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MORPHON
MINI-SYMPOSIUM
19 OCTOBER 2017

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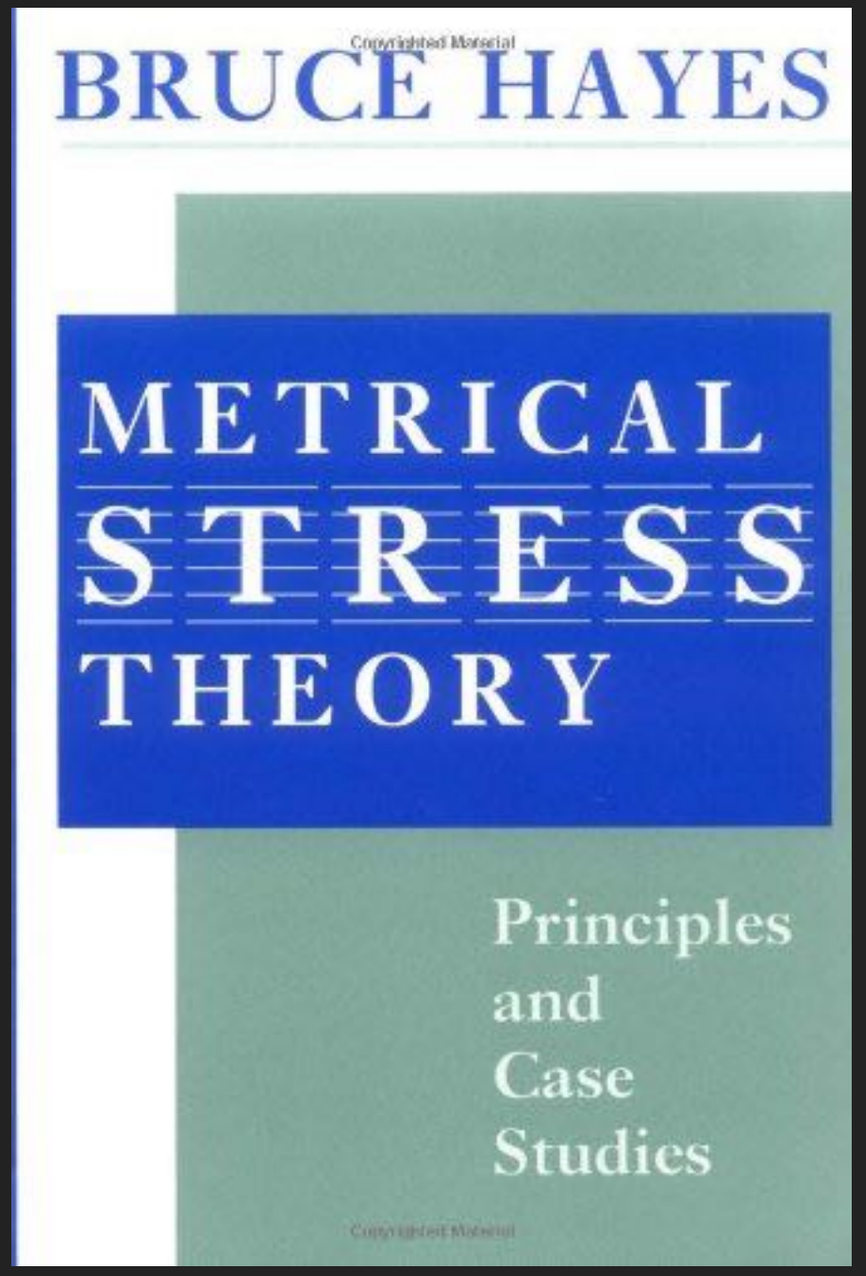
PHONOLOGICAL VS MORPHOLOGICAL ACTIVATION OF STRESS IN MAPUDUNGUN

THE PROBLEM: 'WEAK' STRESS SYSTEMS

- Hyman (2014: 59):
  'Languages which exploit metrical structure for multiple purposes… will exhibit the kind of metrical coherence found in Germanic (Dresher & Lahiri 1991) . . . Languages such as Hungarian or Turkish . . . seem different because their metrical structure has little or no relevance outside the stress system itself. The contrast with English, whose phonology cares so much about stress, is quite striking.'
- Should *linguists* care about stress in languages that seem to care so little about stress?

