

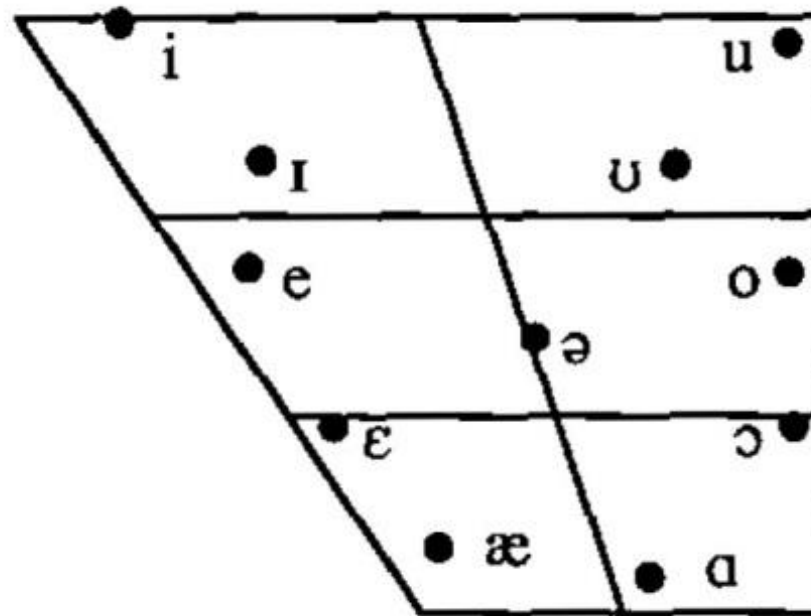
LING 450/550

15 Intonation

Hindi

























BREATHY CONSONANTS

Hindi Vowels



“All of these vowels except [æ] also have distinctively nasal counterparts.” (Ohala, 2010:101)

Hindi Vowel Listening Practice

	i	mil	'mile'			u	kul	'shore'			
	ɪ	mɪl	'meet'			ʊ	kʊl	'lineage'			
	e	mel	'harmony'		ə	məl	'rub' (imper)		o	bol	'speak'
	ɛ	mɛl	'dirt'						ɔ	kɔl	(a name)
	æ	bæɪ	'cricket bat'		ɑ	mɑl	'goods'				
<hr/>											
	i	sik ^h	'lesson'		ɑ	sɑs	'mother-in-law'		u	b ^h uk ^h	'hunger'
	ĩ	sĩk	'twig'		ǎ	sǎs	'breath'		ũ	b ^h ũk	'dog's bark'
	ĩ	sĩtʃ	'be irrigated'						õ	kõvər	'prince'
	ẽ	mẽ	'in'		ǝ	hǝs	'laugh' (imp)		õ	jõ	'in this manner'
	ẽ	mẽ	(1 sg pn)						ǝ	b ^h ǝ	'eyebrow'


Hindi Consonants


	Bilabial	Labio-dental	Dental	Alveolar	Post-alveolar	Retroflex	Palatal	Velar	Glottal
Plosive	p b p ^h b ^{fi}		t̪ d̪ t̪ ^h d̪ ^{fi}			t̪̣ d̪̣ t̪̣ ^h d̪̣ ^{fi}		k g k ^h g ^{fi}	
Affricate					tʃ dʒ tʃ ^h dʒ ^{fi}				
Nasal	m			n				ŋ	
Tap or Flap				ɾ		ɽ ɽ ^{fi}			
Fricative		f		s z	ʃ				h
Approximant		ʋ					j		
Lateral Approximant				l					

<http://corpus.linguistics.berkeley.edu/acip/vowels/chapter12/hindi.html>

<http://www.paulmeier.com/consonants/>

Hindi Transcription

1.  'address' (n.) [pəʈa]

2.  'beat' (n.) [ʈa]

3.  'big' [bəɾa]


4.  'branch' [ɖa]

