

Word-Prosodic Typology: Universals vs. Diversity

The purpose of this course is to address the current state of phonology, the quest for universals, and the issue of diversity within phonology, particularly as reflected in word-prosodic typology. While I will address a number of phenomena, attention will be particularly focused on questioning two universal claims concerning the syllable: (1) Do all languages have syllables, and if so, do they all have CV syllables? (2) Do all languages have “word accent”? While most scholars claim that all languages have syllables, I have recently reiterated my earlier claim that certain languages such as Gokana “go out of their way” to organize their sound systems without the syllable constituent (Hyman 2011). Other scholars such as Steriade (1999) and Blevins (2003) have been slowly whittling away at various evidence that has been traditionally cited in support of the syllable, e.g. that the syllable is central in determining the distributional properties of consonants and vowels, as well as their realization in context (see also Harris 2004 re foot-based generalizations). Concerning the second question, Goedemans & Hulst (2009) claim that all languages have “word accent” while I have reported on cases where evidence for word-level accent (stress) is lacking (Hyman 1977, 2009). We will look at these issues from as they concern phonological theory, typology, and empirical documentation, especially the “universals vs. diversity” debate triggered by Evans & Levinson (2009, 2010).

(1) Why universals?

- a. understand what languages all have in common
- b. understand what this says about the human mind/language faculty (cf. “UG” hypothesis)

(2) Why diversity?

- a. understand how languages can differ
- b. understand what this says about the human mind, communication, history etc.

“The crucial fact for understanding the place of language in human cognition is its diversity. For example, languages may have less than a dozen distinctive sounds, or they may have 12 dozen, and sign languages do not use sounds at all.” (Evans & Levinson, 2009: 431)

(3) A key problem concerning universals and diversity is the “comparison” issue. How can we compare when (i) languages are different? (ii) linguists are different?

“Every language... is a thing unto itself. This makes it a challenge to compare languages...” (Evans & Levinson 2010: 2737)

- a. E&L (2010) summarize solutions taken by different scholars to (i)
- b. Dealing with (ii) requires “normalization” of the analyses offered by different linguists: the goal is to typologize linguistic properties, not linguists! E.g. do all spoken languages have vowels?

(4) Normalization must not only factor out different opinions, but also requires agreement on the level of representation we are concerned with: (i) morphophonemic; (ii) phonemic; (iii) phonetic. Depending on the level of representation (and personal taste) Kabardian may have from zero to seven vowels:

- a. No vowels (Kuipers 1960)
- b. /a/ (Anderson 1978)
- c. /ə, a/ (Halle 1970)
- d. /i, ə, a/ (Ladefoged and Maddieson 1996)
- e. /i, ɜ, i:, e:, u:, o:, a:/ (UPSID: Maddieson & Precoda 1990)

(5) Lass (1984: 160) presents the phonetic qualities of Kabardian as in (5a); like Ladefoged & Maddieson, he posits the three phonemes in (5b) distinguished only by underlying height

- | | | | | | | | | | |
|----|----|---|----|---|---|----|-----------|---|------------------------|
| a. | i | | ɨ | ü | u | b. | /‘Close’/ | → | [i, ɨ, ɨ̄, u, ü, u...] |
| | e | ɪ | | ʊ | o | | /‘Mid’/ | → | [e, ɛ̄, ʌ, ɔ̄...] |
| | ɛ̄ | ə | ɔ̄ | ʌ | | | /‘Open’/ | → | [a, a...] |
| | a | | | | ɑ | | | | |

(6) Normalizing linguistic analyses is complicated by the current state of phonology

- a. diverse, disjointed, unclear boundaries, disparate goals
- b. largely oriented towards the surface due to optimality theory and technology
- c. current research tends to be experimental, instrumental, quantitative, statistical, computational

- d. increasing rejection of the the basic concepts and methodologies of the structuralist-generative heritage, ultimately denying that phonology is anything like we used to think
- e. healthy diversity of views and agendas
- f. critiques from a few outliers (e.g. Ohala 1990, Port & Leary 2005, Silverman 2006)
- g. some introspection, stock-taking by major players (e.g. Hayes 1995a)

(7) Assumptions of “traditional phonology” (which I adopt!)

- a. phonology = grammar
- b. structuralist commitment
 - i. two or three levels of representation
 - ii. rules or constraints to relate these levels
 - iii. discrete categories and distinctive features
 - iv. metrical constituents and prosodic domains
- c. central role of “contrast” (distributional analyses, whether “top-down” or “bottom-up”)

(8) Virtually all of the above has been questioned by someone, e.g. whether there is a distinction between phonetics and phonology, whether there are underlying forms, whether there are discrete categories, whether one can maintain a distinction between synchrony and diachrony, etc.

(9) In short, is there robust patterning in phonology as has been traditionally assumed?

“...*all* phonology might ultimately be redistributed between the theory of phonetic rules and the theory of lexical organization.... insofar as rules apply postlexically, they are phonetic and gradient, and insofar as they treat discrete categories, they are part of the lexicon rather than applying to the output of syntax.

“Of the Ilokano rules [I] studied... either they seemed phonetic in character, so that my conventional phonetic transcription represented an over idealized categorization of continuous data, or they struck me as not fully productive, lexicalized rules. At the time I occasionally wondered, “Where is the normal phonology that I was trained to study?” (Hayes 1995a: 67-68)

(10) Is it all gradient and in flux?

