LING 001
Introduction to Linguistics

Lecture 8

Vowels

2/17/2020

Announcements

- Exams have been graded
- You will get your exams back during **recitation**
  - But you **may not** take the exam home with you
  - You can, however, take a picture of your exam
  - If you plan to come to the recitation that you are NOT enrolled in, **PLEASE tell both TAs** about it so we can take your exam with us.
    - Please remind us even if you told us in the beginning of the semester
- The second exam will be on **March 2** (as on the course website)

How to do well this week

- Do the readings
- Practice problems
  - Get familiar with the IPA chart!

Last class...

Consonants: produced by creating an obstruction of airflow

Clarification: there are two kinds of stops:

Stops: *is there a complete closure in the oral cavity?*

(1) oral stops (a.k.a. plosives)

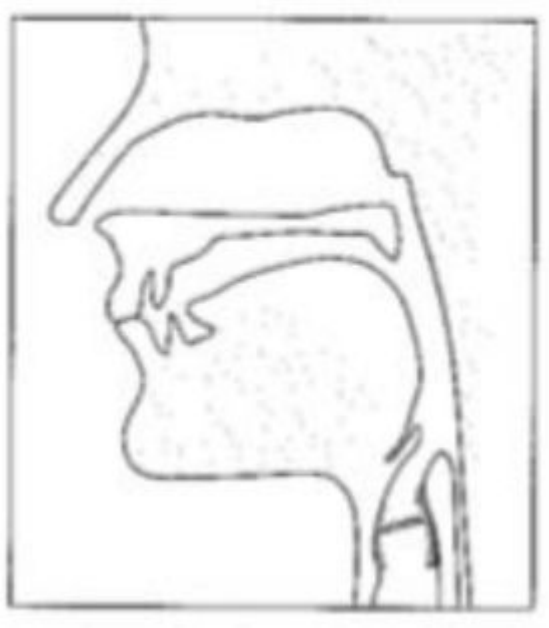
(2) nasal stops (a.k.a. nasals)

Vowels: have at most slight narrowing and allow air to flow freely through the oral cavity

Two kinds of stops

Oral stops (plosives)

Nasal stops (nasals)



Vowels

- Speech segment produced with relatively open vocal tract (little to no constriction)

- Vocal folds vibrate

Segmental features of vowels

1. **Height**: high/close, mid, or low/open?
2. **Backness**: front, central, or back?
3. **Lips**: rounded or unrounded?
4. **Tenseness**: tense or lax?

Segmental features of vowels

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THE INTERNATIONAL PHONETIC ALPHABET (revised to 2018)

CONSONANTS (PULMONIC)

© 2018 IPA

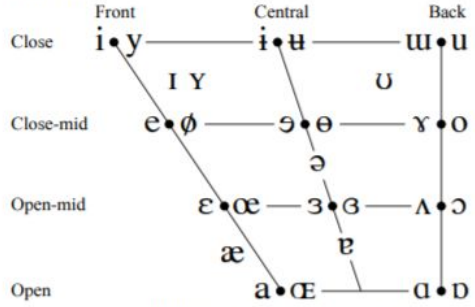
	Bilabial	Labiodental	Dental	Alveolar	Postalveolar	Retroflex	Palatal	Velar	Uvular	Pharyngeal	Glottal
Plosive	p b			t d		ʈ ɖ	c ɟ	k ɡ	q ɢ		ʔ
Nasal	m	ɱ		n		ɳ	ɲ	ŋ	ɴ		
Trill	ʙ			r					ʀ		
Tap or Flap		ⱱ		ɾ		ɽ					
Fricative	ɸ β	f v	θ ð	s z	ʃ ʒ	ʂ ʐ	ç ʝ	x ɣ	χ ʁ	ħ ʕ	h ɦ
Lateral fricative				ɬ ɮ							
Approximant		ʋ		ɹ		ɻ	j	ɰ			
Lateral approximant				l		ɭ	ʎ	ʟ			

Symbols to the right in a cell are voiced, to the left are voiceless. Shaded areas denote articulations judged impossible.

CONSONANTS (NON-PULMONIC)

Clicks	Voiced implosives	Ejectives
ʘ Bilabial	ɓ Bilabial	ʼ Examples:
ǀ Dental	ɗ Dental/alveolar	pʼ Bilabial
ǃ (Post)alveolar	ʄ Palatal	tʼ Dental/alveolar
ǂ Palatoalveolar	ɠ Velar	kʼ Velar
ǁ Alveolar lateral	ʛ Uvular	sʼ Alveolar fricative

VOWELS



Where symbols appear in pairs, the one to the right represents a rounded vowel.

OTHER SYMBOLS

- ʍ Voiceless labial-velar fricative
- w Voiced labial-velar approximant
- ɥ Voiced labial-palatal approximant
- ʜ Voiceless epiglottal fricative
- ʢ Voiced epiglottal fricative
- ʡ Epiglottal plosive
- ɕ ʑ Alveolo-palatal fricatives
- ɺ Voiced alveolar lateral flap
- ɧ Simultaneous ʃ and x

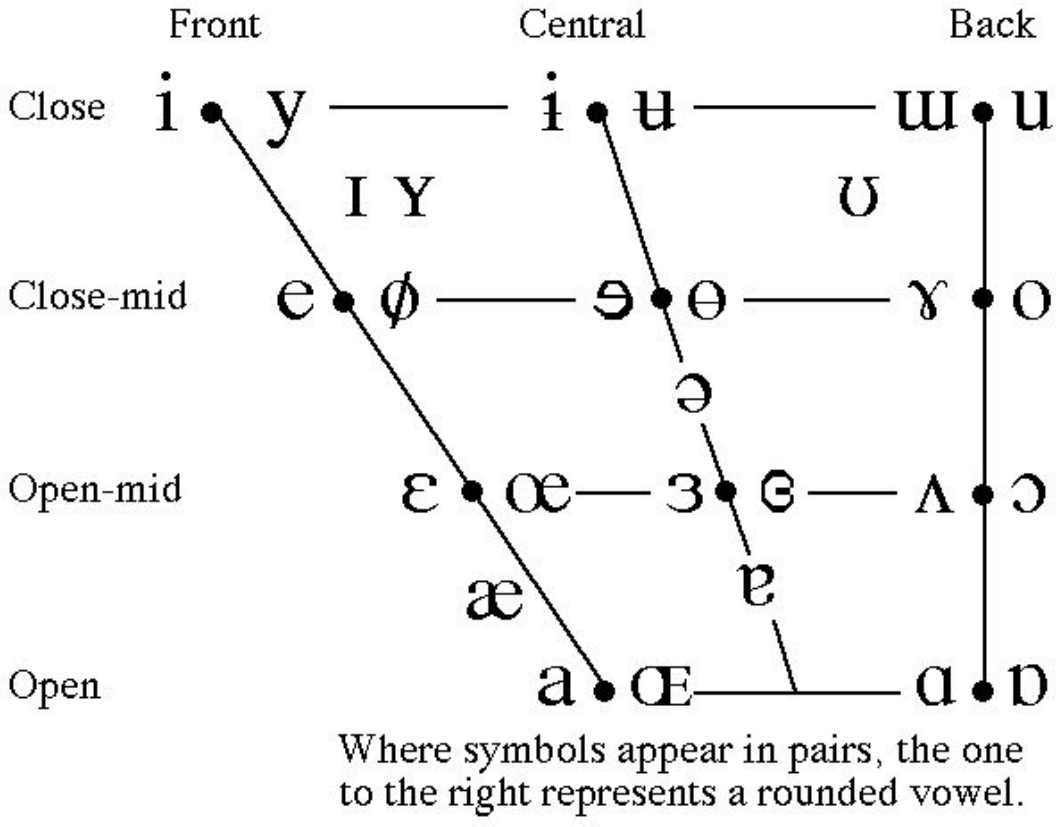
Affricates and double articulations can be represented by two symbols joined by a tie bar if necessary.

