

Acoustic Phonetics

Lesson 2

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2018

English and Italian vowels

1. What gives rise to 'foreign accent'
 - Is pronunciation important?
 - The problems of learning an L2 pronunciation
2. English and Italian vowels compared

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Is pronunciation in a foreign
language important?

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Yes!

for several reasons...

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Stereotypes and negative associations

- We use and register information about words and word-forms, phrases and grammatical forms **consciously**
- We are not aware of our accent
- We register accent **sub-consciously** as a part of the speaker 's personality
 - Stereotypes, prejudice, etc.

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Unintelligibility and miscommunication

- Generally foreign accent does not prevent communication completely
 - Cooperation principle in interactions
- When accent is too bad, listeners may get annoyed and/or stop listening

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Creation of established 'variants'

- Most learners from the same geographical area make more or less the same mistakes.
- Incorrect pronunciations get established and people take them as the correct form:

Ex.

Engl. Know-how --→ [no'au]

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Why do we have an accent?

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On linguistic sound systems

- All human beings produce sounds using the same phonatory organs (which are also used for breathing and partly for eating)
- Languages differ in the number and type of sounds that are **used linguistically** in that language (i.e., that are used to distinguish words)
- Sounds that are used linguistically are called **phonemes**

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On linguistic sound systems (2)

- Sounds may be produced differently in different languages
- Different languages may also allow for different phonotactics (sound combinations)

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Questions

- Do Italian and English have the same number of vowels?
- Is there a difference between Italian /p, t, k/ and English /p, t, k/ ?
- Is [kn] a good sequence in English?
- Is [bd] a good sequence in Italian?

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Italian and English compared

- English and Italian have different **sizes of phonemes inventory**
- Many English and Italian **phonemes are produced differently**
- English and Italian allow for **different phonotactics**
- English and Italian have **different rhythmic and intonation systems**

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Standard British English v. Standard Italian

	English	Italian
Vowels	12	7 (5)
Consonants	24	19

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How does this affect the
learner of English?

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Learning to produce L2 sounds

- Producing new sounds may require learning to move the articulatory organs differently → **NOT EASY!**
 - Automatic articulatory patterns allow us to speak and concentrate on **what** we are saying.
 - Difficult to **change** automatic articulatory patterns
 - Tendency to slip back into the closest **native** patterns.

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Speech motor control

- A speech sound requires fine (sub conscious) control of **up to 50 muscles**
- Sounds are not produced in isolation but as a chain → **complex articulatory combinatory patterns**
- Speech motor patterns are established **between 6 months and 6 years of age**
 - Are automatic and feel natural

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Learning new articulatory patterns

Involves building **a new auditory-motor relationship** past the age of speech acquisition (automatization)

First phases:

- Articulators have to be **consciously** controlled
- Require **becoming accustomed** to the new movements (in relation to the new sound).
 - New movements and sounds feel strange

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A Credited Theory of Language Acquisition

- Human beings lose their ability to learn sounds 'naturally' as they grow up and acquire their first language(s)
- After the first language(s) has/have been learned:
 - It becomes progressively harder to learn a language naturally (i.e., without formal instruction)
 - The first language(s) is/are going to affect any subsequent language acquisition
 - Transfer
 - Interference

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Equivalence classification

- A **basic cognitive mechanism** which permits humans to perceive constant categories in the face of the inherent sensory **variability found in the many physical exemplars** which may instantiate a category.
 - ex.: Color, shape, heat, taste

<http://cogprints.org/3027/1/catconf.html>

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Equivalence classification and L2

- Equivalence classification prevents the distinction of similar sounds (for ex., English /i/ and /I/)
- Sounds which are not distinguished perceptually are produced alike (i.e., English /i/ and /I/ are both produced /i/ by Italian speakers)

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Teaching and learning a foreign
language sound system
(pronunciation) should include both
production and perception

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Further problems for the
learner of English...

