

Lab #08 resource — Notes on Klatt (1975)

For Lab #08, you are asked to propose hypotheses concerning the **effect of place of articulation on VOT** for voiced, voiceless, and voiceless aspirated stops. I provided a link to Klatt (1975) ([available through UNC Libraries](#)) to help you form hypotheses.

Klatt, Dennis H. 1975. Voice onset time, frication, and aspiration in word-initial consonant clusters. *Journal of Speech and Hearing Research* 18: 686-706.

While this reading is old, it is useful! However, Klatt's discussion focuses on English specifically, so some of his discussion needs to be put into a broader context.

A. Klatt doesn't mean what you might think when he discusses "voiced plosives"

- (1) English oral stops, as contrastive sound categories (phonemes), are traditionally labeled as /p t k/ "voiceless" and /b d g/ "voiced". Klatt uses this terminology and these IPA symbols in his discussion, tables, and graphics.
- (2) But the "voiceless" stops /p t k/ are phonetically different in different contexts:
 - **Voiceless aspirated** in word-initial position [p^h t^h k^h] (and in syllable-initial position more generally)
 - **Voiceless unaspirated** in a consonant cluster [sp st sk] (and otherwise when not in syllable-initial position), possibly with a very brief period of aspiration
- (3) The "voiced" stops /b d g/ are also phonetically different in different contexts:
 - **Voiceless unaspirated** [p t k] in phrase-initial position or after a voiceless consonant
 - Phonetically **voiced** [b d g] after vowels or voiced consonants, especially nasals
- (4) This means that, in English, a phrase-initial "voiced" oral stop like /b/ and a post-[s] "voiceless" oral stop like /p/ are, phonetically, **both voiceless unaspirated**: [p]. So when Klatt shows measurements or discusses patterns for "voiced plosives" in English, **he is usually talking about stops that are phonetically voiceless unaspirated**. (Compare his measurements for what he labels "[b]" versus the stop in "[sp]" in Table 1, and likewise for the other places of articulation.) **Do not be misled by Klatt's use of the label "voiced"**.

B. Forming hypotheses about VOT in voiceless unaspirated plosives in Sindhi

- (5) Klatt provides a nice discussion of the point that **aperiodic sound energy** found at the release of an oral stop (positive VOT) **might be one of two things**: see the two paragraphs in the middle of p 688, and Figure 2 on p 690.
- (6) The paragraph near the bottom of p 692 that starts "Comparison of burst durations and voice onset times..." will be very useful in forming hypotheses for Sindhi.
- (7) There is some additional **very useful information** on p 695.