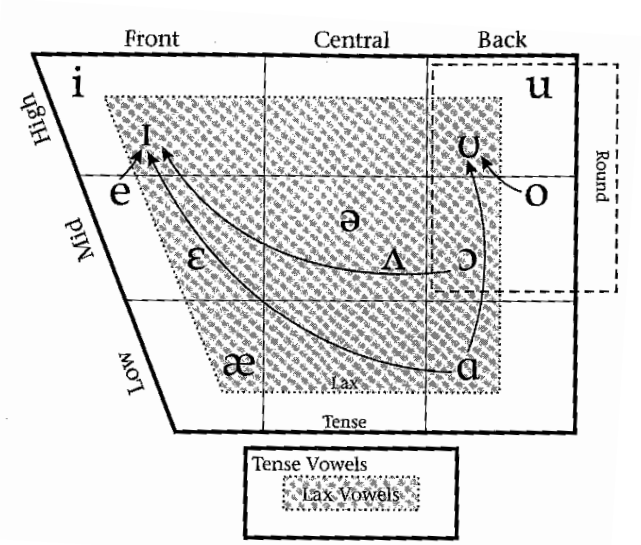
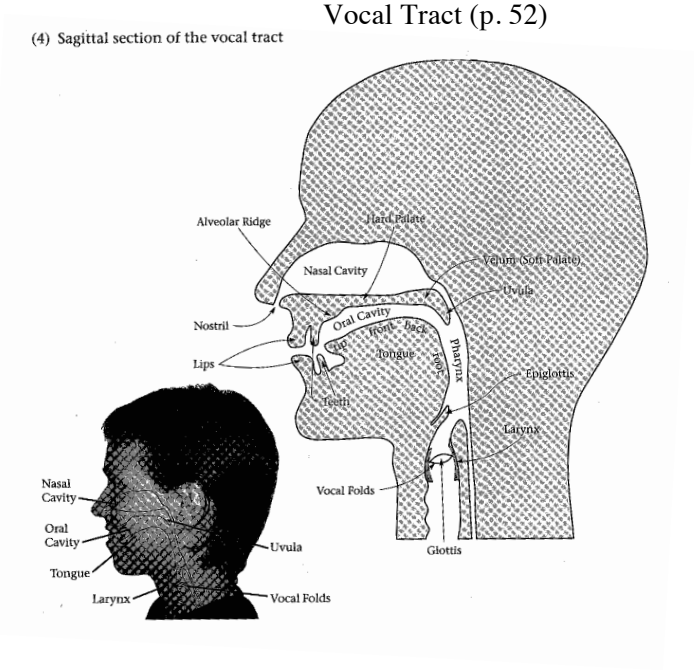
Articulatory Phonetics

English vowel space (p. 62)



Vocal Tract (p. 52)



English consonants (p. 57)

Manner of Articulation \ Place of Articulation	Bilabial		Labio-dental		Inter-dental		Alveolar		Post-Alveolar		Palatal		Velar		Glottal	
Stop	p	b					t	d					k	g	ʔ	
Fricative			f	v	θ	ð	s	z	ʃ	ʒ					h	
Affricate									ʧ	ʤ						
Flap								ɾ								
Nasal		m						n						ŋ		
Lateral Liquid								l								
Retroflex Liquid								ɹ								
Glide	ʍ	w[3]										j				

State of the Glottis: Voiceless | Voiced

1 (i) Madonna _____
(ii) [nɑɪt] _____
(iii) [ħabi:b] 'darling'

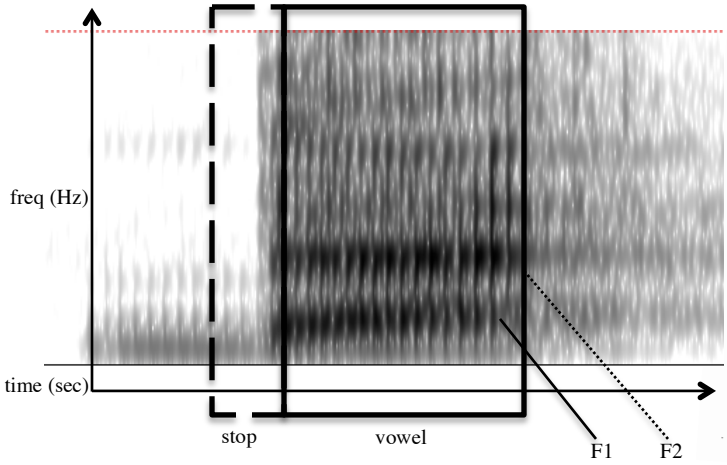
2 (i) Prince _____
(ii) [ʃeɪp] _____
(iii) [xɑmsa] 'five'