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English is not a truly alphabetic language

In English orthography, the alphabetic principle (= one letter one sound) applies unsystematically

- The same sound may have several different spellings, e.g.:
 - [i]: *keep, meat, be, police, receive*;
 - [t]: *chin, match, nature*
- The same spelling may indicate several different sounds, e.g.:
 - <ea>: *please [i], bread [ɛ], learn [ɜ:], heart [ɑ:], ear [ɪə], steak [eɪ], pear [eə]*.

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Reasons for inconsistent spelling

- English adopted the Latin alphabet
 - not enough letters for all English sounds
- English introduced inconsistent and arbitrary spellings at various stages in its history
 - In the 15th century coexistence of French, Latin and English created confusion in orthography
 - In the 16th century foreign (Dutch) printers introduced printing and petrified inconsistencies
 - Intensive borrowings from other languages throughout its history (different spelling conventions of borrowed words)

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Irregular orthography contributes to pronunciation problems

- Learners of English:
 - cannot rely on spelling
 - have to *memorize* the sound of many words
 - if the word has not been encountered before, its pronunciation is unknown/uncertain

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Need for spelling reform

- Discussions about reforming English spelling have been going on for a long time but no agreement has ever been reached
 - How do you correct spelling in a worldwide language?
 - How do you correct spelling and maintain written intelligibility worldwide?

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An Introduction to the production of English vowels

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Is it important to learn to produce vowels accurately?

- Many English words are distinguished only by the vowel sound → the inability differentiate vowels may lead to misinterpretations:

Ex.:

leak, lick, lack, luck, lock, Luke
keep, cap, cup, cop, cope, coup
meek, mik, make, mac, mock

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Pronunciation and successful communication

→ For a successful communication, English learners should be able to reproduce distinctions that are functional* in the language.

- * FUNCTIONAL = serves to distinguish two or more words:

ex. **beg vs. bag**

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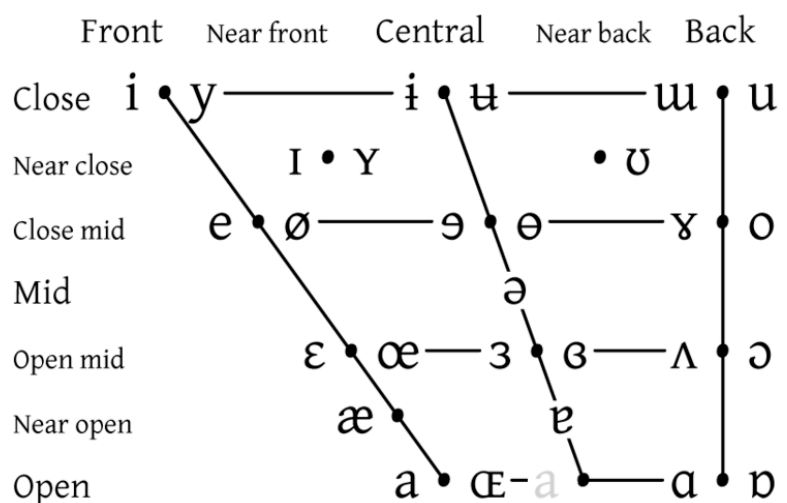
The vowel quadrilateral:

an established convention of representing
Vowels

- stylization of the shape of the vocal tract
- first proposed by the famous British phonetician Daniel Jones at the beginning of 1900
- adopted by the IPA

