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24.941J / 6.543J / 9.587J / HST.727J The Lexicon and Its Features
Spring 2007

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FEATURES OF SOME SEGMENTS

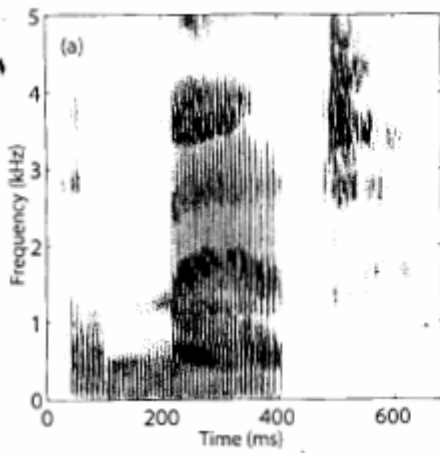
Table 3. Listing of the features for some vowels and glides in English.

	i	ɛ	æ	ɑ	ʌ	u	w	j	h	ɔj
high	+	-	-	-	-	+	+	+		-+
low	-	-	+	+	-	-	-	-		+-
back	-	-	-	+	+	+	+	-		+-
round				-	-	+	+			
tense	+	-			-	+	+	+		+
spread glottis							-	-	+	

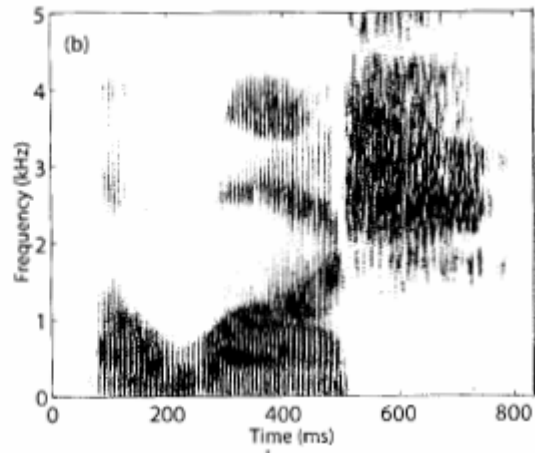
Table 2. Listing of articulator-free features, articulators, and articulator-bound features for some consonants in English.

	b	d	g	p	f	s	z	ʃ	m	l
continuant	-	-	-	-	+	+	+	+	-	-
sonorant	-	-	-	-					+	+
strident						+	+	+		
lips	+			+	+				+	
tongue blade		+				+	+	+		+
tongue body			+							
round	-			-	-				-	
anterior		+				+	+	-		+
lateral									-	+
high			+							
low			-							
back			+							
nasal									+	-
stiff vocal folds	-	-	-	+	+	+	-	+		

LANDMARKS



a mat



a wash

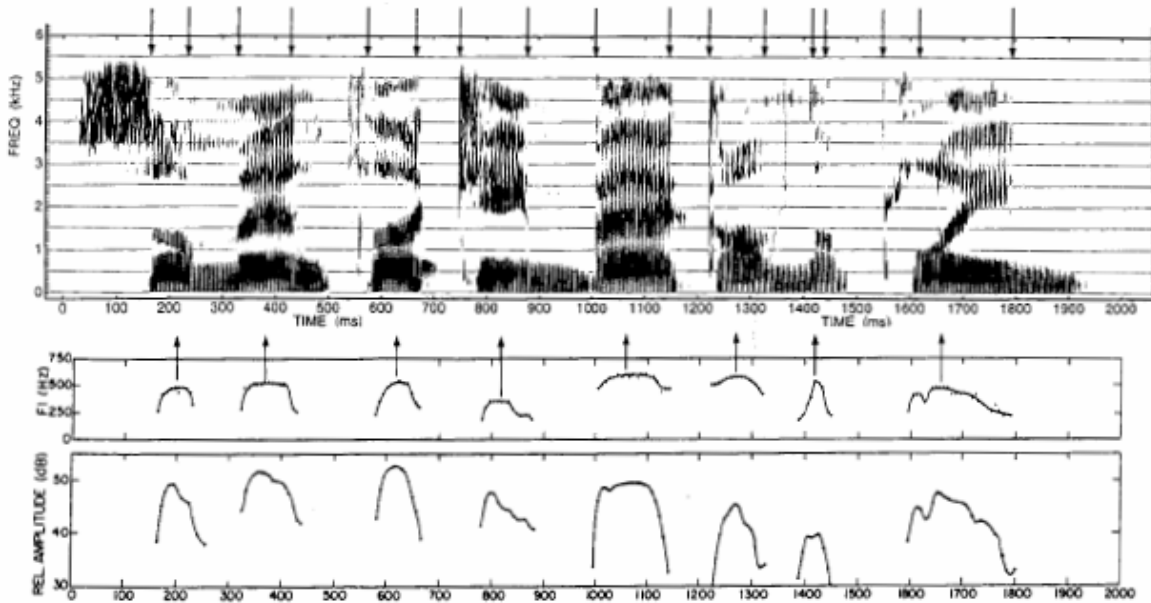


Figure 5.1 Shown at the top is a spectrogram of the sentence *Samantha came back on the plane*, produced by an adult male speaker. The plot immediately below the spectrogram gives the frequency of F_1 vs. time during the vocalic regions, measured at 7.5-ms intervals. At the bottom is a plot of the relative amplitude of the first-formant prominence during the vocalic regions. Each point on this amplitude plot and on the plot of frequency of F_1 is measured from a spectrum which is obtained by averaging a 10-ms sequence of spectra, each of which is calculated using a 6.4-ms Hamming window. The arrows below the spectrogram indicate vocalic landmarks and the arrows at the top identify consonantal landmarks. See text.

