

## Class 8, 3/22/15: Assigning Stress

### 1. Quick followup on Hausa Juncture

- I casually maxented the 101 v - v - v - v - rajaz lines from *Tutocin Shehu*
- I had to simplify Russ's system from 6 to 4 levels (4-5-6 = 4)
- The follow constraints emerged as significant:
  - Endstopping: \*line ending in 3 or weaker break 5.0
  - Medial pause: \*4 or strong in middle of line 1.3
  - Final bridge I: \*break 3 or bigger between last 2 positions 21.7
  - Final bridge II: \*break 2 or bigger between last 2 positions 3.0
  - Medial caesura: \*break 2 or weaker after position 4 1.4

### 2. Topics assigning stress

- Scholarly traditions for treating English stress
- Evidence for stress
- The Manual used in two Hayes corpora

## SCHOLARLY TRADITIONS FOR TREATING ENGLISH STRESS

### 3. Classical generative-phonology tradition

- Generative metrics of English verse has, to date, been heavily reliant on a research line in the study of English stress, rooted in the American Structuralists and continuing through work of Chomsky, Halle, and others:
  - Chomsky, Noam and Morris Halle (1968) *The Sound Pattern of English*, Harper and Row, New York.
  - Liberman, Mark and Alan Prince (1977) "On Stress and Linguistic Rhythm," *Linguistic Inquiry* 8, 249-336.
  - Gussenhoven, Carlos (1984) *On the Grammar and Semantics of Sentence Accents*, Foris, Dordrecht.
  - Hayes, Bruce (1984) "The Phonology of Rhythm in English," *Linguistic Inquiry* 15, 33-74.
  - \_\_\_\_\_ (1995) *Metrical Stress Theory*, Chap. 9.
  - Selkirk, Elisabeth O. (1984) *Phonology and Syntax: The Relation between Sound and Structure*, MIT Press, Cambridge, MA.

#### 4. TOBIology

- The classical generativist approach is less concrete than the “ToBI-ological” approach to prosody (Pierrehumbert 1980, Beckman and Pierrehumbert 1989, Jun 1996, 2005, 2014)
  - Pierrehumbert, Janet (1980) *The phonetics and phonology of English intonation*, MIT diss.
  - Beckman, Mary and Janet Pierrehumbert (1989) Japanese book
  - Jun, Sun-Ah (1996) *The Phonetics and Phonology of Korean Prosody: intonational phonology and prosodic structure*, Garland Publishing Inc., New York : NY.
  - Jun, Sun-Ah (2005) Editor. *Prosodic Typology: The Phonology of Intonation and Phrasing*. Oxford University Press .
  - Jun, Sun-Ah (2014) Editor. *Prosodic Typology II: The Phonology of Intonation and Phrasing*. Oxford University Press.
- Reason: it depends on an abstraction, in the form of a “stress pattern” which is claimed to have an existence independent of intonation and phrasing.
- I think both approaches are basically right (i.e. we need a very rich theory of prosody).
- Evidence from meter can perhaps someday be brought to bear on these issues.

#### 5. Pitch accent vs. stress

- The pitch accents are far more observable than the stresses themselves.
- They are detectible as turning points or inflection points in the F0 curve.
- In phonological tradition, in English the *rightmost* pitch accent is considered to be the strongest; the traditional term being **nuclear**.

➤ This all have the strongest stress on *trees*:

tall trees	tall trees	tall trees
H*	L*    H*	H*    !H*

➤ but this one would be considered strongest stress on *tall*; i.e. contrastive stress.

tall trees
H*

#### 6. More generally

(see, e.g. Hayes 1995, Chapter 4):

*In any utterance, a syllable with weaker stress may not be assigned a pitch accent at the expense of a syllable with stronger stress.*

- This can be supported with multi-pitch accent intonational contours.
  - Try *The alligators are painted orange!* vs. *The allegations are painted orange!*

## 7. Stress patterns are felt intuitively in the absence of tonal evidence

But I *don't* live in the White House! ]  
 | |  
 H\* L%

But I *don't* live in the white house ]  
 | |  
 H\* L%

## 8. Metrics probably refers to stress, not pitch accents

- The poem does not specify a tonal structure.
- If the poet is to be seen to be “playing by the rules” at all, then (s)he must be using the **commonly expected stress pattern** as the basis.
- That is, a stress pattern that an ordinary native-speaker reader, equipped with understanding of the text (including its focus relations) would assign.