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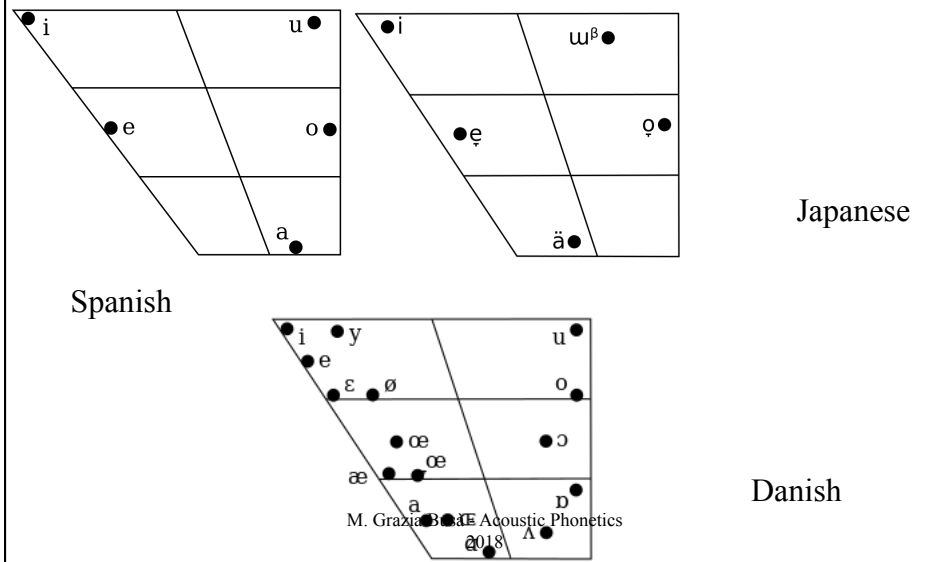
VOWELS



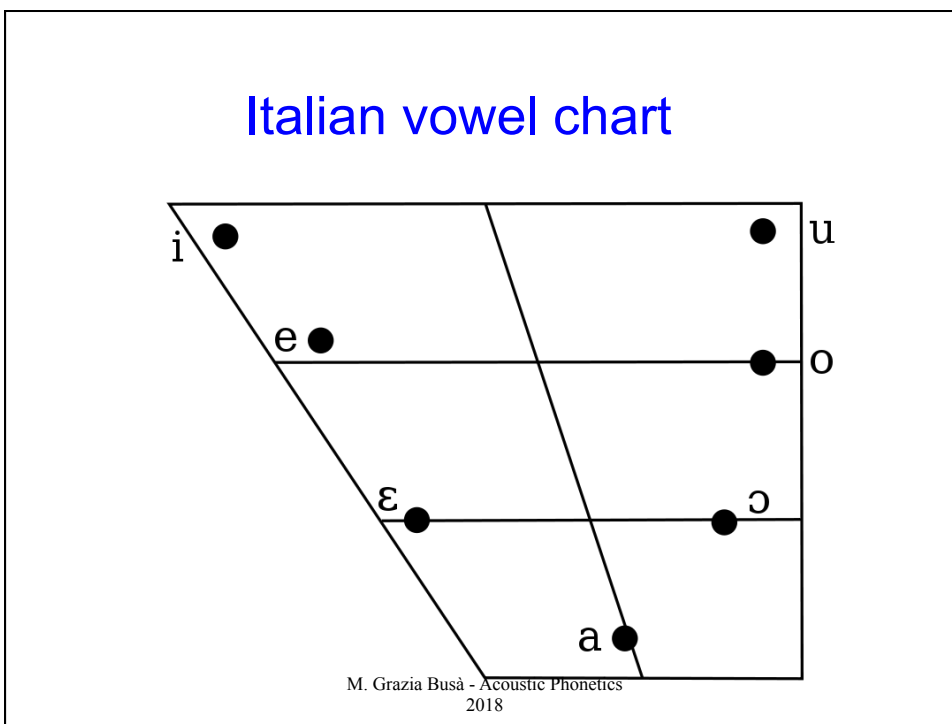
Vowels at right & left of bullets are rounded & unrounded.

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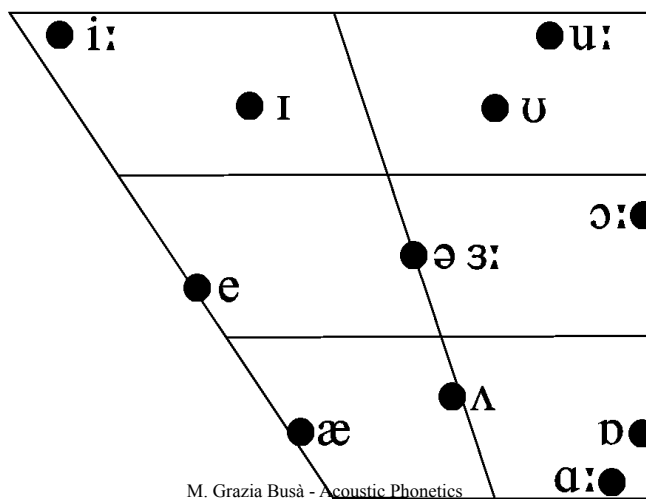
Comparing different languages