5.  'brow' [bʰa]

6.  'gait' [ʈʌ]

7.  'glimmer' [ɖʒʰəl]

8.  'hair' [ba]

9.  'increase' (imp.) [bəɾʰa]

10.  'knife blade' [pʰa]

11.  'knife edge' [ɖʰar]

12.  'lentil' [ɖa]

13.  'lumber shop' [tʰa]

14.  'net' [ɖʒa]

15.  'nurture' [pa]

16.  'platter' [tʰa]

17.  'postpone' [ta]

18.  'shield' [ɖʰa]

19.  'to make...agree' [pəʈa]

20.  'tree bark' [tʰa]

Measuring Tone and Transcribing Intonation

PITCH TRACKING AND TOBI

LADEFOGED & JOHNSON, CHAPTER 5 (PP. 126-138)

adapted from slides by Liz McCullough, Richard Wright, Sharon Hargus, Valerie Freeman and
Dan McCloy

Measuring Tone

Pitch is a phenomenon that Praat can measure automatically, much like it does with vowel formants.

When measuring pitch, just as with measuring vowel formants, Praat uses the settings you specify, even if they may not make sense.

- Change settings for measuring male vs. female voices.
- Common errors in Praat include *pitch doubling* and *pitch halving*, which often can be spotted by abrupt jumps in Praat's pitch track during vowels and other sonorant sounds.
 - Abrupt jumps might happen around stops and fricatives simply because it's difficult or impossible to measure pitch during these sounds.

Measuring Tone

Open Ibibio sound files in Praat.

Compare words with different tones.

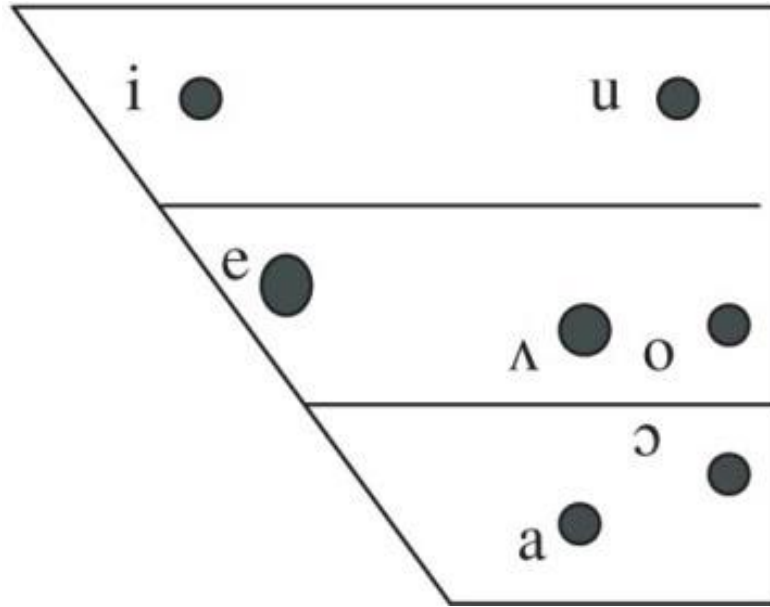
- Which words have high tone? Which words have low tone?
- What is a rough estimate of this speaker's average pitch for high tone and for low tone? (The speaker is saying clear citation forms of the words; in connected speech, tones vary much more, being higher or lower relative to preceding tones.)
- This speaker is female. How would a male speaker's tones differ from hers?

Ibibio

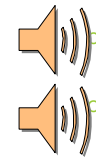
LEXICAL TONE AND LENGTH CONTRASTS

Ibibio Vowels and Tones

Vowels



Tones



High [dà] 'stand'



Low [dà] 'mate, friend'

Ibibio Consonants

	Bilabial	Dental	Alveolar	Palatal	Velar	Labial-Velar
Plosive	(p) b	t̪	d		k	kp̄
Nasal	m		n	ɲ	ŋ	
Fricative	f		s			
Approximant				j		w





kp̄á 'die'


“The bilabial plosives, [p] and [b], occur in complementary distribution and do not contrast.”

