Phonology I

FSEM CORE S119: Language as Human Nature
Fall 2025
Prof. Forrest Davis

September 2, 2025

Warm-up

1. You are stuck on an island and can only bring one book or book series. Talk to the person next to you about what you would bring?

Logistics

- Living and Learning Workshop on Friday, September 5

Learning Objectives

- Articulate the core goals of the subfields of phonetics and phonology
- Describe the International Phonetic Alphabet and its motivation
- Identify the articulatory features associated with English consonants

Summary: We articulate the goals of phonetics and phonology. Then, we will dive into how we categorize the sounds in the world's languages, with particular focus on consonants in English.

Goals of Phonetics and Phonology

OFTEN WHEN WE USE LANGUAGE, WE MAKE NOISE. While speech sounds are certainly not the only way to communicate, humans have developed sophisticated anatomical and neural structures for the production and perception of sounds.[1]

Rather than idiosyncratic sounds for each language, remarkably humans seem to draw from a restricted set of possible speech sounds. Moreover, the rules and process that target sounds also behave in a restricted way across the world's languages.[2]

[1] Out of nearly 7000 existing languages, Ethnologue lists roughly 160 active sign languages. That is, languages which use manual signs as basic units in utterances. Interesting, 29 of these signed languages are also widely used by hearing people in their communities.

[2] While, we will not focus on sign language for this class, it is important to note that sign languages work in a (surprisingly) similar way, with manual gestures drawn from a restricted set and the processes and rules are quite similar to spoken languages. While there are striking similarities, there are some differences. If you become interested in this, you can find a nice survey of the issues in Sandler (2017) and van der Hulst and van der Kooij (2020).

Question

Based on the conclusion of the review we discussed last class, what is the aim of a linguist? What is our aim in building a theory of human language?

In **phonetics**, we aim to articulate how sounds (or gestures) are produced and comprehended. In **phonology**, we aim to articulate the mental representations (how do we store sounds?) and processes that govern the rules that apply to them.

Motivating the International Phonetic Alphabet

IF WE ARE AIMING TO ARTICULATE A THEORY of sounds that applies to all of the world's languages, we need some way of keeping track or noting things down. Ideally, it would be a system we could write down, with one symbol per sound, and it would extend to all languages. Actually existing character systems, even ones like Devanagari, which is used in Hindi and Sanskrit and is very good at representing the sounds in those languages (as opposed to English, were I'm sure we all know we've fallen short), fail at least one of these criteria.[3]

The International Phonetic Alphabet (IPA) does just this; it is unambiguous (every sound gets one symbol and every symbol one sound) and universal (it applies to all known human languages).

In some cases, we luck out and the symbols align with English spelling:

- [t]: as in the 't' sound
- [s]: as in the 's' sound
- [h]: as in the 'h' sound

In other cases, we luck in(?) and the symbols do not align with English spelling:

- [i]: as in the 'ee' sound
- [e]: as in the 'ay' sound

Note, we use the square brackets ('[ ]') to state that the sound is from the IPA and not English, for example.

[3] While I do not have TikTok, I have seen some videos making fun of English spelling. In a desperate attempt to relate to you, the 'youth', here is one such example.