t͜s k͡p

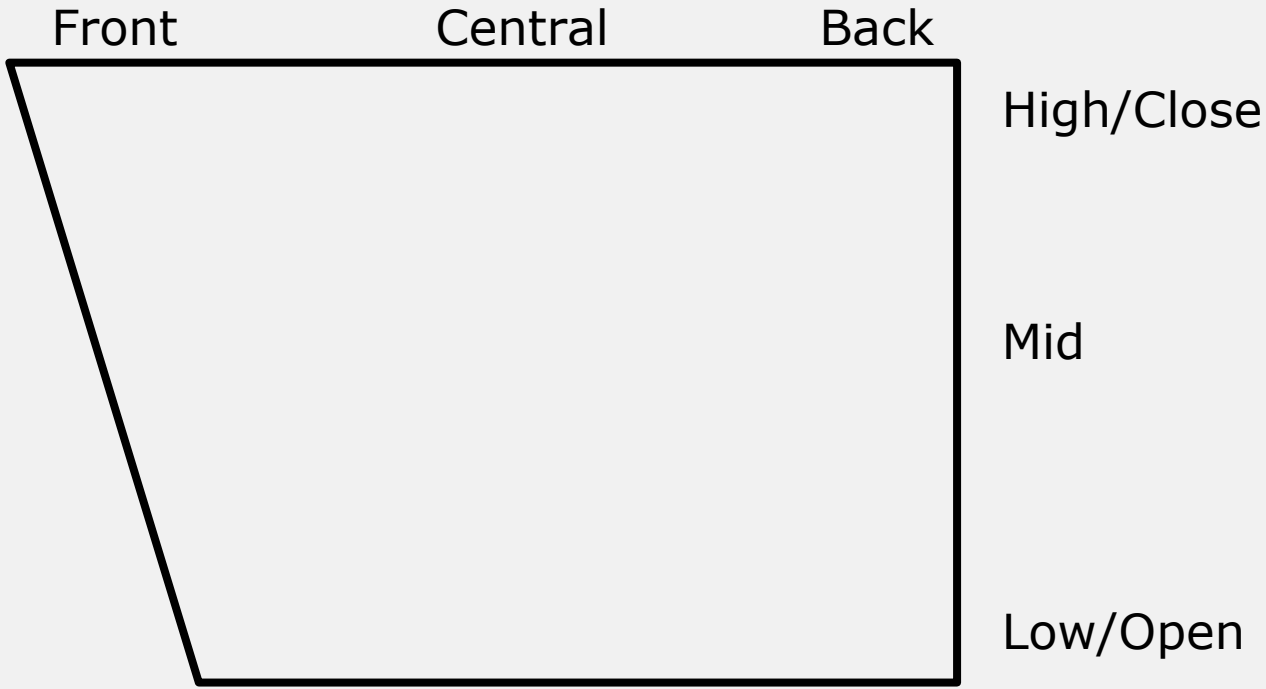
SUPRASEGMENTALS

- ˈ Primary stress ˌfoʊnəˈtɪʃən
- ˌ Secondary stress
- ː Long eː
- ˑ Half-long eˑ

The IPA vowel chart



The vowel quadrilateral



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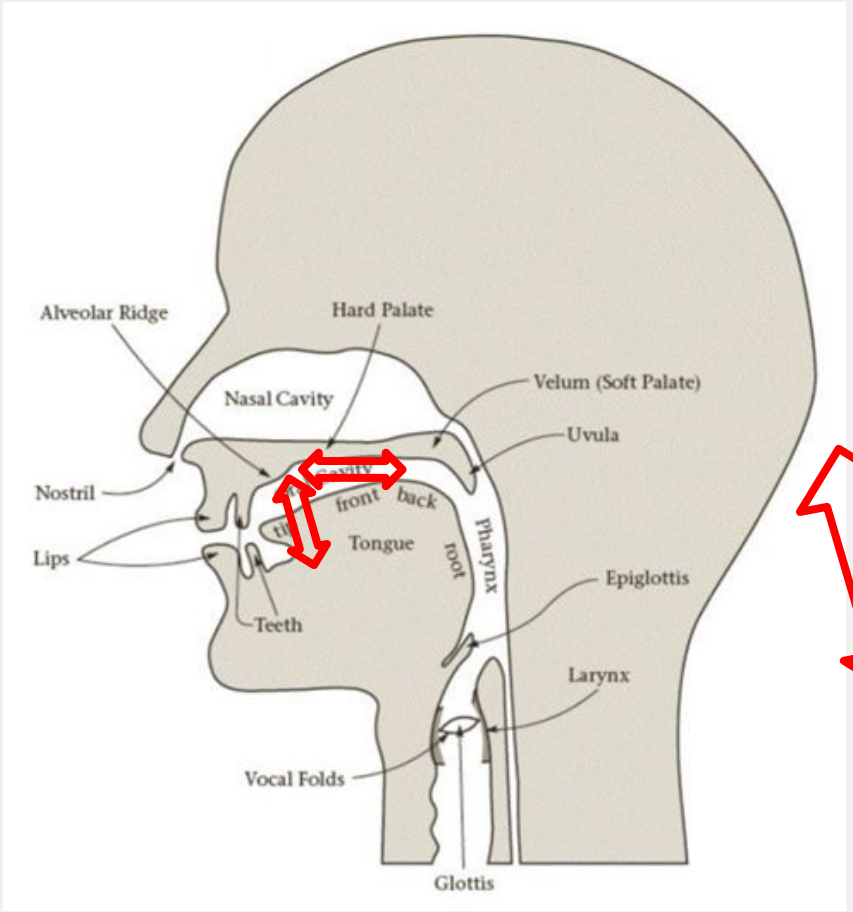