“Plosives are weakened in intervocalic position as follows: [p, b] → [β]; t, d → [ɾ]; k → [R] ~ [ɰ] (where [R] is used as the voiced uvular tap and [ɰ] the voiced velar approximant).”

Ibibio Length Contrasts





















 [jòmó] 'be noisy'

 [jòm:ó] 'boo at'

 [nèm] 'be delicious'

 [nè:m] 'crack palm kernel'

Ibibio Transcription

-
- | | |
|--|--|
| 1.  'be afraid of' [bà:k] | 11.  'go' [kàá] |
| 2.  'be alive' [dù] | 12.  'goat' [ébót] |
| 3.  'be clean' [sáná] | 13.  'lock' [kòp] |
| 4.  'be early' [bàk] | 14.  'marry' [dó] |
| 5.  'be named' /kètṣé/ [kéré] | 15.  'mosquito' [óbón] |
| 6.  'bite' [dóm] | 16.  'move a bit further' [sàn:á] |
| 7.  'bite many things' [dó:m] | 17.  'scoop food' [kóp] |
| 8.  'cane' [óbòn] | 18.  'sell' [nàm] |
| 9.  'console' [wén] | 19.  'there' [dó] |
| 10.  'give' [nò] | 20.  'think' /kètṣé/ [kéré] |

Transcribing Intonation

Some approaches to intonation analysis are holistic, involving a general description of the entire intonation pattern.

- Examples include “declarative,” “question,” “rise-fall-rise,” ...

These general descriptions are problematic because intonation patterns can differ substantially, especially between different dialects of the same language or between different languages.

Transcribing Intonation: ToBI

A more fine-grained way of marking intonation is the *Tone and Break Indices (ToBI)* system.

- In the ToBI system, intonation is described as a series of *target tones* on the stressed syllables.
 - Each intonational phrase has at least one target tone (also called a *pitch accent*). The last pitch accent in a phrase is called the *nuclear pitch accent*.
 - Nuclear pitch accents are followed by a *phrase accent* and a *boundary tone*.

Break Indices

- *Break indices* are numbers representing the degree of separation between words. They range from 0 (no break) to 4 (a long pause, as between sentences).
- 0-no break
- 1-most phrase medial word boundaries
- 2-a pause of virtual pause but in line with phrase
- 3-intermediate intonation phrase boundary
- 4-end of utterance, long pause between sentences






Marking Transcriptions with ToBI

ToBI markup is typically added to lines (or *tiers*) above the IPA transcription (one tier for tones and one for break indices).

- Phrase accents are marked as high or low (either H– or L–).
- Boundary tones are marked as high or low (either H% or L%).
- Nuclear and pre-nuclear pitch accents can have six forms:
 - H* (high)
 - L* (low)
 - L*+H (rise beginning on stressed syllable)
 - L+H* (rise ending on stressed syllable)
 - H+!H* (high with slight downstep)
 - !H* (downstepped high; occurs after H* in sentences with downdrift)

Common ToBI Patterns

Certain types of utterances tend to have similar ToBI representations on the tonal tier. Examples from English:

- H*  L- L% (declarative statement)
- L*  L- H% (direct address)
- L*  H- H% (question)
- L+H*  L- H% (expression of surprise)
- L+H*  L- L% (reprimand)

British (Peter Ladefoged)



American (Bruce Hayes)



- Crucially, these are common patterns, not definitions. ToBI is meant to transcribe whatever tones and breaks are actually produced, without reference to the speaker's intent.

