"What Tone Teaches Us About Language"

Larry M. Hyman
University of California, Berkeley
2018 = the 50th Anniversary of my joining the LSA as an Undergraduate at UCLA

Linguistic Society of America

Archibald A. Hill
Secretary-Treasurer

Larry M. Hyman
6350 Maryland Drive
Los Angeles, California 90048

Dear Mr. Hyman:

It was with great pleasure that I received your payment for membership in the Linguistic Society of America for 1968. Your subscription to LANGUAGE will start with the first issue for 1968, which is No. 1 of Volume 44.

I think I should point out to you as a new member of the Society that it is our custom to send out the notification of dues early in the current year. In accord with the practice of many learned societies, we then continue to send the journal for the full year and do not count a member in arrears until the year's end. This means that a member who intends to resign should, therefore, let me know promptly of his intention since otherwise he is expected to pay his dues or return the journal before he can be resigned in good standing.

Once again, may I express my pleasure in welcoming you into the Society.

Cordially yours,

Archibald A. Hill
Secretary-Treasurer
And that was the same time I learned about tone in my Igbo language class
My goal today:

- to show that there are some things that only tone can do
- therefore tone has something to tell us about what languages and hence Language can do.

As I will show, tone can be strictly phonological, but it can also be morphological and syntactic. Tone also can mark important semantic and pragmatic distinctions.

But what *is* tone?
Definition of Tone
updated from Welmers (1959, 1973)

A language with tone is one in which pitch is a contrastive feature of at least some morphemes.

Excluded: Systems where pitch exclusively expresses domains larger than the word, e.g. phrasal and intonational tones.
Many of you probably first learned about tone from Mandarin

**Standard Mandarin Tones**

Tone I (high level) \( ma^{55} \) ‘mother’
Tone II (rising) \( ma^{35} \) ‘hemp’
Tone III (falling-rising) \( ma^{214} \) ‘horse’
Tone IV (falling) \( ma^{51} \) ‘scold’

5 = highest pitch, 1 = lowest
But I learned about tone from:

Igbo
(Benue-Congo; Nigeria)

Low-Low  àkwà ‘bed’  [ ___ ]
Low-High  àkwá ‘egg’  [ _- ]
High-Low  ákwà ‘cloth’  [ -_ ]
High-High  ákwá ‘crying’  [ -- ]

´ = H(igh) tone, ` = L(ow) tone

(where we undergraduates learned that there were four words [akwa], and none of them meant ‘water’)

A language with tone is one in which pitch is a contrastive feature of at least some morphemes.

Cherchez le Morpheme!
In a handbook chapter a few years ago,

**Tone: Is it Different?**
(Hyman 2011:214)

I suggested that:

*Tone is like segmental phonology in every way—only more so!*

- **Quantitatively** more so: tone does certain things more frequently, to a greater extent, or more obviously (i.e. in a more straightforward fashion) than segmental phonology.
- **Qualitatively** more so: tone can do everything segments and non-tonal prosodies can do, but segments and non-tonal prosodies cannot do everything tone can do.

In other words:
Tone Can Do Anything
You Can Do Better!
**Iau**

(Lakes Plain; Papúa, Indonesia)

**Highly “paradigmatic”, 8 inflectional overlays on /ba/ ‘come’:**

<table>
<thead>
<tr>
<th>Tone</th>
<th>Nouns</th>
<th>Verbs</th>
<th>Inflectional meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>H</td>
<td>bé ‘father-in-law’</td>
<td>bá ‘came’</td>
<td>totality of action punctual</td>
</tr>
<tr>
<td>M</td>
<td>bē ‘fire’</td>
<td>bā ‘has come’</td>
<td>resultative durative</td>
</tr>
<tr>
<td>HS</td>
<td>bēˇ ‘snake’</td>
<td>bāˇ ‘might come’</td>
<td>totality of action incompletive</td>
</tr>
<tr>
<td>LM</td>
<td>bē ‘path’</td>
<td>bā ‘came to get’</td>
<td>resultative punctual</td>
</tr>
<tr>
<td>HL</td>
<td>bē ‘thorn’</td>
<td>bā ‘came to end point’</td>
<td>telic punctual</td>
</tr>
<tr>
<td>HM</td>
<td>bē ‘flower’</td>
<td>bā ‘still not at endpoint’</td>
<td>telic incompletive</td>
</tr>
<tr>
<td>ML</td>
<td>bē ‘small eel’</td>
<td>bā ‘come (process)’</td>
<td>totality of action durative</td>
</tr>
<tr>
<td>HLM</td>
<td>bē ‘tree fern’</td>
<td>bā̇ ‘sticking, attached to’</td>
<td>telic durative</td>
</tr>
</tbody>
</table>