Italian vowel chart

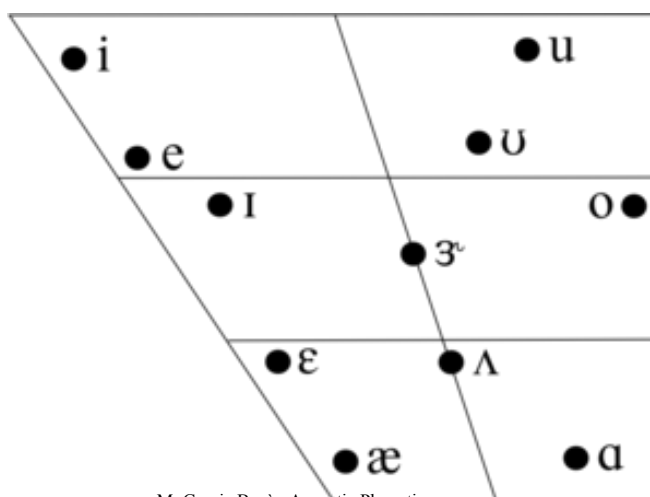


British English vowel chart



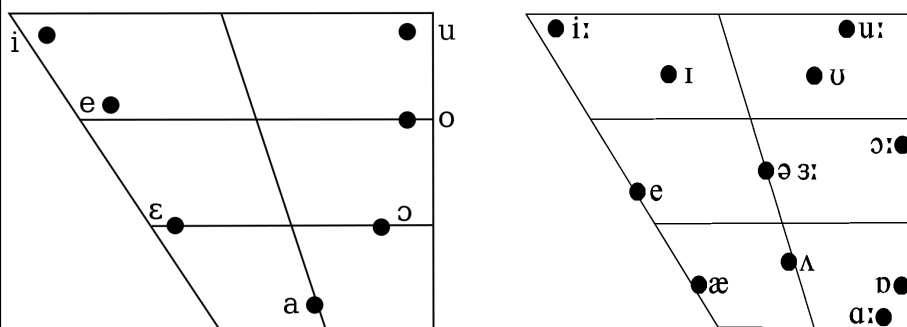
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California English vowel chart



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Italian vs English



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Parameters used to distinguish vowels

1. Tongue HEIGHT
 - high / mid / low
2. Tongue BACKNESS
 - front / central / back
3. Lip ROUNDING
 - round / unround
4. TENSENESS
 - tense / lax
5. Position of the velum
 - raised / lowered

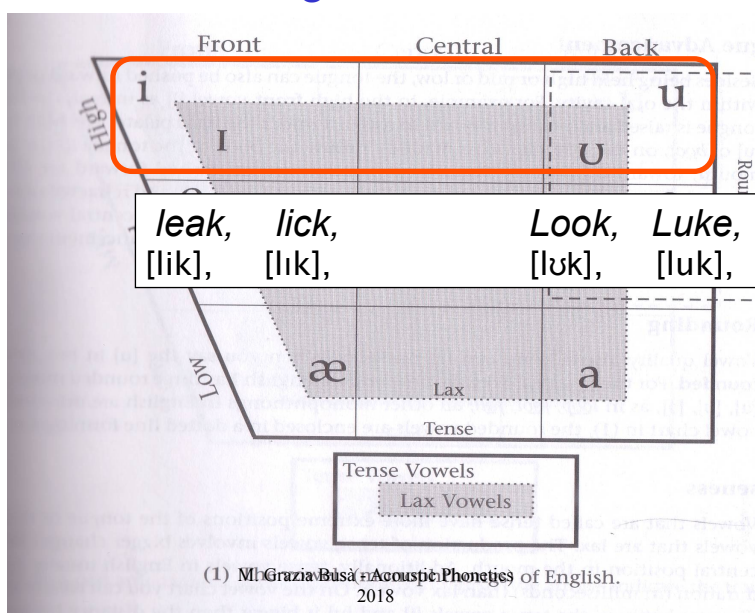
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English Vowels