## 9. What other evidence can we use for stress transcription?

Hayes (1995, *Metrical Stress Theory*, Chap. 2) gives a fairly long list of diagnostics.

- Reduced vowels generally indicate very low stress level.
  - [i] and [ou] in final position can count as stressless. *manna, city, motto*
- Segmental phonology sometimes singles out very weak stress — tapping before fully stressless. cf. *Hittite*
- The “Rhythm Rule” prefers to retract stress onto more strongly-stressed targets.

*I've got them old classification blues.*

*I've got them old affiliation blues.*

- See Kiparsky (1977) for evidence that words like *classification* scan differently from words like *affiliation* in Shakespeare.
- It is possible that someday we may have more direct phonetic measurements of stress; cf. work of van Santen [ref. needed] on energy integrals.

## 10. Using metrics to justify stress

- It's not circular to use metrical evidence to bear on stress, since stress is rule governed: find the language-based stress pattern, then check examples of it in poetic corpus.

- Example: the Nuclear Stress Rule (Chomsky, Halle, and Lukoff 1956<sup>1</sup>)

*In a syntactic phrase with more than one content word, the last content word receives the strongest stress.*

- I looked in a small Shakespeare corpus for all disyllabic syntactic phrases with two monosyllabic words.
  - Controls: only isolated phrases, to avoid possible Rhythm Rule effects.
  - the numbers come out 18 to 3, which is probably characteristic (Kiparsky 1975, 1977).

And with <u>old woes</u> new wail my <u>dear time's</u> waste:	match, mismatch
And night doth nightly make <u>grief's length</u> seem stronger.	match
A woman's face with nature's <u>own hand</u> painted,	mismatch
Now see what <u>good turns</u> eyes for eyes have done:	mismatch
<u>Rough winds</u> do shake the darling buds of May,	match
Nor shall <u>death brag</u> thou wander'st in his shade,	match
So long <u>lives this</u> , and this gives life to thee.	match
Which steals <u>men's eyes</u> and women's souls amazeth.	match
Mine be thy love and thy <u>love's use</u> their treasure.	match
Thou gav'st me thine not to <u>give back</u> again.	match
May make <u>seem bare</u> , in wanting words to show it,	match
Do in consent <u>shake hands</u> to torture me,	match
I summon up remembrance of <u>things past</u> ,	match
And heavily from woe to woe <u>tell o'er</u>	match
Which I <u>new pay</u> as if not paid before.	match
But if the while I think on thee, <u>dear friend</u> ,	match
When that <u>churl Death</u> my bones with dust shall cover	match
These poor <u>rude lines</u> of thy deceased lover,	match
'Had my <u>friend's Muse</u> grown with this growing age,	match

- I need to verify this more carefully with Hayes/Wilson/Shisko corpus; in progress.

## 11. Compounds

- The Compound Stress Rule (Chomsky and Halle 1968 = SPE)

*In a compound, the first member has stronger stress.*

- Since compounds are not simplex, they are not subject to a strict metrical rule, but they would lead to an expected, “default” scansion. (Kiparsky 1975).
- Normal pattern:

With April's *first-born* flowers, and all things rare (Son. 21)

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<sup>1</sup> Chomsky, Noam, Morris Halle, and Fred Lukoff (1956). “On accent and juncture in English.” In *For Roman Jakobson*. The Hague: Mouton

And art made *tongue-tied* by authority (Son. 66)  
 When *proud-pied* April, dressed in all his trim (Son. 98)

- Individual compounds can be traced, revealing their normal stressing, along with aberrant scansion.