(Bateman 1990: 35-36)

**H** = high, **M** = mid, **L** = low, **S** = superhigh
**Giryama**  
(Bantu; Kenya)

*Highly “syntagmatic”, sparse tone:*

The underlying rightmost /H/ of a word shifts to the penultimate mora of the phonological phrase, here the subject prefix /á-/ ‘3sg’ (Volk 2011: 17).

<table>
<thead>
<tr>
<th>All L tone</th>
<th>H tone on penultimate mora</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘I want ...’</td>
<td>‘he/she wants ...’</td>
</tr>
<tr>
<td>ni-na-maal-a</td>
<td>a-na-maal-a</td>
</tr>
<tr>
<td>ni-na-mal-a ku-guul-a</td>
<td>a-na-mal-a ku-guúl-a</td>
</tr>
<tr>
<td>ni-na-mal-a ku-gul-a nguuwo</td>
<td>a-na-mal-a ku-gul-a ngúúwo</td>
</tr>
</tbody>
</table>

Q: What else is like this in spoken language?
Not a 3rd person sg. subject phrasal enclitic.

The underlying lexical /H/ of the verb root /-bánd-/ ‘break’ also shifts to the penultimate mora of the phonological phrase:

\[
\begin{align*}
\text{All L tone} & \quad \text{H tone on penultimate mora} \\
\text{ku-gul-a mu-vuure} & \quad \text{ku-band-a mu-vuúre} \\
\text{‘to buy wooden bowls’} & \quad \text{‘to break wooden bowls’}
\end{align*}
\]

(Volk 2011: 17)
Is this really tone?

Because we are talking about moving sparse H tones over long toneless strings, some might claim that this is not really a tone, rather the H is a kind of tonal or “pitch-accent”. The tone vs. accent controversy has been quite animated, with different scholars expressing strong opposing views on what to call such systems.

“We say tone!”  “We say pitch-accent!”

/H, Ø/  /H*, Ø/
I say tone!

“A tone by any other name would sound as sweet”

— William Shakespeare
Giryama
(Bantu; Kenya)

Words can have more than one H tone (Volk 2011: 21).

\[ /\textit{ku-kálang-a}/ \quad \text{\&} \quad /\textit{á-na-kálang-a}/ \]

\[ \begin{array}{c}
\text{ku-kalaáng-a} \\
\H \\
\text{‘to fry’}
\end{array} \quad \begin{array}{c}
\text{a-na-kálaáng-a} \\
\H \quad \H \\
\text{‘he/she fries’}
\end{array} \]

It is thus clear that Giryama meets the definition of tone:

“A language with tone is one in which pitch is a contrastive feature of at least some morphemes.”
Giryama tone is “non-canonical” in two senses:

1. **Phonological Non-Locality**

No other phonological feature or property has this ability to “wander” long distance across words—in fact:

Except for tone, most phonological processes are “word”-bounded: vowel harmony, consonant harmony, nasal harmony, stress-accent etc. (at most encompassing clitics)

“... anyone who is interested in the outer limits of what is possible in phonology [and morphology] would thus be well-served to understand how tone systems work.” (Hyman 2011: 198)
Different features of a morph should *cohere*, i.e. stick together—not wander off independently.

I.e. Giryama /á-/ ‘3sg. subject’ should be realized [á], not as a discontinuous prefixal [a] + a phrase-penultimate H, possibly on a non-contiguous word.

