

- **Hypotheses and research qns**
- **Lab #08 intro**

Background:

- Lab #06 (German vowels)
- Discussion question: Oral stop voicing

0. Today's objectives

After today's class, you should be able to:

- Use concepts and models in acoustic phonetics to state research questions or hypotheses about language data
- Use the myoelastic/aerodynamic model of phonation to make predictions about difficulties for oral-stop voicing
- Understand the goals of Lab #08 and being to state hypothesis and determine measurement criteria

1. Hypotheses and research questions

Discussion

- Where do hypotheses and research questions come from in (acoustic) phonetics?

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Some important sources:

- Predictions of our models (source/filter model, multiple-tube model, perturbation theory, etc.)
- Claims from outside acoustic phonetics (maybe from: phonological theory, language typology, physics)

1. Hypotheses and research questions

Examples from Lab #06

- “Long” vs. “short” vowels
 - A distinction with a basis in (non-instrumental, traditional) language description

Some RQs:

- Are “long” vowels consistently “longer”?
 - Are there other differences between “long” and “short” vowels?
- What did you actually find?

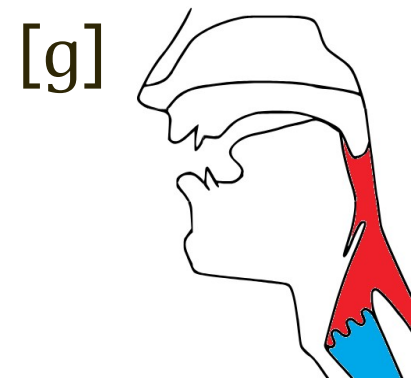
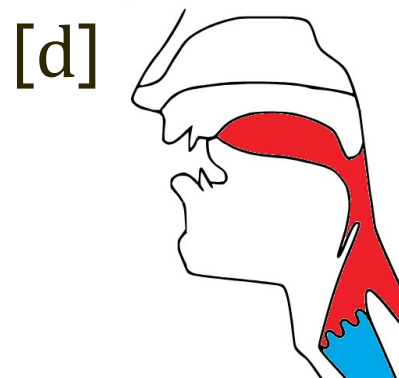
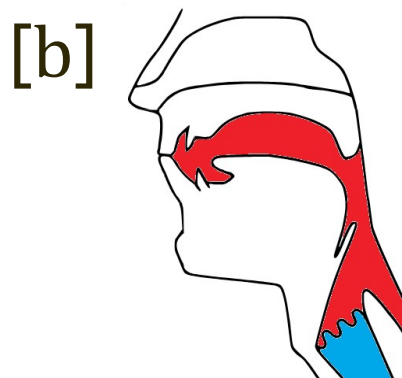
1. Hypotheses and research questions

Examples from Lab #06

- Adding rounding to a high front vowel
 - What does perturbation theory predict?
 - What does the multiple-tubes model predict?
- What did you actually find?

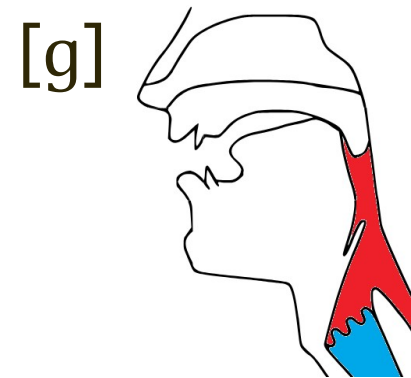
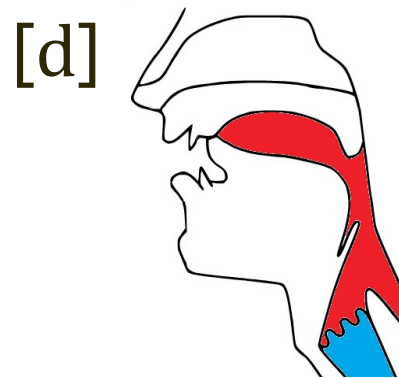
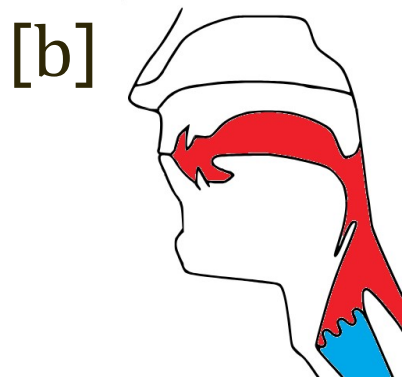
2. Voicing in oral stops

- Some observations from linguistic typology:
 - If a language is missing one of the voiced oral stops [b d g], it is most likely to be **missing [g]**
 - [WALS map](#) (blue and purple = missing [g])
 - In some languages, voicing duration tends to be **longer** for oral stops formed further **forward**



2. Phonation: Myoelastic/aerodynamic theory

- Ease of voicing in oral stops: [b]>[d]>[g]
- The myoelastic/aerodynamic theory of phonation can help explain these facts — how?
 - Why is **supraglottal pressure** (air pressure in the vocal tract above the larynx) a crucial factor?
 - Why is [g] especially **difficult** for voicing?



2. Phonation: Myoelastic/aerodynamic theory

- Potential research questions for Lab #08...

3. Praat, labs, and course material

- Key material in this course includes...
 - Basic facts about acoustics, speech sounds, Praat
 - How concepts build on each other
 - How we use models to make predictions
 - (- How to design a research study — coming soon)
 - Resources for mastering course material include...
 - Readings
 - Discussion outlines
 - Assignments: prep questions, labs
- Use these resources effectively to help you!

3. Praat, labs, and course material

- Use these resources effectively to help you!
 - The goal is not just to find an answer, but also to learn how to think
 - Go back over readings, outlines, assignments after class discussion
 - **Download sound files** from V&C (and other UCLA resources) and **look at them in Praat** to explore course concepts in a hands-on way
 - **Use in-class lab time to learn from each other**

4. Preparing for Lab # 08

Goals to focus on for today

- Work with your partner(s) to understand what tasks the lab involves doing
- Work with your partner(s) to formulate hypotheses
 - Update on where to focus in the Klatt reading
- Try measuring a few words from the Sindhi data and decide what measurement landmarks you will be using