THE INTONATION OF SOUTH ASIAN LANGUAGES

TOWARDS A COMPARATIVE ANALYSIS

SAMEER UD DOWLA KHAN, REED COLLEGE
FASAL-6, UMASS AMHERST
12 MARCH 2016

THE INTONATION OF SOUTH ASIAN LANGUAGES

TOWARDS A COMPARATIVE ANALYSIS

SAMEER UD DOWLA KHAN, REED COLLEGE
FASAL-6, UMASS AMHERST
12 MARCH 2016

QUESTION

- **South Asia** has long been identified as a region of convergence, i.e. a "**linguistic area**" (Emeneau 1956)

- "Typical" South Asian lgs (SALs) have:
  - Retroflexion
  - Echo reduplication
  - No inflectional prefixes
  - SOV order
  - Non-nominative experiencer subjects
  - Vector verbs

QUESTION

- The **more lgs** we examine, of course, the more **nuanced** and **typological** these claims become (Subbārāo 2012)
  - No retroflexion in Asm, most Tibeto-Burman lgs
  - Inflectional prefixes common in Khasic lgs
  - Experiencer subjects (in e.g. 'Ram is hungry') take:
    - DAT in Dravidian lgs, Munda lgs, most Indic lgs
    - GEN in Assamese, Bengali, Oriya, Kokborok, Bodo
    - NOM in Khasi, Meithei Manipuri

QUESTION

- **Question**: Is there also a **typical intonation** for SALs?

- **Little comparative work** in this area
  - cf. Romance lgs (Frota & Prieto 2015)

- What has been done suggests SALs from different regions and families do have **strikingly similar intonation** (Féry 2010)
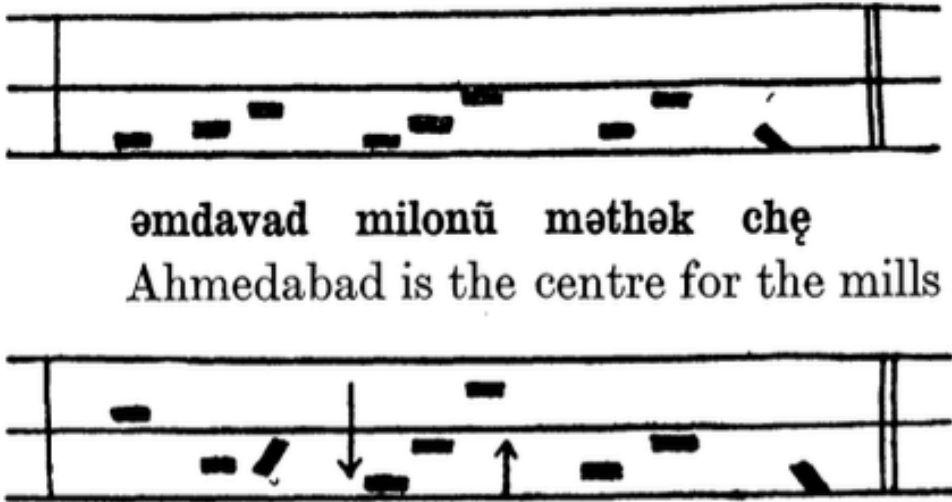
GOALS FOR THIS TALK

- Review current work from various researchers, and share findings from my ongoing **comparative work** (Khan 2016)

- Present intonational **properties shared** across SALs

- Highlight **major areas of variation** within and across lgs

- Identify **gaps in our knowledge** of SALs

- Encourage **collaboration** within and across lgs, subfields

DATA SOURCES

- Findings presented come from **recent work by many researchers** working on Asm, Bng, Hnd, Pnj, Tml, etc.

- I also introduce **comparative work in progress** (Khan 2016), based on recordings of:
  - *North Wind and Sun* fable from **7 SALs with *JIPA* illustrations**: Asm, Bng, Hnd, Npl, Snd, Tlg, Tml
  - **2 SALs in *Prosodic Typology II*** (Jun 2014): Bng, Tml

- For crosslinguistic transparency, examples are transcribed using adaptations of B-ToBI (Khan 2008/2014)
  - Informed by various lg-specific work
  - Important lg-specific adaptations to be discussed

INTONATION

- Intonation has been studied in SALs for at least a century
- Until 25 yrs ago, almost exclusively **impressionistic work**
- Example: early work on **Gujarati** (Firth 1957)

əmdavad milonũ məthək chę
Ahmedabad is the centre for the mills (unemphatic)

əmdavad milonũj məthək chę
Ahmedabad is where all the mills are ! (not a health resort)

INTONATION

- **Obvious drawbacks**
  - Pitch is hard to transcribe
  - Can convince yourself of a lot…
  - Produced by just one speaker (often the author)
  - Deliberately produced
  - Variation below level of consciousness likely to be missed

- So what? That was a long time ago
- For almost all SALs, impressionistic observations are still **all we have** in terms of intonational description

INTONATIONAL PHONOLOGY

- Since 1980s, **developments** in two areas have dramatically changed how we study intonation

- **Technical**:
  - Recording, esp. in the digital age
  - Analysis, esp. with phonetic software

- **Theoretical**:
  - Autosegmental phonology (Goldsmith 1976, Selkirk 1984)
  - Metrical phonology (Hayes 1981)
  - Autosegmental-Metrical (AM) theory (Pierrehumbert 1980, see Ladd 1996)

INTONATIONAL PHONOLOGY

- Constraints: intonational tones are classified in two ways

- **Target**: relative level of pitch
  - Low (L)
  - High (H)
  - Combinations of the two, e.g. L+H, LH

- **Type**: structure to which it is associated/attracted
  - **Pitch accent** (T*): marks **prominence** *(see next slide)*
  - **Boundary tone** (T%, T-, Ta, T_I, T_P): marks **edges** of prosodic units

ASIDE: PROMINENCE MARKING

- Prominence: **privileged phonological status**
- Can be marked phonetically with:
  - **Stress** ("stress accent"): psycho-acoustic feature
    - English-type
  - **Pitch contour** ("lexical pitch accent")
    - Japanese-type
  - **Both stress and pitch contour**
    - Swedish-type
  - **Neither stress not pitch contour** ("unmarked accent")
    - French-type

- Any of these kinds of prominent syllables can **attract a pitch accent (T*)** in intonation

SOUTH ASIAN INTONATION

- In this talk, I'll focus on intonational descriptions that assume **AM Theory** and that are based in **acoustic work**

- Why is the intonation of SALs interesting?

- Traditional account: SAL intonation is **rel. unconstrained**
  - **Lexically noncontrastive prominence** placement
  - **Prominence plays little/no role** in intonation
  - **No clear signs of stress** marking
  - **No lexical tone** (with notable exceptions)

SOUTH ASIAN INTONATION

- Does that leave SAL intonation **more vulnerable** to:
  - **Phonetic effects** from segments?
  - Effects of **phonological features** of segments?
  - Stylistic or free **variation**?

- Traditional account: ironically, SAL intonation appears **strikingly uniform**
  - **Identical patterns** across related and unrelated lgs
  - **Repetitive rising contours** with little variation
  - **Strict rules** of tone alignment

- Maybe not so interesting after all?

SOUTH ASIAN INTONATION

- In this talk, I hope to demonstrate that SAL intonation is **more complex** than previously described:

- There's **more than one type** of "repetitive rising contour"
  - Major source of **crosslinguistic variation**
  - Variation within SALs: tone alignment is **not uniform**
- **Prominence** plays a role in variable tone alignment
- **Segmental features** play a major role as well
- **Lexical features** can determine tonal pattern
- Much **more work is needed** in these areas

PROMINENCE: LADD'S TYPOLOGY

- Ladd's typology of prominence marking (Ladd 1996)

	Stress	No stress
No lexically-specified pitch contour	English, Dutch, German, Spanish, Portuguese, Italian, Polish, Greek…	French
Lexically-specified pitch contour	Swedish, Norwegian, Latvian, Lithuanian, Serbo-Croatian…	Japanese, Wu

- No prominence: Seoul Korean, most tonal lgs

PROMINENCE: LADD'S TYPOLOGY

- Ladd's typology of prominence marking (Ladd 1996)

	Stress	No stress
No lexically-specified pitch contour	English, Dutch, German, Spanish, Portuguese, Italian, Polish, Greek…	French, **"Bengali (and probably most of the languages of India)"**
Lexically-specified pitch contour	Swedish, Norwegian, Latvian, Lithuanian, Serbo-Croatian…	Japanese, Wu

- No prominence: Seoul Korean, most tonal lgs

PROMINENCE: LADD'S TYPOLOGY

- Ladd's typology of prominence marking (Ladd 1996)

	Stress	**No stress**
No lexically-specified pitch contour	English, Dutch, German, Spanish, Portuguese, Italian, Polish, Greek…	French, **most SALs**
Lexically-specified pitch contour	Swedish, Norwegian, Latvian, Lithuanian, Serbo-Croatian…	Japanese, Wu, **"tonal" SALs**

- No prominence: Seoul Korean, most tonal lgs

PROMINENCE

- Some SALs are described as having **weight-sensitive prominence assignment** patterns:

- **Hindi-Urdu-type**: σ with /i e ɛ ɑ ɔ o u/ nucleus bears prominence, otherwise word-initial (Hussain 1997)

- **Assamese-type**: word-initial, unless 1st σ is open and 2nd σ is closed, in which case 2nd σ (Mahanta 2001)

- Most SALs: **fixed word-initial**
- Without stress or other marking, how do we know?

PROMINENCE

- Prominent σ's show **phonologically privileged status**
- For example, prominent (i.e. initial) syllables in **Tamil**…

- Host **mid V length** contrast (Asher & Keane 2005)
  - /oːʈːu/ 'drive' vs. /oʈuː/ 'stick'
  - /maɾan̪t̪oːm/ 'we forgot' vs. */maɾan̪t̪om/

- Allow coda nasals to remain **unassimilated** (Christdas 1988)
  - /anpu/ → [anbʉ] 'love', but /np/ → [mb] elsewhere

- Show more **peripheral** production of /i u a/ (Keane 2003)

PROMINENCE

- And prominent (i.e. initial) syllables in **Bengali**…

- Host **tense-lax** V contrast (Dasgupta 2003, Khan 2008)
  - /d̪ɛkʰe/ 'see-3' vs. /d̪ekʰe/ 'see-PRF', */d̪ɛkʰɛ/, */d̪ekʰɛ/
  - /hɔt̪o/ 'casualties' vs. /hot̪o/ 'happen-CND-3', */hɔt̪ɔ/, */hot̪ɔ/
  - /ɔn-/ 'NEG' + /ɛk/ 'one' → /ɔnek/ 'many'
- Host **oral-nasal** V contrast (Dasgupta 2003, Khan 2008)
  - /hãte/ 'walk-3' vs. /hate/ 'market-LOC', */hatẽ/, */hãtẽ/
  - /ã̪t̪ːio/ < *ātmiya* 'relatives'