The disconnect is even more egregious in Chimwiini, where there sometimes is no prefix at all:
Chimwiini  
(Bantu; Somalia)

Different from Giryama in two ways:

1. All tonal contrasts are grammatical (no underlying contrast on lexical morphemes, e.g. nouns and verb roots).
2. Every phonological phrase has to have a H on its final or penultimate syllable.

2sg. Ø- subject: jile ma-tuundá ‘you sg. ate fruit’ (final H tone)  
3sg. Ø- subject: jile ma-túúnda ‘s/he ate fruit’ (penultimate H tone)  

Ate fruit  

(Kisseberth & Abasheikh 2011: 1994)

An abstract prefixal tone shift is not impossible, but seems less motivated than directly assigning the H at the phrase level. There are other cases where the tonal property of one word is realized on another in the phrasal domain.
**Kikuria**

(Bantu; Tanzania)

Different tenses assign a H tone to the first, second, third or fourth mora of the verb stem. The H then spreads to the penult:

\[
\begin{align*}
\mu_1 & \quad \text{n-to-o-} & [\text{hóótóótér-a}] & \quad \text{‘we have reassured’} & \quad \text{Past} \\
\mu_2 & \quad \text{n-to-o-} & [\text{hoóótóótér-a}] & \quad \text{‘we have been reassuring’} & \quad \text{Past progressive} \\
\mu_3 & \quad \text{n-to-re-} & [\text{hootóótér-a}] & \quad \text{‘we will reassure’} & \quad \text{Future} \\
\mu_4 & \quad \text{to-ra-} & [\text{hootoóótér-a}] & \quad \text{‘we are about to reassure’} & \quad \text{Inceptive}
\end{align*}
\]

(Marlo & Mwita 2009: 2)
Kikuria
(Bantu; Tanzania)

When the verb stem doesn't have enough moras, speakers may continue counting onto a following toneless object noun, e.g. -ra-prefix + fourth mora ($\mu_4$) H tone in the inceptive tense:

- to-ra- [ karaaŋ-á éyétő́kė ‘we are about to fry a banana’
- to-ra- [ sukur-a éyétő́kė ‘we are about to rub a banana’
- to-ra- [ βun-a eyéétő́kė ‘we are about to break a banana’
- to-ra- [ ry-a eyétő́kė ‘we are about to eat a banana’

(Data like these don't grow on trees!)
Phrase-Level Bracketing Paradox

Grammatical

prefixes + stem   Object

Prosodic

prefixes + stem   Object
### Kalabari

*(Ijoid; Nigeria)*

**Common:** Replacive grammatical tone at the word level.

<table>
<thead>
<tr>
<th>Transitive</th>
<th>⇒  Intransitive (replacive LH melody)</th>
</tr>
</thead>
<tbody>
<tr>
<td>kán</td>
<td>kàán</td>
</tr>
<tr>
<td>kon</td>
<td>kòón</td>
</tr>
<tr>
<td>ányá</td>
<td>ànyá</td>
</tr>
<tr>
<td>dìmà</td>
<td>dìmá</td>
</tr>
<tr>
<td>sà‘kí</td>
<td>sàkí</td>
</tr>
<tr>
<td>kíkímà</td>
<td>kíkímá</td>
</tr>
<tr>
<td>pákìrí̥</td>
<td>pàkìrí̥</td>
</tr>
<tr>
<td>gbóló‘má</td>
<td>gbólòmá</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>lst</th>
<th>lst</th>
</tr>
</thead>
<tbody>
<tr>
<td>H</td>
<td>LH</td>
</tr>
<tr>
<td>L</td>
<td>LH</td>
</tr>
<tr>
<td>H-H</td>
<td>L-H</td>
</tr>
<tr>
<td>H-1</td>
<td>L-H</td>
</tr>
<tr>
<td>H-H-L</td>
<td>L-L-H</td>
</tr>
<tr>
<td>H-L-H</td>
<td>L-L-H</td>
</tr>
</tbody>
</table>