3 (i) Bruno _____
(ii) [ɑʊtʃ] _____
(iii) [dʒe:miʕ] 'university'

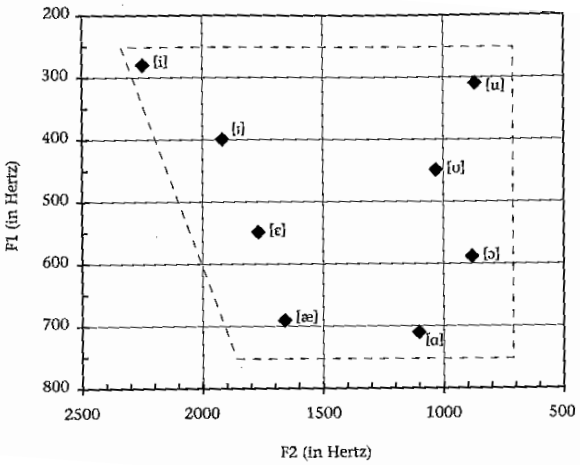
4 (i) Gump _____
(ii) [joʊloʊ] _____
(iii) [qɑtˤɑɾ] 'Qatar'

Acoustic Phonetics

Spectrogram (time, frequency, energy)

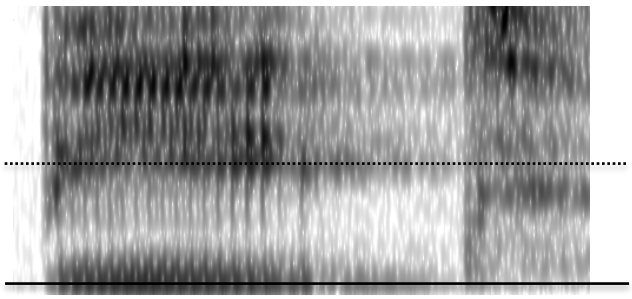


Vowel chart w/formants (p. 80)

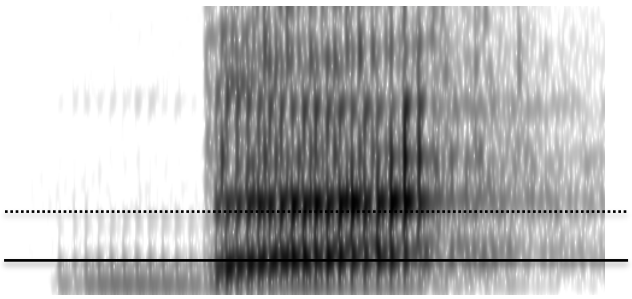


Vowels F1 ——— F2 .....

First formant (F1): vowel height (openness)

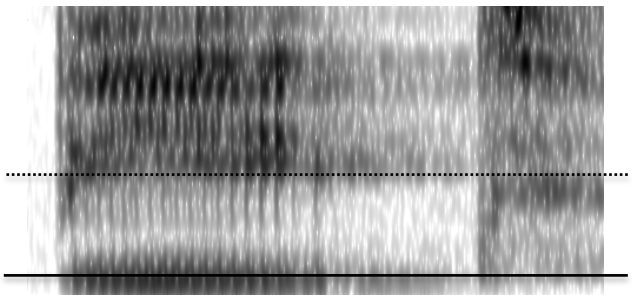


High (beat)

