Class 17: Stress II—more feet

To do
- Finish Nanti (due Thursday).
- Read Hayes (SQs due Thursday).

1. Example that has been used as an argument for feet: Winnebago/Hocąk again
(Based on discussion in Kenstowicz 1994—see refs from before)

Recap: If we restrict ourselves to light syllables (those with short vowels), we could say that initial syllables are extrametrical and iambs are formed from left to right: [ . . x . x . x] (etc.)

Dorsey’s Law:  C C V → 1 3 2 3
[+son]
1 2 3

/ho+š+waža/ hošawažá ‘be sick’
/hi+kro+ho/ hikorohó ‘prepare, dress (3 sg.)’

Based on the data above, which should apply first, stress or Dorsey’s Law?

I know this might seem weird, but: let’s assume that if the final syllable is left unfooted by the basic stress rule, it can form a (“degenerate”, because too small) foot. But, final stress is deleted by a late rule if it clashes with a penultimate stress.

In that case, is this word consistent with what we’ve seen so far? Do we need any further ordering?

/ha+ra+ki+š+rujik+šná/ harakšurujikšñá ‘pull taut (2d)’

Here come the interesting cases:

/ha+ki+rujik+šná/ hakirújikšñá ‘pulls taut (3d)’
/hi+ra+kro+ho/ hirakořò ‘prepare’
/mqá+š+rač/ màqšárač ‘you promise’
/hi+ra+kro+ho+níra/ hirakořòhònìra ‘prepare, dress (2 d.)’
/wakri+pras/ wakirípáras ‘flat bug’
We saw last time that there are multiple ways to ensure that disyllabic words get some stress. Do the following forms help narrow it down?

\[ /\text{ho}+\text{kwe}/ \quad \text{hokewé} \quad \text{‘enter’} \]
\[ /\text{s}+\text{wažok}/ \quad \text{šawažók} \quad \text{‘mash’} \]

(There is more to this story, and Hayes’ analysis is quite different.)

2. **Other arguments for feet**
   - Latin enclitic stress (see Kager)—ideas you had for this case?
   - Phenomena in prosodic phonology (reduplication, truncation)—see next quarter, maybe.
   - Various consonantal rules that apply to the “strong” or “weak” syllable of a foot, even if the foot is not supposed to have any stress (i.e., in languages with no secondary stress). See González 2003.
   - Expletive infixation (see McCarthy 1982 *LI* article)

3. **Hayes (1995) argues that the inventory of feet is asymmetric**

<table>
<thead>
<tr>
<th></th>
<th>trochees</th>
<th>iambss</th>
</tr>
</thead>
<tbody>
<tr>
<td>quantity-insensitive</td>
<td>attested</td>
<td>unattested</td>
</tr>
<tr>
<td>quantity-sensitive</td>
<td>attested: moraic</td>
<td>attested: uneven</td>
</tr>
</tbody>
</table>

4. **Quantity-insensitive (“syllabic”) trochees**

Let \( L \) = a light syllable (1 mora, like CV)

Let \( H \) = a heavy syllable (2 moras, like CVV or CVC)

Let boldface (\( L, H \)) indicate stress

Any two syllables can form a trochee—moras don’t matter.

\((LL), (LH), (HL), (HH)\) vs. \((L), (H), \) except maybe for leftover syllables

**Pintupi** (data originally from Hansen & Hansen 1969)

Australian language from Australia with 800 or more speakers.

- (pá.ña) ‘earth’
- (tú.ña)ya ‘many’
- (má. [a](wà.na) ‘through from behind’
- (pú.[iŋ](kà.ła).(túu ‘we (sat) on the hill’
- (tú.µu)(lim.pà)(túŋ.ku) ‘our relation’
- (kú.ра)(nú.łu)(lim.pà)(túu.та) ‘the first one (who is) our relation’
- (yú.ma)(ŋiŋ.ka)(mà.ра)(túu.та)ka ‘because of mother-in-law’

But what if coda consonants just aren’t moraic in this language, so that all the syllables are light?