...at the proper level of description, *all* phonological patterns are sound changes in progress, as they are *all* gradiently and variably implemented, and they are *all* ever-changing... gradience and variation are the very stuff of phonology and sound change.... (Silverman 2006:214)

...the phoneme is not an entity on any level — functional, phonetic, psychological or even metaphorical. Rather, at best, “phoneme” is merely a terminological expedient.... (p.215)

(11) Recurrent confusion between truth, belief, and research agenda

- a. if you are interested in gradience, there’s plenty to be found
- b. if you are interested in structural patterning, there’s plenty of that too
- c. “phonetically-based phonology” is a research agenda: how far can we (they) get by bringing the phonetics into the phonology; where does it “leak”?
- d. some feel that the goal of linguistics is to study speaker-hearers rather than languages, thus phonology could be about mouths, ears, and brains—rather than sound systems
- e. often claimed that linguistics is a branch of cognitive science; cf. the “call” to be cognitive

“[Linguistics] developed originally as a branch of cultural anthropology and philology but has developed in past decades as a branch of cognitive science.” (Professional Master’s Programs in the Social Sciences: Current Status and Future Possibilities, a report to the Ford Foundation, Council of Graduate Schools, 2002, p.18)

“Phonology is a branch of cognitive science.” (Bruce Hayes, Workshop on Phonology: An appraisal of the field, Linguistic Society of America Annual Meeting, Anaheim, Jan. 4-7, 2007.)

“The central object of inquiry in linguistics... is the nature and structure of the cognitive faculty that supports Language. This is by no means all that linguists do, and I do not mean to denigrate the study of ways Language is used, the role of Language in society, and other pursuits. I do want to claim, though, that the central task for a ‘scientific study of language’ is to arrive at an understanding of an aspect of human cognitive organization. It is this that, like it or not, makes cognitive scientists of us all.” (Anderson 2008:796)

- f. linguistics as cognitive science = a research agenda, an attempt to give purpose to the field
- g. linguistics has other crucial interfaces and applications (e.g. culture, interaction, history, contact, population movements, documentation, e.g. of endangered languages), but also concern of seeking internal, cross-linguistic, and typological generalizations, universals
- h. this does not negate the existence of an autonomous core to linguistics—concepts and methodologies in which only linguists partake—which continues to provide rich insights into the nature of language through theoretical, typological, descriptive and historical investigation
 “Although this conclusion calls for a more careful interpretation of the typological diversity, it does not render the UG hypothesis unfalsifiable: optimality theory asserts that universal well-formedness constraints are active in the grammars of all speakers, irrespective of whether the relevant structures are present or absent in their linguistic experience. This strong hypothesis has sparked a productive research program that uses experimental tools to test the role of grammatical language universals—an enterprise that has unfortunately gone unnoticed by E&L.” (Berent 2009:451)

(12) Widespread disappointment with phonological (and other) proposed universals

- a. so few absolute universals
 “The issue of language universals is difficult because there appear to be so few absolute universals. In the domain of phonology, we cannot move much beyond the statement that all languages utilize consonants and vowels. Perhaps the most specific statements we can make would be to say that all languages have plain stop consonants and low vowels (Maddieson 1984).” (Bybee 2001:191)
- b. the ones which survive seem uninteresting (cf. the above Bybee quote)
- c. methodological unclarities (e.g. level of representation), alleged tendency to impose concepts of one language onto another
 vs. Evans & Levinson’s “Boasian ‘methodological relativism’ — first analyze a language in its own terms, then compare.” (2010: 2734)
- d. so many bad ones (see Konstanz Universals Archive), “universal stabs in the dark”, e.g.

(13) “No language uses tone to mark case” (Presidential Address, 2004 Annual LSA Meeting, Boston) vs. the following from Maasai (Tucker & Ole Mpaayei 1955:177-184)

	<i>nominative</i>	<i>accusative</i>		<i>nom. vs. acc. tone patterns</i>
class I:	èlòkùnyá	èlókúnyá	‘head’	L ⁿ -H vs. L-H ⁿ
	èncòmátá	èncúmátá	‘horse’	
class II:	èndéròni	èndèròni	‘rat’	H on σ_1 vs. σ_2
	ènkòlòpà	ènkòlópà	‘centipede’	
class III:	òlmérègèsh	òlmèrègèsh	‘ram’	H on σ_2 & σ_3 vs. on σ_2 only
	òlósówuàn	òlósòwùàn	‘buffalo’	
class IV:	òmótònyî	òmótònyî	‘bird’	identical tones
	òsínkírí	òsínkírí	‘fish’	

(14) “Substantive universals” not violated by the UPSID 451 (Hyman 2008)

- a. consonants
 - i. every phonological system has oral stops
 - ii. every phonological system contrasts phonemes which are [-cont] (=stops) with phonemes which are specified with another feature (e.g. [+cont], [+voice], [+nasal])
 - iii. every phonological system contrasts phonemes for place of articulation
 - iv. every phonological system has coronal phonemes
- b. vowels
 - i. Every phonological system contrasts at least two degrees of aperture.
 - ii. Every phonological system has at least one front vowel or the palatal glide /y/.
 - iii. Every phonological system has at least one unrounded vowel.
 - iv. Every phonological system has at least one back vowel.
- c. consonants and vowels