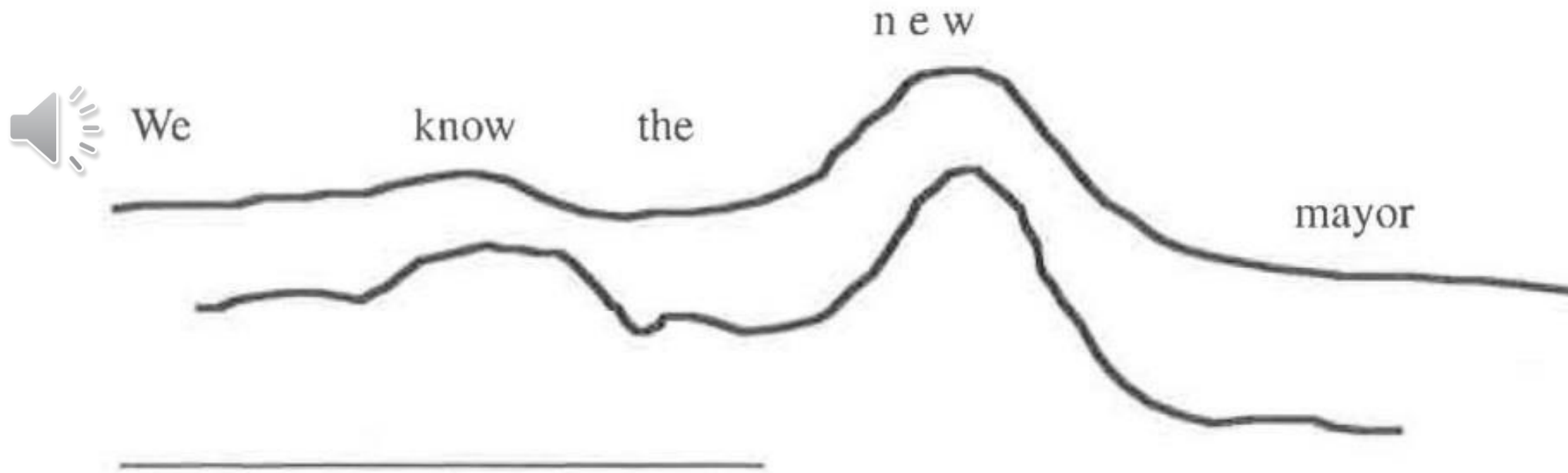
Example: ToBI Transcription

Break Index	1	1	1	4
Tonal Tier	H*			H* L– L%
Segmental Tier	meɪɪ 'æne	meɪɪ ɔ̃	ðə	'maɪ mə leɪd
Orthography	<i>Marianna</i>	<i>made</i>	<i>the</i>	<i>marmalade</i>