*(Harry & Hyman 2014: 650)*
**Kalabari**  
(Ijoid; Nigeria)

*Rare: Replacive grammatical tone at the phrase level.*

/ɲámá/ ‘animal, meat’ (H-H)

<table>
<thead>
<tr>
<th>construction</th>
<th>phrasal tones</th>
</tr>
</thead>
</table>
| Possessive noun + N    | HL            | tòbò námà ‘the child’s animal’  
| Possessive pronoun + N | HLH (→ H-H)   | `ìnà ná‘má ‘their animal’  
| Determiner + N         | LH            | tò námá ‘which animal?’  
| Quantifier + N         | L             | jà námà ‘some meat’  

(Harry & Hyman 2014: 651)

Q: What else is like this?
NOT “construct state” where a noun takes on a special morphological form when modified. Rather, the HL, HLH, LH and L melodies map over whole phrases.

e.g. féní ‘bird’ + námá ‘meat’ (both H-H):

a. tòbò + féní + námá → tòbò fèní nàmà ‘the child’s bird’s meat’

b. ì + féní + námá → ì fèní nàmà ‘my bird’s meat’
I note that tonal processes have been shown to be computationally different (Jardine 2016), and that intermodular phenomena such as in Kikuria and Kalabari can be modeled—in fact they are currently receiving various treatments:

- Weighted constraints referring to syntactic c-command in Dogon (McPherson 2014)
- Phase-based analysis with co-phonologies (Sande & Jenks 2017)
- Distributed morphology analysis with OT constraints (Rolle 2017)

My point is that we wouldn’t know that languages could do such things if it were not for tone—and it’s not just grammatical tone, but also lexical tone that can produce non-local tonal effects in the phrasal phonology.
Urarina
(Isolate; Peru)

Lexical conditioning of tone at the phrase level.

‘he has carried...’

A  raaná  ‘peccary (sp.)’  →  raana rú.a.ka.a  (H on the first syllable)
B  obaná  ‘peccary (sp.)’  →  obana rú.a.ká.a  (H on the third syllable)
C  reemaé  ‘dog’  →  reemae rú.a.ka.á  (H on the last syllable)
D  makusajarí  ‘pepper’  →  makusajarí rú.a.ka.a  (H remains on noun)

(Olawsky 2006: 127-8)

Q: What else is like this?
Miyako (Uechi Dialect) (Ryukyuan; Japan)

Lexical conditioning of tone even two words away:

‘inside a field of....’

A  kúúsú ‘chili pepper’ → kúúsú bárí-nú náká-ǹ-du
B  súmná ‘long onion’ → súmná bá-ri-nù nákà-ǹ-du
C  básòò ‘banana’ → básòò bārì-ńu nàkà-ǹ-du

(nu ‘genitive’, naka ‘inside’, n ‘locative’, du ‘focus’)

(Matsumori 2017: 2)

Again: What else is like this?
Peñoles Mixtec
(Otomanguean; Mexico)

Purely phonological long distance interaction between tones:

a. Low tone deletion (OCP effect)

\[ \text{L} \rightarrow \emptyset / \text{L} \]

b. \[ \text{i}^{N} \text{d}i\text{-ni-kwe}^{N} \text{ši kada}^{N} \text{kwe}^{N} \text{ši i}^{N} \text{i}^{N} \text{č}i\text{u}^{N} \]

\[ \text{L} \quad \downarrow \quad \emptyset \]

‘only one of them will do each of the jobs’
(only one of them will do each of the jobs)

(one alone-only-pl-she POT.do-pl-she one one work)

(Daly & Hyman 2007: 174)
WHY is tone different?

$H, M, L, Ø, \uparrow H, \uparrow L, 55, 35, 214, 51, \text{ etc.}$

¡VIVE LA DIFFERENCE!!
QUESTION #1:

Why does tone have such versatility, such a wide range of possibilities going from one typological extreme to the other—from the dense and extensive lexical and grammatical paradigmatic contrasts we saw in Iau ...