- i. A vowel system may be underlyingly contrastive only for aperture iff its vowels acquire vowel color from neighboring consonants (cf. Kabardian “vertical” system above)
- ii. A vowel system can be underlyingly contrastive for nasality iff there are output nasal consonants, e.g. Ikwere (Clements & Osu 2005)

(15) Ontena dialect of Gadsup (SIL (n.d.); Mark Donohue, personal communication)

- | | |
|--|---|
| a. proposed phonemic system | b. rules |
| ϕ s x ?
β r
m n y | $/\phi, s, x/ \rightarrow p, t, k / ? _$
$/n + s/ \rightarrow nt$ |

(16) NW Mekeo (Blevins 2009): “another universal bites the dust”

- | | |
|---|---|
| a. proposed phonemic system | b. rules |
| p k
β g
m η
w~o y~ε | $/g/ \rightarrow [dz^y] / _ i$
$/\eta/ \rightarrow [n] / _ i$
$\emptyset \rightarrow [y] / i _ a$ (optional) |

“In sum, coronal phones occur in all Mekeo dialects. In Northwest Mekeo, they are clear allophones of velars, or limited to recent loans in adult speech. Northwest Mekeo shows no evidence of coronal phonemes, though other Mekeo dialects contain phonemic /l/, and may be in the process of acquiring a coronal obstruent (/d/ in West Mekeo, /s/ in East Mekeo) via the phonologization of historically epenthetic segments.” (Blevins 2009:269)

(17) If substantive universals are disappointing, what about “formal universals”?

“Formal universals in phonology are constituted by the analytic elements that human minds employ in constructing representations of sound structure. Put simply, formal universals refer to the set of available data structures (e.g., binary features, metrical grids, autosegmental tiers) and the possible operations on them that can be used in constructing a grammar of a language.” (Nevins 2009:461)

(18) Nevins’ example involves the “mora”, an analytic construct designed to capture certain facts

Stress assignment, weight-sensitive allomorphy, compensatory lengthening and prosodic morphology, when sensitive to distinctions among syllable types, refer exclusively to the representational unit of weight called the mora. (p.462)

(19) The moraic syllable (Hyman 1985); for Hayes (1989), onset consonants link directly to the syllable node

- | | |
|--|---|
| a. Heavy syllables (e.g. attract stress) | b. Light syllables (e.g. do not attract stress) |
|--|---|



(20) Moraic syllable account of onset-coda asymmetries (CL = compensatory lengthening)

- | | |
|--|--|
| <i>Generalization</i> | <i>Formal account</i> |
| a. Onsets do not contribute to syllable weight | Only moras contribute to syllable weight |
| b. Onsets do not condition CL | Only moras contribute to CL |
| c. Onsets may not be syllabic | Only moras can be syllabic |
| d. Onsets may not be TBU's | Only moras can be TBU's |

(21) “Descriptive” vs. “analytic” universals (Hyman 2008: 86, 107), e.g. concerning onset properties (20a-d)

- a. the C of CV never produces syllable weight, CL, syllabicity, a TBU (= descriptive)
- b. if the C of CV were ever found to do any of these, this would not be due to a moraic account, i.e. not CV = two moras, V = one (= analytic)

- (22) What about the syllable? A quite “checkered past”! Over the years, questions have concerned:
- whether the syllable exists or not
 - what the syllable is (phonetic vs. phonological, articulatory vs. acoustic, abstract)
 - what the syllable can (vs. cannot) do
 - how syllable structure should be represented (flat vs. hierarchical, X slots vs. moras, iterations of CV only, maximally CVX etc.)
 - how syllabification should be implemented (sonority- vs. edge-based, lexical vs. postlexical)
 - what is universal vs. language-specific

- (23) Claimed universals have been challenged

<i>proposed universal</i>	<i>potential counterexample</i>	
a. All languages have syllables	Gokana	Hyman (1983, 1985, 2011)
b. All languages have CV syllables	W. Arrernte	Breen & Pensalfini (1999)
c. All segments belong to a syllable	Bella Coola	Bagemihl (1991)
	Piro	Lin (1997)
d. Syllabification is always predictable	Barra Gaelic	Kenstowicz & Kisseberth (1979)
	English	Bloomfield (1933), Blevins (1995)

- (24) *Embarras de voyelles* in Gokana (Ogoni [Kegboid], Nigeria) (_ = nasalization)

- méé ě kō m̄m̄ kēēēēēēē ‘who_i said I woke him_i up?’
- kēē + ě + ě + ě + ě < / kEE + È + ÈÈ + ‘EE + É /
wake -CAUS -LOG -3SG -FOC [+nasal]

“It is of course logically impossible to prove that a language does not have syllables, since it may be the case that it has them but does not show obvious evidence of it—it may also be the case that some future linguist might discover evidence for the syllable in Gokana which I have simply overlooked.” (Hyman 1985:27)

- (25) Where does one look for phonological evidence for the syllable?