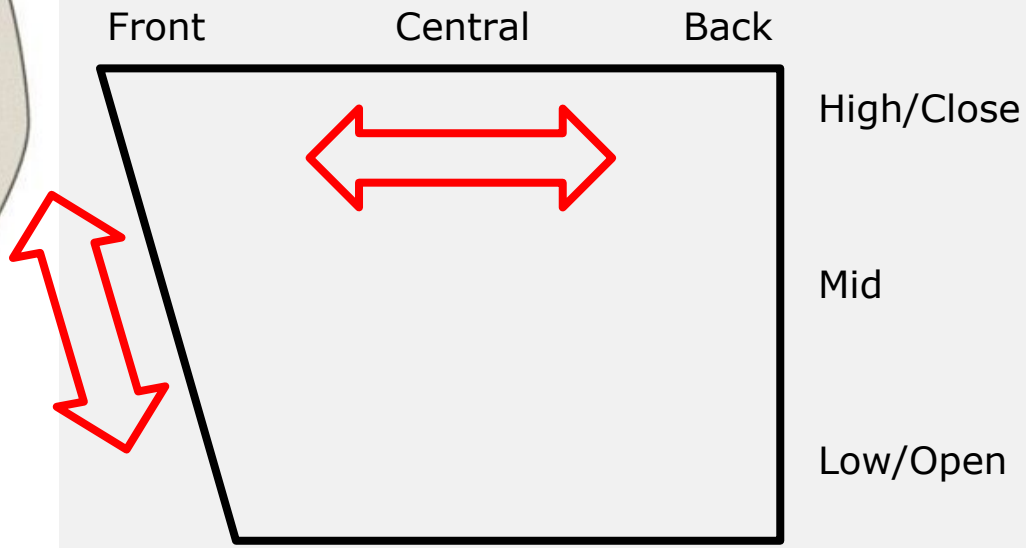

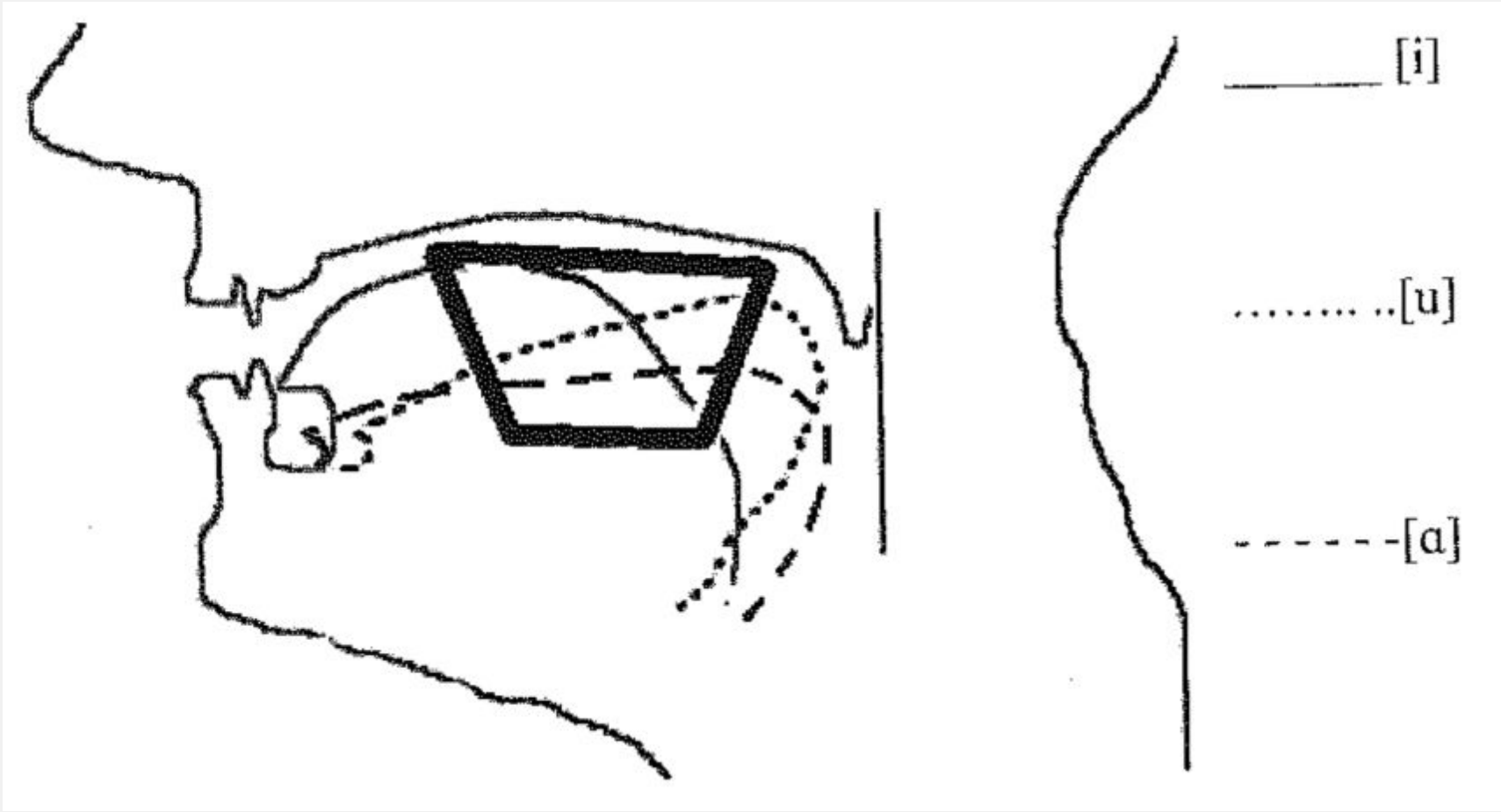

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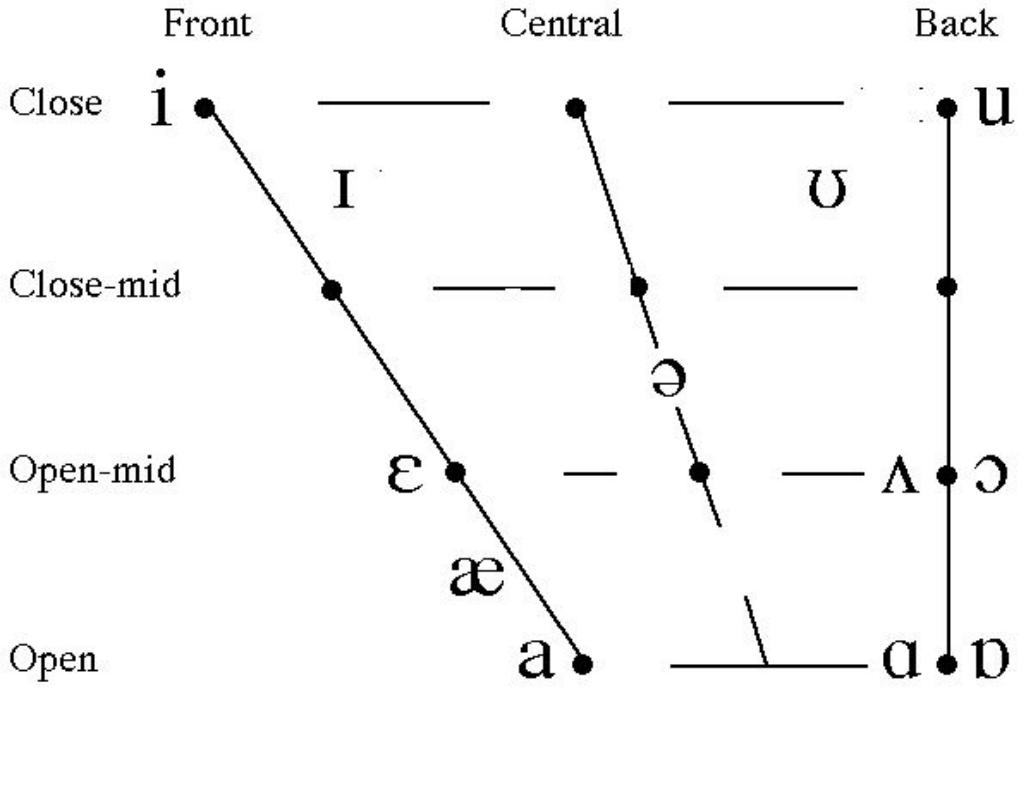
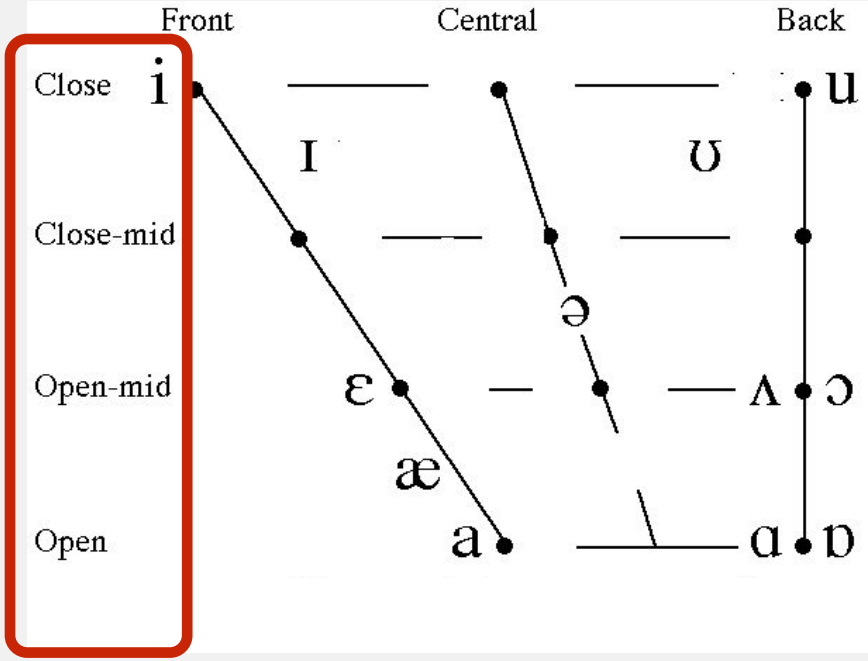
English monophthongs



Height

Height: Where is the body of the tongue vertically?

- **High/close**: body of tongue is moved up
- **Mid**: resting position for tongue
