Phonetics 2

ɹʌbəɹ bebi bʌgi bʌmpəɹz
ðə sɪksθ sɪk ʃiks sɪksθ ʃips sɪk
əlɛvən bənɛvələnt ɛləfənts
ajɹɪʃ ɹɪstwɑtʃ
ɹɛd lɛðəɹ, jɛlo lɛðəɹ
θɹi ʃoɹt soɹd ʃiθs
sɪzəɹz sɪzəl, θɪsəlz sɪzəl
wɪliz ɹili wiɹi
ɹil wiɹd ɹiɹ wilz
ɹajp wajt wit ɹipəɹz ɹip ɹajp wajt wit ɹajt

one more pair of vowels:

	Front		Central	Back	**rounded**
High	[i]	h**e**'d,		[u]	wh**o**'d,
	[ɪ]	h**i**d		[ʊ]	h**oo**d
Mid	[e]	h**a**te,	[ə] m**a**chine	[o]	h**oe**d,
	[ɛ]	h**ea**d	[ʌ] d**o**ve	[ɔ]	h**aw**ed
Low	[æ]	h**a**d		[ɑ]	h**o**t
	tense, **lax**				

Not all speakers distinguish between [ə] and [ʌ].

"above"= əbʌv

English has (about) 14 vowels, and 5 letters to spell them with...

	Front		Central	Back	**rounded**
High	[i]	h**e**'d,		[u]	wh**o**'d,
	[ɪ]	h**i**d		[ʊ]	h**oo**d
Mid	[e]	h**a**te,	[ə] m**a**chine	[o]	h**oe**d,
	[ɛ]	h**ea**d	[ʌ] d**o**ve	[ɔ]	h**aw**ed
Low	[æ]	h**a**d		[ɑ]	h**o**t

plus diphthongs:

[aj] m**i**ce [aw] m**ou**se [ɔj] j**oy**

(and several English tense vowels are sort of diphthongal:
[e]=[ej], [o]=[ow])

Again, this categorization has (at least) two benefits:

- leads us to look for gaps
- helps with theories of sound change

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	[ɪ]	h**i**d		[ʊ]	h**oo**d
Mid	[e]	h**a**te,	[ə] m**a**chine	[o]	h**oe**d,
	[ɛ]	h**ea**d	[ʌ] d**o**ve	[ɔ]	h**aw**ed
Low	[æ]	h**a**d		[ɑ]	h**o**t

In English, all and only nonlow back vowels are rounded.

But is that necessary?

	Front		Central	Back	**rounded**
High	[i]	h**e**'d,		[u]	wh**o**'d,
	[ɪ]	h**i**d		[ʊ]	h**oo**d
Mid	[e]	h**a**te,	[ə] m**a**chine	[o]	h**oe**d,
	[ɛ]	h**ea**d	[ʌ] d**o**ve	[ɔ]	h**aw**ed
Low	[æ]	h**a**d		[ɑ]	h**o**t

[y], German Gef**üh**l 'feeling'
(high front rounded vowel)

[ɯ], Korean [k**ɯɯ**nɛ] 'swing'
(high back unrounded vowel)

	Front		Central	Back	**rounded**
High	[i]	h**e**'d,		[u]	wh**o**'d,
	[ɪ]	h**i**d		[ʊ]	h**oo**d
Mid	[e]	h**a**te,	[ə] m**a**chine	[o]	h**oe**d,
	[ɛ]	h**ea**d	[ʌ] d**o**ve	[ɔ]	h**aw**ed
Low	[æ]	h**a**d		[ɑ]	h**o**t

[y], German Gef**üh**l 'feeling'
(high front rounded vowel)
[ɯ], Korean [k**ɯɯ**nɛ] 'swing'
(high back unrounded vowel)
[ɛ̃], French [mɛ̃], 'hand' (vs. [m**ɛ**] 'dish')
(front mid lax **nasalized** vowel)

Classification of vowels also helps us in developing theories of phonologically natural sound changes.

Turkish nouns:
aslan 'lion'
kol 'arm'
kul 'slave'
kuz 'daughter'
yel 'wind'
diʃ 'tooth'
gyl 'rose'

Classification of vowels also helps us in developing theories of phonologically natural sound changes.

Turkish noun plurals:

aslan 'lion'	aslanlar 'lions'
kol 'arm'	kollar 'arms'
kul 'slave'	kullar 'slaves'
kɯz 'daughter'	kɯzlar 'daughters'
yel 'wind'	yeller 'winds'
diʃ 'tooth'	diʃler 'teeth'
gyl 'rose'	gyller 'roses'

other ways to manipulate airflow (see the UCLA sound files)

- ejectives
- clicks
- implosives
- trills

(…and others)

fooling around with spectrograms:

- vowels
- fricatives
- how do we tell stops apart?

…and other sources of information? **McGurk effect**

let's think more carefully about voicing....

Voice Onset Time: vocal cords start vibrating some time after the stop closure is released....

VOT 0-25 ms-->voiced
VOT 25 ms +-->voiceless

categorical perception: we have an arbitrary dividing line in the continuum of VOT

...categorical perception detected in 1-month-old infants.