- distributional constraints conditioned by syllable structure
- phonological rules conditioned by syllable structure
- morphological rules or allomorphy conditioned by syllable structure
- prosodies or word-stress targeting the syllable as a feature-bearing unit
- prosodic grouping of syllables into higher order constituents, e.g. feet

- (26) a. shapes: CV, CVV, CVC, CVCV, CVVCV, CVCVV, CVVV, CVVCVV, CVVVV

- | | | | | | | | | |
|------------------|---|---|----------------|---------|----|---|---|----------------------|
| C ₁ = | p | t | k ^y | k | kp | ʔ | + | [m ɱ n ɲ] |
| | b | d | g ^y | g | gb | | | (= /B, v, D, z/ with |
| | f | s | | | | | | a [+nasal] prosody) |
| | v | z | | | | | | |
| | | | l | (= /D/) | | | | |

- C₂ = “archiphonemes” /B, D, G/ (see (28))

(27)

<i>shape</i>	<i>noun</i>		<i>verb</i>	
CV	té	‘tree’	gó	‘hide’
CVV	bèè	‘plantain’	gbuu	‘swell’
CVC	búl	‘mat’	mɔn	‘see’
CVCV	kávà	‘tick’	kpári	‘sweep’
CVVCV	bùrù	‘ashes’	kaàná	‘pick (fruit)’
CVCVV	tɔnàà	‘branch’	kúmìè	‘pound (+logophoric)’
CVVV	ʔoàà	‘return’ (v.)	kēēē	‘wake up (tr.)’
CVVCVV	gɔmáá	‘cowry’	zaàriè	‘scatter (+log.)’
CVVVV	béèàè	‘pass +log’ (v.)	kēēàè	‘wake up (intr. +log)’

(28)				“coda-like”		“onset-like”
a.	oral	/B/ :	zob	‘dance’	tóví	‘throw’ /tóB + i/
		/D/ :	kil	‘go’	darà	‘pick up’ /dà + Da/
		/G/ :	pig	‘mix’	viigà	‘swing’ /viiG + a/
b.	nasal	/B/ :	num	‘groan’	kúmí	‘pound’ /kúB [+nas] + i/
		/D/ :	ban	‘beg’	bííná	‘ask’ /bí [+nas] + Da/
		/G/ :	ʔaŋ	‘pull out’	maŋà	‘laugh’ /BàG [+nas] + a/

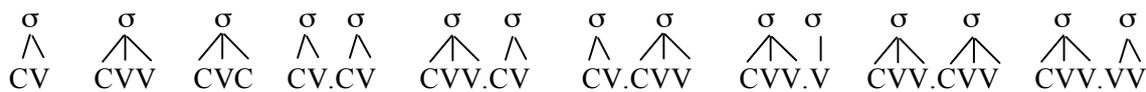
(29) Lack of respect for canonical syllables: suffixation of anti-causative *-a* even deletes would-be onsets!

a.	CV	:	gǒ	‘hide (tr.)’	gǒá	‘hide (intr.)’
	CVV	:	bii	‘press (tr.)’	biià	‘press (intr.), be too tight’
	CVC	:	ʔig	‘twist (tr.)’	ʔigà	‘twist (intr.)’
b.	CVCi	:	ʔóví	‘roast, burn (tr.)’	ʔóvá	‘burn (intr.)’
	CVVCi	:	zaari	‘scatter (tr.)’	zaàrà	‘scatter (intr.)’
c.	CVCa	:	darà	‘pick up’	daàà	‘begin, pick up (intr.)’
	CVVCa	:	kuùrà	‘open (tr.)’	kuùà	‘open (intr.)’
	CVCE	:	bere	‘lean (tr.)’	beèà	‘lean (intr.)’

(30) Recall the prosodic stem shapes in (25), repeated in (30a)

- attested: CV, CVV, CVC, CVCV, CVVCV, CVCVV, CVVV, CVVCVV, CVVVV
- unattested: *CVCVCV, *CVCVCVCV (maximum of two Cs; may or may not be syllable-related)
- unattested: *CVCVVV, *CVVVCV (maybe because a syllable can’t be CVVV?)

(31) Maybe the prosodic stem maximum is a weight-insensitive bisyllabic trochee



If we assume two syllables, each with a maximum of two moras (Vs), the absence of *CVCVVV and *CVVVCV structures is accounted for (vs. a stipulation in a moraic account).

That’s it for evidence for the syllable in Gokana! (see Hyman 2011a for fuller data and discussion)

(32) A further ad hoc constraint is still needed to account for the remaining unattested shapes

- a “coda” consonant can occur only in monosyllabic CVC
- accounts for *CVVC, *CV.CVC, *CVV.VC, *CV.CVC, *CVC.CV, *CVC.CVV

(33) What about stress?

- since the syllable = the “stress-bearing unit” (Hayes 1995b: 49), if Gokana has no syllables, it cannot have stress (= correct!)
- compare Bella Coola, where a syllable must contain a sonorant (Bagemihl 1991); thus, a word consisting solely of obstruents, e.g. *éktsk^wč* ‘he arrived’, contains no syllables, and hence would be unstressable. In fact, Bella Coola is reported not to have word accent at all:

“[In Bella Coola there are] ... no phonemically significant phenomena of stress or pitch associated with syllables or words.... When two or more syllabics occur in a word or sentence, one can clearly hear different degrees of articulatory force. But these relative stresses in a sequence of acoustic syllables do not remain constant in repetitions of the utterance.” (Newman 1947:132).

(34) Questions concerning word-prosodic typology

- what are the relevant typological distinctions, or “types”?
- what are the objects of typological comparison? languages or properties?
 - tone or “tone language”?
 - stress or “stress language”?
 - is there a third distinct prosodic type called “pitch accent” or “pitch accent language”?
- why do prosodic typology? typology in general?