- Some loans get **truncated** so prominence remains initial (Khan 2008)
  - /maɹkin/ < Eng [əˈmɛɹɨkɨn] 'American'
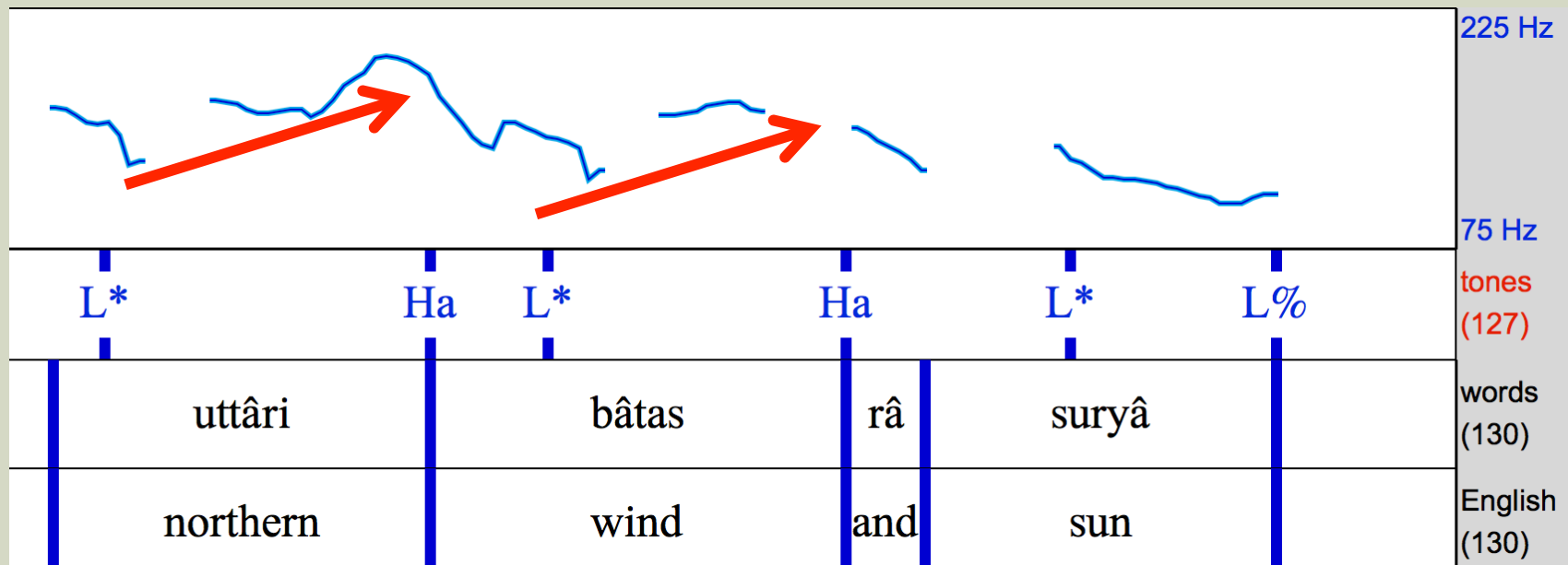 - /slamalikum/ < Arb /asːaˈlaːmu ʕaˈlajkum/ '(Muslim greeting)'

PROMINENCE

- So, we have evidence that SALs have prominent syllables
  - Not typically accompanied by overt phonetic markings, e.g. stress
  - Phonologically relevant

- **Crucially**, we'll see that phonologically prominent syllables **attract the L target of L*, L*+H**

RISING CONTOUR

- Most cited observation suggesting common intonation: SALs have **repeated rising contours**

- **Each rise** roughly corresponds to a content word plus surrounding functional material
  - **Accentual phrase (AP)**: domain of a pitch accent
  - **Phonological phrase (PP)**: domain of phonological process

- **Final** AP/PP typically shows a **different pattern**

RISING CONTOUR

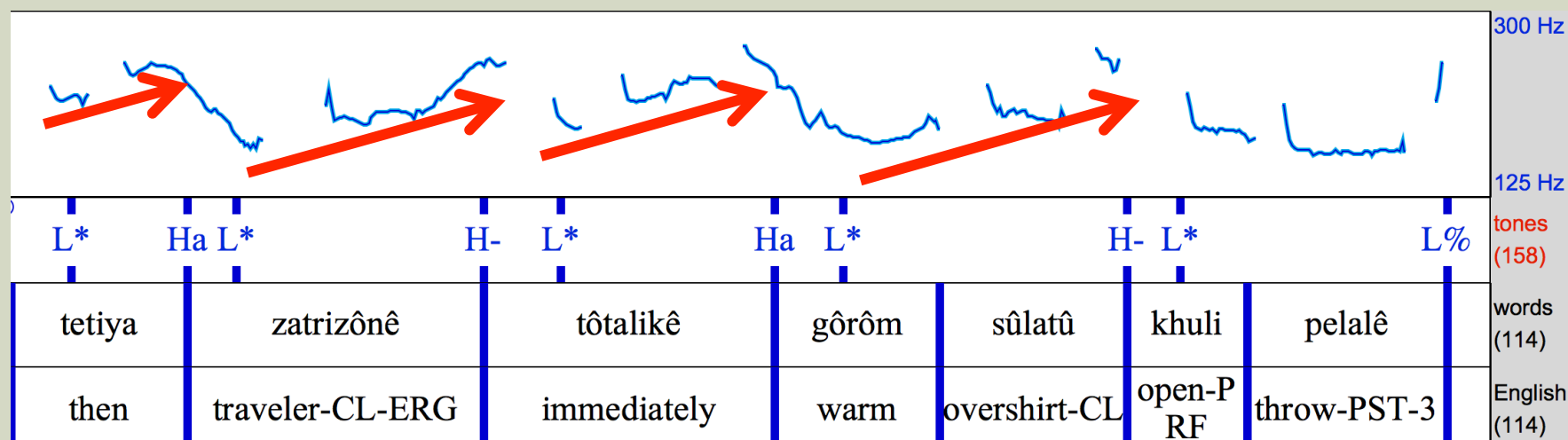- Two rising APs in **Nepali**

						225 Hz
						75 Hz
L*		Ha	L*		Ha	L*	L%	tones (127)
	uttâri		bâtas	râ	suryâ		words (130)
	northern		wind	and	sun		English (130)

- /uttʌri bʌtas ɾʌ suɾjʌ/
- 'The North Wind and the Sun.'

Recording and IPA from Khatiwada (2009)

RISING CONTOUR

- Four rising APs (PPs) in **Assamese**

	300 Hz
	125 Hz

| tones (158) | L* | Ha L* | H- | L* | Ha | L* | H- L* | L% |

words (114)	tetiya	zatɹizônê	tôtalikê	gôrôm	sûlatû	khuli	pelalê

| English (114) | then | traveler-CL-ERG | immediately | warm | overshirt-CL | open-P RF | throw-PST-3 |

- /tetiya zatɹizɔnɛ tɔtalikɛ gɔɹɔm sʊlatʊ kʰuli pelalɛ/
- 'Then the traveler immediately threw off his warm cloak.'

Transcribed L*…H$_P$ in Twaha & Mahanta (2016), recording and IPA from Mahanta (2012)

RISING CONTOUR

- Three rising APs in **Bengali**

^L*	Ha	L*	Ha	uL*	uHa	L*	L%
Surjo	tar	gôrom		tap		chôRaE	
sun	3-GEN	warm		temperature		spread.out-CAU-3	

325 Hz

125 Hz
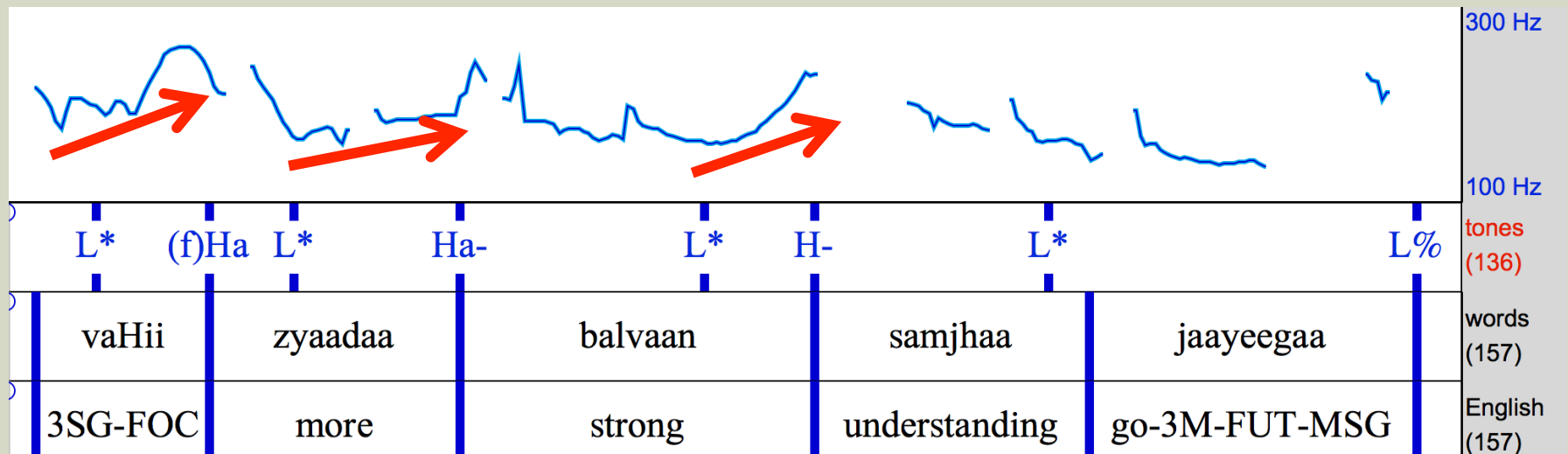
tones (134)

words (131)

English (131)
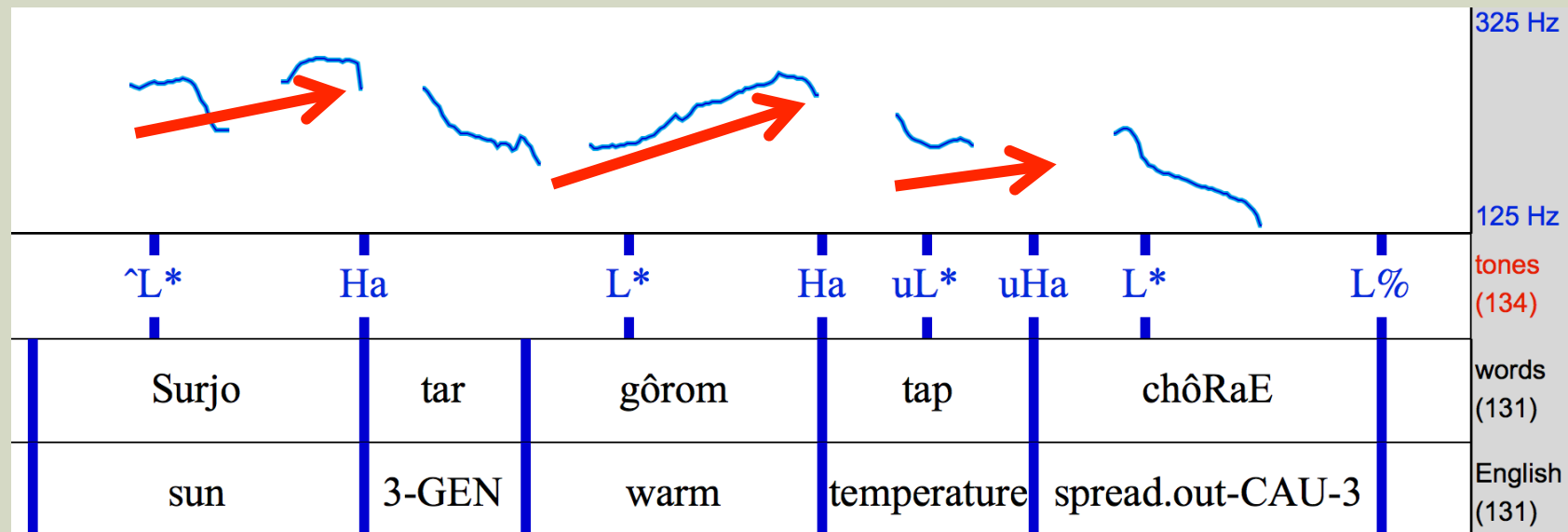
- /ʃuɪdʒo t̪aɪ gɔɪom t̪ap t̠ɕʰɔɾae̯/
- 'The Sun spread out his/her warmth.'