*Death-bed*

What, wilt thou on thy death-bed play the ruffian  
 Upon his death-bed he by will bequeath'd  
 And wat'ry death-bed for him. He may win;  
 Thy death-bed is no lesser than thy land  
 As from my death-bed, thy last living leave.

As the *death-bed* whereon it must expire (Son. 73)

Some mismatched *daylight*'s:

Yond light is not *daylight*, I know it, I (Rom. 3.5.12)  
 Lear. Where have I been? Where am I? Fair daylight,  
 That I may back to Athens by daylight,

Matched *daylight*'s:

If ever I thy face by daylight see;  
 Up to the ears. Come, we burn daylight, ho!  
 As daylight doth a lamp; her eyes in heaven  
 PORTIA. This night methinks is but the daylight sick;

- The latter disparity is enough to make one wonder about the possibility of variable pronunciation for Shakespeare—worth checking contemporary poets.

## 12. Can focus play a role in default stress assignment?

- Magnuson and Ryder (1971)<sup>2</sup> suggest no. Kiparsky (1977) gives a possible example:

A Swiss, a High Dutch, or a Low Dutch Bear

which would be unmetrical for its author, Alexander Pope, without contrast.

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<sup>2</sup> Magnuson, Karl and Frank G. Ryder (1970) "The study of English prosody: an alternative proposal," *College English* 31:789-820.

- Dr. Seuss is maddeningly inconsistent:
  - sometimes focus stress is needed to scan.<sup>3</sup>

And THNAD is for Thnadners. And oh, are they sad, oh!  
 The big one, you see, has the smaller one's shadow.  
 The shadow the small Thnadner has should be his.  
 I don't understand it, but that's how it is.  
 A terrible mix-up in shadows! Gee-Whizz!

- sometimes it must be disregarded.

I'm telling you this 'cause you're one of my friends.  
My alphabet starts where your alphabet ends!|

...

That you really don't know all there is to be known.

## A SCHEME FOR STRESS TRANSCRIPTION

### 13. Used in

- Hayes, Bruce and Abigail Kaun, (1996) "[The role of phonological phrasing in sung and chanted verse](#)," *The Linguistic Review* 13, 243-303.
- Hayes, Wilson and Shisko (2012)

### 14. Goal

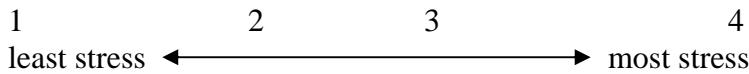
- We wanted an *interpreted corpus*; that is, not just the texts of the lines, but also (in principle) all of the structural information that might bear on a correct metrical analysis.
  - stress pattern
  - hierarchy of phonological phrasing (word boundaries, phrase boundaries of various ranks)
  - syllable weight (stressed syllables only)
- Such a corpus can be sorted in Excel, machine-searched, subject to analysis, even subjected to automated machine learning.
- The delicate part: there are many intuitive judgments, often delicate.
- Safeguards used in both works.
  - Have two independent transcribers, and assess their degree of agreement.
  - Base the statistics/analysis on only the lines that seem clear in their structure (better to have fewer data than wrong data).

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<sup>3</sup> All examples from *On Beyond Zebra* (1955)

## 15. A Scheme for Encoding Stress Patterns

limit of four levels is artificial; imposed by needs of a practical project



## 16. Lexical (NAV) Stress

- Strongest stress of a word receives  $\geq 2$  stress,<sup>4</sup> depending on phrasal context.
- Secondary stresses that define a local maximum on either side receive 2 (roughly following Kiparsky 1977)
- Other syllables receive a 1.

1 2 14 1        2 11 4 1  
abbreviation vs. classification

Metrical evidence (Kiparsky 1977): *abbreviation* is fine in any WSWSW; *classification* would have to come after a break.<sup>5</sup>

4 1 1 2        4 1 2 1  
rigamarole vs. alligator

We can also try our own intuitions for setting lines as sung or chanted folk verse (cf. later in course)

O rígamaròle is a fúnny long wórd  
álligàtor

cucumber vs. Idabelle        When Cùcumber Sám went a-còurting one dáy  
Idabelle Lée

## 17. Default Phrasal Stress

- Strongest stress of each intonational phrase receives 4.