  - Broken into **close-mid** and **open-mid** where necessary
- **Low**: body of tongue is moved down

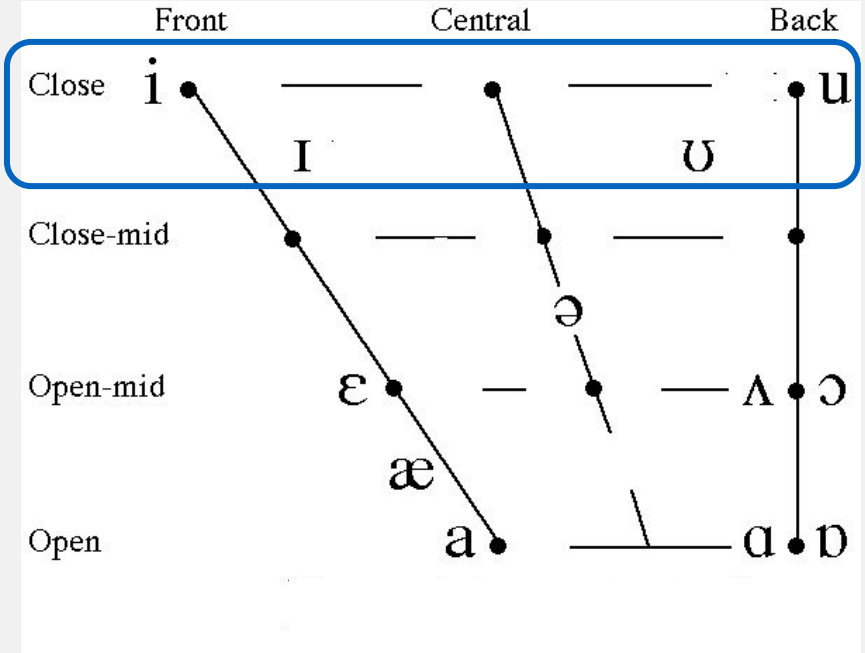


Try saying {*seat, set, sat*}. Feel the mouth/tongue opening?

Height: High

High: body of tongue is moved up

- [i] b**ee**t [ɪ] b**i**t
- [u] b**oo**t [ʊ] b**oo**k

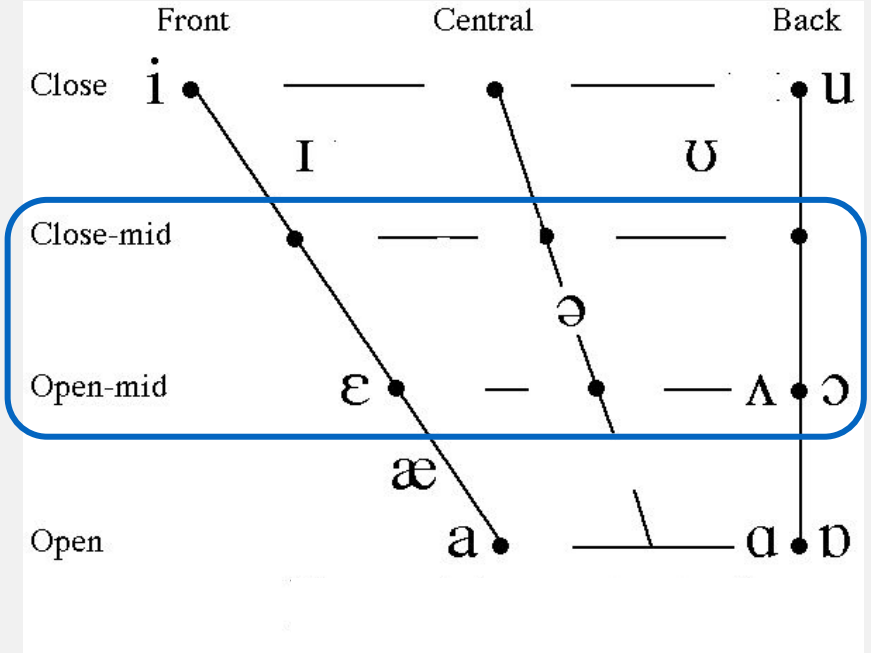


See that the English spelling does not correspond to a single sound!