- d. what's universal? certainly not tone or "pitch-accent", and I would say probably not stress (or even the more abstract notion "word accent") vs. :

"A considerable number (probably the majority, and according to me: all) of the world's languages display a phenomenon known as *word stress*." (van der Hulst 2009: 1) [*note*: he meant to say "accent"]

- (35) Word-prosodic typology has overly focused on taxonomizing languages into predetermined "types" (stress-accent, tone, pitch-accent) rather than being property-driven. Either way one must first establish explicit definitions, a minimal criterion or set of criteria that a system must meet in order to be "stress-accent", "tone" etc. A great example occurs in Ladd (2008a: 4)

"Intonation, as I will use the term, refers to the use of *suprasegmental* phonetic features to convey 'postlexical' or *sentence-level* pragmatic meanings in a *linguistically structured* way." (his italics)

- a. *suprasegmental*: excludes segmental particles that mark questions, vocatives etc.
 b. *sentence-level*: excludes word-level stress, tone, length distinctions
 c. *linguistically-structured*: excludes "paralinguistic" raising/lowering of voice, tempo changes

- (36) This is not the only possibility. One can choose a definition that is more restrictive, e.g. to pitch...

Intonation refers to the structured variation in pitch which is not determined by lexical distinctions as in tone languages. (Gussenhoven 2007: 253)

- (37) ... or possibly less restrictive, e.g. Shekgalagari prepausal intonations (Hyman & Monaka 2011: 277)

- a. penultimate lengthening : declaratives, citation forms
 b. final vowel devoicing : ideophones
 c. final vowel lengthening : paused lists
 d. Ø (no marking) : yes-no questions, WH-questions, imperatives, hortatives, vocatives, exclamatives, monosyllabic prepausal words

- (38) a. declarative : a-bón-á mɔ-lĩ:mi 'he sees the farmer' (´ = low falling tone)
 b. ideophone : a-ri bĩtsɿ 'he left in a hurry' (= 'he went BITSY')
 c. paused list : a-bón-á lɔ-rɔli: ... malĩli: ... lí mɔ-rĩ:ri
 'he sees dust... rubbish... and hair'
 d. interrogative : a-bón-á mɔ-limi 'does he see the farmer'
 imperative : bón-á mɔ-limi 'see the farmer!'
 vocative : ntó Gabaloxúŋ 'come here, Ghabalogong!'
 exclamative : á ʃĩ-xólu 'what a situation!'

- (39) It seems clear that "intonation" can be tonal or non-tonal. Thus, Hyman & Monaka (2011: 285-6) ask:

"What are the necessary definitional properties of intonation? It seems there are at least three possibilities in determining what should vs. should not be considered 'intonation'. One might restrict intonation to certain specific realizations (pitch, duration etc.). Alternatively, one might delimit intonation on the basis of a restricted set of functions (declarative, interrogative etc.). A final possibility is that intonation might be identified in terms of its domain or place in a grammar. In this last case, we might say that anything that originates at the intonational phrase or utterance level, or within the 'Phonetic Form' module of government-binding theory, is by definition 'intonation'. In this last approach it would not matter if the mark were a feature, a mora, a segment, or a fuller 'particle'."

Question: Is there a right vs. wrong with respect to these definitions?

- (40) Stress-accent seems to require at least a two-part definition. A language with stress is one in which there is an indication of word-level metrical structure meeting the following two central criteria:

- a. OBLIGATORINESS: every lexical word has at least one syllable marked for the highest degree of metrical prominence (primary stress)
 b. CULMINATIVITY: every lexical word has at most one syllable marked for the highest degree of metrical prominence (Hyman 2006: 231; 2009: 217)

- (41) "A language with tone is one in which an indication of pitch enters into the lexical realization of at least some morphemes" (Hyman 2006: 229; 2011a: 199), e.g. up to five pitch heights, as in Kam (Shidong):

ta^{11} ta^{22} ta^{33} ta^{44} ta^{55} (Edmondson & Gregerson
 ‘thorn’ ‘eggplant’ ‘father’ ‘step over’ ‘cut down’ 1992: 566)

- (42) Given these definitions, a language can have stress-accent, tone, both, or neither (Hyman 2006: 237)

	<i>stress-accent</i>	<i>no stress-accent</i>
<i>tone</i>	Mayá, Usarufa, Fasu, Serbo-Croatian, Swedish-Norwegian, Ayutla Mixtec ...	Yoruba, Igbo, Kuki-Thaadow, Skou ... (Tokyo Japanese, Somali, W. Basque)
<i>no tone</i>	English, Russian, Turkish, Finnish ...	Bella Coola, French, Tamazight, Seoul Korean ...

- (43) As argued in Hyman (2009: 214, 232), it makes no sense to talk about a “continuum” with stress at one end, tone at the other, and something called “pitch-accent” in the middle

English-----W. Basque-----Tokyo Japanese-----Luganda-----Mandarin

- (42) The classic case of a third type of “pitch-accent” system is Tokyo Japanese (analyzed variously by McCawley 1968, 1978, Haraguchi 1979, Poser 1984, Pierrehumbert & Beckman 1988, among others)

	‘pillow’ + nom.	‘heart’ + nom.	‘head’ + nom.	‘fish’ + nom.
a. accentual pitch drop	ma [↓] kura ga	koko [↓] ro ga	atama [↓] ga	sakana ga
b. tonal (some propose HL or H*L)	makura ga H	kokoro ga H	atama ga H	sakana ga
c. approx. phonetic	mákùrà gà	kòkòrò gà	àtāmá gà	sàkànā gā

