Simple structures for a complicated stress system

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≺1≻   Simple structures: Separator theory

- Some theories of prosodic representations:

    - Trees (Liberman and Prince, 1977)
    - Grids (Selkirk, 1984)
    - Grids, with paired brackets (Halle and Vergnaud, 1987)
    - Grids, with unpaired brackets (Idsardi, 1992; Halle and Idsardi, 1994)
    - Grids, with non-directional separators (Reiss, 2003; Hall, 2001, 2005, 2008)

- Separator theory allows for fewer distinctions than the Simplified Bracketed Grids of Halle and Idsardi (1994):

    (1)   Simplified bracketed grids
        a.   X)Y   'X belongs to a constituent that does not include Y.'
        b.   X(Y   'Y belongs to a constituent that does not include X.'
        c.   X)(Y   'X and Y belong to two different constituents.'

    (2)   Separators
            X|Y   'X and Y do not belong to the same constituent.'

- The specific version of separator theory presented in Hall (2001, 2005, 2008):

    (3)   line 2 = word stresses and word boundaries: | x
          line 1 = stressed moras and foot boundaries: | x | x |
          line 0 = moras and syllable boundaries: | xx | x | x | x | xx |

    - Line 0 of the metrical structure contains moras and syllable boundaries, rather than syllables and foot boundaries.

    - Heavy syllables are distinguished from light ones by the number of adjacent grid marks, rather than by a distinction between the symbols H and L.

    - The process of grouping syllables into feet consists in projecting line-0 separators to line 1, rather than inserting boundaries in line 0.

⊰2⊱ A complicated stress system: Munster Irish

2.1 The facts to be accounted for

- The stress pattern of Munster Irish (Iosad 2010, citing Ó Sé (2000, 2008)):

  (4) | | | | |
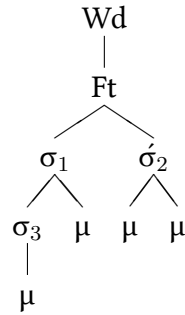 |---|---|---|---|
a.	ĹL	ká rɪgʲ	'stone'
b.	LĤ	ka lʲíːnʲ	'girl'
c.	ĤL	áː lmʲ	'nice'
d.	HĤ	dʲiː víːnʲ	'idle'
e.	ĹLL	klá gər nəx	'clattering'
f.	LĤL	kʲɪ mʲáː dən	'observes'
g.	LĤH	bʲi húːn tiːxt	'villainy'
h.	LLĤ	kʲa nə hóːr	'buyer'
i.	ĤLL	kúː rə məx	'careful'
j.	HĤL	oː gáː nəx	'young man'
k.	HĤH	uː ráː niː	'songs'
l.	ĤLH	úː də raːs	'authority'
m.	ĹLLL	á rə mə kəx	'tender'
n.	ĹLLH	í mʲɪ lʲə kaːn	'navel'
o.	LLĤH	ə mə dáːn tiːxt	'ungainliness'
p.	ĤLHL	úː də raː ʃəx	'authoritative'

- The main stress is always within a three-syllable window at the left edge of the word, and is quantity-sensitive.

- More specifically:

  (5) If the **second** syllable is heavy, stress it;
  otherwise, if the **first** syllable is heavy, stress it;
  otherwise, if the **third** syllable is heavy, stress it;
  otherwise, stress the **first** syllable.

2.2 Previous analyses

- Iosad's (2010) approach involves a couple of unconventional moves:
  - "Weight-sacrificing recursion"
 - The head of a foot is not necessarily the stressed syllable.

(6) Iosad's (2010) structure for an HHĤ foot:

$$
\begin{array}{c}
\text{Wd} \\
| \\
\text{Ft} \\
\diagup \ \ \diagdown \\
\sigma_1 \qquad \acute{\sigma}_2 \\
\diagup\diagdown \qquad \diagup\diagdown \\
\sigma_3 \ \ \mu \quad \mu \ \ \mu \\
| \\
\mu
\end{array}
$$

- In (6), σ_1 is the head of the foot, but σ_2 is stressed.

- The recursive structure of σ_1 makes it more complex than σ_2 (as per Dresher and van der Hulst's (1998) notion of head–dependent asymmetry); at the same time, it means that σ_1 **immediately dominates** only one mora.

- Stress is assigned within the foot according to weight, and independently of headhood.

- Green (1996: 8) treats Munster Irish stress using binary cola, which "may consist either of two feet or of a foot plus an unfooted syllable, but only a foot can be the head of a colon."

(7) Green's (1996) representations
    a.   LLĤ $[[(\text{mar.k}\partial)(\text{ré:r})]_\kappa]_\omega$

    b.   ĤLH $[[(\text{ú:})d\partial]_\kappa \ (\text{ra:s})]_\omega$
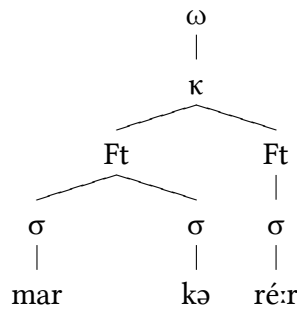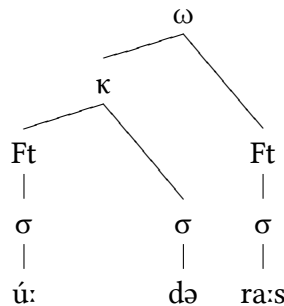
- Cola are preferably right-headed, as in (7a).

