point
- The phonotactics that were undominated in the K (L\textsubscript{1}) system remain so in the KE (L\textsubscript{1}$\Rightarrow$L\textsubscript{2}) system. It’s in this sense that the loans have been submitted to the L\textsubscript{1} grammar.
- The K (L\textsubscript{1}) differs from the KE (L\textsubscript{1}$\Rightarrow$L\textsubscript{2}) in the rankings of correspondence constraints relative to each other: a grammatical description lacking correspondence constraints cannot even describe what it is that K and KE share and how they differ.

16. Syntagmatic and paradigmatic correspondence
- syntagmatic: strings in correspondence cooccur within the expression being evaluated
- paradigmatic: they don’t.

17. Correspondence in meter: between the abstract metrical rhythm and linguistic stress

Kiparsky 1975 “Stress syntax and meter,” Language and later works

- one meter: iambic pentameter = (ws) 5 times (w = weak, s = strong)
- perfect, monotonous metricality: ictus (s) coincides with stressed syllables
  a. But why did poison come without delay?
- metrical lines with 2 inversions (“disappointments”):
  b. Never came poison from so sweet a place
  c. Which one gave poison from so sweet a place?
- unmetrical line with 2 inversions:
  d. For when came poison from such sweet flowers?
- here we focus on the fact that stressed syllables may end up in w position: e.g. came


Rules that change the basic metrical pattern generating a few acceptable variants:

MR1 [1 stress] $\Rightarrow$ [\(\alpha\) stress]  
MR2 [4 stress] $\Rightarrow$ [\(\beta\)stress] in / \{#_# \} the monosyllable rule  
\#\{#_\#\} modified phrase-initial rule

19. Derivation of the pattern that fits never came poison in 17.b: 34114 from basic 41414

Input \#\{#_\#\#_\#\#\}  
MR1 \#\{#_\#\#_\#\#\}  
MR2 \#\{#_\#\#_\#\#\}

20. Index of metrical tension:

The metrical tension between a derived pattern \(\phi_1\ldots\phi_2\) and an underlying metrical pattern \(\psi_1\ldots\psi_2\) is the sum of the differences between each \(\phi_1\) and \(\psi_1\).
21. Kiparsky: “the monosyllable constraint in MR2 is functionally motivated by its effect in preventing word-internal stress relations from conflicting with the meter”.

22. The Metrical Rules are too limited:
  • in dactylic and anapestic (Romanian) meters 41 (ws) and 14 (sw) are mapped to 44 (ww)
  • in trochaic and iambic meters (English etc) 144 mapped to 141 and 441 to 141.
  These are not felt as inversions but as regular text to rhythm mappings

What the monosyllable rule shares with these mappings: there is no reversal of relative prominence between the linguistic text and the abstract rhythm in any of these cases.

<table>
<thead>
<tr>
<th></th>
<th>Inversion 14 &lt;-&gt; 41</th>
<th>Monosyll 1 &lt;-&gt; 4</th>
<th>1(#)44 &lt;-&gt; 141</th>
<th>44(#)1 &lt;-&gt;141</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is word prominence reversed?</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

23. A correspondence-based approach (similar to one alluded to in Hayes 2004 ms.)

   a. For any pair of syllables of the same word, \( \sigma_1 \) and \( \sigma_2 \), if they correspond, respectively, to positions \( p_1 \) and \( p_2 \) in the verse, then if \( p_1 \) is more prominent than \( p_2 \), \( \sigma_2 \) is not more prominent than \( \sigma_1 \).

   Penalizes never, flowers scanned as ws; not as ww; nor came in w position; nor Antonio as wsws

   b. For any pair of syllables of the same word, \( \sigma_1 \) and \( \sigma_2 \), if they correspond, respectively, to positions \( p_1 \) and \( p_2 \) in the verse, then \( p_1 \) is more prominent than \( p_2 \) iff \( \sigma_1 \) is more prominent than \( \sigma_2 \).

   Penalizes néver scanned as ws; or ww; not came in w position

Additional versions of these constraints obtained from placing the strings in context (line-initial vs. line-final) and by distinguishing “any pair of syllables of the same word” from “any pair of syllables of the same phrase”

24. Relational prominence constraints like (23.a) are very useful in the analysis of compound stress (e.g. pipe organ player 13020) where they relate I and O rather than abstract meter and linguistic text. The point is that constraints involved in meter are not just correspondence constraints in some general sense, but the very same constraints as those needed in standard linguistic analysis.

25. Correspondence between the abstract metrical pattern and the linguistic rhythm is acknowledged in Kiparsky’s system in two separate ways:

   • the Index of metrical tension, which marks each allowable deviation
   • the set of Metrical Rules, which define possible kinds of deviations

The proposal in (23) unifies these devices and appropriately expands the set circumstances in which stress and ictus fail to match.

26. Correspondence in rhyming conventions: syntagmatic correspondence

   • pairs of poetry lines contain substrings (rhyming domains, RD) that must be identical.
a. And yet with neither love nor hate
b. Those stars like some snow-white
c. Minerva’s snow-white marble eyes
d. Without the gift of sight

• RD begins at the last stressed vowel of the line and ends with the line
  Láncelòt can rhyme with Mándelbròt

  Rom. mălurile ‘the shores’ rhymes with vălurile ‘the waves’,
  but not with vięturile ‘the winds’

• Identity need not be perfect: half rhymes
  Trouble all my days
  Born and partly raised
  A stich in time
  Saves nine

• An implicational hierarchy of possible half rhymes reflected in relative frequency:
  Trouble all my days
  From the pretty maids
  A stich in time
  Saves Kai

• To characterize: the difference in relative well formedness of some rhyme types compared to
  others and the fact that some rhyme types are, for some/all poets, categorically impossible.

Rhyming is a linguistic system for computing abstract similarity; thus comparable to the UR-
SR similarity computations characterized by correspondence theory. The same constraints and
rankings that characterize perfect/better/worse rhymes provide the contents of standard
correspondence theory as applied to input-output relations.

There is no rule-based characterization of rhyming: no input modifications are involved.
A rule-based phonology thus has to appeal to correspondence theory anyway, just for rhyming.

27. The elements of an analysis
   (a) MAX (RD): Any element e of RD(L_i) has a correspondent element e’ in RD (L_j).
   (b) Ident (RD): correspondent elements in RDs of L_iL_j have identical F values.
   (c) Rhyme! The RD(L_i) corresponds to the RD (L_j), where L_i and L_j are designated lines

   (d) Positional faithfulness: MAX C //V (RD) >> MAX C ¬//(//V)(RD)

   (e) MAX vs. Ident: MAX C//V >> Ident F_c//V

   (f) A rhyme system tolerating some mismatches:

   MAX C //V (RD) >> Rhyme! >> MAX C ¬//(//V)(RD), Ident F_c//V
28. Summary

• L1-to-L2 correspondence in adaptation, meter-to-text correspondence and Rhyme Domain (RD) correspondence share basic properties with IO correspondence as studied in OT:
  - the distinction between 3 types of constraints MAX-type, Ident-type and Relational constraints (as in (23))
  - effects of context: at least the MAX and Ident constraints are positional and take the form MAX x/context A >> MAX x/context B

• There are no rule-substitutes for meter-to-text and RD correspondence; the rule-account of loan adaptation fails to explain what the L2-L1 adaptation system has to do with the native L1 system.

• A correspondence theory that generalizes across pairs of representations being related (IO, RD, meter and text) holds promise for all cases.