

Acoustic analysis of linguistic voice quality

Ling 450

Aims of the assignment:

1. Gain hands-on experience in measuring voice quality.
2. Develop a deeper understanding of how phonation can be used across languages.

Gujarati is an Indo-Aryan language primarily spoken in the western Indian state of Gujarat. The audio files contain two pairs of words. Within a pair, the words have the same segmental makeup, that is, the same consonants and vowels (see the table below).

PAIRS	FILES	GLOSS	TRANSCRIPTION
1	1	‘outside’	bar
	2	‘twelve’	bar
2	3	‘ear’	kan
	4	‘Krishna’	kan

- (1) Read the audio files into Praat and listen to them. Do words in a specific pair differ in voice quality? What is your auditory impression?
- (2) Now, we are going to practice measuring H1-H2 manually from a spectrum. For each word in pair 1, take a 50 ms slice around the middle of the audio file. Generate a spectral slice. Record the amplitude of the first and the second harmonics in the table below. Then, calculate H1-H2 by subtracting H2 from H1. Is there a difference in H1-H2 between ‘outside’ and ‘twelve’?

PAIR	FILES	GLOSS	H1	H2	H1-H2
1	1	‘outside’			
	2	‘twelve’			

- (3) Next, we will generate a voice report for each file. Select the whole acoustic vowel /a/ of the audio file. Record the H1-H2, jitter and shimmer values in the table above.

PAIRS	FILES	GLOSS	H1-H2	JITTER	SHIMMER
1	1	‘outside’			
	2	‘twelve’			
2	3	‘ear’			
	4	‘Krishna’			

- (4) Based on the H1-H2 results, how would you describe the voice quality contrast in Gujarati vowels? Does it confirm your auditory impression? Re-group the words with the same voice quality category.

- (5) Based on your results, do jitter and shimmer also consistently distinguish these two voice quality categories? Why or why not?