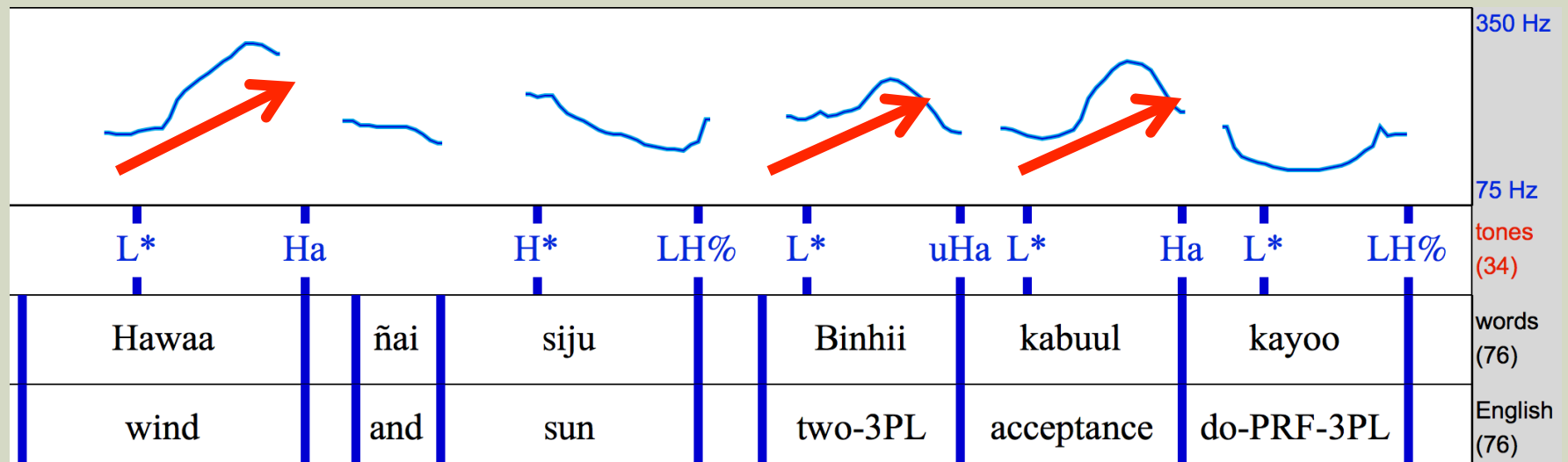Analysis from Khan (2008/2014), recording and IPA from Khan (2010)

RISING CONTOUR

- Three rising APs in **Hindi**

L*	(f)Ha	L*	Ha-	L*	H-	L*	L%

vaHii	zyaadaa	balvaan	samjhaa	jaayeegaa
3SG-FOC	more	strong	understanding	go-3M-FUT-MSG

- /ʋəhi zjaɖa bəlʋan səmdʒʰa dʒajega/
- 'S/he will be considered stronger.'

LH in Harnsberger (1996), L*…H_P in Patil et al. (2008); recording and IPA from Ohala (1999)
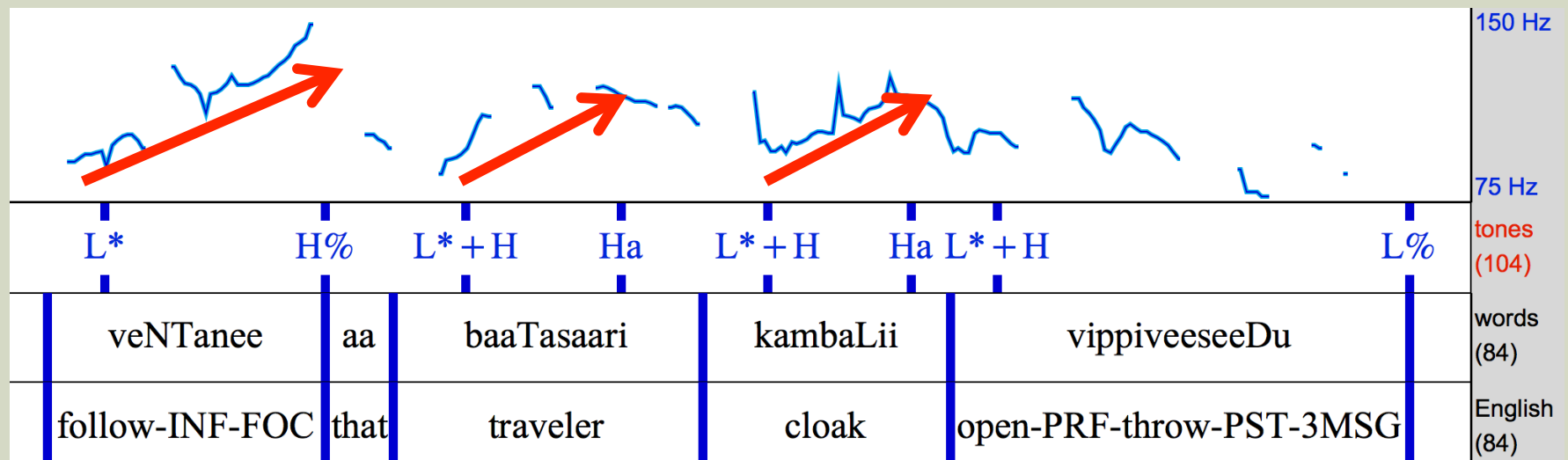
RISING CONTOUR

- Three rising APs in **Sindhi**

L*		Ha		H*	LH%	L*		uHa	L*	Ha	L*	LH%

| tones (34) | | | | | | | | | | | |

| words (76) | Hawaa | | ñai | siju | | Binhii | | kabuul | | kayoo | |
| English (76) | wind | | and | sun | | two-3PL | | acceptance | | do-PRF-3PL | |

350 Hz

75 Hz

- /həva ɛ̃ sɪʝʊ ɓɪnʱi kəbul kəjo/
- 'Wind and Sun both agreed…'

Recording and IPA from Nihalani (1999)

RISING CONTOUR

- Three rising APs in **Telugu**

					150 Hz
					75 Hz
L*	H%	L*+H	Ha	L*+H	Ha L*+H	L%	tones (104)
veNTanee	aa	baaTasaari		kambaLii	vippiveeseeDu	words (84)
follow-INF-FOC	that	traveler		cloak	open-PRF-throw-PST-3MSG	English (84)

- /venʈeneː eː beːʈeseːri kembeɭiː ʋippiʋeːseːɖu/
- 'Immediately the traveler threw off (his) cloak.'

RISING CONTOUR

- Three rising APs in **Tamil**
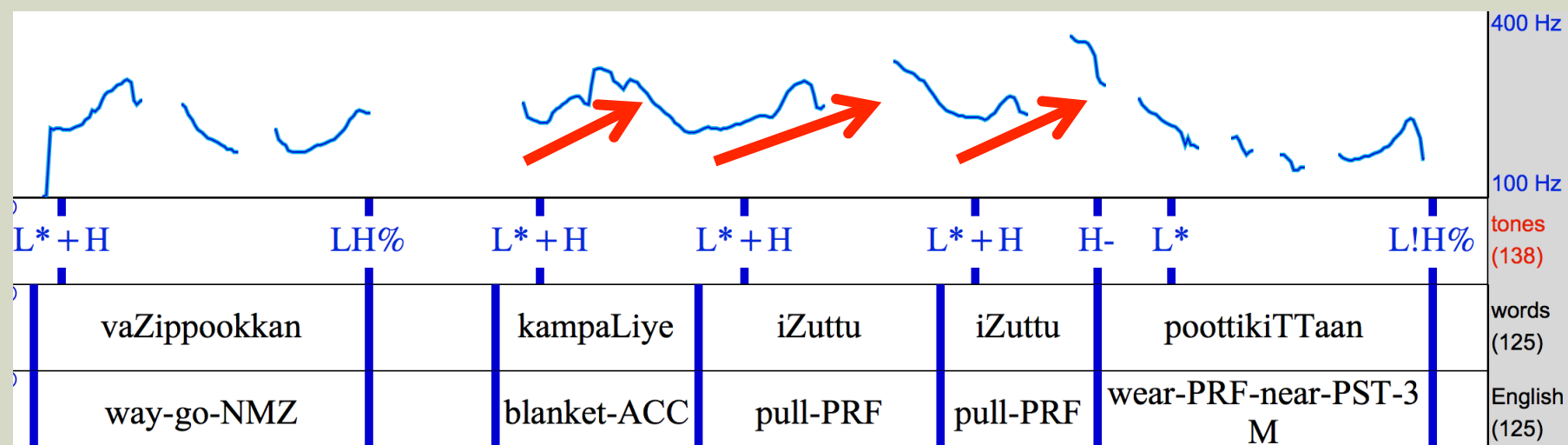
- /ʋaɻipːoːkːan kampaɭije iɻuʈːu iɻuʈːu poːʈːikiʈːaːn/
- 'The traveler kept pulling the blanket more tightly.'

Transcribed L*...H in Keane (2014), recording and IPA from Keane (2004)

IP BOUNDARY TONES

- **Final AP/PP** has a different pattern
- **Boundary tone (T%)** aligned with the right edge of the larger **intonation phrase (IP)**
  - IP is often the size of a clause/sentence
- T% **overrides** the tones the AP/PP would otherwise end in

- Typical IP boundary tones:
  - Low falling **L%** in **declaratives** and **wh questions**
  - High rising **H%** in various types of **interrogatives**
  - Low rising **LH%** in **continuation**, and "**polite**" decl / wh questions
  - Other attested tones HL%, LHL%, HLH% are more **lg-specific**

ALL THE SAME?

- **Temptation**: assume that SALs have (essentially) the **same intonational grammar**

- Some have proposed **a single model for different SALs**

- **Féry's model** of Bng, Hnd, Mlm, Tml (Féry 2010)
  - Each PP has two boundary tones: L_P on left, H_P on right
  - Final PP has H_P on left boundary, IP's L_I on the right boundary
  - No pitch accents needed; everything is boundary-driven

ALL THE SAME?

- From my comparative work, I would propose a **weaker version** of that claim (Khan 2016)
- Indeed, most SALs do share important prosodic traits

- But, crucial areas of variation:
  - **L tone alignment**: prominence plays a role
  - **H tone alignment**: length plays a role
  - **Segmental effects**: voicing and length play a role
  - **Lexical effects**: lexical pitch accent/tone in some lgs
  - **IP tones**: inventory and tune–meaning relation

L TONE ALIGNMENT

- **Alignment of L tone** in AP/PP's rising contour varies
- General pattern: **word-initial**
- **Can shift rightward** in Asm (Mahanta 2001), Hnd (Dyrud 2001)
- **Location of prominent σ** plays a role in Hnd