Height: Mid

Mid: the body of tongue is around its resting position in terms of height

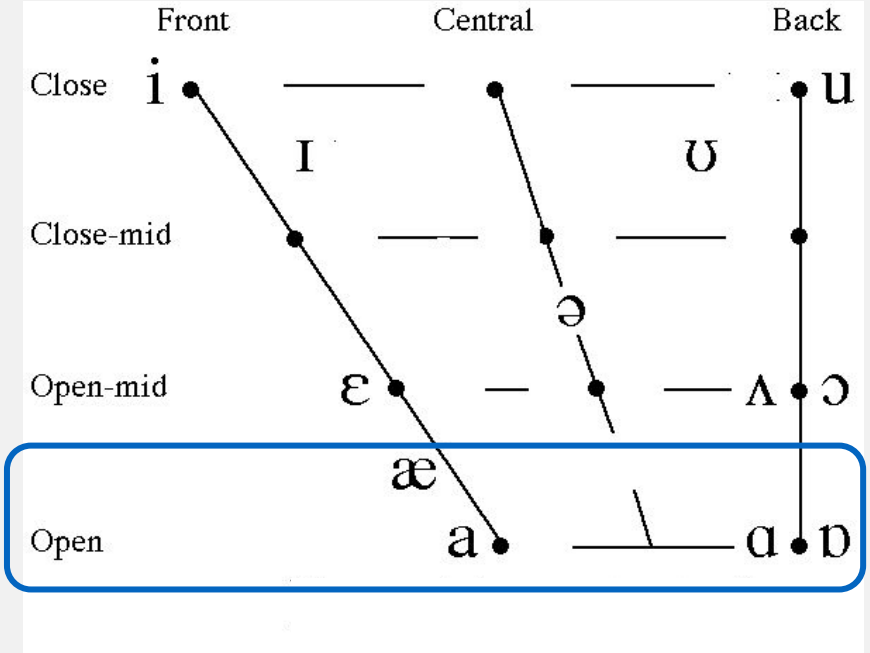
- [ɛ] b**e**t
- [ə] th**e, a**bout
- [ʌ] b**u**t
- [ɔ] b**ou**ght



Height: Low

Low: body of tongue is moved down

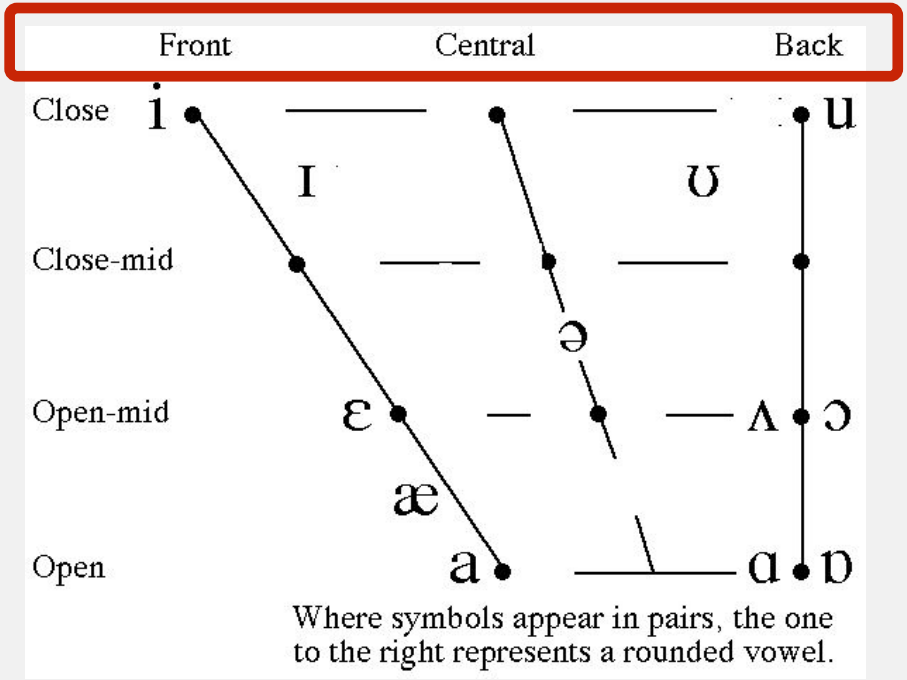
- [æ] b**a**t
- [ɑ] b**o**t
  ([ɒ] in British English)



Backness/Tongue advancement

Backness: Where is the body of the tongue horizontally?

- **Front**: body of the tongue is moved forward
- **Central**: resting position for body of tongue
- **Back**: body of the tongue is moved back

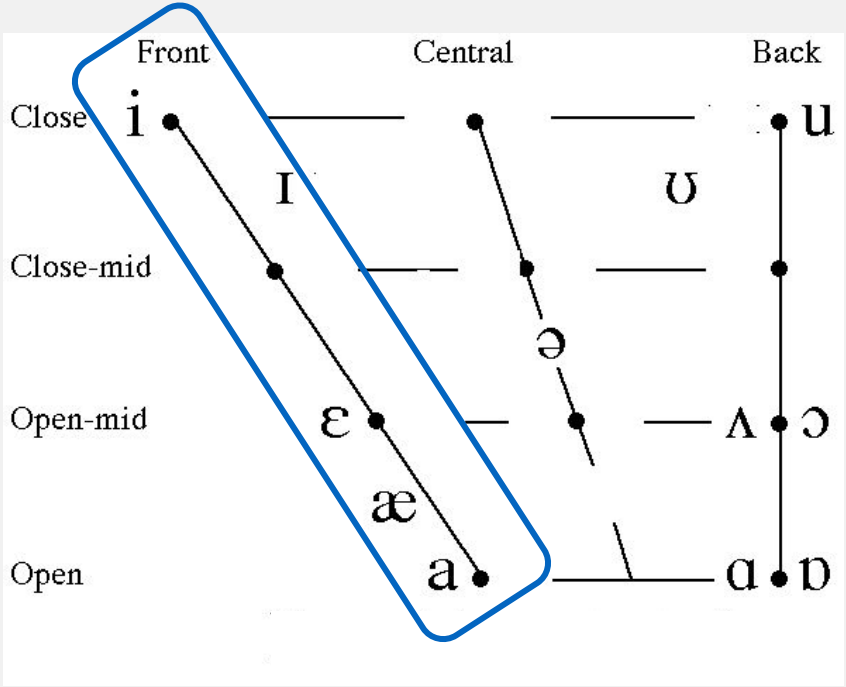


Try saying {*leak, lick, look, Luke*}. Feel the tongue moving back?

Front vowels

Front: body of the tongue is moved forward

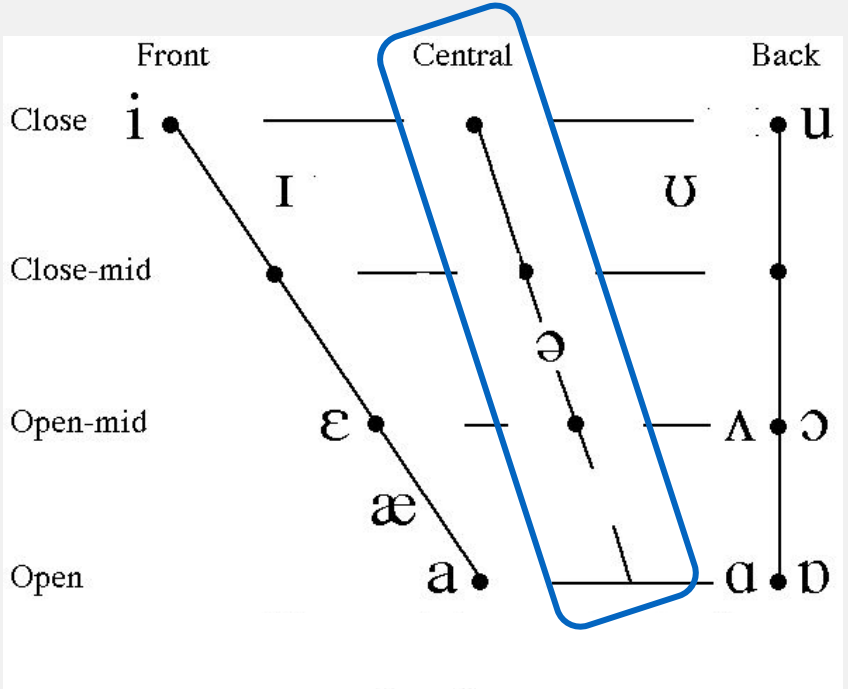
- [i] b**ee**t
- [ɪ] b**i**t
- [ɛ] b**e**t
- [æ], [a] b**a**t