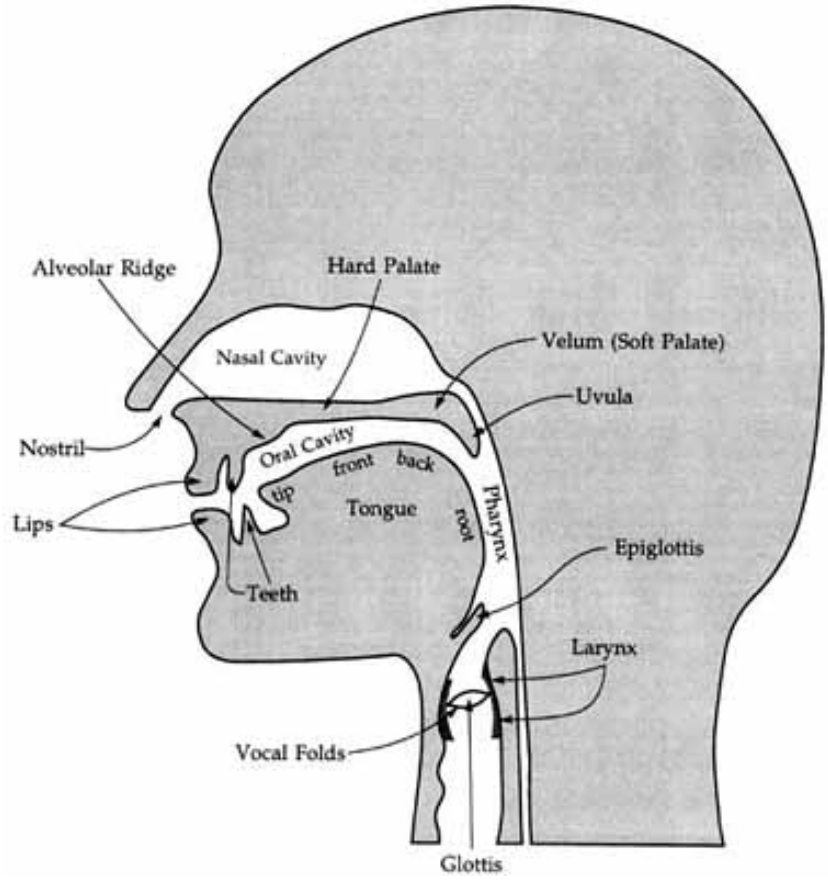
Question

How would you represent the word *seat* in IPA?

Identifying Sounds

NOW, WE HAVE A BIT OF A BIND IN USING SYMBOLS. Suppose I showed you another symbol from the IPA, [ʘ]. How would you have any idea how to pronounce this?

Well, you wouldn't. Luckily, the IPA defines symbols systematically via **articulatory phonetics**, which is the way a sound is produced.



Consonants

TO DEFINE CONSONANTS, WE DRAW ON ARTICULATORY PHONETICS and classify them based on four proprieties:

1. **Manner of Articulation:** *How* the oral tract is manipulated during production
2. **Place of Articulation:** *Where* the oral tract is manipulated during production
3. **Nasality:** Whether the velum is lowered during production of the sound
4. **Voicing:** The status of the glottis during production

We will first focus on the contrasts relevant for English and expand as we go in the course.

Manner of Articulation

Consonants in English have 4 manners of articulation.

1. **Stop:** The sound involves a complete blockage of the oral tract (i.e., there is no air leaving your mouth when you make the sound).
2. **Fricatives:** The sound is produced with a continuous airflow through the mouth.
3. **Affricates:** While similar to a stop, the tongue is not rapidly moved from the place of articulation. Instead, a slow or delayed release of the closure happens during production. There are only two such sounds in English.
4. **Approximants:** The sound involves a narrowing of the oral tract that is somewhere between a fricative and a vowel. A subset of this category is called **Glides**, which is quite close to vowel, and another subset is called **Liquids** and are made by either lateral movement of air out the sides of the tongue or retroflex where the tip of the tongue is curled back.

Place of Articulation

Consonants are produced by constricted the oral tract in some way. The location of this is the place of articulation. There are 7 places of articulation in English. Their locations should be familiar based on our discussion of the anatomy of the vocal tract.

1. **Labial:** Made with the closure of the libs, either bilabial (produced with the closure of both lips) or labio-dental (using teeth to form a closure with your lower lip).

2. **Dental:** Made with the closure between your tongue and behind the teeth.
3. **Alveolar:** Made with the closure between the tongue and the alveolar ridge.
4. **Alveopalatal:** Made with the closure between the tongue and the alveopalatal region.
5. **Palatal:** Made with the closure between the tongue and the (hard) palate.
6. **Velar:** Made with the closure between the tongue and the velum.
7. **Glottal:** Made with a constriction in your glottis.

Nasality

Nasality refers to the state of the velum, either raised or lowered, during the production of the sound.

Question

What state is the velum in during a nasal vs. oral (i.e., non-nasal) sound?

Voicing

You should recall from the reading quiz that voicing refers to the state of the vocal folds during production.

Question

What is the state of the vocal folds during a voiced sound vs. a voiceless sound?

Practice Problems

There are at least 25 consonants in American English (more depending on the specific dialect or level of analysis). Identify and classify the consonants based on their manner of articulation, place of articulation, nasality, and voicing.

Before Next Class

- Please read and complete the pre-class quiz for Thursday

References

Sandler, W. (2017). The Challenge of Sign Language Phonology. *Annual Review of Linguistics*, 3:43–63.

van der Hulst, H. and van der Kooij, E. (2020). Sign language phonology: Theoretical perspectives. In *The Routledge Handbook of Theoretical and Experimental Sign Language Research*. Routledge.