<table>
<thead>
<tr>
<th>Tone</th>
<th>Nouns</th>
<th>Verbs</th>
<th>Inflectional meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>H</td>
<td>bé ‘father-in-law’</td>
<td>bá ‘came’</td>
<td>totality of action punctual</td>
</tr>
<tr>
<td>M</td>
<td>bē ‘fire’</td>
<td>bā ‘has come’</td>
<td>resultative durative</td>
</tr>
<tr>
<td>HS</td>
<td>bē’ ‘snake’</td>
<td>bā’ ‘might come’</td>
<td>totality of action incompletive</td>
</tr>
<tr>
<td>LM</td>
<td>bē ‘path’</td>
<td>bā ‘came to get’</td>
<td>resultative punctual</td>
</tr>
<tr>
<td>HL</td>
<td>bē ‘thorn’</td>
<td>bā ‘came to end point’</td>
<td>telic punctual</td>
</tr>
<tr>
<td>HM</td>
<td>bē ‘flower’</td>
<td>bā ‘still not at endpoint’</td>
<td>telic incompletive</td>
</tr>
<tr>
<td>ML</td>
<td>bē ‘small eel’</td>
<td>bā ‘come (process)’</td>
<td>totality of action durative</td>
</tr>
<tr>
<td>HLM</td>
<td>bē ‘tree fern’</td>
<td>bā ‘sticking, attached to’</td>
<td>telic durative</td>
</tr>
</tbody>
</table>
... to the sparse, strictly grammatical, **syntagmatic** placement of final vs. penultimate H tones in Chimwiini:

2sg. Ø- subject: jile ma-tu:ndaá ‘you sg. ate fruit’  
3sg. Ø- subject: jile ma-tú:nda ‘he/she ate fruit’

- **Syntagmatic and paradigmatic**
  - horizontal
  - vertical

**Syntagmatic**

<table>
<thead>
<tr>
<th>Paradigmatic</th>
<th>Syntagmatic</th>
</tr>
</thead>
<tbody>
<tr>
<td>b</td>
<td>i t</td>
</tr>
<tr>
<td>f</td>
<td>i t</td>
</tr>
<tr>
<td>h</td>
<td>i t</td>
</tr>
<tr>
<td>k</td>
<td>i t</td>
</tr>
<tr>
<td>p</td>
<td>i t</td>
</tr>
<tr>
<td>s</td>
<td>i t</td>
</tr>
<tr>
<td>w</td>
<td>i t</td>
</tr>
</tbody>
</table>

purifies the mind.

Nature
Beauty
Love
Honesty
Morality
Education
QUESTION #2:

In terms of qualitative differences, why can tone do things that other phonological features and stress-accent cannot do? The answer must ultimately have to do with the nature of the brain: humans—and other species (cf. Hoeschele 2017)—are endowed with the ability to exploit the properties of relative pitch more fully than most other, e.g. segmental, properties.
One of these properties is that pitch is **SCALAR**, thus producing step-wise tonal chains as in Guébie (Kru; Ivory Coast).

<table>
<thead>
<tr>
<th></th>
<th>Guébie verb tone</th>
<th>cf. Danish</th>
</tr>
</thead>
<tbody>
<tr>
<td>highest:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>underlying</td>
<td>4</td>
<td>i</td>
</tr>
<tr>
<td>imperfective</td>
<td>3</td>
<td>e</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>e</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>ε</td>
</tr>
<tr>
<td>lowest:</td>
<td>1</td>
<td>æ</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>æ</td>
</tr>
<tr>
<td></td>
<td>(Sande 2017a,b)</td>
<td>(Martinet 1947:43)</td>
</tr>
</tbody>
</table>

If the verb is already 1, the last tone of the preceding subject goes up: 1→2, 2→3, 3→4 and, interestingly, 4→5, the only place in the language where a super-super-high 5 level exists!
While Guébie tone and Danish vowel height appear to be similar, with each shifting paradigmatically one step along their respective F0 and F1 dimension, only tone can produce syntagmatic relativity effects.

Leggbó
(Cross-River; Nigeria).