σ σ σ
Asm Bng Hnd Npl Tlg Tml

σ σ σ
(Asm) (Hnd)
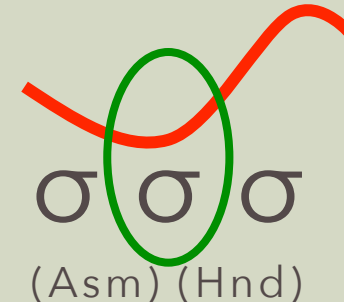
L TONE ALIGNMENT

- **L* on word-initial σ** in most SALs, incl. Asm
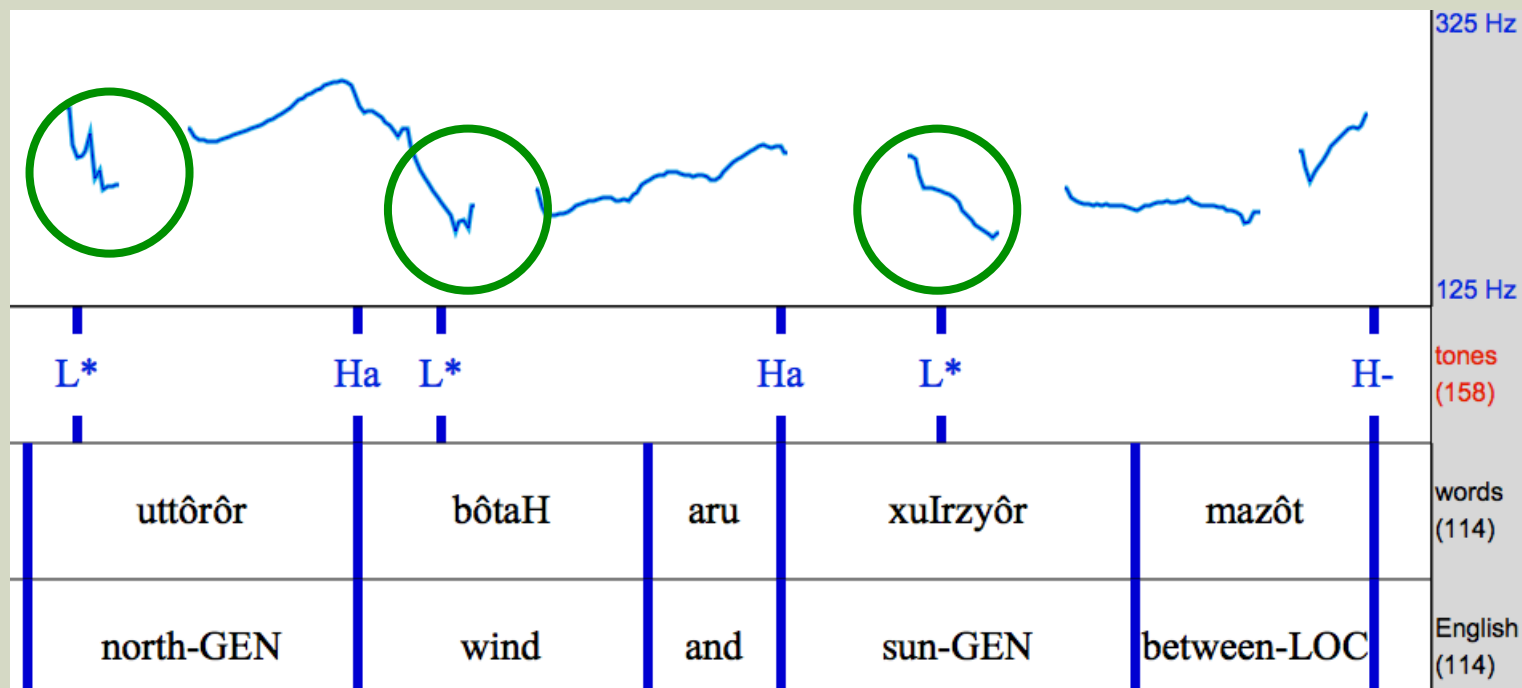
- /uttɔɹɔɹ bɔtɑh ɑɹu xuiɹzjɔɹ mɑzɔt/
- '…between North Wind and Sun…'

Transcribed L*…H_P in Twaha & Mahanta (2016), recording and IPA from Mahanta (2012)

L TONE ALIGNMENT

- **Optional rightward shift of L* in Hnd** (recording from Ohala 1999)
- Available if **prominence is noninitial** (Dyrud 2001, Patil et al. 2008)
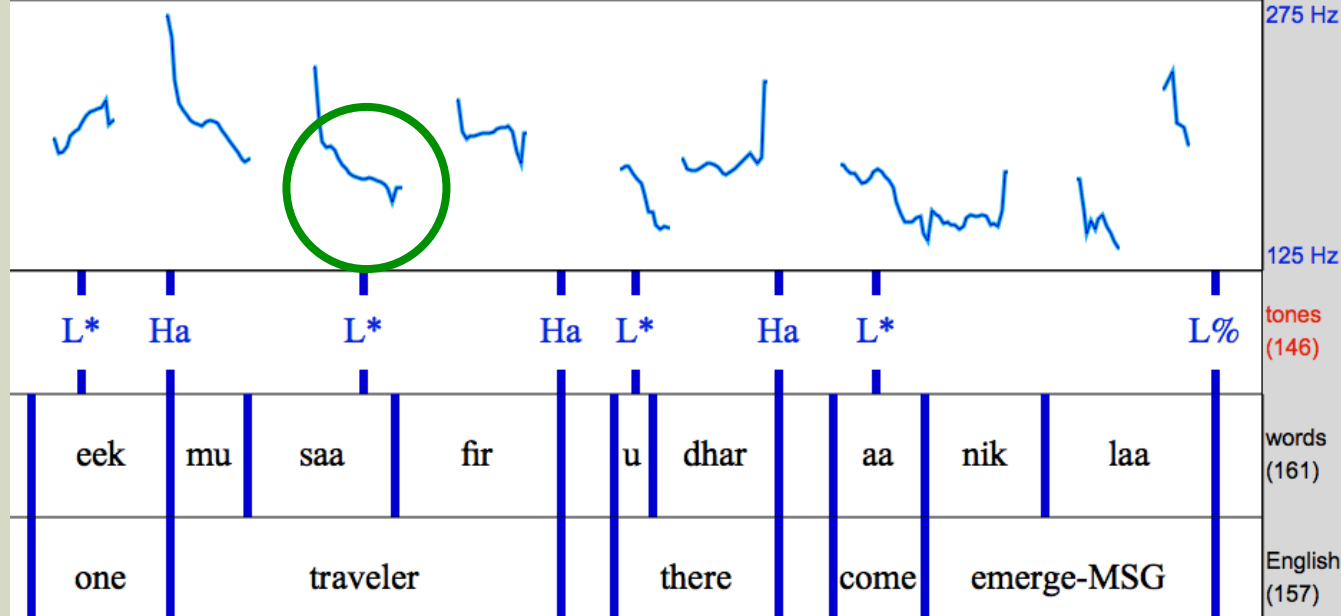
- /ek mʊsafɪr ʊɖ̤ʱər ɑ nɪklɑ/
- 'A traveler came out towards them.'

LH in Harnsberger (1996), L*…H_P in Patil et al. (2008), recording and IPA from Ohala (1999)

L TONE ALIGNMENT

- **Optional rightward shift of L* in Asm: L* <**
- Not tied to weight-sensitive **prominence** (cf. Mahanta 2001)
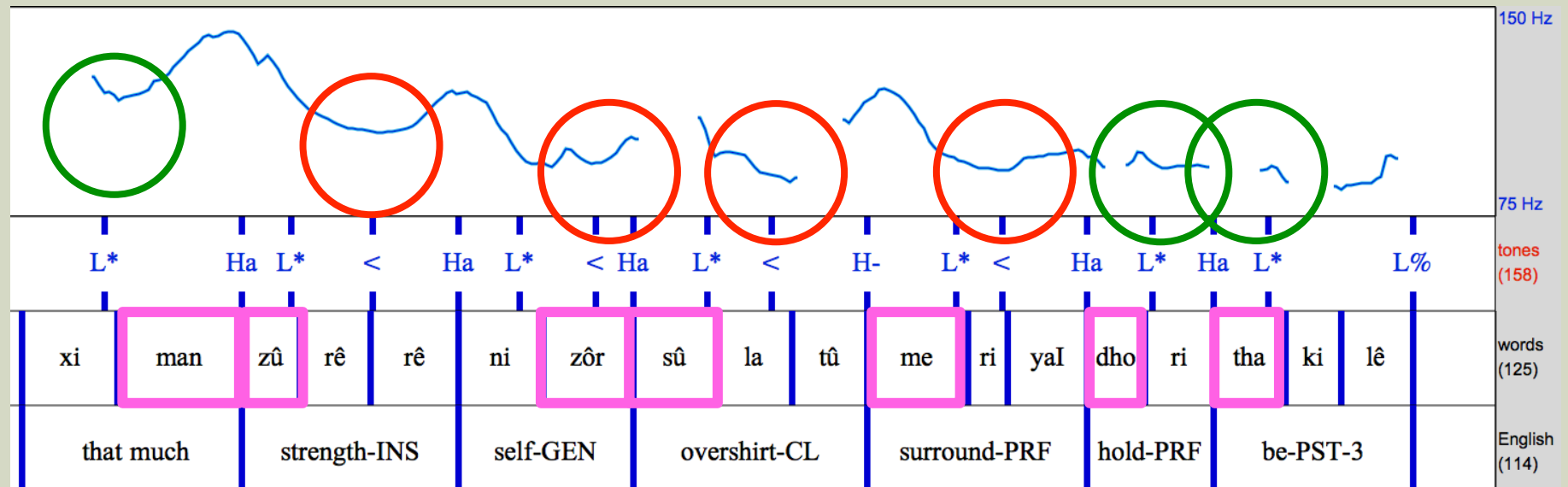
- /xɪmɑn zʊɹɛɹɛ niʑɔɹ sʊlɑtʊ meɹiyɑi dʰɔɹi tʰɑkilɛ/
- 'The more tightly he kept holding his cloak around him.'

Transcribed L*…H$_P$ in Twaha & Mahanta (2016), recording and IPA from Mahanta (2012)
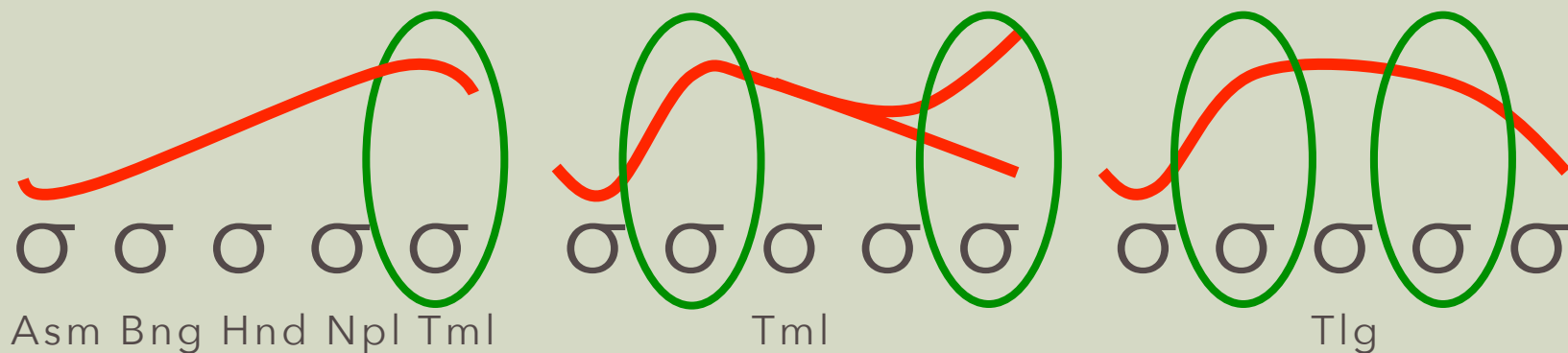
L TONE ALIGNMENT

- Hnd examples support that the AP/PP's L target is:
  - A pitch accent (L*) attracted to prominence (Genzel 2007, Patil et al. 2008)
  - **Not a left-boundary tone** (aL or L$_p$) (contra Féry 2010)

- But **not all words** with noninitial prominence show L* shift
- Variable attraction of L* to left-boundary and prominence?
- Need more data from SALs with Hnd-like pattern

- Asm is more mysterious: stylistic variation? Free variation?
- Perceptual data could be useful here

H TONE ALIGNMENT

- Most accounts of SALs describe strict **right-boundary alignment** of the AP/PP's H tone: **Ha/H$_P$** (Genzel 2007)
- Ha/H$_P$ location has proven useful in describing:
  - Domains of segmental processes (Hayes & Lahiri 1991, Twaha & Mahanta 2016)
  - Prosodic disambiguation of syntax (Lahiri & Fitzpatrick-Cole 1999)