- (43) The obligatory and culminative stress-accent properties define four situations when applied to the distribution of an “accent-like” /H/ tone in different languages (Japanese is like Somali)

OBLIG(H)	CULM(H)	Description	Example
+	+	: a word must have one and only one /H/	Kinga Schadeberg (1973)
+	-	: a word must have one, but can have more /H/	Iquito Michael (2010)
-	+	: a word can have at most one /H/ or no /H/	Somali Hyman (1981)
-	-	: a word can have any number of /H/ or no /H/	Seneca Chafe (1977)

- (44) Kinga obligatory and culminative /H/ can be on either the first or second mora of a long-vowel syllable, e.g. when the /H/ is assigned to the antepenultimate mora of an infinitive verb

a. ukúheka	‘to laugh’	b. ukugéenda	‘to go’
ukúvala	‘to count’	c. ukuhwaánana	‘to become similar’
ukugeendélela	‘to walk around’		

- (45) Iquito -ya ‘plural’ kí- ‘my’

a. lexical initial H	: /túuku/	túuku	‘tumpline’	túuku-ya	kí-túuku
b. default penult H	: /tuuku/	tuúku	‘ear’	tuukú-ya	kí-tuúku

“All prosodic words in Iquito bear at least a single H tone, and if a given prosodic word lacks lexically specified high tones (a common occurrence), a high tone is assigned to the syllable bearing primary stress” (Michael 2010: 10), i.e. to the penultimate mora, which is always in a stressed syllable.

- (46) The default H will be blocked if a lexical /H/ occurs in the last four moras (two feet; colon) of the word

a. /pirusu/	→	(pi)(rúsu)	‘electric eel’	(no lexical H; default H)
/pirusu-ka/	→	(piru)(súka)	‘electric eels’	
b. /kí-pirusu/	→	(kípi)(rusu)	‘my electric eel’	(lexical H; no default H)
c. /kí-pirusu-ka/	→	kí(piru)(súka)	‘my electric eels’	(lexical H + default H)
/kí-pirusu-ka-hata/	→	kí(piru)(suka)(háta)	‘with my electric eels’	

- (47) Somali /H/ occurs only on the penultimate or final mora; most subject nouns and verbs are toneless

<i>root</i>	<i>masculine</i>	<i>feminine</i>	(Hyman 1981, Saeed 1993)
a. /inan/	ínan	ínán	‘boy’ ‘girl’
/naʕas/	náʕas	naʕás	‘stupid man’ ‘stupid woman’

- b. /darmaan/ darmáan ‘colt’ darmaán ‘filly’
 /dameer/ daméer ‘he-donkey’ dameér ‘she-donkey’
 c. cf. inan wáa dhaʃay ‘a boy fell’ inani wáa dhaʃday ‘a girl fell’

- (48) Seneca H tones are assigned by metrical structure (Melinger 2002)
- mark the first syllable extrametrical
 - build bisyllabic trochees left-to-right
 - assign a H tone to the first syllable of a trochee iff either syllable is closed
- (49) a. $\langle\sigma\rangle$ (CáC.Ca) (CaCa) ... c. $\langle\sigma\rangle$ (Cá.CaC) (CáC.Ca) ... (*CULM(H))
 b. $\langle\sigma\rangle$ (Cá.CaC) (CaCa) ... d. $\langle\sigma\rangle$ (Ca.Ca) (Ca.Ca) ... (*OBLIG(H))
- (50) While some languages must be analyzed with stress-accent (e.g. English), some with tone (e.g. Kam (Shidong)), and some with both (e.g. Iquito), no language MUST be analyzed with a third property called “pitch-accent” or “tonal accent” (cf. below).
- (51) Although the goal of typology is to study linguistic properties, not to classify languages, we do sometimes use phrases like “stress language” and “tone language” as a convenience. There are at least three reasons, however, why we should resist assigning labels to languages.
- (52) First, this gives the impression that the labels are mutually exclusive (cf. “ergative/absolutive language” vs. “nominative/accusative” language)
 “Hyman (2007)... reduc[es] the typology of word prosodic systems to tone languages and stress languages.”
 (van der Hulst 2011: 12)
- (53) Second, labels give the impression that whole systems (if not whole languages) can be assigned to a type, thus inviting often unproductive controversy over whether Language X should be classified the same as Language Y or as Language Z. Illustration concerning vowel system typology:
- Typologist #1: German and English should be classified together, because they both contrast tense vs. lax vowels, e.g. the high vowels /i, u/ vs. /ɪ, ʊ/—as opposed to French
 - Typologist #2: No! German and French should be classified together, because they both have front rounded vowels, e.g. /ü, ö/—as opposed to English
 - Typologist #3 (me): No! You’re both wrong. A property-driven typology would look like this:
- | | | |
|--------------------------------|------------------------|---------------------------|
| | <i>lax high vowels</i> | <i>no lax high vowels</i> |
| <i>front-rounded vowels</i> | German | French |
| <i>no front-rounded vowels</i> | English | Spanish |
- (54) A misguided example of this sort identifies Mandarin Third Tone L+H with English intonational L+H*
 “We cited Hyman (2006) here because this chapter is very representative of a widely-held assumption: that there are fundamental prosodic differences among spoken languages which naturally fall out from the difference between using tone [read: pitch] “to make semantic distinctions” [= tone] and using it “to add functional meaning” [= intonation] ... This is a useful distinction.... However, contra Hyman (2006) we do not see that it correlates neatly with all of the other distinctions that could be made on the basis of the functions outlined in Sections 5.2 [Prosodic Grouping] and 5.3 [Metrical Prominence]. That is we can appreciate the difference in ease of counting tones in Putonghua versus English that falls out from the fact that a L+H that is anchored to a stressed syllable in Putonghua is a toneme whereas a L+H* that is anchored to a stressed syllable in English is a pragmatic morpheme. But this difference does not change *the fact that these two languages are far more like each other in many other respects than either is to a language such as Japanese*. There is no useful classification of prosodic types that falls out from the classification of languages in terms of the tonemic function alone.” [Beckman & Venditti 2011:531; my italics—LMH]
 The misguided assumption is that typology is about classifying LANGUAGES, hence the misguided question whether Putonghua is more like English or more like Japanese; cf. Hyman, in press]
- (55) Beckman & Venditti find the Mandarin and English L+H surface similarities significant, but cf. the more usual view of Gussenhoven’s (2007: 256) concerning the similar H+L in Japanese and English:

“While phonologically comparable, the pitch accents of Japanese and English have very different morphological statuses. In Japanese, they form part of the underlying phonological specification of morphemes, along with the vowels and consonants. Intonational pitch accents are morphemically independent of the words they come with, and are chiefly used to express the information status of the expression. The fact that the English example in (4) seems to have an accentuation similar to the Japanese example in (3) is *entirely accidental*” (my italics—LMH).

(56) The final reason to avoid labeling is that the labels are often unclear; the phrase “X language” can mean:

- a. a language that has X e.g. “tone language”, “click language”
- b. a language that lacks Y e.g. “open syllable language” (lacking closed syllables)
- c. a language that marks X more than Y e.g. “word language” vs. “syllable language”

(57) In this context, what would “pitch-accent language” mean?

- a. a language which has an obligatory (but not necessarily culminative) tone?
- b. a language which has a culminative (but not necessarily obligatory) tone? (Hualde, in press)
- c. a language which has either a culminative OR an obligatory tone? (van der Hulst 2011)
- d. a language which has a privative tone (e.g. /H/ vs. Ø)? (Clark 1988)
- e. a language which limits tonal contrasts to the stressed syllable?
- f. a language which restricts its tones in whatever way?

“A pitch-accent system is one in which pitch is the primary correlate of prominence and there are significant constraints on the pitch patterns for words...” (Bybee et al 1998:277)

- g. a language which has only two tone heights (H, L)?

“... if we push the use of accents to its limits (at the expense of using tones), this implies allowing unaccented words (violating obligatoriness) and multiple accents (violating culminativity). In this liberal view on accent, only languages that have more than a binary pitch contrast are *necessarily* tonal...” (van der Hulst 2011: 13)

(58) My position: There is no coherent definition of “pitch-accent system” which covers all and only all of the prosodic systems that have been so labeled.

(59) We can see this clearer if we enhance the definition-as-minimal-criterion strategy with a “canonical approach” to prosodic typology

“The canonical approach means that I take definitions to their logical end point, enabling me to build theoretical spaces of possibilities. Unlike classical typology, only then does one ask how this space is populated with real instances. The canonical instances, that is, *the best, clearest, indisputable* (the ones closely matching the canon) are unlikely to be frequent... Nevertheless, the convergence of criteria fixes a canonical point from which the phenomena actually found can be calibrated, following which there can be illuminating investigation of frequency distributions.” (Corbett 2007: 9; my italics—LMH)

(60) Example: How paradigms should ideally be marked, e.g. subject person/number marking

	Italian		Mee (Ekagi)		Hakha Lai		cf. Humboldt’s Universal
	<i>sg.</i>	<i>pl.</i>	<i>sg.</i>	<i>pl.</i>	<i>sg.</i>	<i>pl.</i>	“one meaning, one form”
1 st pers.	-o	-iamo	-a	-e	ka-	ka-n-	(Vennemann 1972)
2 nd pers.	-i	-ate	-e	-aa	na-	na-n-	
3 rd pers.	-a	-ano	-i (m.)	-ai	a-	a-n-	
			-a (f.)				
	(-are verbs)		(Doble 1987:94)		(K. VanBik, pers.comm.)		

(61) In Prague School terms, the canonical function of stress-accent is *syntagmatic*: It should unambiguously identify and mark off major category words within utterances. Stress therefore should be:

- a. obligatory : all words have a primary stress
- b. culminative : no word should have more than one primary stress
- c. predictable : stress should be predictable by rule
- d. autonomous : stress should be predictable without grammatical information
- e. demarcative : stress should be calculated from the word edge
- f. edge-adjacent : stress should be edge-adjacent (initial, final)
- g. non-moraic : stress should be weight-insensitive (cf. *bónacalígula* - Martinet 1961: 87)

- h. privative : there should be no secondary stresses
 i. audible : there should be phonetic cues of the primary stress (= a complex issue)

In other words, stress should be “biunique”: One should be able to predict the stress from the word boundaries and the word boundaries from the stress.

