

## Lab 5: VOT

In a classic study on voicing in word-initial stops in 11 languages, Lisker and Abramson (1964) found that a single dimension, VOT, can very well separate the stop voicing categories. From their study it appears that the VOTs of initial stops in isolated words fall into three ranges: one from -125ms to -75 ms, one from zero to 25ms, and one from 60 to 100ms. Their data also showed that VOT is correlated with the place of articulation. The further back the closure, the longer the VOT: velar > alveolar > labial.

In this lab, we will repeat the study of Lisker and Abramson (1964), in a manner that your final projects should follow:

1. Reading. Read the paper and search for other relevant references. For example, Cho and Ladefoged (1999), "Variation and universals in VOT: evidence from 18 languages," *Journal of phonetics*, 27, 207-229; Francis, et al. (2003), "Accuracy and variability of acoustic measures of voicing onset," *JASA*, 113, 1025-1032.
2. Design materials. Choose a set of words in your own native language to include a sampling of all the initial prevocalic stops in the language. Find three words for each initial stop. If possible, the words should match the following conditions: 1. The words are monosyllabic, bearing a stress or high-level tone; 2. The vowels are /a/, /i/, and /u/ respectively in the three words.
3. Recording. Make a word list for recording. Repeat each word three times on the list, and randomize the order of the words. Record the words in the sound booth. Make a Praat TextGrid to label the word boundaries and provide broad transcriptions of the words. Copy your wav and TextGrid files into the class folder.
4. Analysis. Obtain all the data files from the class folder. Measure VOT of the word-initial stops. Analyze the results and compare them with Lisker and Abramson (1964).
5. Write up. In this lab, you only need to report the results and discuss whether they are the same or different from Lisker and Abramson (1964), and present any new findings from the lab. For your final project (detail later), you should write up a full report, which includes introduction, method, results, conclusions and discussion, and references.

**The Lab is due Nov. 11.**