- But occasionally, researchers mention a mysteriously **early realization of this H**:
  - **H on 2nd σ in Bng, Tml**: complex pitch accent? (Khan 2014, Keane 2014)
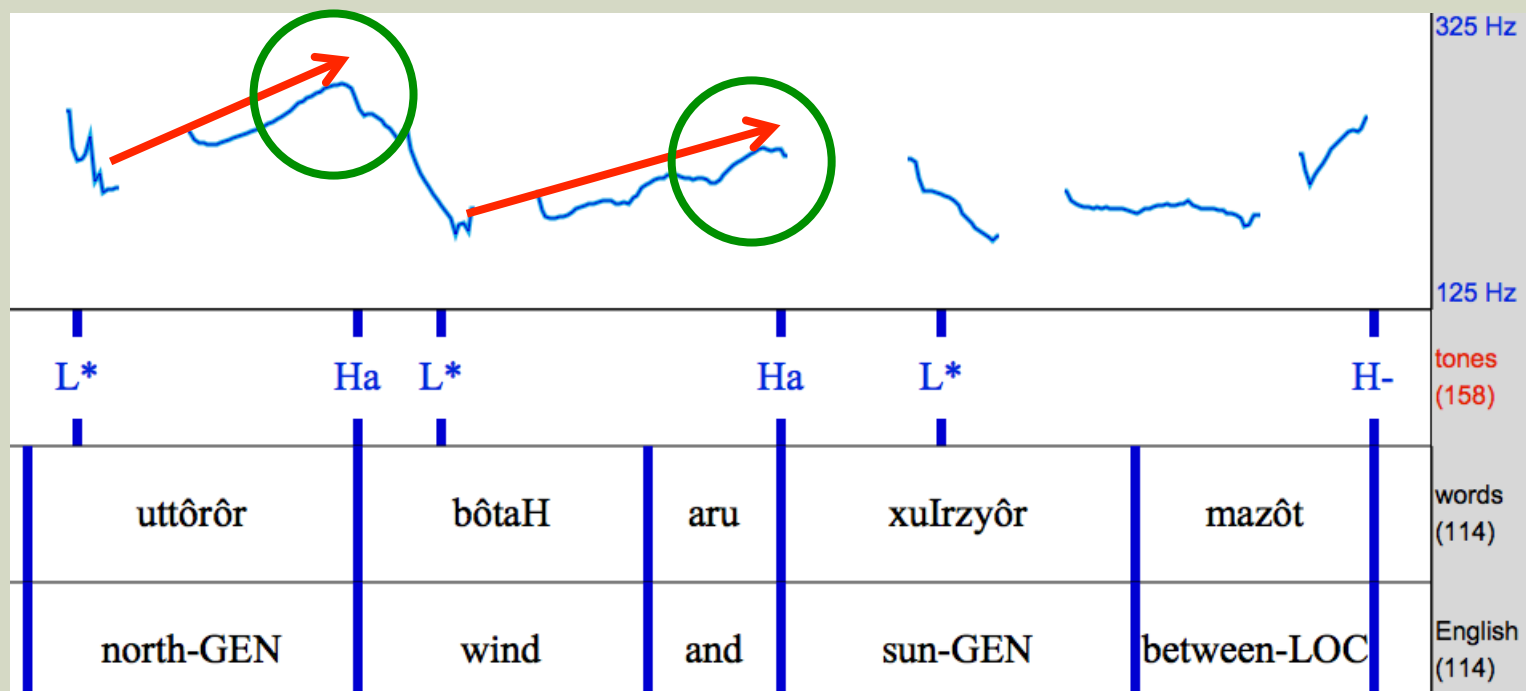 - **Double H in Tml**: two APs in one word? (Keane 2014)

H TONE ALIGNMENT

- Preliminary findings from comparative work suggest:
- **AP-final** (Asm, Bng, Npl, Hnd, Tml): **L*...Ha**
- **2nd/3rd σ** (Tlg, Tml; alt. Bng, alt. Npl): **L*+H**
- **Double rise** (Tml): **L*+H...LHa**
- New! **Plateau** (Tlg): **L*+H...Ha**

H TONE ALIGNMENT

- **AP-final H** is the default in most SALs, incl. Asm: **L*...Ha**
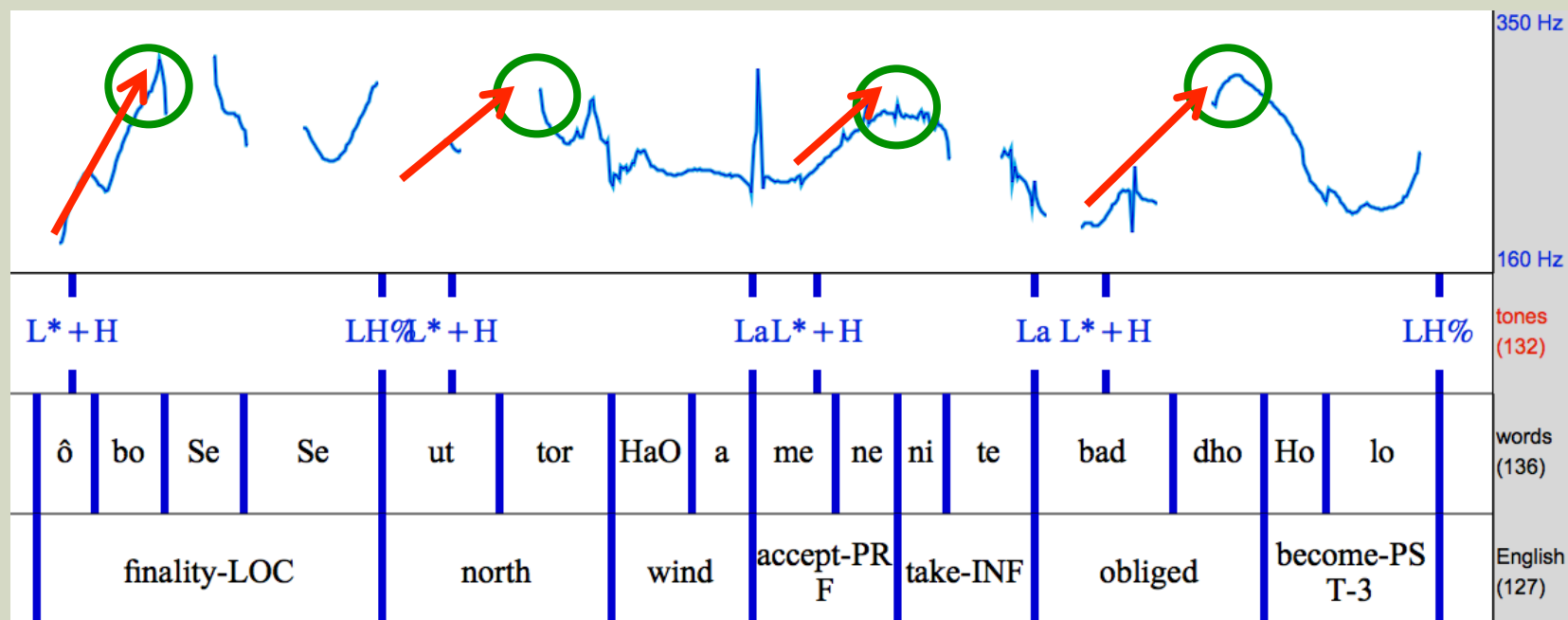

- /uttɔɹɔɹ bɔtah ɑɹu xuiɹzjɔɹ mazɔt/
- '...between the North Wind and the Sun...'

Transcribed L*...H$_P$ in Twaha & Mahanta (2016), recording and IPA from Mahanta (2012)

H TONE ALIGNMENT

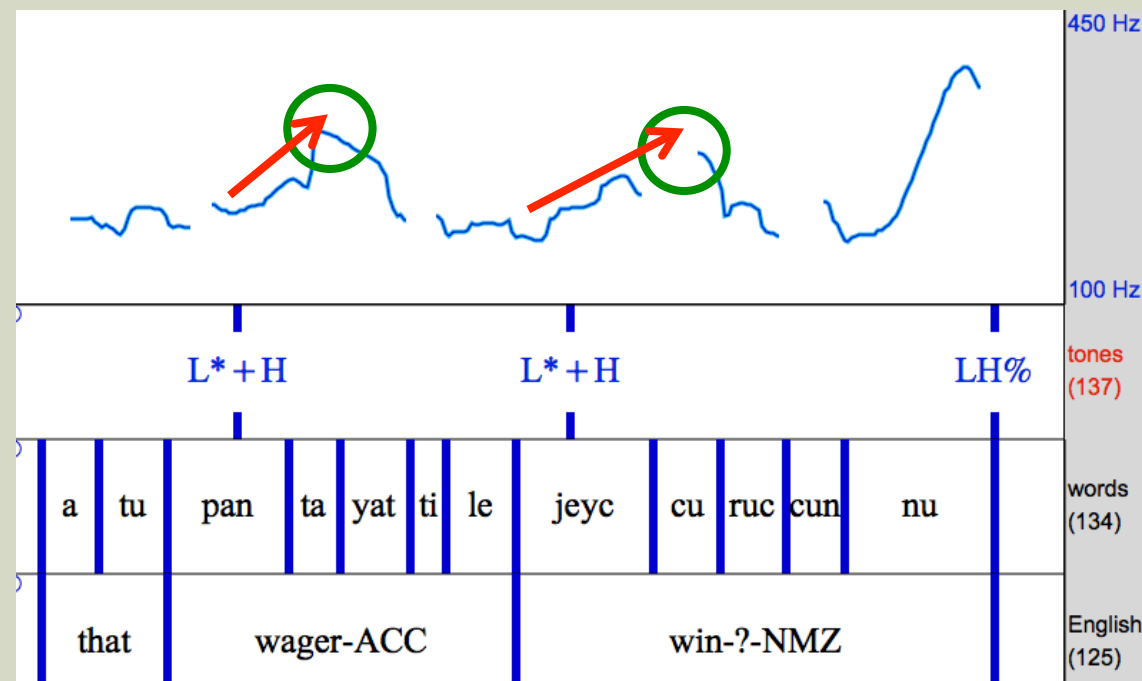- **H on 2ⁿᵈ/3ʳᵈ σ** seems to be a stylistic choice in Bng: **L*+H**

- /ɔboʃeʃe uʈːoɪ haɡa mene niʈe bad̥ʰːo holo/
- 'In the end, the North Wind was obliged to accept...'

Analysis drawn from Khan (2014), recording and IPA from Khan (2010)

H TONE ALIGNMENT

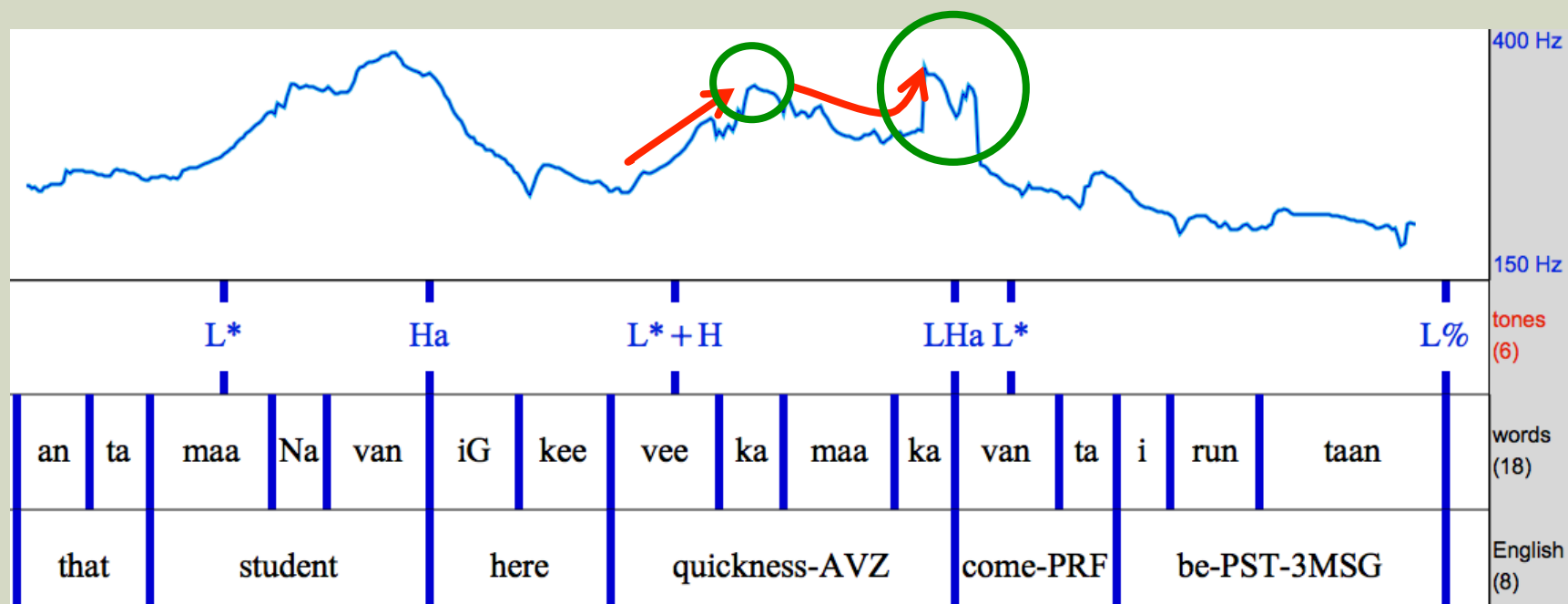- **H on 2nd/3rd σ** may be the default pattern in Tml: **L*+H**