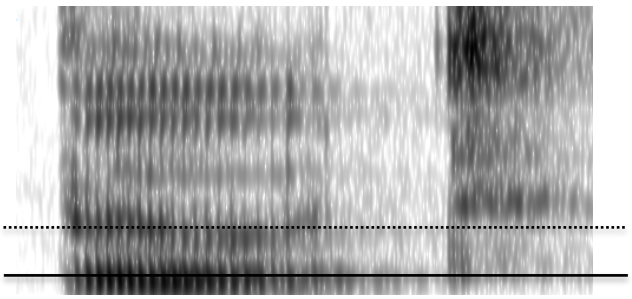


Low (bat)

Second Formant (F2): tongue advancement (vowel frontness)



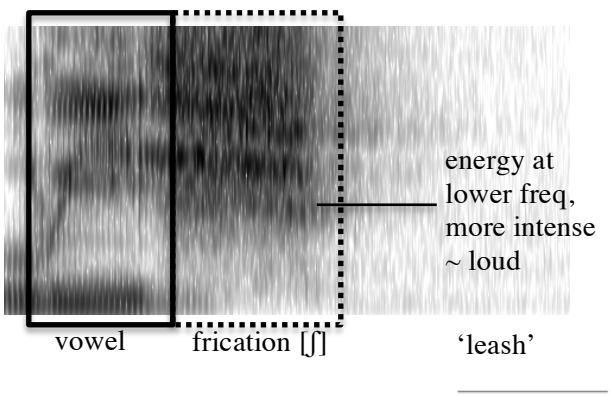
Front (beat)

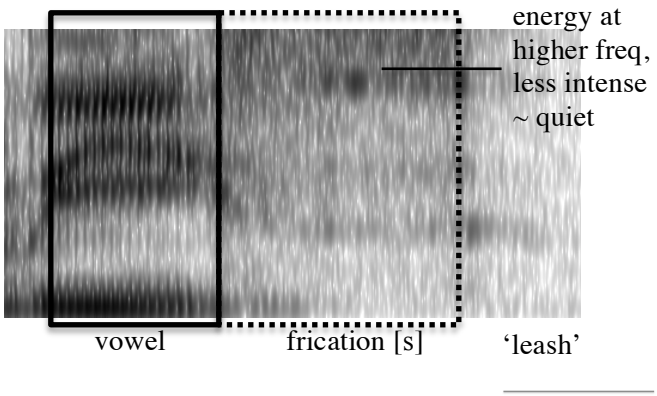


Back (boot)

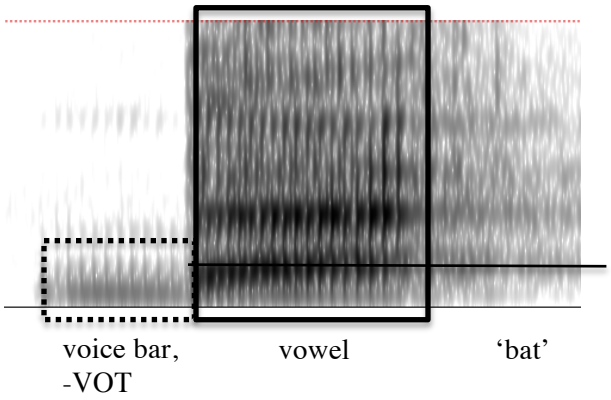
Consonants

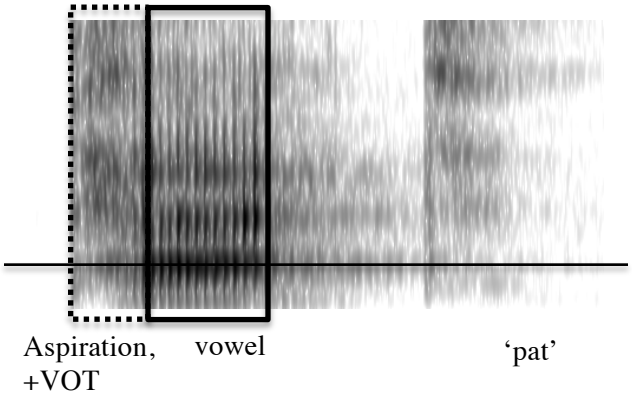
Frequency (and intensity) of spectral energy: can help distinguish some consonants (such as [ʃ] v. [s])