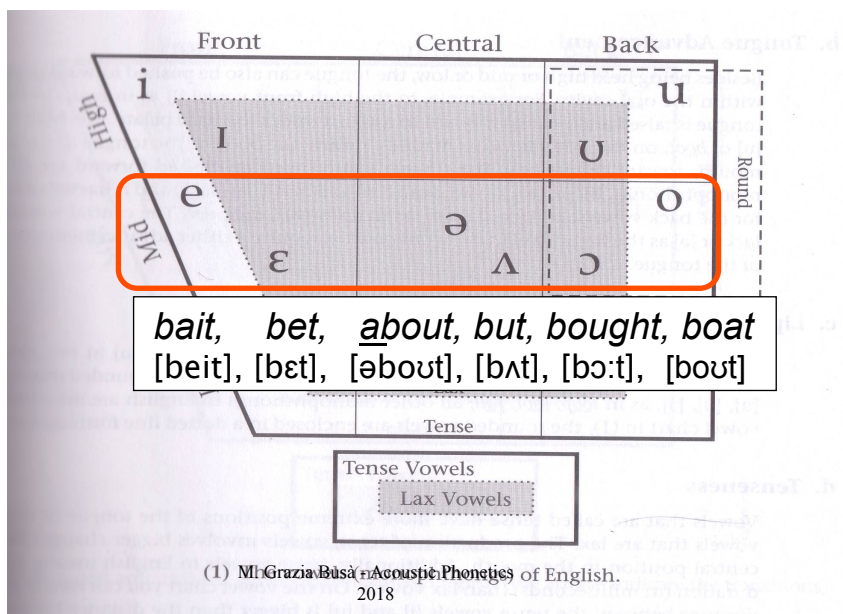
- There are 2 kinds of English vowels:
- Monophthongs: Have only one part
e.g. [i], [æ] as in 'pit' and 'bat'
- Diphthongs: Have two parts
e.g. [ai], [ei] as in 'buy' and 'pay'

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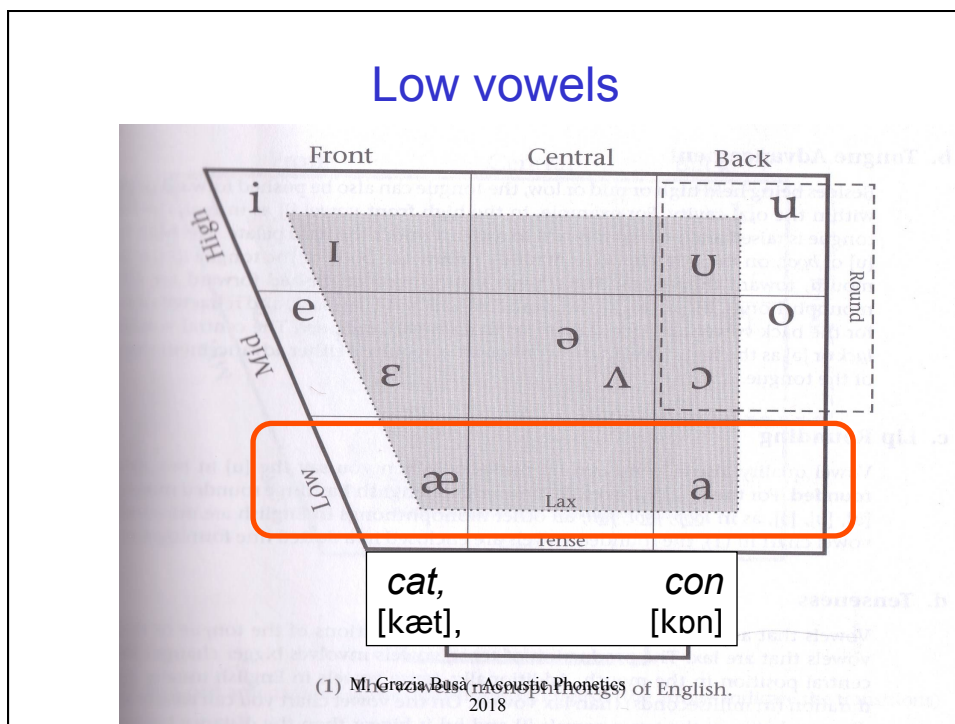
High vowels