- (62) Some stress systems diverge quite dramatically from the above canonical properties, e.g. English, where
- primary stress is often not predictable: *Cánada* vs. *banána*
 - secondary stress is often not predictable: *súbject* vs. *ínsèct*
 - primary and secondary stress can be morphological: *cónvert* vs. *convért*; *séparâte* vs. *séparate*
 - stress shows various word-level alternations and cyclic effects: *ícon* vs. *icónic*
 - stress shows post-lexical rhythmic effects: *thirtéen* vs. *thirteen linguists*

- (63) While non-canonical English has stress-dependent segmental alternations galore (aspiration, flapping etc.), a canonical, demarcative system can show quite little interest in the rest of the phonology
 “[in Hungarian] stress does not play a significant role in the word level phonology....” (Kenesei, Vago & Fenyves 1998:428)

In addition, Blaho & Szeredi (2011) argue that there are no alternating secondary stresses in Hungarian, despite claims to the contrary.

- (64) In support of this Praguian position, Hyman (1977, 1978) and Bybee, Chakraborti, Jung, & Scheibman (1998) argue that languages first develop demarcative stress, historically, which then can be subjected to further restructuring. Bybee et al also point out that multiple phonetic marking of stress tends to occur in languages where stress is not fully predictable. If stress is demarcative and edge-adjacent, packaging and recognition will be more transparent. If stress is unpredictable, the function shifts to identifying individual morphemes and words, resulting in greater marking.

- (65) Differing from stress-accent, the canonical function of tone is to distinguish morphemes, hence optimally *paradigmatic*. While this might suggest five tone heights, as in Kam (Shidong), let us restrict discussion to H and L. The canonical tone system should have the following properties:

- binarity : both H and L are phonologically activated
- omniprosodicity : every tone-bearing unit (TBU) has a H or L
- unrestrictedness : all combinations of H and L occur
- faithfulness : every /H/ or /L/ is realized on its underlying morpheme and TBU
- lexical : /H/ and /L/ should contrast on lexical morphemes (there are more of them)
- contours? : \overline{HL} and \overline{LH} contours should be possible on a single TBU
- floating tones? : H and L tonal morphemes and lexical floating tones should be possible

- (66) Fasu is non-canonical since only one (stressed) syllable per word can be marked H or L

	<i>H tone</i>		<i>L tone</i>		(May & Loeweke 1964)
a. σ	mé	‘language’	mè	‘taro’	
b. $\sigma-\sigma$	támo	‘down below’	tàmo	‘matches’	
	kikí	‘bone’	kiki	‘tree type’	
c. $\sigma-\sigma-\sigma$	férepe	‘bushknife’	èresa	‘dark’	
	sakáre	‘arrow’	hiwàti	‘eyelash’	
	kenarí	‘tree type’	kenarì	‘bamboo type’	

- (67) Giryama is non-canonical since /H/ = sparse and shifts to the penultimate mora (Volk 2011: 1)

‘I want ...’ (all L tone)	ni-na-maal-a	‘he/she wants ...’ (penult H tone)	a-na-maál-a	
	ni-na-mal-a ku-guul-a		a-na-mal-a ku-guúl-a	‘... to buy’
	ni-na-mal-a ku-gul-a ŋguuwo		a-na-mal-a ku-gul-a ŋguúwo	‘... to buy clothes’
			‡	
			H	

-----▶

(76) Summary

- a. it is possible to provide a non-arbitrary definition (requirements) for both stress-accent and tone
- b. it is possible to provide a set of canonical properties of stress-accent and tone, drawing on how each can best realize its basic function (distinctive/paradigmatic vs. demarcative/syntagmatic)
- c. it is not possible to provide a definition or canons for a third “pitch-accent” system which would cover all and only all of the systems that have been labeled as such in the literature

(77) “Is a typology needed?” (Beckman & Venditti 2011: 641)

- a. typology = traditional linguistics
“the goal of linguistics is... to explain why languages have the properties they do (Evans & Levinson 2010: 2740)
- b. phonology has always been typological
... it almost goes without saying that two languages, A and B, may have identical sounds but utterly distinct phonetic [=phonemic] patterns; or they may have mutually incompatible phonetic systems, from the articulatory and acoustic standpoint, but identical or similar patterns. (Sapir 1925:43)
- c. the quest for universals need not be at odds with an appreciation of diversity, as traditionally acknowledged in phonology (if not in linguistics in general)

(78) Final remarks, returning to the current state of (traditional) phonology

- a. experimental, instrumental, quantitative, computational studies are important, necessary, etc. but they do not render obsolete the concepts and methodologies of traditional phonology
- b. traditional phonology has not reached a deadend, although synchronic phonology, perhaps a victim of its own success, may not be as likely to see as dramatic an expansion of the knowledge base as phonetics, psycholinguistics, and even morphology and syntax.
- c. while traditional phonology has centered around the development and application of theories and methodologies to help gain and express insights into the nature of phonological systems, some deny structural phonology not because of “truth”, but because they have a different agenda and/or wish to look at speech sounds at a different “level”
- d. traditional phonology is a branch of grammar and will be around as long as linguists care about grammar
- e. paraphrasing Steve Anderson re cognitive science, I do not wish to denigrate those who want to focus on neurons, laryngeal muscles, reaction times, or the effects of sounds on the cilia in the inner ear.... Although I would not want to confuse MY research agenda with “truth”, I would personally be quite comfortable if we modified his assertion in (11e) as follows:
“The central task for a ‘scientific study of language’ is to arrive at an understanding of grammatical structure, typology and universals, both synchronic and diachronic. It is this that, like it or not, makes grammarians of us all.”

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