STRESS IN THE GENERATIVE TRADITION

- '[S]tress is the linguistic manifestation of rhythmic structure. The special phonological properties of stress can be explicated on this basis' (Hayes, 1995:1)
- Rhythmic structure can be accounted for with parameters: foot type, quantity sensitivity, direction of parsing, end rules, etc.
- There is a universal set of restrictions on the placement of stress
- Interaction with morphology is non-essential



OTHER VIEWS

- **Functional Role:** Work in the Prague School tradition (Trubetzkoy 1939; Martinet 1964; Garde 1967) considers stress to actively mark word and/or morphological boundaries placing emphasis on stress' *demarcative function*.

- **Dominant vs. Non-Dominant systems:** Van Coetsem (1997) proposes D and ND accent languages, where the first is characterised by strong asymmetries between stressed and unstressed syllables, which manifest diachronically as reduction and loss.

STRESS, SOUND CHANGE AND ENGLISH MORPHOLOGY

- The history of stressed vs unstressed syllables is markedly different in English
  - Unstressed syllables often reduce and disappear
  - Stressed syllables are subject to breaking, chain shifts, tensing, gemination, consonant fortition, etc.
- "The movement of English towards a more analytic type was supported by purely phonological developments, in principle unrelated to the morphology. The fact that Old English was a suffixing language simply put the bulk of its morphological markers in vulnerable positions [i.e. unstressed position].' (Lass 1992: 105)
- According to van Coetsem (1997), change in English is 'prominence-dependant' and its shift towards analytical forms is closely tied to this fact

ON THE LOOKOUT FOR STRESS (RHYTHMIC BIAS)

- Speakers of 'dominant accent' languages have a *rhythmic bias* in listening to new languages, which is in line with neither the native intuitions of speakers of such languages, nor the acoustic evidence
- Tabain, Fletcher and Butcher (2014) have termed this phenomenon *stress ghosting* and have identified it among English fieldworkers describing secondary stress in Pitjantjatajra (W. Desert – Australia)
- Secondary stress in Polish and Hungarian also seem to be inconsistently perceived or analysed (Newlin-Łukowicz, 2012; Blaho & Szeredi, 2011)
- This process appears to be the mirror image of *stress deafness* (Dupoux, Peperkamp & Sebastián-Gallés 2010) in non-stress languages
- Rhythmic bias seems to have become part of our analytical expectations

MAPUDUNGUN

- Mapudungun (a.k.a. Araucanian, Mapuche, Mapuchedungun): ancestral tongue of the Mapuche
  - ±150,000 spkrs. (Chile/Argentina)
- Considered endangered, due to poor transmission
  - Monolingualism is vanishingly rare
  - Most speakers are elderly and live in traditional, rural communities
- Presumed to be an isolate
- Polysynthetic, agglutinating and head-marking

DESCRIPTIONS OF STRESS IN MAPUDUNGUN

- The main source for most typological accounts of Mapudungun stress is a three-page article on the entire segmental and suprasegmental system: Echeverría & Contreras, 1965
- No reference given to the sources of the data: methods, n° of speakers, provenance, competence, etc. (cf. de Lacy, 2014)
- "General rule: A phonological word has main stress on the second syllable and, if applicable, secondary stress on the fourth and sixth syllables" (E&C: 134)

a.	***wu.ˈle***	b.	***tri.ˈpan.to***	c.	***e.ˈlu.-mu.-ˌj-u***
	'tomorrow'		'year'		'you give us
d.	***e.ˈlu.-a-.ˌe-.n-ew***	e.	***ki.ˈmu.-fa.ˌlu.-wu-.ˌla-j***		
	give-FUT-INV-1-3 's/he will give me x'		know-SIM-RFX-NEG-IND.3 's/he (her himself) pretended not to know'		