- /atu panṯajaṯːile dʒejtʃːuɾutʃːunnu/
- '…the one who won that wager…'

Transcribed L*…H in Keane (2014), recording and IPA from Keane (2004)

H TONE ALIGNMENT

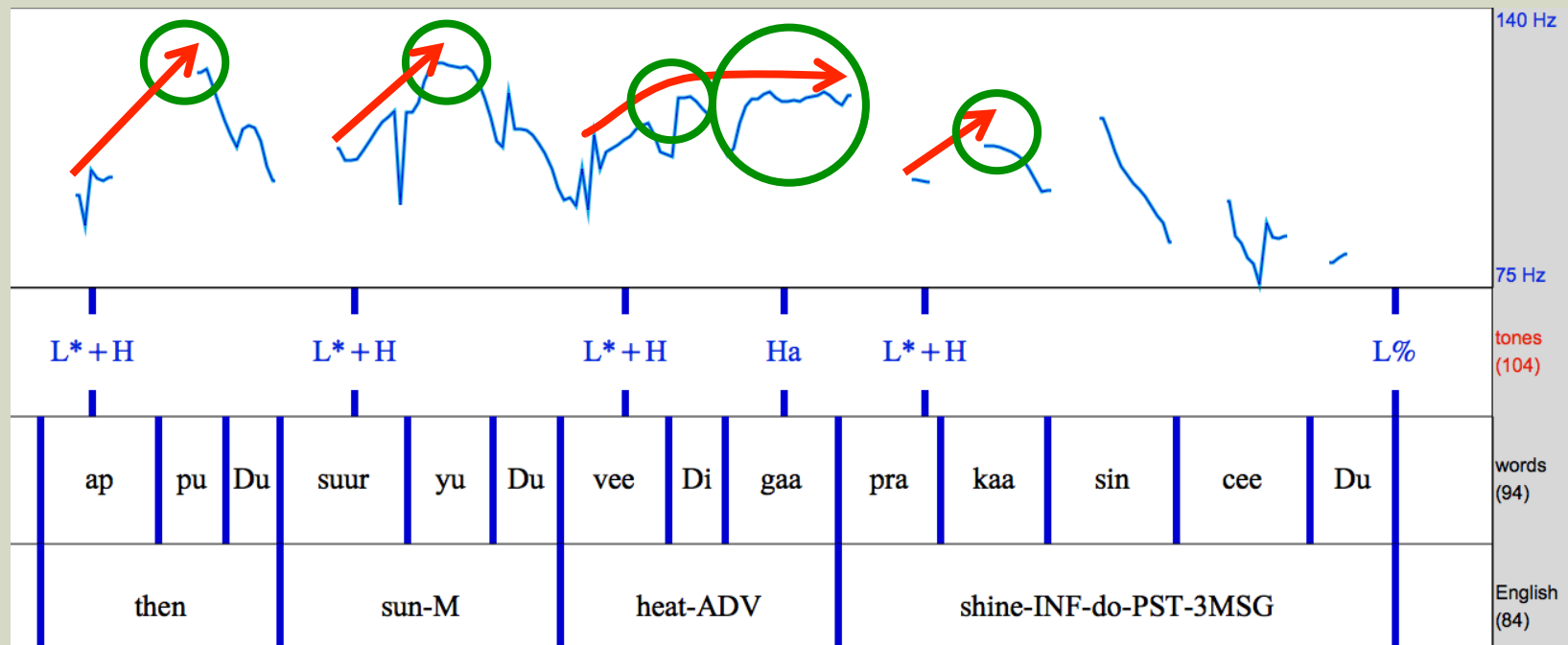- **Double rise** is seen in longer APs in Tml: **L*+H...LHa**

- /anta maːɳavan iŋkeː veːkamaːka vanta iɾuntaːn/
- 'That student has come here quickly (and stayed).'

Transcribed L*...H...L*...H in Keane (2014), recording from Keane (2014), IPA from Keane (2004)

H TONE ALIGNMENT

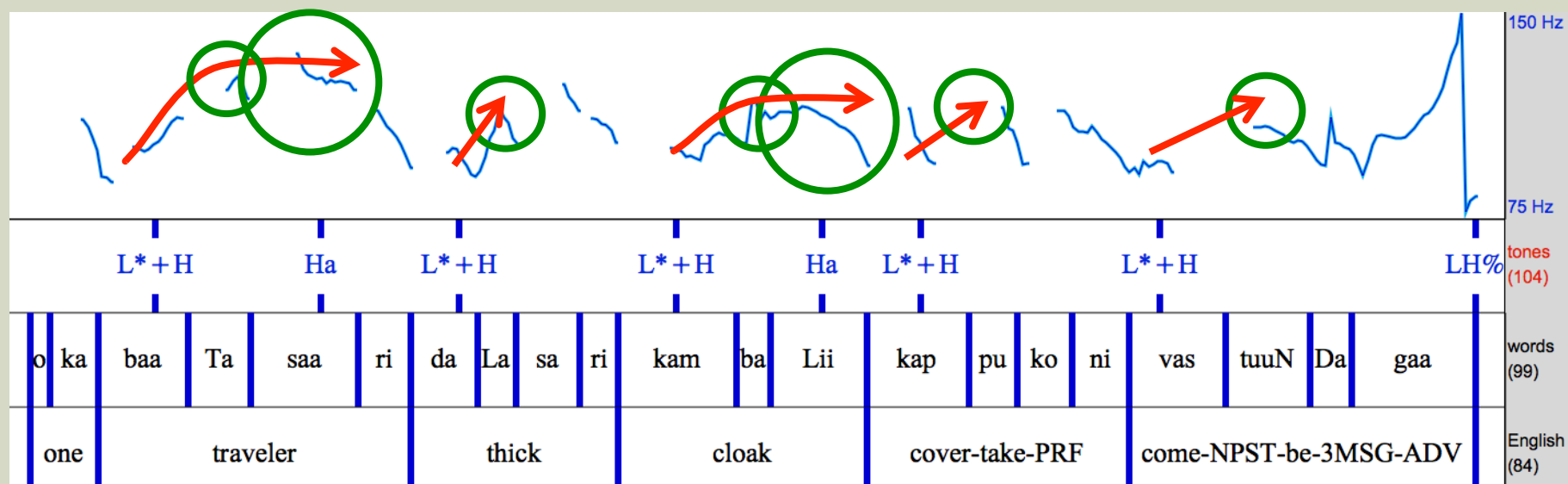- Tlg has **plateau** from 2nd/3rd σ to **last long V**: **L*+H...Ha**

- /æppuɖu suːrjuɖu veːɖigeː prækeːsintʃeːɖu/
- 'Then the Sun shined warmly.'

Recording and IPA from Bhaskararao & Ray (2016 forthcoming)

H TONE ALIGNMENT

- **Presence of Ha** in Tlg depends on **long V**, **IP overriding**

- /okɐ bɐːʈɐsɐːri ɖɐlɐsɐri kɐmbɐʎiː kɐppukoni ʋɐʂʈuːɳɖɐgɐː/
- 'As a traveler was coming wrapped in a thick cloak…'

Recording and IPA from Bhaskararao & Ray (2016 forthcoming)

H TONE ALIGNMENT

- AP/PP's H target can be aligned to 3 different locations:
  - **Right boundary**: (L)Ha
  - **Immediately post-prominence**: L*+H
  - **Rightmost long vowel**: Ha (Tlg)

- Ha in Tlg acts like an AP boundary tone
  - Targets the **rightmost** long V in AP
  - Not seen when IP-final: **overridden by T%**?

- May be the first claim of **tonal attraction to V length**
- Need to test words of **different lengths, # of long Vs**
- Need to examine similar lgs with **short vs. long Vs**

TONAL REALIZATION

- Rising contours also vary in **tonal realization** from interactions with phonetics and information structure

- **Segmental effects**
  - L* is raised following voiceless and null onsets: ^L*
  - Well-established phonetic connection (Kingston 2011)
  - But, appears exaggerated; native speakers often transcribe them as H* or M* (Mahesh 2016)
  - Beginnings of an emergent contrast? (Purcell et al. 1978)
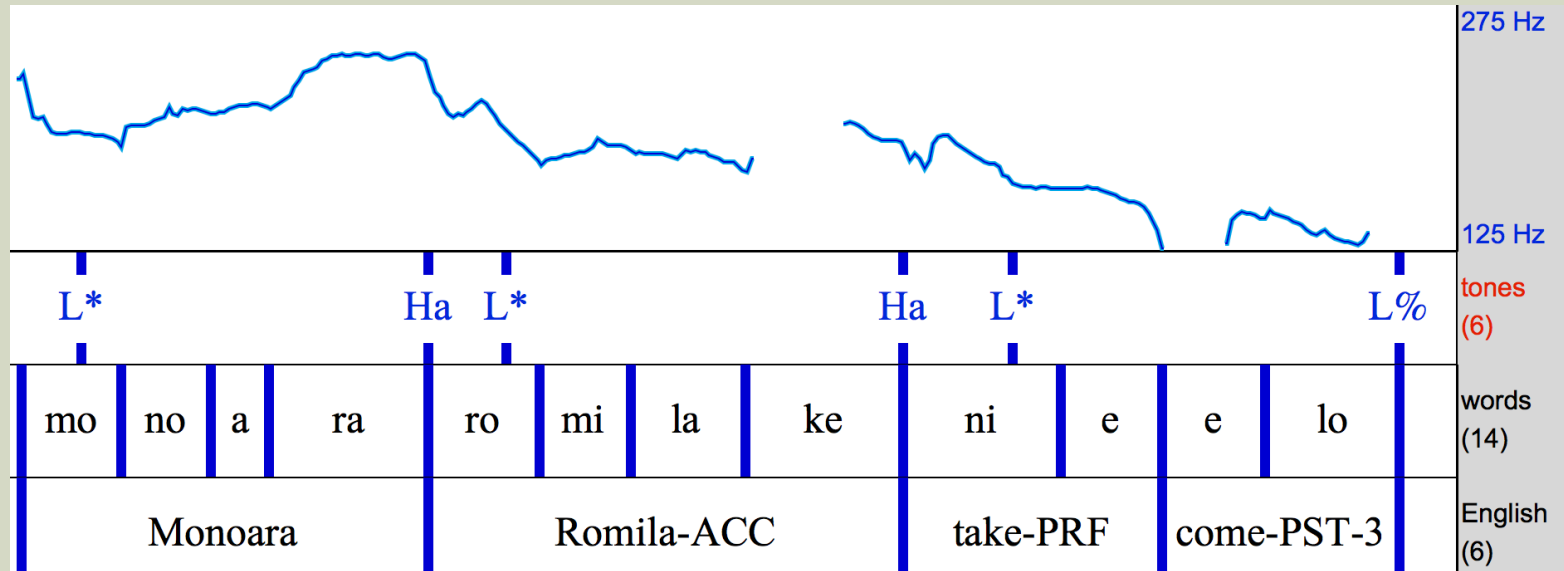
- **Focus prosody**

FOCUS PROSODY

- Focus realization in some SALs is fairly well documented
- Common themes resemble phonetic exaggeration:
  - **Perceptible stress**: longer, louder, stronger
  - **Higher pitch** within focal domain
  - **Compression of post-focal tones**