Source: Stevens, K. N. *Acoustic Phonetics*. MIT Press, 1998.
 Courtesy of MIT Press. Used with permission.

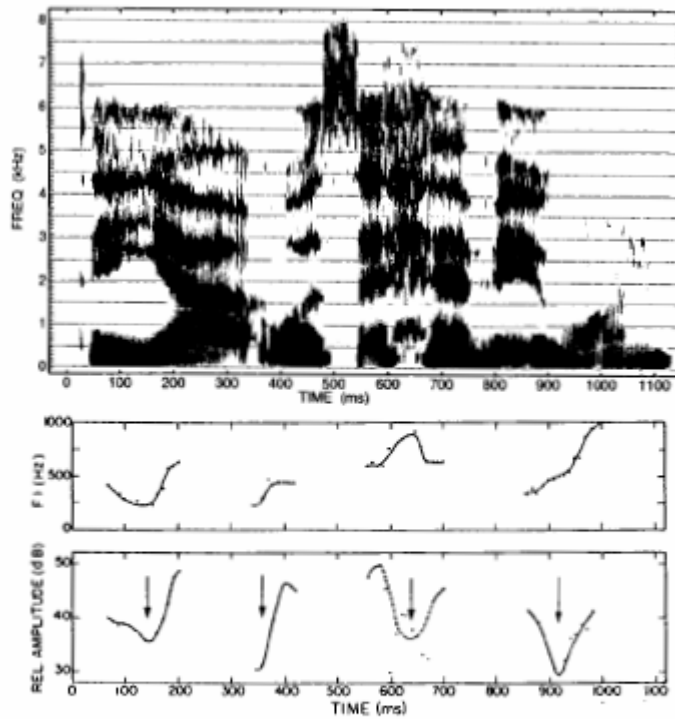
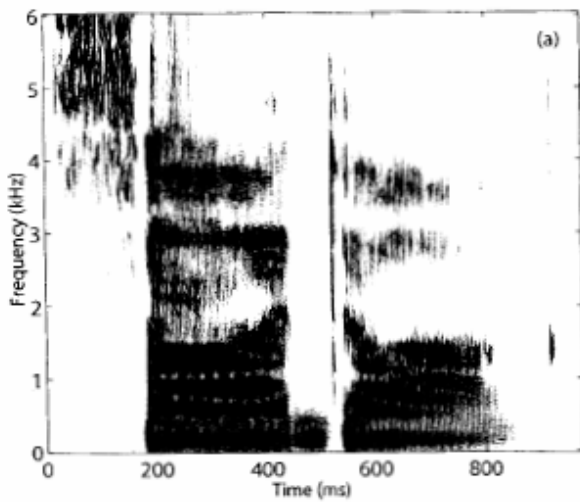


Figure 5.2 The spectrogram is the sentence *The yacht was a heavy one*, produced by a female speaker, illustrating acoustic attributes of glides. The first-formant frequency in the vicinity of the glides is shown immediately below the spectrogram. The plot at the bottom is the amplitude of the F1 prominence. The arrows at the amplitude minima for the glides identify the glide landmarks. The irregularities in the amplitude for /h/ are smoothed with the dashed line. Measurements are made at 10-ms intervals using the procedures described in the legend for figure 5.1.

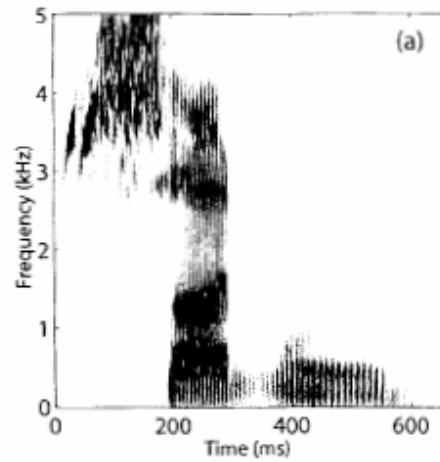
Source: Stevens, K. N. *Acoustic Phonetics*. MIT Press, 1998.