DESCRIPTIONS OF STRESS IN MAPUDUNGUN

- Under the name *Araucanian*, and the analysis of E&C, Mapudungun is often discussed in stress typologies:
  - Hyman (1977); Kager (1993, 2005); Hung (1993); Kenstowicz (1994); Hayes (1995); Revithiadou (1999); Gordon (2002, 2011); Hyde (2002, 2016); McGarrity (2003); Tesar (2004); Hermans (2011); Goedemans et al. (2014); Martínez-Paricio & Kager (2015) …to name but a few
- The analysis tends to be that of a 'perfect grid', sometimes interpreted as a quantity insensitive iambic pattern
- Hyde 2002:

a. *Nengone*	b. ***Araucanian***	c. *Maranungku*	d. *Suruwaha*
x x x σ σ σ σ σ σ	x x x σ σ σ σ σ σ	x x x σ σ σ σ σ σ	x x x σ σ σ σ σ σ
x x x σ σ σ σ σ σ	x x x σ σ σ σ σ σ σ	x x x x σ σ σ σ σ σ σ	x x x x σ σ σ σ σ σ σ

DESCRIPTIONS OF STRESS IN MAPUDUNGUN

- Mapudungun-specific literature presents stress as final if the syllable is closed, otherwise, as penultimate (cf. Lenz 1895-1897; Augusta 1903; Suárez 1959; Echeverría 1964; Salas 1976, 1992; Zúñiga 2006; Smeets 2008; Sadowsky et al. 2013)

Right-edge stress (from Salas 1976 & 1992):

a.	***wa.ŋi.ˈlen*** **(H)**	b.	***we.jul.-kɨ.ˈle-j*** **(H)**
	‘star’		‘swim-PROG-IND.3’
c.	***ma.ˈwi.θa*** **(LL)**	d.	***le.li.-ˈfi.-m-i*** **(LL)**
	‘woodland’		‘watch-INV.3SP.IND-2-S’

- This rather looks like a right-aligned moraic trochee…

THE TYPOLOGISTS VS. THE TRADITION

- Language-specific and typological approaches differ in all parameters (e.g. Salas 1992 vs. Hyde 2016)!

	Typologist	Tradition
Foot	Iamb	Trochee
Quantity	Insensitive	Sensitive
Direction	Left-to-right	Right-to-left
End Rule	Left	Right
Iterativity	Yes	No

A NEW LOOK AT MAPUDUNGUN PROMINENCE

- Gathered near Cholchol, in Chile's Araucanía Region
- Seven native speakers interviewed – all late Spanish bilinguals
- Words recorded in context and isolation
- Native intuitions elicited

HOW IS IT ASSIGNED? SIMPLEX WORDS

- Based on native intuition (matches pitch peaks)

Mono-, di- and trisyllabic nouns:

a.	**ˈfɬn̪**	‘seed’	b.	**ˈko**	‘water’
c.	**n̪a.ˈmɬn̪**	‘foot’	d.	**l̪af.ˈken̪**	‘sea’
e.	**wa.ŋi.ˈlen**	‘star'	f.	**ma.ˈwi.θa**	‘woodland’
g.	**a.tʃuʌ.ˈpeɲ**	‘floating ash’	h.	**a.ˈnuŋ.ka**	‘plant'

- Final closed syllables are stressed, elsewhere, the penult is stressed
- No evidence for secondary stress
- A single, right-aligned moraic trochee? ([μμ]); ([μμ] μ); ([μ] μ)
- However: Vowel-final disyllables alternate stress position

i.	**ˈma.pu ~ ma.ˈpu**	‘land’	j.	**ˈpiw.ke ~ piw.ˈke**	‘heart’

HOW IS IT ASSIGNED? COMPLEX VERBS I

- Complex words may have two stresses
  - Stress falls on:
  - word-final (ω) moraic trochee ([μμ]); ([μμ] μ); ([μ] μ)
  - stem-final (s) syllable (here, root-final)

No Clash:

a.	[[tre.'**ka.**]$_{s}$-ja.-'**wa-j**]$_{\omega}$	b.	[[ɬ.'**trɬf.**]$_{s}$-tu.-ke.-'**la-j**.-m-i]$_{\omega}$
	walk-AMB-FUT-IND.3		**throw-REST-HAB-NEG-IND-2-S**
c.	[['**lef.**]$_{s}$-pu.-'**le-j**]$_{\omega}$	d.	[[tri.'**pa.**]$_{s}$-ke.-'**la-j.**-m-i]$_{\omega}$
	run-TRLOC-PROG-IND.3		**exit-HAB-NEG-IND-2-S**