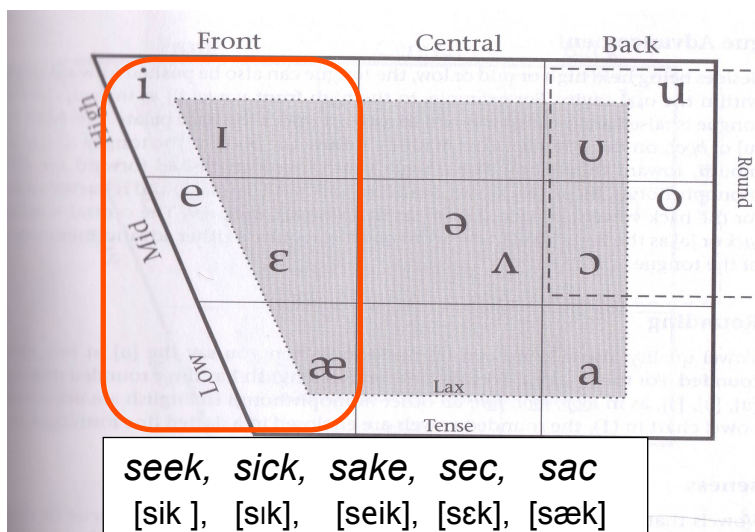
Mid vowels



Low vowels

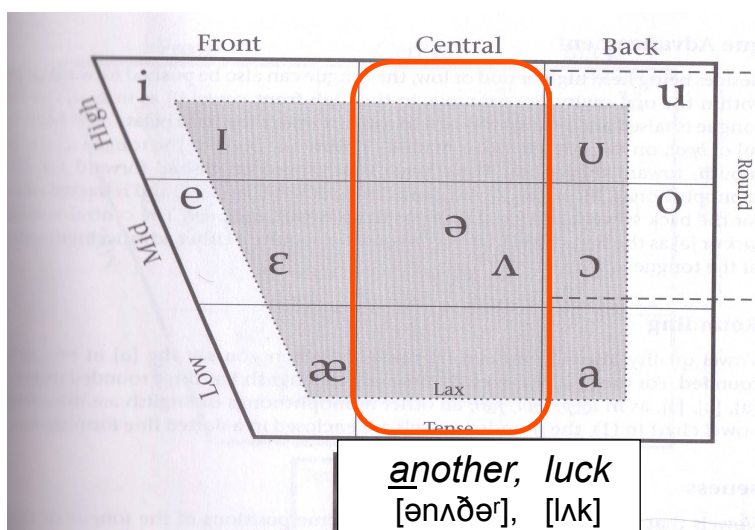


Front vowels



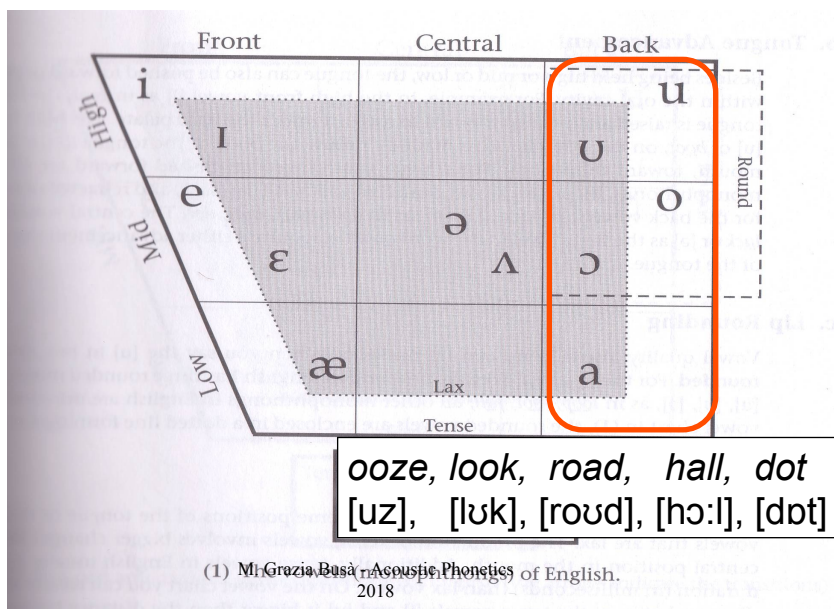
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Central vowels



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Back vowels



3. Lip Rounding

- In English, only the high and mid back vowels are produced with lip rounding
- Round vowels: [u], [ʊ], [o], [ɔ]
- Unrounded vowels: all the other vowels

4. Tenseness

- Tense vs. lax vowels
 - greater height or backness vs. more central position
 - Compare:
 - *bead* and *bid* [i] vs. [ɪ]
 - *food* and *foot* [u] vs. [ʊ]

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4. Nasality

- Produced with the velum lowered
 - Vowels adjacent to a nasal vowel are often nasalized:
 - *man* [mãn]

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Vowel Symbols and Orthography

/i/	heed	'ee', 'ea', 'e', 'i', 'ie', 'ei', 'ey'
/ɪ/	hid	'i', 'e' in suffissi '-ed', '-es'
/e/	hayed, bait	only in diphthongs: 'ay', 'ai'
/ɛ/	head	'ea', 'e', 'ie', 'ei', 'a'
/æ/	had	'a'
/ɑ:/	hard	'ar', 'a', 'ear', 'er', 'au'
/ɒ/	hod	'o' + cons. fin., + 'ck' fin., 'a' after 'w'
/ɔ:/	hawed, caught	'or', 'oor', 'our', 'oar', 'aw', 'au', 'a',
/o/	hoed, boat	only in diphthongs: 'o', 'oa', 'ow', 'ou'
