Fig. 14. Vocal tract shapes during the pronunciation of 7 vowels as spoken by another speaker of American English on the left and the shapes recovered from the corresponding formant frequencies on the right.
Figure 1.8  The positions of the vocal organs for the vowels in the words: 1) head, 2) had, 3) head, 4) had, 5) father, 6) good, 7) food. The lip positions for vowels 2, 3, and 4 are in between those shown for 1 and 5. The lip position for vowel 6 is between those shown for 1 and 7.

Top Figure from Ladefoged (1982). *A Course in Phonetics, 2nd ed.* Harcourt, Brace, Jovanovich