- If a colon contains an unfooted syllable, though, this cannot be the head, and so a left-headed colon is possible in a structure like (7b).

- In order to account for Munster Irish stress while maintaining that feet have a consistent head parameter setting, we could say that there's a different constituent that can be either left- or right-headed (Green, 1996), or we could say that headhood does not equal stress (Iosad, 2010).

- So perhaps it's worth contemplating the possibility that feet *don't* have a consistent head parameter setting.

≺3≻   Default to opposite within the foot?

3.1   The default-to-opposite pattern

- "No theory of stress is complete if it cannot account for this pattern" (Zoll 1997: 263).

- E.g., Selkup: Main stress goes on the rightmost heavy syllable if any (8a), otherwise on the leftmost syllable (8b).

   (8)   Selkup stress (Halle and Clements (1983: 189), cited in Zoll (1997) and Hyde (2001))

a.	i.	pü na kɨ sə́ː	'giant'
	ii.	ka naŋ mɨ́ː	'our dog'
	iii.	qu moː qlɪ lɨ́ː	'your friends (dual)'
	iv.	qu mɔ́ː qi	'human beings (dual)'
	v.	uː cɨk kɔ́ː qɪ	'they (dual) are working'
	vi.	uː cɔ́ː mɨt	'we work'
	vii.	ú ː cɨ qo	'work (infinitive)'
b.	i.	qú mɨ nɨk	'human being (dative)'
	ii.	qɔ́lʲ cɨm pa tɨ	'found'
	iii.	kár man	'pocket'
	iv.	ű ŋ ŋɨn tɨ	'wolverine'
	v.	sə́ rɨ	'white'

- In procedural terms, this pattern can be generated as follows:

   Start at the right edge and proceed leftward. If you come to a heavy syllable, stress it and quit. If you reach the leftmost syllable, stress it.

3.2   A separator-based default-to-opposite procedure for Munster Irish

- Here's how Munster Irish stress could work in a procedural system using separator-based representations of the sort introduced in (3).

   (9)   Footing:
      1.   Project the leftmost line-0 | to line 1.
      2.   Go to the third x to the right.
      3.   Go to the next | to the right and project it to line 1.

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- This delimits a minimally trimoraic, maximally trisyllabic foot at the left edge of the word. (Cf. the minimally bimoraic, maximally trisyllabic Germanic Foot of Dresher and Lahiri (1991).)

(10) Finding the head of the foot:
   1. Start at the right edge of the foot (i.e., the rightmost line-1 |).
   2. Go left to the next line-0 x.
   3. Project the current line-0 x if
      (a) it is immediately to the left of a line-0 x, or
      (b) it is immediately to the right of a line-1 |;
      otherwise, go back to step 2.

- This is a foot-bounded version of the same default-to-opposite procedure that can account for Selkup: stress the rightmost heavy syllable if any, and otherwise stress the leftmost syllable.

- Peeking into the three-syllable window:

(11) a. ĹLL | x |
                | x | x | x |

      b. LĤL | x |
                | x | xx | x |

      c. LĤH | x |
                | x | xx | xx |

      d. LLĤ | x |
                | x | x | xx |

      e. ĤLL | x |
                | xx | x | x |

      f. HĤL | x |
                | xx | xx | x

      g. HĤH | x |
                | xx | xx | xx |

      h. ĤLH | x |
                | xx | x | xx |

- Why is a heavy second syllable preferred over a heavy first syllable?
  Because we're searching from right to left.

- Why is a heavy second or first syllable preferred over a heavy third syllable?
  Because the third syllable will not be included in the foot unless the preceding two syllables are both light.

≺4≻ The challenge: Secondary stress

- The structures assigned by (9) and (10) predict, among other things, that an initial LLĤ will be parsed as a single foot.

- This prediction appears to be contradicted by the presence of secondary stress on the initial syllable in words like (12):

(12) Secondary stress (Noyer 1990: 9)
  a. H̀H́ èi rʲíː   'rise up'
  b. H̀H́ klùə síːχt 'whispering'
  c. L̀L H́ à mə dä́ːn 'fool'

- The presence of secondary stress suggests that there's more than one foot head, and thus more than one foot. So perhaps Green (1996) is on the right track in proposing a colon constituent above the level of the foot (although he does not discuss secondary stress).

- It is also possible to have a secondary stress **after** the main stress, as in (13):

  (13)   H́L H̀ méː rə kàːn 'thimble'

- If secondary stress can sometimes precede and sometimes follow the main stress, then it's a problem for the hypothesis that within any given language, words are consistently either left- or right-headed.

- A tentative solution (pending more data on secondary stress):

  - The constituents computed in (9) and (10) are not feet, but cola.
  - A tetramoraic colon is subdivided into two bimoraic, left-headed feet:

    (14) a. | x | b | x |
              | x | x | | x | x |
              | x | x | x x | | x x | x x |
              à mə dä́ːn   klùə síːχt

  - A heavy syllable outside the initial colon is (under some hopefully well-defined set of conditions) parsed into a foot, as in (13).

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