The L tone of a noun prefix becomes M after the M tone genitive (“associative”) marker /ā/ (Hyman & Udoh 2006:86):

\[
\begin{align*}
\text{L-L nouns} & \rightarrow \text{M-L after /ā/} \\
\text{gè-bòò ‘squirrel’ } & \rightarrow \text{lídžil ā gè-bòò ‘food of squirrel’} \\
\text{lì-gwàl ‘leaf’ } & \rightarrow \text{īzù ā lì-gwàl ‘odor of leaf’}
\end{align*}
\]
Interestingly, a L-M noun does not become M-M after /ā/, rather M-H by a syntagmatic tone chain

\[
\text{L-M} \rightarrow \text{M-H after /ā/}
\]

li-zōl ‘bird’ \(\rightarrow\) gèmmà ā lī-zōl ‘beak’ (mouth of bird)
gè-dī ‘palm’ \(\rightarrow\) ànààn ā gē-dī ‘palm oil’ (oil of palm)

Vowel height does not do this:

\[
a \rightarrow \text{e / e C _}
\]

\text{expected:} \ /\text{e/} + /\text{CaCe/} \rightarrow \text{e CeCe}

\text{unexpected:} \ /\text{e/} + /\text{CaCe/} \rightarrow *\text{e-CeCi}

(Hyman 2010: 70)
The dual paradigmatic/syntagmatic relativity of tone thus marks certain phenomena that have no parallel elsewhere in (spoken) phonology. This includes tonal melodies which can encompass whole phrases. We can recognize and keep track of pitch locations and pitch intervals in musical phrases, so why not parallels in spoken phrases (cf. Patel 2003)?
In fact, intervals are crucial in tone languages: If one were to hear a level pitch pronounced in isolation at the mid range of a speaker’s voice, e.g. [ma], one would not know if it is M [mā] or H [má]. It would depend on what else contrasts in the language.

On the other hand, we don’t need to hear other words to know that the vowel of [ma] is [a]. We have a cardinal vowel system that we can refer to.
Our ability to recognize and store melodies also accounts for the long distance tonal effects that we have seen—we can keep track! Other phrasal phonology is largely limited to local effects between segments that meet at a word boundary, e.g. two consonants (C#C) or two vowels (V#V).

While a H tone can shift two or more words to the right without seeming to cause problems in comprehensibility, I can only speculate that if segmental features were to do this, they would more seriously obscure word identities and hence the overall meaning of the utterance. Again, tone can do anything you can do better.

The final question I would like to raise is ...
If tone is so great, why isn’t it universal?

Somewhere around half of the world’s languages are tonal:

(Maddieson 2013 from the *World Atlas of Linguistic Structures*)
Tone would seem to be a good candidate for universality for several reasons:

1. Tone presents few, if any articulatory difficulties vs. consonants, which all spoken languages do exploit for distinguishing morphemes.

2. Tone is acoustically simple, F0, vs. consonants and vowels, which are universally exploited despite the intersecting factors that enter into their (often complex) acoustics.

3. Tone is acquired early (Li & Thompson 1977: 185; Demuth 2003: 220).

4. Tone can mark all kinds of neat things—as we have seen!

Thus, the half of the world’s languages without tone would seem to be missing a good bet!
**Hypothesis:** Tone owes its non-universality to its versatility.

Pitch is so versatile that it can equally well be exploited for intonation, where pitch is so well-suited to distinguish statements from questions, declaratives from imperatives, vocatives and exclamatives, not to mention “paralinguistic” functions of pitch—**even in tone languages**!