More convincing is an example from a language with contrastive vowel length:
**Votic, aka Vod** (Uralic language from Russia that had 25 speakers in 1979; Ariste 1968\(^1\))

IPA stress marks used below; otherwise, Ariste’s transcription. Macron (\(\text{¨}\)) indicates vowel length.

\[
\begin{align*}
('\text{ka.na}') & \quad \text{‘hen’} \\
('\text{tüt.tö}') & \quad \text{‘girl’} \\
('\text{sā.mā}') & \quad \text{‘to get, obtain’} \\
('\text{â.pa}') & \quad \text{‘aspen tree’} \\
('\text{ko.tō}') & \quad \text{‘home (ill.)’} \\
('\text{pa.ja}.(\text{va})') & \quad \text{‘hot’} \\
('\text{li.sāu}.(\text{gō})') & \quad \text{‘let it increase’} \\
('\text{vē.re.t}(\text{tēB})') & \quad \text{‘it rolls’} \\
('\text{so.pi}.(\text{zim.ma})') & \quad \text{‘we got along’} \\
('\text{bö.ri}.(\text{ze.mā})') & \quad \text{‘to roar, rumble’}
\end{align*}
\]

5. **Quantity-sensitive (“moraic”) trochees**

A foot is composed of two moras, whether they come from one syllable or two. But, typically, a foot can’t begin or end in the middle of a syllable.

\( (\text{LL}), (\text{H}) \) vs. \( *(\text{LH}), *(\text{HH}), *(\text{HL}), *(\text{L}) \) \([\text{L} \text{ might be OK for a leftover syllable}] \)

We saw these in Cairene. Here’s another example (if we have time):

**Cahuilla** (Uto-Aztecan language from Southern California with about a dozen speakers; data taken from Hayes, but originally from Seiler\(^2\))

In this language, a syllable with a long vowel, diphthong, or coda [?] counts as heavy.

- Draw in the foot boundaries for the simple cases—what’s the parameter setting for leftover syllables (foot them or don’t foot them)?

<table>
<thead>
<tr>
<th>Word</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>tá.ka.li.čem</td>
<td>‘one-eyed ones’</td>
</tr>
<tr>
<td>táx.mu.?at</td>
<td>‘song’</td>
</tr>
<tr>
<td>há?.tis.qal</td>
<td>‘he is sneezing’</td>
</tr>
<tr>
<td>mú:t</td>
<td>‘owl’</td>
</tr>
<tr>
<td>pá?.li</td>
<td>‘the water (objective case)’</td>
</tr>
<tr>
<td>qán.ki.čem</td>
<td>‘palo verde (pl.)’</td>
</tr>
<tr>
<td>táx.mu.?á?.ti</td>
<td>‘the song (objective case)’</td>
</tr>
</tbody>
</table>

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\(^2\) Data sanitized a bit: optional destressing suppressed even in forms where only one transcription is given. See Hayes for discussion of final degenerate feet—they are probably destressed by a late rule.
What happens when a heavy syllable is awkwardly placed?

- sú.kà? tí ‘the deer (objective case)’
- pú.kàw.tè.mìh ‘gopher snakes (obj. pl.)’
- kíh.mày.ù.qà ‘wonder why’
- pà.làw.wè.net ‘that which is beautiful, pretty’
- hé.yì ká.kàw.là:qà ‘his legs are bow-shaped’

Lexical phonology review: what should we do about these prefixed forms (“#” indicates prefix-stem boundary)?

- pà.pen#tú.le.qà.le.vèh ‘where I was grinding it’
- ne#yú:l ‘my younger brother’
- nè.sun#ká.vì:či.wèn ‘I was surprised’
- tax#kí:či.wà.tem ‘companions’
- pen#pé.nì:či.nì.qà ‘translate’

6. Quantity-sensitive (“uneven”) iamb

Here, a heavy syllable can form a foot only on its own or with a preceding L. That is, H can’t be the weak member of a foot.

(LL), (LH), (H) vs. *(HL), *(HH), *(L) [(L) might be OK for a leftover syllable]

Muskogee (a.k.a. Seminole/Creek)—data originally from Haas (1977), Tynhurst (1987), and Martin. Muskogean language from Alabama and Florida, with a community of speakers in Oklahoma; about 6,000 speakers.

Use iambic feet to explain why stress is sometimes final, sometimes penultimate:

- co.kó ‘house’
- ní.háa ‘lard’
- hok.tí ‘woman’
- íc.ki ‘mother’
- o.sá.na ‘otter’
- ko.fóc.ka ‘mint’
- ak.cáwh.ka ‘stork’
- hi.to.tíi ‘snow’
- ak.ha.sí ‘lake’
- ha.liis.sí ‘moon’
- tii.níit.kí ‘thunder’
- taas.kì.tá ‘to jump (sg. subj.)’
- a.pa.ta.ká ‘pancake’
- taas.ho.kí.ta ‘to jump (dual subj.)’
7. An asymmetric inventory

Hayes (1995) argues, through an extensive typological survey, that these 3 are the only foot types. There are no languages with syllabic iambs, or “uneven trochees”—i.e., \((H)\), \((HL)\), \((LL)\) but not *\((HH)\), *(LH)*.