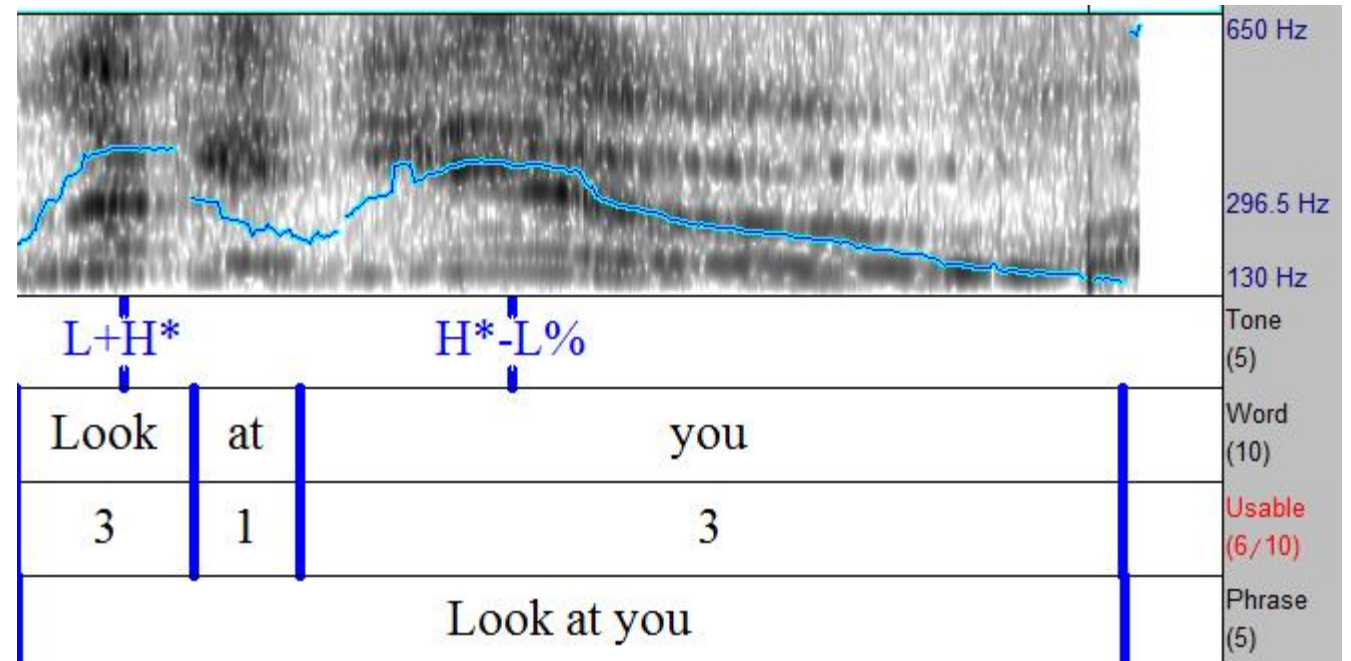
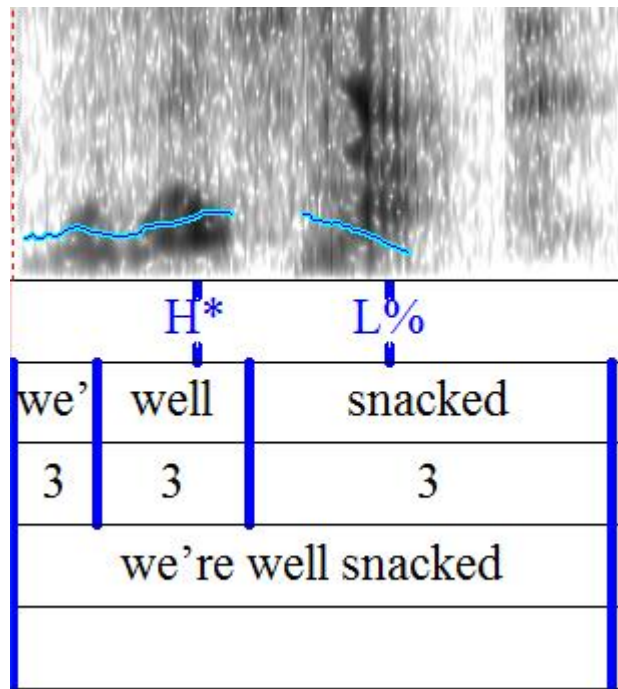
data adapted from http://www.ling.ohio-state.edu/research/phonetics/E_ToBI/ToBI/ToBI.1.html

Tonic Accent and Focus



(2) *We 'know the *new 'mayor.*

Infant Directed Speech



Intonation Practice

1. Look at the files in the intonation folder in Praat (Open the files and the text grids for Russian- note the text grids are only roughly aligned and transcribed to help with Russian)
2. Observe intonation patterns, practice transcribing with tobi
3. Compare Russian and English a) declaratives, b) questions, c) focus constructions
4. Consider other languages you are familiar/mystery language etc. What type of intonation patterns do those carry?

More Sound Files

<http://www.phonetics.ucla.edu/course/chapter5>

<https://russons.com/russian-intonation/>

Reminders

For Wednesday read L&J Ch. 3

For Wednesday: HW 11