### b. Nuclear Stress Rule

In phrases, the element on the right wins.

a bìg bírd, gròw tomátoes, wònderfully magníficent

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<sup>4</sup> I now think it would be better to use 3 as the minimum for any content word, reserving 2 for compounds and disyllabic function words.

<sup>5</sup> There's a complication here, involving Resolution (two syllables in one position); this statement will suffice for now.

### c. Compound Stress Rule

In compounds, main stress falls on the rightmost non-final branching member.

I wooed her in the **súmmer time**  
 And the tailor went forth and he stole **bróadcloth**  
 And four are the **góspel-makers**.

hédge-hòp, píe schòol, UCLA fóotball tèam

### d. Recursive Application

Build sufficient metrical structure so that the rules are satisfied everywhere.

[for board: *Belgian farmers grow turnips*]

### e. Beat Addition

- In a right branching structure, particularly with three adjacent syllables, an alternating pattern tends to be established, with the first non-nuclear stress stronger than the second (e.g. Selkirk 1980).

$$\begin{array}{ccc} x & \dashrightarrow & x \\ x \ x \ x & & x \ x \\ & & x \ x \ x \end{array}$$

$$\begin{array}{ccccccccc} 3 & 2 & 4 & 3 & 1 & 2 & 1 & 4 \\ \text{e.g. } & \text{big bad wolf, twenty little cats} \end{array}$$

From my Sonnet file:

Which steals men's eyes and women's souls amazeth.  
 May make seem bare, in wanting words to show it,

### f. Rhythm Rule

$$\begin{array}{ccc} x & \dashrightarrow & x \\ x \ x & & x \ x \\ x \ x \ x & & x \ x \ x \end{array}$$

e.g. *thirteen men*

conditions: the "landing site" must bear stress  
 all elements must share the same Phonological Phrase

in folk verse: **milk-white** steed  
 And two and two are **lily-white** babes

in pentameter, see Kiparsky 1977, who compares:

And who she finds *forlorn* she doth lament (Ven. 1500)  
 And from the *forlorn* world his visage hide (Son. 33)  
 The unseen good old man (Ham. 4.1.12):

#### g. Phrasal Bounding

Beat Addition and the Rhythm Rule apply more readily in close phrasal conjunction:

2 3 2 4                    3 2 2 4  
*Three cats ate birds* -/-> \**Three cats ate birds*

#### h. Verbs

Verbs are reluctant to be promoted by Beat Addition:

*ate two birds* → 224, 234, less likely 324

This fits in with a general reluctance of predicates to be stressed over arguments

### 18. Content Words vs. Function Words

- Some function words are always totally stressless, e.g. *the, a*
- Disyllabic function words have a stress (cf. *under*, last time), but it sounds weak and is weak in its metrical effects.

*any tomatoes* 21 141 vs. *runny tomatoes* 31 141

- Function words pronounced with focus or in isolation are prosodically treated like content words.
- Function words typically lose out for stress even when in position to receive it:

I've sixpence in my pocket and I've worked hard **for it**.  
 This day you shall sup and dine **with me**  
 The king's permission granted **me**  
 My man John, what can the matter **be**,  
 O fisherman, O fisherman, O come and tell **me**

### 19. A peculiarity of disyllabic function words (Kiparsky 1977)

They are allowed to appear in SW, when in their normal proclitic position.

(82) a. Henceforth be never numbered among men

- b. Weighed between loathness and obedience, at
- c. Words before blows; is it so, countrymen
- d. Your master's confidence was above mine
- e. And I will comment upon that offense

Kiparsky suggests that the Rhythm Rule may have applied to such words in Shakespeare's day.

Another option is simply that they have weaker stress than content words.

Hayes/Wilson/Shisko neglected to code this distinction, to their subsequent sorrow, since it messed up the Milton analysis.