Central vowels

Central: the body of tongue is around its resting position in terms of backness

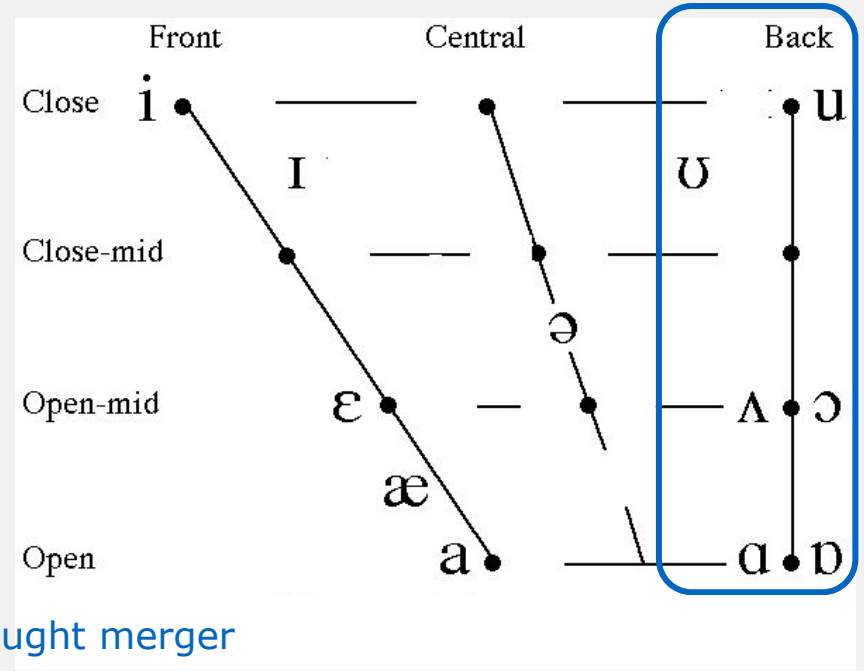
- Schwa: [ə] th**e**, **a**bout



Back vowels

Back: body of the tongue is moved back

- [u] b**oo**t
- [ʊ] b**oo**k
- [ɔ] b**ou**ght, c**au**ght
- [ɑ] sp**a**
- [ɑ], [ɒ] b**o**t