- No clear word-level stress hierarchy (no culminativity)

HOW IS IT ASSIGNED? COMPLEX VERBS II

- Clash:
  - In most cases, root stress is demoted, and only the ω-final trochee is stressed (a, b)
  - 'Extended' roots (i.e stems, as in c, d), take stress, while the ω-final stress is lost
  - Extended roots have a valency-changing suffix such as:
    -ŋe 'PASS'; -ɲma 'APPL'; -(l)el 'APPL'; -(ɨ)m 'CAUSE'; (ɨ)l 'CAUSE'

Clash:

a.	[[a.**mu**.]$_s$-ˈ**la-j**-m-i]$_\omega$	b.	[[le.**li**.]$_s$-ˈ**fi-j**.-m-i]$_\omega$
	go-NEG-IND-2-S		**look-DIR.3SP-IND-2-S**
c.	[[e.lu-ɲ.ˈ**ma**.]$_s$-**fi-j**.-m-i]$_\omega$	d.	[[la.ˈ**ŋɨm**.]$_s$-**fi-j**]$_\omega$
	give-APPL-3.SP-IND-2-S		**die-CAUSE-3SP-IND.3**

HOW IS IT ASSIGNED? COMPOUNDS

- Stress is on the final syllable of the first root, and on the final moraic trochee of the second

No clash:

a.	[ʧa.ˈfo.]$_D$-[ku.ˈtran]$_H$	b.	[ʧa.ˈŋuʎ]$_H$-[na.ˈmuɲ]$_D$
	‘cough-disease’ (a		‘finger-foot’ (toe)

- In clash, the head of the compound retains stress
- Head (H) and dependant (D) roots bracketed

Clash:

a.	[ku.θi.]$_D$-[ˈfo.ro]$_H$	b.	[fo.ˈro]$_H$-[ʧall.-wa]$_D$
	‘mortar-bone’ (spine)		‘bone-fish’ (fishbone)
c.	[we.nu.]$_D$-[ˈma.pu]$_H$	d.	[i.ˈlo]$_H$-[tre.-wa]$_D$
	‘high-land’ (heaven)		‘meat-dog’ (dog meat)

MAPUDUNGUN STRESS AND THE PHONOLOGY

- Stress refers to prosodic units: morae (weight), feet, PrWds
- NO-CLASH plays a role at the morpheme boundary
  - Possibly a rhythmic constraint
- But,
  - Native speakers have no intuitions as to stress hierarchy in words (culminativity is not definitional at the PrWd-level)
  - No evidence for vocalic reduction/neutralisation in unstressed position (Sadowsky et al. 2013)
  - No stress-based phonotactic asymmetries (Salas 2006; Zúñiga 2006)
  - No attested stress-based processes in Mapudungun's synchronic or diachronic phonology (Molineaux 2014, 2017)

MAPUDUNGUN STRESS AND THE MORPHOLOGY

- Paucity of stress-based phonological asymmetries is advantageous to parsing of agglutinative morphology:

a. **[θu.ˈŋu.-ke.-ˈla-j.-m-i]**	‘speak-HABIT-NEG-IND-2-S’
b. **[θu.ˈŋu.-ke.-ˈle-j.-m-i]**	‘speak-HABIT-PROG-IND-2-S’
c. **[θu.ˈŋu.-ke.-la.-ˈj-i-ɲ]**	‘speak-HABIT-NEG-IND-1-P’
d. **[θu.ˈŋu.-ke.-le.-ˈj-i-ɲ]**	‘speak-HABIT-PROG-IND-1-P’

- Productive agglutinating morphology means the target morpheme for stress changes dynamically
- Computing enhancement and reductions online could create processing difficulties
- ***[θu.ˈŋu.-ke.-lə.-ˈj-i-ɲ]** ‘speak-HABIT-???-IND-1-P’

DOES MAPUDUNGUN REALLY HAVE STRESS?

