

- **Sociophonetics**
- **Vowels in English varieties**

Background:

- *Handout - [Wells lexical sets](#)*

0. Today's objectives

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

- Give a working definition of the terms **variety**, **language**, **dialect**
- Explain some methodological differences between **laboratory phonetics** and **sociophonetics**
- Explain the purpose behind the Wells lexical sets
- Define **vowel normalization**, know how to find **NORM** online, and compare the **advantages** of various methods

1. Phonetics and language variation

- Different **speech communities** can have different **language varieties**
 - What are some **factors** that define speech communities?

1. Phonetics and language variation

- Some **factors** that define speech communities:
 - Geography (regional varieties)
 - Age / generation (change over time)
 - Social networks
 - Socioeconomic status
 - Ethnicity / migration
 - Gender identity
 - etc. ...
 - etc. ... !

1. Phonetics and language variation

- Different **speech communities** can have different **language varieties**
- Different **varieties** within the **same language** are also known as **dialects** of that language
 - What defines “same language”?
- ***Dialect*** is a technical term — even the “standard variety of a language is a dialect of that language
 - What makes a particular variety/dialect become the “standard” for a language?

1. Phonetics and language variation

- Different **speech communities** can have different **language varieties**
- Different **varieties** within the **same language** are also known as **dialects** of that language
 - What defines “same language”?
→ mutual intelligibility (roughly)
- ***Dialect*** is a technical term — even the “**standard**” variety of a language **is a dialect** of that language
 - What makes a particular variety/dialect become the “standard” for a language?
→ historical, social, political factors

1. Phonetics and language variation

- **Sociolinguistics** studies language variation in its social and cultural context
- **Sociophonetics** = sociolinguistic research focusing on **phonetic** phenomena
 - Examples:
Pronunciation and **speech perception**
within and between language varieties

1. Phonetics and language variation

- **Sociolinguistics** typically emphasizes **naturalistic** speech data
 - Spontaneous speech in natural contexts
 - *Not* carefully controlled experimental design in a soundproof recording booth—!
- In **sociophonetics** research, compromises are sometimes made
 - Spontaneous speech in natural contexts isn't always easy to measure acoustically

1. Phonetics and language variation

- There is a major center of research in sociolinguistics and sociophonetics at NCSU
 - Their [program](#)

2. Vowels in English varieties

- Varieties of English tend to differ more in their vowels than in their consonants
 - Have you noticed any differences in vowel pronunciations between varieties of English?
- Most varieties of English have *approximately* the same number of **vowel categories (phonemes)**
 - However, the **phonetic realizations** (surface forms, allophones) of those phonemes can be very different

2. Vowels in English varieties

- How can the number of vowel categories differ across varieties?
 - Processes of **historical language change**
 - Two categories can collapse together (**merger**)
 - One category can divide into two when other changes cause or allow this (**split**)
 - Merger example: Do you pronounce *horse* and *hoarse* the same? (You probably do.) This isn't/wasn't always the case in English.
 - Can you think of other examples where one variety distinguishes between vowel categories but another does not?

2. Vowels in English varieties

- Problem: How can we talk about or compare vowel phonemes in different varieties of English?
- General American English and New Zealand English both have a vowel that sounds like [ɪ]
 - GAE uses it for words like *pit*
 - NZE uses it for words like *pet*
(Hear NZE vowel examples at:
[\[http://www.ualberta.ca/~johnnewm/NZEnglish/sounds.html\]](http://www.ualberta.ca/~johnnewm/NZEnglish/sounds.html))
- Could we use a label like “the vowel in *pet*”?
 - But we’d still have to write it down to talk to a NZE speaker...

2. Vowels in English varieties

- British phonetician John Wells (Wells 1982) came up with a useful idea: the **Wells lexical sets**
 - List of words representing all **potentially distinct** vowel categories (although some have been merged in some varieties, as in *horse/hoarse*)
 - The words are unambiguous to (ideally) all English speakers, even those who use very different phonetic realizations for their vowels
 - Using *pit* and *pet* would be a bad idea
 - What Wells actually used: KIT, DRESS

2. Vowels in English varieties

- Some details and conventions:
 - What Wells actually identified for each vowel category “word” is really a *set* of words (a **lexical set**) that have the same vowel
 - Each set is represented by one unambiguous member such as KIT
See more members of each set at:
[\[https://www.yorku.ca/earmstro/courses/phonetics/lexical_sets.pdf\]](https://www.yorku.ca/earmstro/courses/phonetics/lexical_sets.pdf)
(resource by Eric Armstrong, York U.)
 - People usually write lexical-set labels in all-caps or small-caps: KIT, DRESS, TRAP

2. Vowels in English varieties

- Investigate your own variety
 - [Handout](#) with the (stressed vowel) lexical sets and the V&C example words for each
 - GAE pronunciations are represented on the V&C web site by the recording found at [\[http://phonetics.ucla.edu/vowels/chapter3/amengvowels.html\]](http://phonetics.ucla.edu/vowels/chapter3/amengvowels.html)
 - Are there any vowel categories that are very different for you than in the V&C examples?
 - Example: Do you ever have diphthongs where GAE has monophthongs, or vice versa?

2. Vowels in English varieties

- Wells was working with particular varieties of English when he proposed his sets
- Here are some issues that come up for varieties we are likely to encounter in the US south:
 - In GAE, *bide* is in the PRICE set (as seen on Wells-sets handout). Comments?
 - Can we use the Wells words in the chart to diagnose speakers with *pin/pen* neutralization?
 - If not, how could we modify the word list to check for this?

3. Vowel normalization

- If you record two speakers each producing a dozen words containing the DRESS vowel and measure F1 and F2, you will likely find differences
- What are some reasons for those differences?

3. Vowel normalization

- If you record two speakers each producing a dozen words containing the DRESS vowel and measure F1 and F2, you will likely find differences
- **Words** are different
 - Random variability
 - Phonetic context: Surrounding segments?
Stress?
- **Speakers** are different
 - Different language variety
 - Different vocal-tract length

3. Vowel normalization

- So — if you want to compare the phonetics of the DRESS vowel in two language varieties, how can you focus on the differences **between the varieties**?

How can we mitigate the effects of ... ?

- Random variability
- Phonetic context
- Vocal-tract length

3. Vowel normalization

- So — if you want to compare the phonetics of the DRESS vowel in two language varieties, how can you focus on the differences **between the varieties**?

How can we mitigate the effects of ... ?

- Random variability | Get multiple repetitions
- Phonetic context | Control for or balance this
- Vocal-tract length
 - Rough method: Control for gender
 - More sophisticated: **Vowel normalization**

3. Vowel normalization

- From Thomas (2010: 161)

“Vowel normalization techniques have been developed as a means of making the differing formant values of various speakers comparable.”

- Conceptually similar to the idea of converting raw scores into z-scores:

Change the units/scale to make the basis for comparison match better

3. Vowel normalization

- From Thomas (2010: 161) | Four goals of v.n.

“What you need to know is which of these goals are relevant for your own study. Then you can choose a technique accordingly.”

- a. eliminating variation caused by physiological differences among speakers (vocal tract length)
 - b. preserving cross-variety differences in vowel quality
 - c. preserving phonological distinctions among categories
 - d. modeling the normalization of human perception
- A tool for normalization: [NORM](#)
 - [Normalization methods](#) > Advantages/disadvantages

References

- Thomas, Eric R. 2010. *Sociophonetics: An Introduction*.
New York: Palgrave Macmillan.
- Wells, John C. 1982. *Accents of English I: An Introduction*.
Cambridge: Cambridge University Press.