- Possible areas of variation:
  - **Phrasing**: placing boundary tones before and/or after focus
  - **Preference for early H** (L*+H) rather than final H (Ha/H_P)
  - Documentation of **within-lg variation**

FOCUS PROSODY

- Dialect-specific variation within Bengali?
- **Bangladeshi Stnd: 3 focus realizations** (Khan 2008/2014)
  - Broad/no focus: **L*...Ha**
  - Morphologically marked focus: **L*...fHa (raised Ha)**
  - Wh answer / corrective focus: **L*+fH (raised early H)**
  - Unexpected information focus: **fH* (change of target)**
- **Kolkata Stnd: variations of 1 realization**
  - Broad/no focus: **L*...H$_P$** (Hayes & Lahiri 1991)
  - Morphologically marked focus: **L*...H*** (Lahiri & Fitpatrick-Cole 1999)
  - Wh answer focus: **raised L*...H$_P$** (Choudhury & Kaiser 2012)
  - Corrective focus: **further raised L*...H$_P$** (Choudhury & Kaiser 2012)
  - Perceptually distinct (Choudhury & Kaiser 2012)

FOCUS PROSODY

- **Bangladeshi Bengali** has at least **three realization strategies** of focus (Khan 2008/2014)
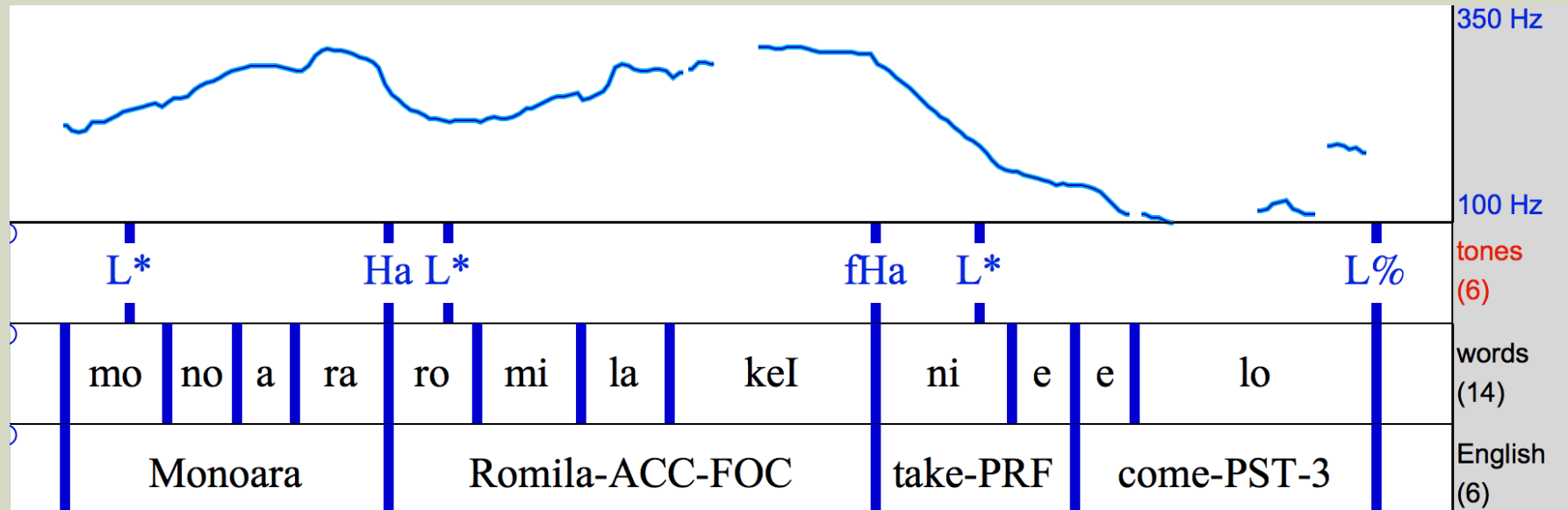

- [monoaɹa ɹomilake nie elo]
- 'Monoara brought Romila.'

FOCUS PROSODY

- **Bangladeshi Bengali** has at least **three realization strategies** of focus (Khan 2008/2014)

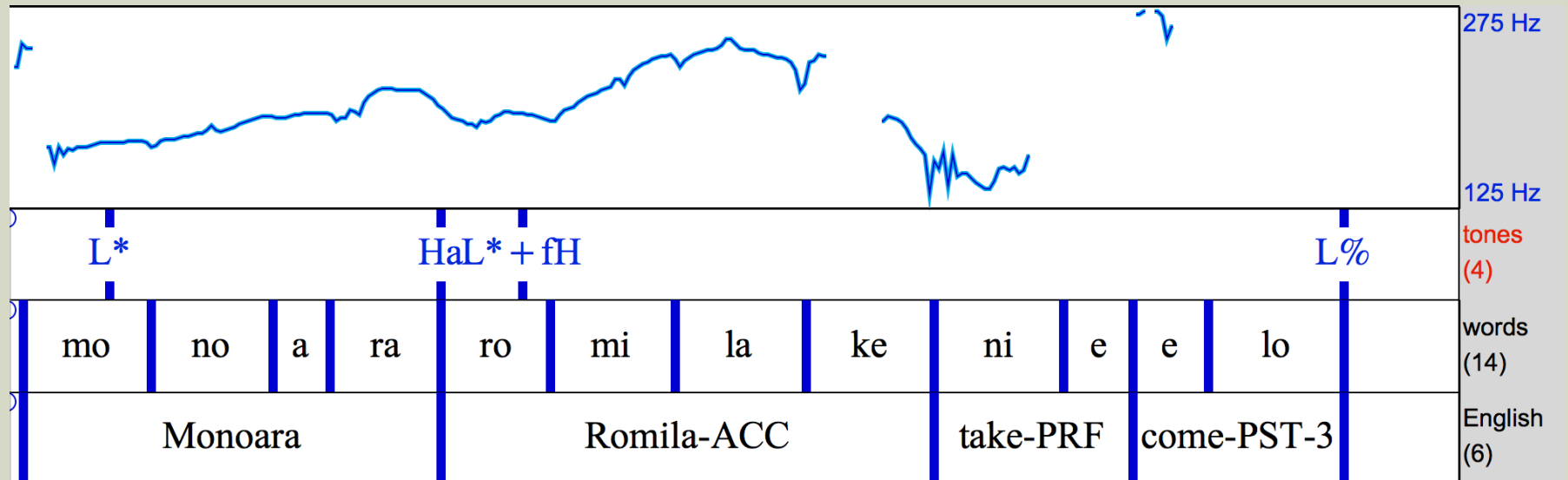| tones (6)		L*			Ha L*					fHa	L*				L%
words (14)	mo	no	a	ra	ro	mi	la	keI		ni	e	e	lo		
English (6)	Monoara				Romila-ACC-FOC					take-PRF		come-PST-3			

350 Hz … 100 Hz

- [monoaɹa ɹomilakej nie elo]
- 'Monoara (only) brought <u>Romila</u> (and no one else).'

FOCUS PROSODY

- **Bangladeshi Bengali** has at least **three realization strategies** of focus (Khan 2008/2014)

L*				HaL*+fH									L%	tones (4)
mo	no	a	ra	ro	mi	la	ke	ni	e	e	lo			words (14)
Monoara				Romila-ACC				take-PRF		come-PST-3				English (6)

- [monoaɹa ɹomilake nie elo]
- 'Monoara brought Romila, (not Rumu).'

FOCUS PROSODY

- Ongoing research finds evidence of a fourth realization of focus in Bengali: **H*+fH** (Ullah 2016)

- H*+fH is **used on "k-words"** (e.g. [kon] 'which', [kon-o] 'any') when acting as:
  - **Wh question words**
  - **NPIs in negative declaratives**

- But it is **never** used on k-words in:
  - **Yes/no questions**
  - Epistemically biased **positive declaratives**

- More details in his poster later today

LEXICAL EFFECTS

- This brings us to one last area of intonational variation that I'd like to cover: role of **lexical contrast** in tone selection

- Two major areas of SALs with lexical tone(-like) properties:
  - **Indic lgs** that have undergone **tonogenesis**
  - **Tibeto-Burman lgs** that maintain a **lexical tone**-like system

TONOGENESIS: PUNJABI TYPE

- Impressionistic accounts of Pnj (Gill & Gleason 1962, Bhatia 1993)
  - Low(-rising) tone on CV < *C^ɦ
  - High(-falling) tone on VC < *C^ɦ

| kō ɽa	kò ɽa	kó ɽa
koɽā	*ghoɽā*	*koɽhā*
'whip'	'horse'	'leprosy patient'

- **Phonologization** of phonetic effects of voi/asp on pitch
  - Hnd has smaller variations like those of Pnj (Purcell et al. 1978)
- Concerns:
  - Little/no **evidence** provided
  - Stimuli elicited in **isolation**: effects of IP boundary tone

TONOGENESIS: PUNJABI TYPE

- Recent work addresses these concerns (Kanwal & Ritchart 2015)
  - **High-falling** (not low-rising) tone on CV < *Cʰ: looks like H*+L
  - Pitch rises across the word elsewhere: looks like L*...Ha

- Additional finding:
  - **Sig. variation in pitch based on onset voicing**
  - Similar to ^L* (Khan 2016)

- Remaining questions:
  - Vs **preceding** C < *Cʰ?
  - **Intonational** tones?
  - Salience of **variation**?
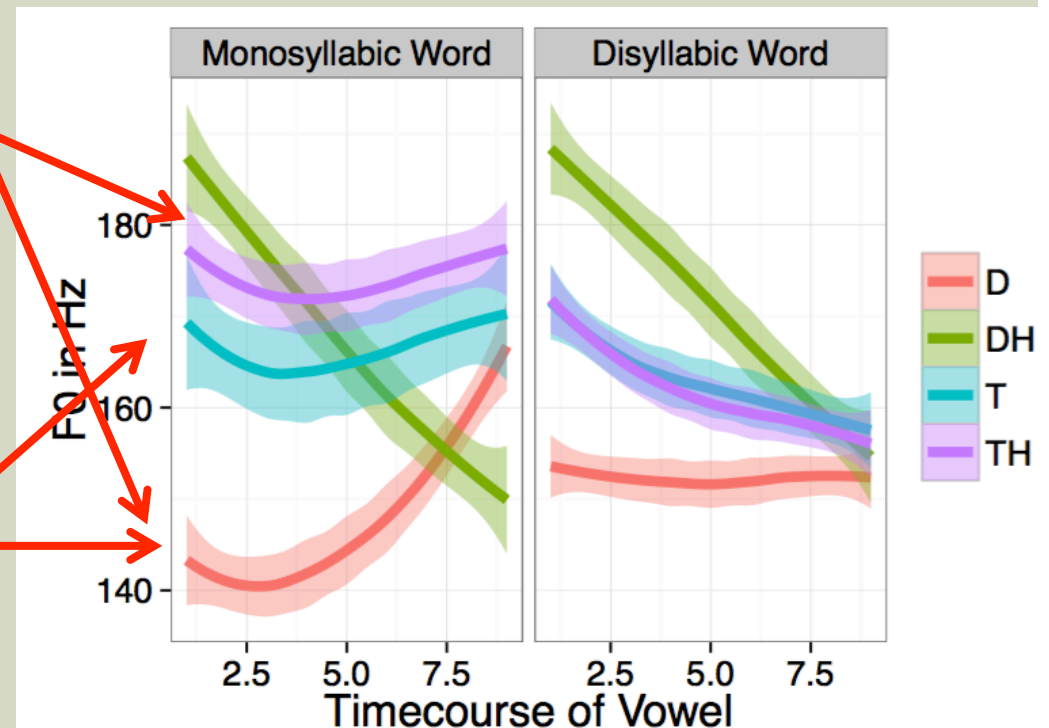
TONOGENESIS: SYLHETI TYPE

- New acoustic work on Sylheti (Gope & Mahanta 2014)
  - Recordings of phrase-medial monosyllables
  - **Aspiration** contrast lost, CVC < *C^{h}VC bears sig. **higher pitch**