- It has some of the main traits of stress systems (Hyman 2006):
  - OBLIGATORINESS: "requires that an obligatorily headed metrical constituent be built at the word level"
  - PRIVATIVITY: a syllable is either stressed or not stressed
  - DEMARCATION: this is particularly strong in Mapudungun
- It also lacks typical features of stress systems:
  - CULMINATIVITY: only one main stress per word
  - RHYTHMICITY: 'echo' or secondary stress alternates throughout longer words – not purely the "linguistic manifestation of rhythm"
    - Though clash is avoided, so not completely insensitive to it
    - Also, in avoiding clash, a hierarchy of stresses is revealed – a morphological hierarch

DOES MAPUDUNGUN REALLY HAVE STRESS?

- Accent in Mapudungun is evidently Non-Dominant (van Coetsem, 1997)
  - it displays no reduction phenomena (change is prominence-independent)
  - there is no strong metrical/rhythmic organisation in the language
- If it isn't stress, what is the alternative?
  - Tone? It lacks the lexically specified nature of tones
  - Pitch accent? This category is somewhat ill-defined (Hyman 2009, 2011) taking features from both stress and tone systems, however Mapudungun has none of the tone-like features
  - A different kind of stress – one that is less deeply entrenched in the phonology and more deeply so in the morphology

TURKISH STRESS

- Default stress is claimed to be on a word-final syllable

Turkish stress (from Göksel & Kerslake, 2005: 29)

a.	**ki'tap**	‘book’
b.	**kitap-'lar**	‘books’
c,	**kitapla'r-ım**	‘my books’
d.	**kitaplarım-'da**	‘in my books’
e.	**kitaplarımda-'kı**	‘the one in my books’
f.	**kitaplarımdakı-'ler**	‘the ones in my books’
g.	**kitaplarımdakıle'r-e**	‘to the ones in my books’

- The default prominence seems to have a word-demarcative function (Kabak & Vogel 2001)
- There is no evidence for secondary stress overall
- Neither final nor non-final stress show any broader phonological effects

HUNGARIAN STRESS

Main stress is word-initial and is cued by F0 (Varga 1994)

'iskola	'school'	**'forrósodi**	'grows hot'	**'szénanát**	'hay

- Secondary stress is…
  - a quantity sensitive feature: Szinnyei (1912)
  - a LR syllabic trochee: Kerek (1971); Varga (2002)
  - in alternation with tertiary stress: Hammond (1987)
- Blaho & Szeredi (2011) and Vogel et al. (in press) find no phonetic evidence for (impressionistic) secondary stress
- "this putative rhythmic intensity alternation is phonologically irrelevant as it does not interact in any way with the rest of the phonology"(Siptár & Tökenczy 2000: 22)
- Phonological correlates to all stresses are conspicuously absent (Kálmán & Nádasdy 1994; Blaho & Szeredi 2011)

STRESS TYPOLOGY AND 'ACTIVATION'

- Different features are phonologically activated in a given language (Clements 2001)
- English seems to have a highly activated stress system, which participates at all levels of the phonology (cf. Hyman 2014)
- Turkish, Hungarian and Mapudungun seem to have some stress features (mostly DEMARCATION and OBLIGATORINESS), but these interact little with the rest of the phonology
- However, Mapudungun seems to display morphological activation of stress to an important degree
- It has a sub-lexical demarcative function, as well as signalling headedness of compounds and valency changes in the verb

MORPHOLOGICAL TYPOLOGY AND STRESS FUNCTION

- Agglutinating languages typically display non-allomorphic and often sub-syllabic morphemes mapped to single meanings
- In order to maintain the transparency of morphological paradigms, these languages actively avoid positional asymmetries
- In fusional languages, allomorphy is more common, subordinating the morphology to phonological well-formedness criteria
  - van Coetsem (1997) claims dominant accent systems tend to follow a path towards analytical structures and fusion
  - Non-dominant accent systems – especially where there is morphological activation – will more easily retain synthetic, agglutinating features
- Ultimately stress may take on a role that is more rhythmic or structural, or one which is more demarcational or functional

SUGGESTIONS WELCOME

THANK YOU!