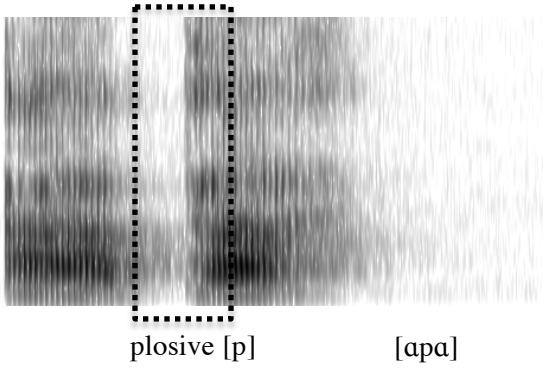


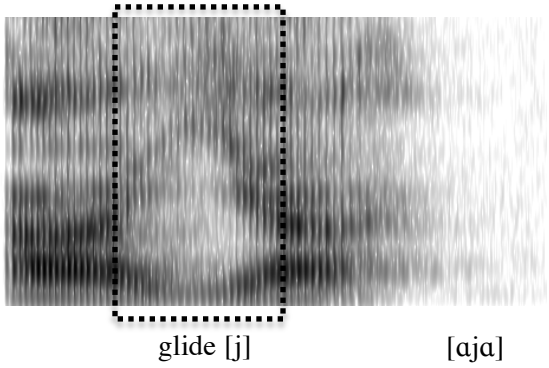
Voice bar/VOT: present for voiced, not for voiceless





Abrupt changes in waveform: good place to start in distinguishing stops from other consonants

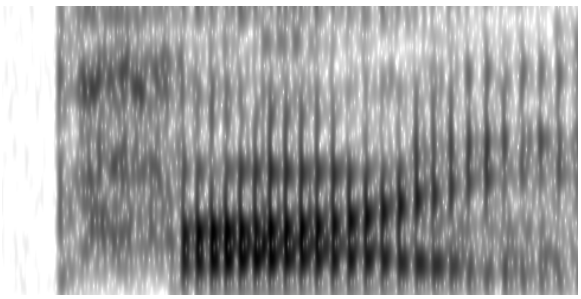




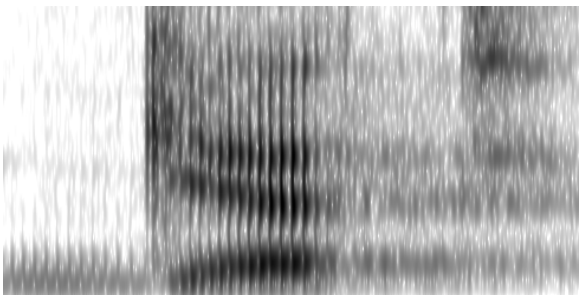
Examples

Match the spectrogram with a word from this list: pie, shook, get, got, buyer, stoop, linguistics

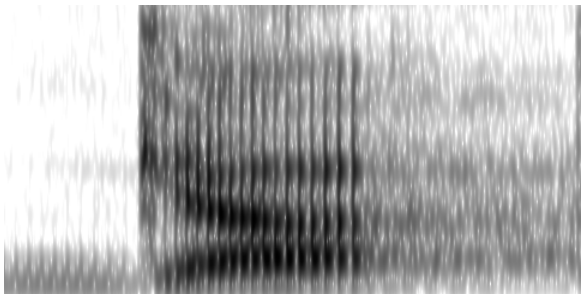
1.



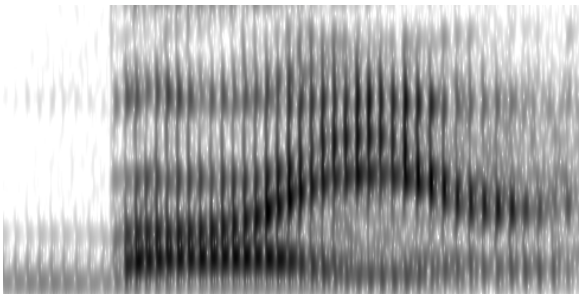
2.



3.



4.



5.