- Example:
  - /bàt̪/ 'arthritis'
  - /bát̪/ 'rice' (< /b^{ɦ}at̪/)

- Further questions:
  - **Endpoint** for the 2 words is not the same
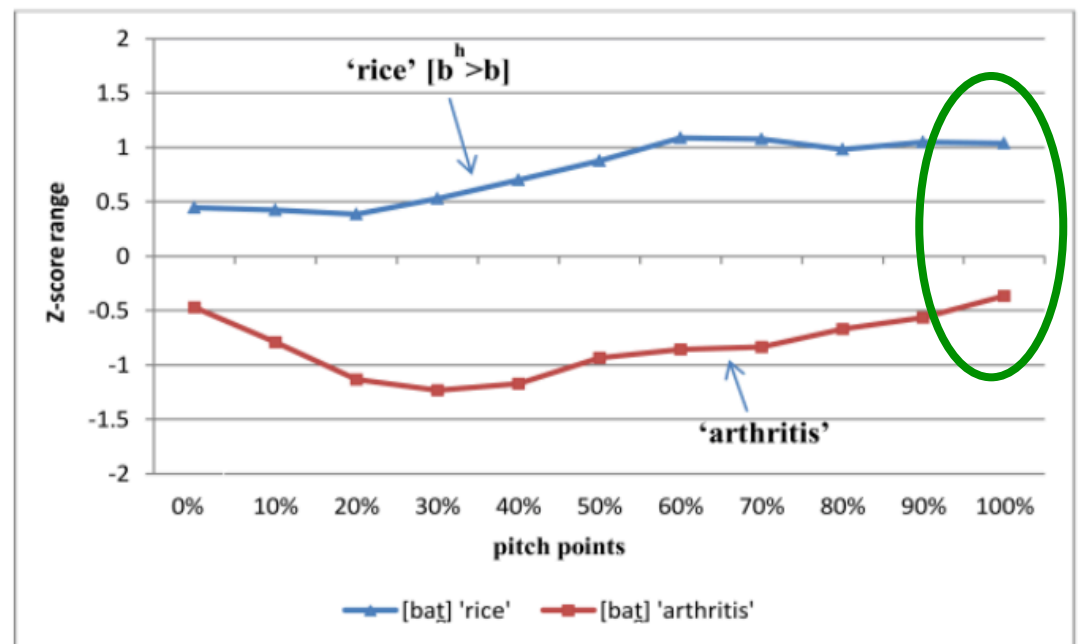 - Does Sylheti tone affect AP's L **and H**?

Figure 3: *normalized pitch tracks for* [bat̪], (n=27, {9 speakers * 3 iterations each})

TIBETO-BURMAN TONE

- **Boro** (Das & Mahanta 2015)
    - Each lexical item has a **lexical tone (L, H)**
    - Contrast appears on **final syllable**
    - Interacts with morphological focus marking

- **Dimasa** (Mahanta & Raychoudhury 2016)
    - Each lexical item has a **lexical tone (L, M, H)**
    - Contrast appears on **final syllable**
    - Interacts with IP boundary tone

- Intonation is clearly relevant, but the non-lexical parts of TB intonation remain underdocumented

RETURNING TO THE QUESTION

- Going back to our original question
- Is there a "typical" SAL intonation?

- In some ways, **yes**:
  - Prominence placement is **not contrastive**
  - Prominence not **marked with stress**
  - **Sequences of AP/PPs** marked with **rising contours**
  - **Segmental effects** on L tone realization

RETURNING TO THE QUESTION

- Beyond that, there are wide **differences within/across lgs**
  - **AP/PP's L tone** can aim for **left edge**, **prominence**, or **both**
  - **AP/PP's H tone** can aim for **right edge**, **prominence**, or **both**
  - But most common Indic pattern: L*...Ha/H$_P$

- More complex patterns in Dravidian?
  - **Word length** promotes **double H** in Tamil
  - **Vowel length** creates **H plateaus** in Telugu

- Additional complexities
  - **Focus** can manifest in **different strategies** in Bengali
  - **Lexical specifications** of tone in Punjabi, Sylheti, most TB lgs, etc.

REMAINING QUESTIONS

- Many questions remain, even for SALs that have been studied in AM Theory
- What factors **block attraction** of pitch accents to **noninitial prominence** in lgs like Hnd?
- **How pervasive** is tone alignment to **V length** beyond Tlg?
- **How perceptible** is L*'s rightward shift in Asm?
- **How perceptible** is L* vs. ^L*? Emergent contrast?
- **Interaction** of lexical and intonational tones?

- **Most SALs remain unexplored** in AM Theory
- Get to know your local intonationologist, and let's get to work on your favorite SAL!

ACKNOWLEDGMENTS

- To the authors who have shared their recordings with me, to those of you working on SAL intonation, and to everyone in the audience here at FASAL-6, **many thanks!**

^L*+H   **L%**
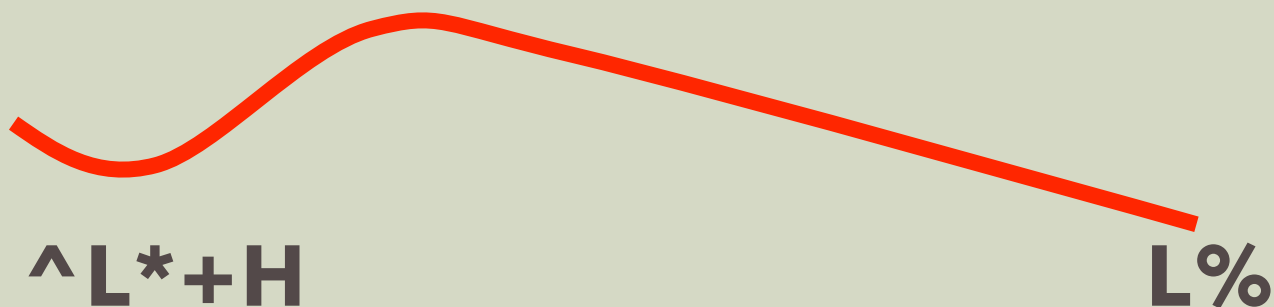
[ɔʃoŋkʰo d̪ʱoːnːobad̪]

অসংখ্য ধন্যবাদ!

REFERENCES

Asher, Ron E.; Keane, Elinor. 2005. Diphthongs in colloquial Tamil. In Hardcastle, W.; Beck, J. (eds.), *A figure of speech: A festschrift for John Laver*. Hillsdale, NJ: Lawrence Erlbaum,147-171.

Choudhury, Arunima; Kaiser, Elsi. 2012. Prosodic focus in Bangla: a psycholinguistic investigation of production and perception. Talk, LSA.

Christdas, P. 1988. The phonology and morphology of Tamil. PhD thesis, Cornell University.

Das, Kalyan; Mahanta, Shakuntala. 2015. Variation in prosodic phrasing in Bodo. Workshop on ProVar.

Dasgupta, Probal. 2003. Bangla. In: Cardona, George; Jain, Dhanesh (eds.) *The Indo-Aryan Languages*. Routledge.

Dyrud, Lars O. 2001. Hindi-Urdu: stress accent or non-stress accent? Master's thesis, University of North Dakota.

Emeneau, M. B. 1956. India as a linguistic area. *Language* 32 (1), 3–16.

Féry, Caroline. 2010. Indian languages as intonational 'phrase languages'. In: Hasnain, Imtiaz; Chaudhury, Shreesh (eds). *Problematizing Language Studies. Festschrift for Rama Agnihotri*. Delhi: Aakar Books, 288-312.

Firth, J. R. 1957. Phonetic observations on Gujarati. *Bulletin of SOAS*, 20(1), 231–241.

Genzel, Susanne. 2007. Phonetische Realisierung von Fokus auf Adjektiven im Hindi. MA thesis, Potsdam Univ.

Gill, Harjeet Singh; Gleason, Jr., Henry A. 1962. *A Reference Grammar of Panjabi*. Hartford Studies in Linguistics.

Gope. Amalesh; Mahanta, Shakuntala. 2014. Lexical tones in Sylheti. Presented at TAL-2014.

Harnsberger, James D. 1999. The role of metrical structure in Hindi intonation. Presented at SALA Roundtable.

Harnsberger, James D. 1996. Towards an intonational phonology of Hindi. Presented at Laboratory Phonology V.

Hayes, Bruce; Lahiri, Aditi. 1991. Bengali intonational phonology. *NLLT* 9, 47–96.

REFERENCES, CONT.

Hussain, Sarmad. 1997. Phonetic correlates of lexical stress in Urdu. Northwestern University.

Kanwal, Jasmeen; Ritchart, Amanda. 2015. An experimental investigation of tonogenesis in Punjabi. *Proceedings of ICPhS 18.*

Keane, Elinor. 2003. Word-level prominence in Tamil. *Proceedings of the 15th International Congress of Phonetic Sciences* 2, 1257–1260.

Keane, Elinor. 2004. Tamil. *JIPA* 34(1), 111–116.

Keane, Elinor. 2014. The intonational phonology of Bangladeshi Standard Bengali. In Sun-Ah Jun (ed.). *Prosodic Typology II: the Phonology of Intonation and Phrasing*. Oxford University Press.

Khan, Sameer ud Dowla. 2008. Intonational phonology and focus prosody of Bengali. PhD dissertation, UCLA.

Khan, Sameer ud Dowla. 2010. Bengali (Bangladeshi standard). *JIPA* 40(2), 221-225.

Khan, Sameer ud Dowla. 2014. The intonational phonology of Bangladeshi Standard Bengali. In Sun-Ah Jun (ed.). *Prosodic Typology II: the Phonology of Intonation and Phrasing*. Oxford University Press.

Khan, Sameer ud Dowla. 2016. Rising contours across South Asian languages. Work in progress.

Khatiwada, Rajesh. 2009. Nepali. *JIPA* 39(3), 373-380.

Kingston, John. 2011. Tonogenesis. In van Oostendorp, M.; Ewen, C. J.; Hume, E.; Rice, K. (eds.) *Blackwell Companion to Phonology, v. 4*, (pp. 2304-2334). Oxford: Blackwell Publishing.

Ladd, D. Robert. 1996. *Intonational Phonology*. Cambridge University Press.

Lahiri, Aditi; Fitzpatrick-Cole. 1999. Emphatic clitics and focus intonation in Bengali. In: Kager, René; Zonneveld, Wim (eds.), *Phrasal phonology*, 119–144. Nijmegen: University of Nijmegen Press.

REFERENCES, CONT.

Mahanta, Shakuntala. 2001. Some aspects of prominence in Assamese and Assamese English. MPhil diss.

Mahanta, Shakuntala. 2012. Assamese. *JIPA* 42(2), 217–224.

Mahanta, Shakuntala; Das, Kalyan. 2012. Prosody of focus in Bodo. 18th Himalayan Linguistics Symposium.

Mahanta, Shakuntala; Raychoudhury, Priti. 2016. Focus and intonation in Dimasa. Work in progress.

Mahesh, M. 2016. Phonology of intonation in Malayalam. Work in progress.

Malik, Amar Nath. 1995. *The phonology and morphology of Panjabi*. New Delhi: Munshiram Manoharlal Pub.

Nihalani, Paroo. 1999. Sindhi. *Handbook of the IPA*. Cambridge University Press, 131–134.

Ohala, Manjari. 1999. Hindi. *Handbook of the IPA*. Cambridge University Press, 100–103.

Patil, Umesh; Kentner, Gerrit; Gollrad, Anja; Kügler, Frank; Féry, Caroline; Vasishth, Shravan. 2008. Focus, word order, and intonation in Hindi. *JSAL* 1(1).

Subbārāo, Kārumūri. V. 2012. *South Asian languages: a syntactic typology*. Cambridge University Press.

Twaha, Asimul Islam; Mahanta, Shakuntala. 2016. Intonational and prosodic structure of Standard Colloquial Assamese. Talk, Workshop on Tone and Intonation-3.

Ullah, Rashad. 2016. Epistemic indefinites, negative polarity, and free choice in Bengali. Poster, FASAL-6.