/ʊ/	hood	'oo', 'u', 'ou', 'o'
/u/	Who'd, boot	'oo', 'u', 'ou', 'o', 'ew', 'ui', '(e)au'
/ʌ/	hud, but	'u', 'ou', 'o', 'oo'
/ɛ:/	heard	'er', 'ir', 'ur'
/ə/	about	various unstressed vowels

A 'Vowel Trouble' for Italian learners of English

- Production and perception of 'new' English vowel sounds
 - Interference with L1 (Italian)
 - Equivalence classification leads to hypodifferentiation
 - Poor English orthography makes things worse

Production and perception of 'new' English vowel sounds

English Sound	typically replaced with:	production of homophonous (or semi-homophonous) Examples:
[ɪ]	[i]	→ <i>lick</i> ~ <i>leak</i>
[æ]	[ɛ]	→ <i>bad</i> ~ <i>bed</i>
[ɒ]	[ɔ]	→ <i>cot</i> ~ <i>caught</i>
[ʌ]	[a]	→ <i>cup</i> ~ <i>cap</i>
[ʊ]	[u]	→ <i>foot</i> ~ <i>food</i>

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Some minimal pairs

[i]	[ɪ]		[ʌ]	[æ]		
sheep	ship		cup	cap		
beat	bit		hut	hat		
each	itch		mud	mad		
eat	it		truck	track		
feet	fit		bun	ban		
		[æ]	[ɛ]		[ʊ]	[u]
		had	head		pull	pool
		mat	met		full	fool
		bag	beg		foot	boot
		pack	peck		good	food
		land	lend		Luke	look

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Summary

<https://www.youtube.com/watch?v=u7jQ8FELblo>

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