So no language need feel apologetic if it cannot do what Mandarin, Igbo, Iau, Giryama and others CAN do.
I have purposely avoided examples with extraordinarily complex morphophonemic alternations, grammatical conditioning, conflicting constraints, opacities beyond anything found in segmental phonology. In many African and Mexican languages the verb tone paradigms can rival any Indo-European language, past or present, e.g. Malinaltepec Tlapanec (Otomanguean; Mexico) which distinguishes at least 20 inflectional tone classes (Palancar 2016: 131n). Bantu inflectional tone is complex:

**Summary of Suffixal Verb Stem Tones in Lusoga (Bantu, Uganda)**

<table>
<thead>
<tr>
<th></th>
<th><strong>Main</strong></th>
<th><strong>SRel</strong></th>
<th><strong>ORel</strong></th>
<th><strong>Main</strong></th>
<th><strong>SRel</strong></th>
<th><strong>ORel</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Habitual</em></td>
<td>Ø</td>
<td>V2/V3</td>
<td>V2/V3</td>
<td>V2</td>
<td>V2</td>
<td>V2</td>
</tr>
<tr>
<td><em>Present</em></td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
</tr>
<tr>
<td><em>Near Past</em></td>
<td>V2</td>
<td>V2</td>
<td>V2</td>
<td>H</td>
<td>H</td>
<td>H</td>
</tr>
<tr>
<td><em>General Past</em></td>
<td>V2/Ø</td>
<td>V2/V3</td>
<td>V2/V3</td>
<td>V2/Ø</td>
<td>H</td>
<td>H</td>
</tr>
<tr>
<td><em>Distant Past</em></td>
<td>+V2</td>
<td>+V2</td>
<td>+V2</td>
<td>+V2</td>
<td>+V2</td>
<td>+V2</td>
</tr>
<tr>
<td><em>Near Future1</em></td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
</tr>
<tr>
<td><em>Near Future2</em></td>
<td>Ø</td>
<td>V2</td>
<td>V2</td>
<td>V2</td>
<td>V2</td>
<td>V2</td>
</tr>
<tr>
<td><em>General Future</em></td>
<td>Ø</td>
<td>V2/V3</td>
<td>V2/V3</td>
<td>Ø</td>
<td>V2/Ø</td>
<td>V2/Ø</td>
</tr>
<tr>
<td><em>Persistive</em></td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
</tr>
<tr>
<td><em>Imperative sg.</em></td>
<td>V2+</td>
<td></td>
<td></td>
<td>V2</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Subjunctive</em></td>
<td>V3+</td>
<td></td>
<td></td>
<td>V2</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Infinitive</em></td>
<td>Ø/Ø</td>
<td></td>
<td></td>
<td>V2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
So what has tone taught us about language?

1. GRAMMAR

Several of the examples that I have shared show that tone, defined as a contrastive feature of morphemes, obscures the distinction between phonology, morphology, and syntax. In such cases I think we can say that tone is the GLUE that holds the grammar together!
2. PHONOLOGY

Autosegmental phonology (Goldsmith 1976) was originally designed for tone, e.g. Mende (Mande; Sierra Leone),

\[
\text{kɔ } = \text{hu} \quad \text{‘in war’}
\]

but it also gave us the tools we needed to study intonation, feature geometry, harmonies, prosodic morphology, and more.
3. MORAL

Tonal alternations can be quite robust and regular. Anyone who doubts the existence of productive, categorical phonology manipulating discrete elements should look at tone. We still have a lot of work to do, a lot to learn. So I hope some of you who are not yet in the tonal bath will jump in and join me.
Send me your poor, your hungry, your **TONES**!

LMH [ _ _ _ ]

Thank you!

H*     L-     L%
REFERENCES

Bateman, Janet. 1990. Iau segmental and tonal phonology. Miscellaneous Studies of Indonesian and Other Languages in Indonesia 10.29-42.

Daly, John P. & Larry M. Hyman. 2007. On the representation of tone in Peñoles Mixtec. IJAL 73.165-208.


Most language students, and even a shocking number of linguists, still seem to think of tone as a species of esoteric, inscrutable, and utterly unfortunate accretion characteristic of underprivileged languages—a sort of cancerous malignancy afflicting an otherwise normal linguistic organism. Since there is thought to be no cure—or even reliable diagnosis—for this regrettable malady, the usual treatment is to ignore it, in hope that it will go away of itself. —Welmers (1959:1)
President Penelope (Penny) Eckert
Reception Time!

Welcome now to the Presidential Reception! Featuring:

The Headless Relatives Band & Light Refreshments

Grand Ballroom Foyer