(No moraic iambs either, but these are harder to argue about, because they would be different from uneven iambs only in allowing \((LH)\), which is hard to distinguish empirically from L\((H)\).)

8. Why?

Moras correspond roughly to duration: H syllables last longer than L syllables.

Hayes cites psychological research on how people group rhythmic sequences of sounds.

Grouping preference is stronger for duration-varying stimuli than for amplitude-varying stimuli.

Hayes cites also:
- similar evidence from musicians’ judgments (Cooper & Meyer)
- a study of Swedish poetry (Fant, Kruckenberg & Nord) in which…
  - reciters produced greater durational contrasts in iambic verse than in trochaic
  - musicians transcribing verse into musical notation were more likely to transcribe different durations for accented and unaccented syllables in iambic verse than in trochaic
  - poets use greater contrast in number of phonemes (for accented vs. unaccented syllables) in iambic verse than in trochaic

(see also Newton 1975 for English verse)

➔ “Iambic/Trochaic Law
  a. Elements contrasting in intensity naturally form groupings with initial prominence.
  b. Elements contrasting in duration naturally form groupings with final prominence.” (p. 80)
9. Iambic lengthening

Hixkaryana, Carib language with 550 speakers in Brazil. Data originally from Derbyshire (1985).

- Vowel length is not contrastive, so all these long vowels are derived by rule. What is it?

  k\textsuperscript{á}.:<ja> \quad ‘red and green macaw’
  ne.m\textcircled{o}.ko.t\textcircled{o}.:<no> \quad ‘it fell’
  a.t\textcircled{f}o.t.wo.<\textcircled{w}o> \quad ‘wind’
  to.r\textcircled{ó}.::<\textcircled{no}> \quad ‘small bird’
  àk.ma.t\textcircled{á}.::<\textcircled{ri}> \quad ‘branch’
  öw.to.h\textcircled{ó}.::<\textcircled{na}> \quad ‘to the village’
  t\textcircled{ô}h.ku.r\textcircled{é}.:ho.<\textcircled{na}> \quad ‘to Tohkurye’
  t\textcircled{ô}h.ku.r\textcircled{è}.:ho.n\textcircled{à}.:ha.f\textcircled{á}.::<\textcircled{ka}> \quad ‘finally to Tohkurye’
  n\textcircled{â}k.p\textcircled{n}h.jâf.k.e.n\textcircled{â}.::<\textcircled{no}> \quad ‘they were burning it’
  mi.h\textcircled{â}.:na.n\textcircled{í}h.<\textcircled{no}> \quad ‘you taught him’
  k\textcircled{h}.n\textcircled{à}.:n\textcircircumflex{í}h.<\textcircled{no}> \quad ‘I taught you’

Asymmetry: Trochaic lengthening is much rarer.

But, in moraic-trochee languages there is sometimes shortening of the strong syllable! Hayes proposes that this is to allow more syllables to get included in feet: e.g., /LLLH/ \rightarrow [(LL)(LL)] instead of [(LL)L(H)].

10. Trochaic shortening example (if time permits)

In Fijian, vowel length is contrastive, but its distribution is limited. (Based on data from Schütz and analysis by Hayes.) Mostly loan words are shown below because, as in English, they’re the best source of long, monomorphemic words.

[Fijian: Austronesian language from Fiji with 334,000 speakers]

- What are the footing rules of Fijian?

  láko \quad ‘go’
  tálo \quad ‘pour’
  ßínáka \quad ‘good’
  atómi \quad ‘atom’
  "dikónesi \quad ‘deaconess’
  prèsité\textsuperscript{a} di \quad ‘president’
  "bâsikêtepólo \quad ‘basketball’
  señáj \quad ‘no’
  "basá: \quad ‘bazaar’
  "dókétá: \quad ‘doctor’
  palásitá: \quad ‘plaster’
  minisitirí: \quad ‘ministry’
  terènisisitá: \quad ‘transistor’
  "dâjrékitá: \quad ‘director’
Account for shortening in Standard Fijian:

- m'bú: ‘grandmother’
- tá: ‘chop’
- n ré: ‘pull’
- dādā: ‘lots of bad things’
- sī:βī-ta ‘exceed-trans.’
- rāj ‘see’

The curved diacritic over the vowel in ‘see it’ indicates that the vowel is short (it is also stressed). Assume that the resulting rime [a j] has only one mora.

Here’s another dialect to account for (data partially fabricated):

- sī:βī-ta ‘exceed-trans.’
- rāj ‘see’
- láw ‘wug’

And another dialect:

- sī:βī-ta ‘exceed-trans.’
- rāj ‘see’
- láw ‘wug’

One last dialect:

- rāj ‘see’
- láw ‘wug’

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³ Made-up form.