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LING 151

Assignment 4

Q1: The first male speaker is from Australia. This is best seen on words like *bear* and *beer*, which have contrast in Australian accents. This speaker pronounces *bear* with a diphthong [eə] and *beer* whith a diphthong [iə]. This can be seen again in pairs such as *dare* and *dear* and *spare* and *spear* where each member of each pair has a distinct nucleus. There is an additional difference in words such as *bid*, where the Australian pronounces the word with [i] unlike the second speaker, who pronounces the same word with [ə]. The second speaker is from New Zealand and pronounces pairs such as *bear* and *beer* identically with [iə]; thus, words *bear* and *beer*, *spare* and *spear*, and *dare* and *deer* have identical nuclei. Additionally, words *hit*, *bid*, and *hint* all had a vowel similar to [ə].

Q2: Choosing only a midpoint dilutes the true character of each diphthong as only a small slice of their "double-life" is captured. This can be seen in the overlapping plotting in each scatter plot, where several diphthongs mingle around other vowels due to their encapsulation as abbreviations of their true vowel characteristics. F1 and F2 are thus helpful in a general sense but often deceptive when interrogating these charts further. F3 provides little information about the components of each word as few have <r>l additionally, Australia and New Zealand accents are non-rhotic.

Q3: The woman is form New Zealand, utilizing vowels similar to or approaching [ə] when producing words like *hit*, *kit*, and *hint*. Additionally, there is no vowel contrast in the words *bear*, *beer*, *dear*, *dare*, *spear*, and *spare*, all pronounced with [iə]. As this is a female voice, it sits higher in frequency, and thus formants appear to be all-around higher than both the male Australian and male New Zealand voices. Women have longer vocal tracts with different resonances and thus produce vowels somewhat differently.

Speaker 1 (measurements in Hz)

Word	Vowel	F1	F2	F3
Back	ɛ	780	1588	2600
Bad	ɛ	678	1628	2536
Bat	ɛ	811	1642	2670
Bear	eə	461	1855	2550
Bed	ɪ	499	1828	2582
Beer	iə	342	2021	2677
Beg	ɪ	461	1883	2562
Bet	ɪ	523	1875	2559
Bid	i	329	2001	2806
Buck	ə	735	1366	2544
Bud	ə	618	1401	2565
But	ə	720	1387	2791
Dance	æ	586	1712	2468
Dare	eə	462	1924	2666
Dear	iə	363	1969	2710
Hint	i	331	2077	2247
Hit	i	353	2011	2800
Laugh	ɑ	702	1239	2568
Path	ɑ	733	1298	2704
Spare	eə	465	1900	2602
Spear	iə	324	2009	2645

Speaker 2 (measurements in Hz)

Word	Vowel	F1	F2	F3
Back	ɛ	586	1630	2667
Bad	ɛ	662	1646	2500
Bat	ɛ	650	1664	2467
Bear	iə	447	1779	2611
Bed	ɪ	366	2065	2676
Beer	iə	360	2197	2747
Beg	ɪ	368	2100	2794
Bet	ɪ	422	2045	2697
Bid	ə	425	1603	2698
Buck	ə	609	1087	2378
Bud	ə	575	1081	2581
But	ə	620	1075	2366
Dance	ɑ	636	1135	2805
Dare	ɪə	488	1701	2883
Dear	iə	460	1891	2634
Hint	ɪ~ɨ	280	1464	2891
Hit	ɪ~ɨ~ə	490	1572	2759
Laugh	ɑ	660	1094	2654
Path	ɑ	635	1047	2706
Spare	iə	457	1682	2549
Spear	iə	427	1910	2884

Speaker 3 (measurements in Hz)

Word	Vowel	F1	F2	F3
Back	ə~ɛ	887	1652	2877
Bad	ɛ	686	2444	3166
Bat	i~ɪ	423	2574	3210
Bear	iə	520	2442	3244
Bed	i	375	2738	3261
Beer	iə	524	2466	3136
Beg	i	447	2645	3288
Bet	ɛ	719	2291	3115
Bid	ə	612	1935	3037
Buck	ə	921	1660	2935
Bud	ə	860	1574	3005
But	ə	959	1628	3310
Dance	ə~ɑ	836	1520	3512
Dare	iə	443	2487	3186
Dear	iə	452	2430	2091
Hint	ɪ	432	1916	3330
Hit	ɪ~ɛ	682	1932	3093
Laugh	a	924	1312	1966
Path	ɑ	948	1042	1714
Spare	iə	525	2337	3123
Spear	iə	542	2283	3073