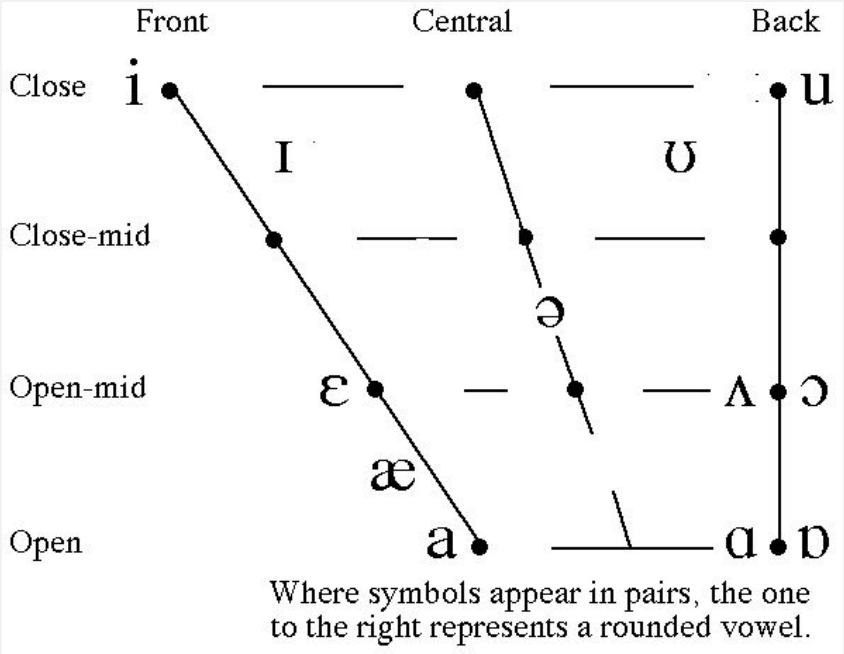


if you don't have the cot-caught merger

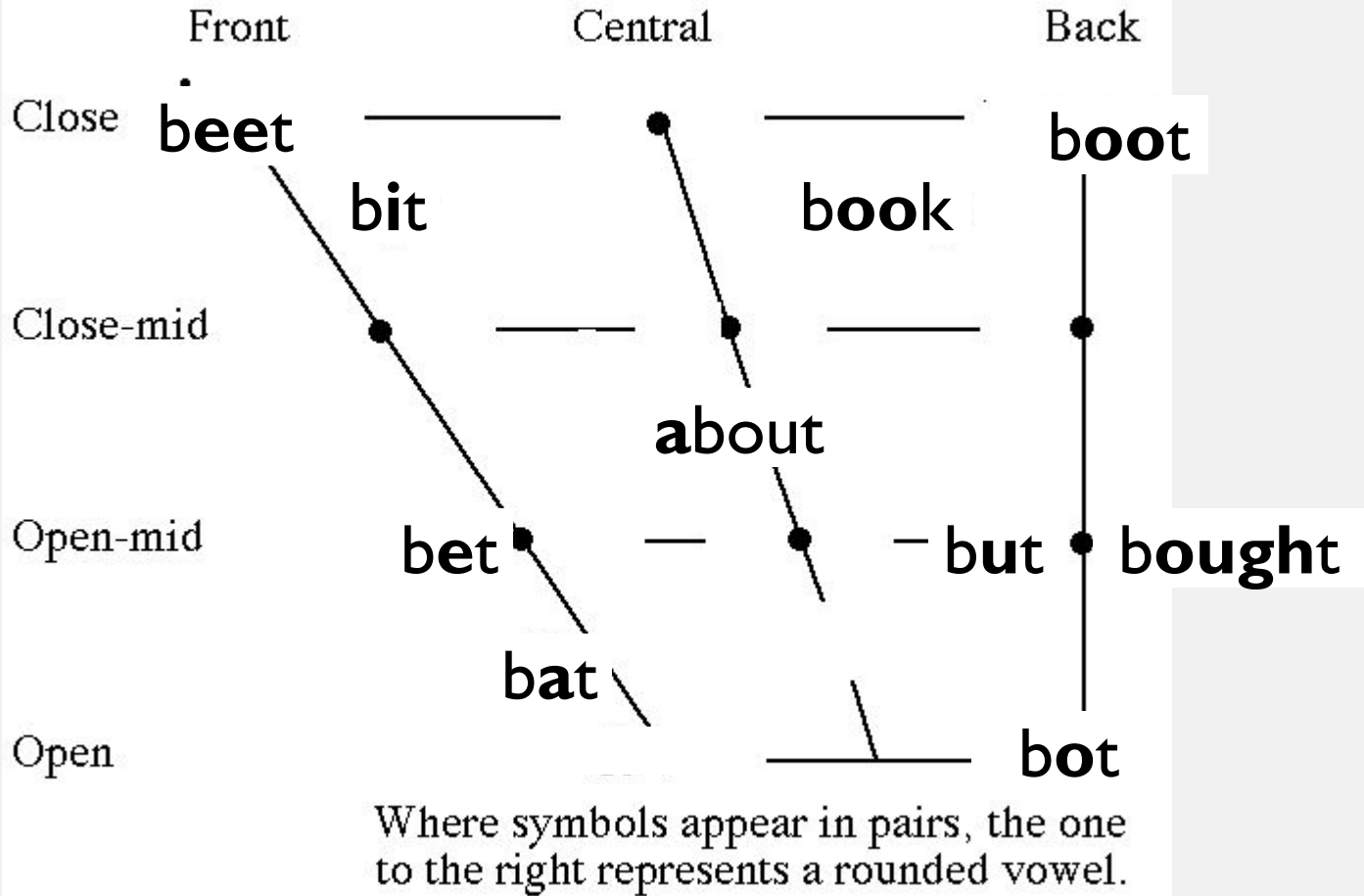
Lips

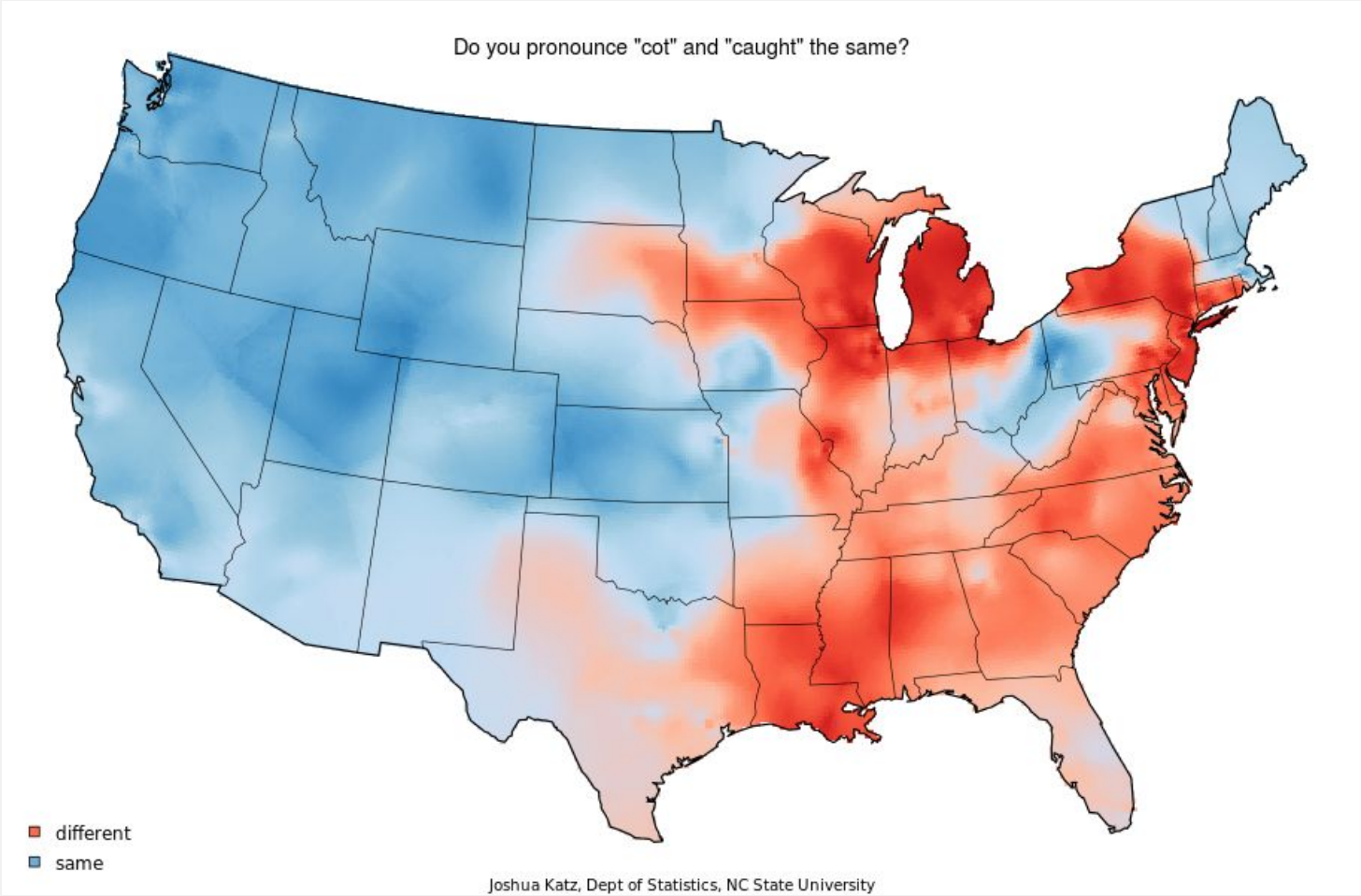
- **Rounded**: lips are rounded
- **Unrounded**: lips are unrounded
  - Only back vowels are rounded in English (only back high and mid vowels in US English)
    - [u] b**oo**t [ʊ] b**oo**k
    - [ɔ] b**ou**ght (if you distinguish cot and caught...)
    - [ɒ] British English b**o**t (most US speakers: [bɑt])

English monophthongs



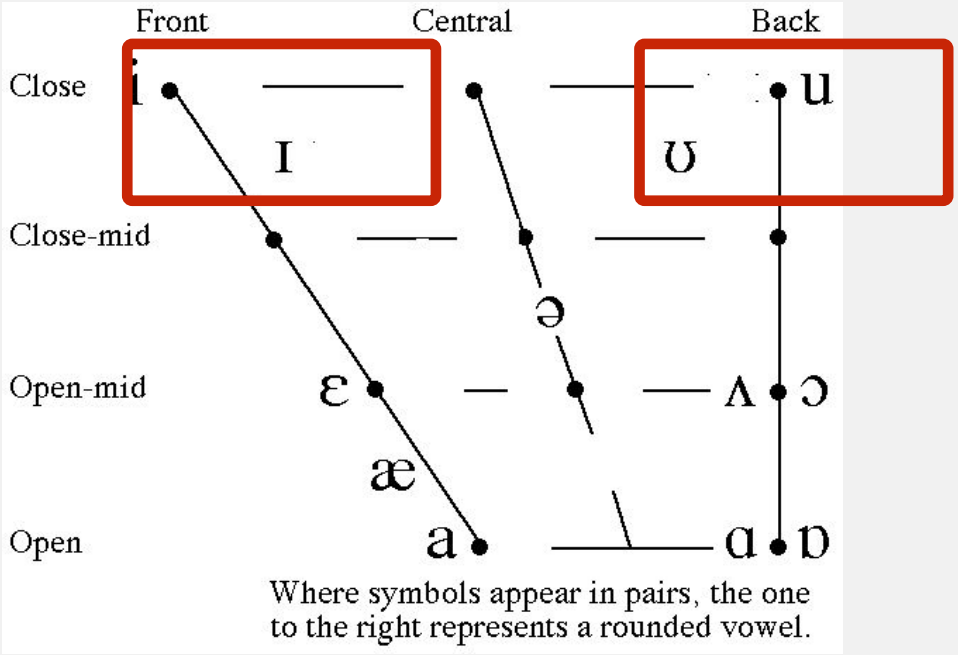
English monophthongs




Do you pronounce "cot" and "caught" the same?
different
same
Joshua Katz, Dept of Statistics, NC State University

English monophthongs

Two high front unrounded vowels!