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SOME PROBLEMS WITH FINDING LANDMARKS

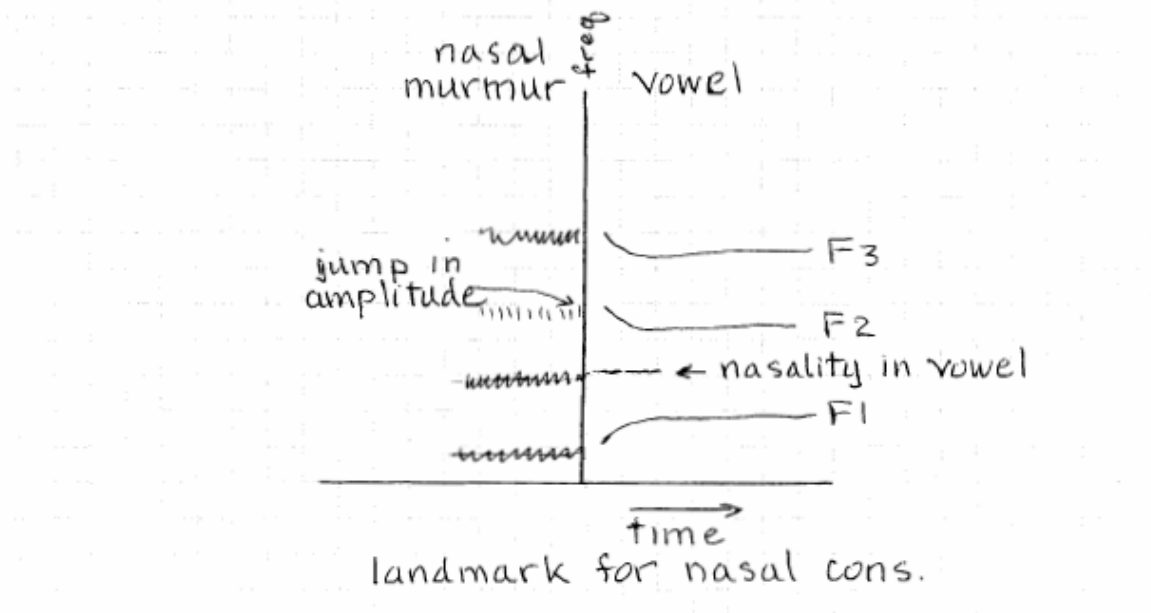
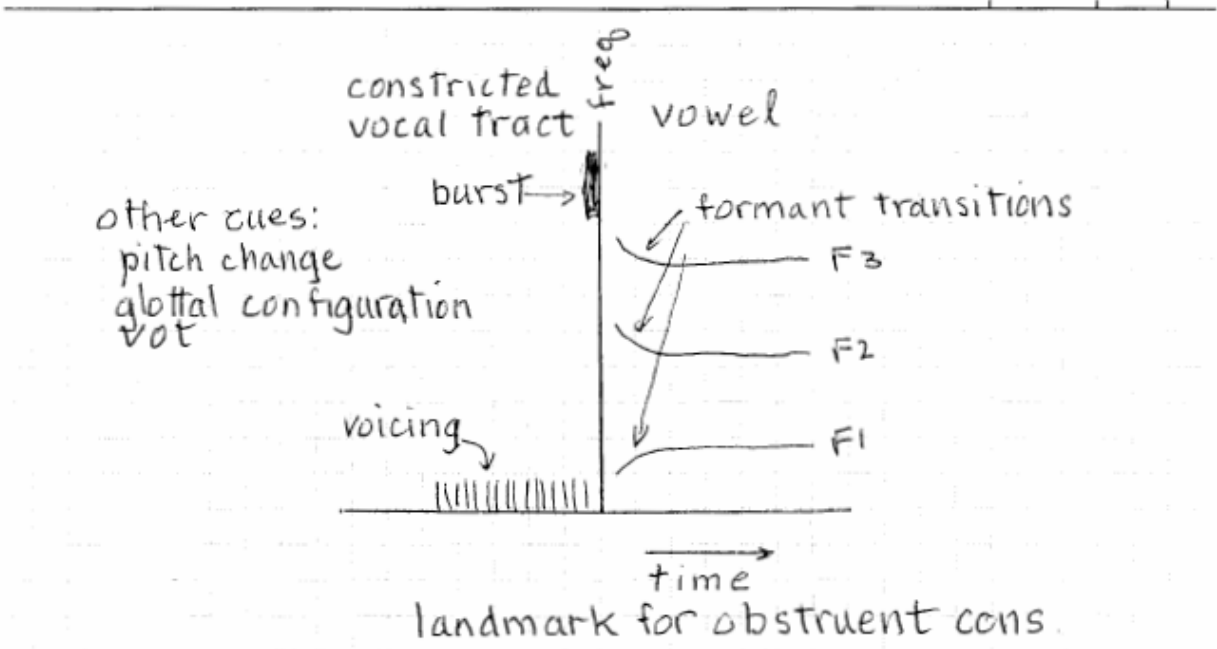


saw a dog



sudden

LOOKING FOR CUES TO FEATURES IN THE VICINITY OF LANDMARKS



MORE ON LOOKING AROUND LANDMARKS

The sentence is **Last Monday we sang at breakfast.**

Figure out where in the sentence these excerpts come from.

Spectrograms of short segments abstracted from the sentence are shown in the figure below.