Two high back rounded vowels!

A fourth feature: Tenseness

- **Tenseness**: Is the tongue tensed or not?
  - Tense:
    a more “extreme” gesture (i.e., closer to the edge of the vowel space)
  - Lax:
    a less extreme gesture (i.e., a little in from the edge of the vowel space)

Tongue tenseness: Tense

- **Tense** (more “extreme” tongue position):
  - [i] b**ee**t [u] b**oo**t
  - [ɔ] l**aw**
  - [ɑ] sp**a**

Tongue tenseness: Lax

- **Lax** (less “extreme” tongue position):
  - [ɪ] b**i**t
  - [ɛ] b**e**t
  - [ə] th**e**
  - [æ], [a] b**a**t
  - [ʊ] b**oo**k
  - [ʌ] b**u**t

Tenseness

- For most English dialects, only tense vowels can appear as the last sound of a word
- The phonetic basis of tenseness is a little less clear than that of other features – maybe tongue root position
- Only matters for some languages
- What counts as tense varies a bit between languages (and dialects)
- NB: The textbook describes [ɔ] and [ɑ] as lax!

Describing vowels with features

- All English vowels can be described with these four features:
  - high front unrounded tense [i]
  - mid central unrounded lax [ə]
  - low front unrounded lax [æ]

Diphthongs

- Some vowels start in one place and then move to another
  - [aɪ] b**u**y
  - [eɪ] b**ai**t
  - [oʊ] b**oa**t
  - [aʊ] c**ow**
  - [ɔɪ] b**oy**

Other variables

Some features are not contrastive in English, except for signaling **speaker identity**:

- Nasalization
- Falsetto
- Breathiness
- Creakiness
- Whisper
- Faucalized (yawning) voice
- Raised larynx
- Descended larynx
- Palatalization
- Velarization

Lexical sets

(50) The standard lexical sets

	RP	GenAm	keyword		RP	GenAm	keyword
1.	ɪ	ɪ	KIT	13.	ɔː	ɔ	THOUGHT
2.	e	ɛ	DRESS	14.	əʊ	o	GOAT
3.	æ	æ	TRAP	15.	uː	u	GOOSE
4.	ɒ	ɑ	LOT	16.	aɪ	aɪ	PRICE
5.	ʌ	ʌ	STRUT	17.	ɔɪ	ɔɪ	CHOICE
6.	ʊ	ʊ	FOOT	18.	aʊ	aʊ	MOUTH
7.	ɑː	æ	BATH	19.	ɪə[1]	ɪr	NEAR
8.	ɒ	ɔ	CLOTH	20.	ɛə[1]	ɛr	SQUARE
9.	ɜː[1]	ɜr	NURSE	21.	ɑː[1]	ɑr	START
10.	iː	i	FLEECE	22.	ɔː[1]	ɔr	NORTH
11.	eɪ	eɪ	FACE	23.	ɔː[1]	or	FORCE
12.	ɑː	ɑ	PALM	24.	ʊə[1]	ʊr	CURE

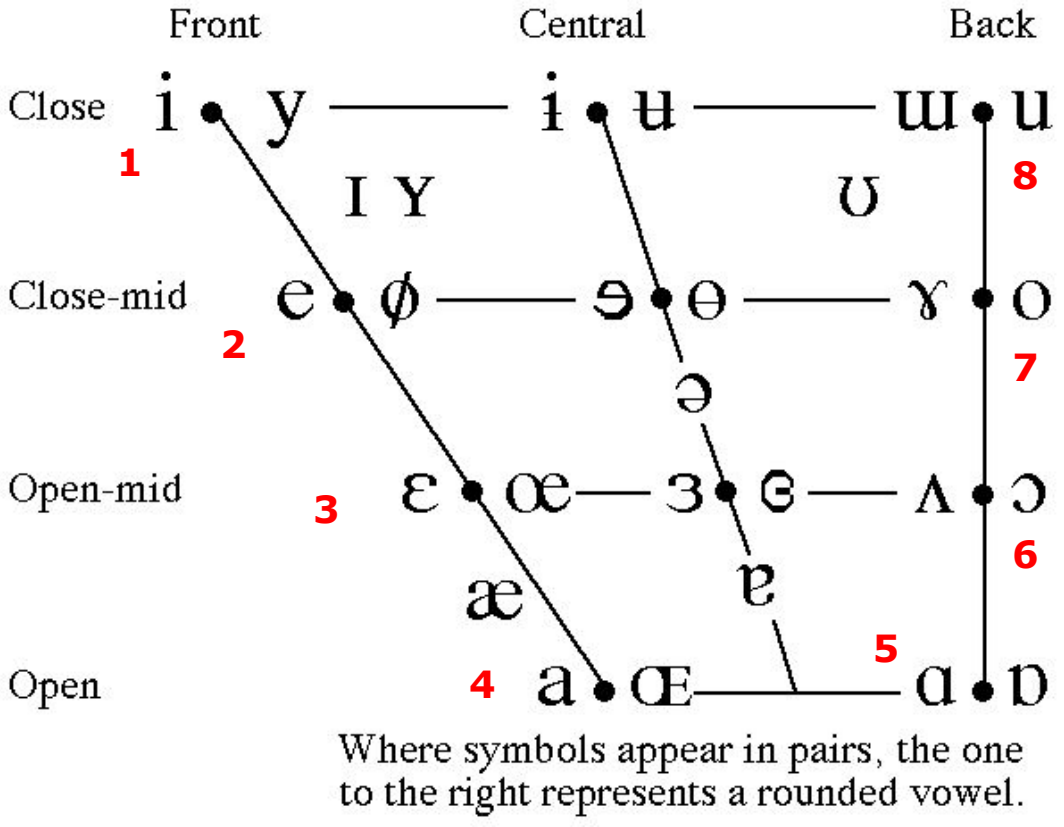
[1] with /r/ following before a vowel only.

Lexical sets

Why use lexical sets?

- To talk about **historical** / **cross-dialect** vowel categories within English, like “the vowel in the word THOUGHT”

- **Not** the same as IPA categories, which are for representing **sounds**

e.g. “in New York, the THOUGHT vowel is [ɔ], but in California, the THOUGHT vowel is [ɑ]”

Cardinal vowels