# Week 5: Consonants

Solutions

(1) For each of the following words, determine whether the first and last sounds are voiced.
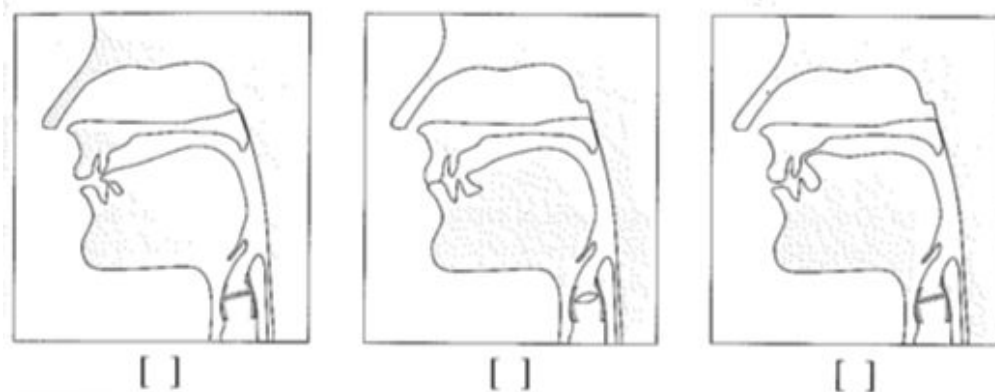
      (a) thought
      (b) view
      (c) silk
      (d) judge
      (e) buns

Solution
      (a) both voiceless
      (b) both voiced
      (c) both voiceless
      (d) both voiced
      (e) both voiced

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(2) For each drawing, write the only consonant sound of English that could be produced by the vocal tract positioned shown. Take into account voicing, mannar, and place of articulation. Note that voicing is shown by two wavy or bumpy lines (representing vocal fold vibration) where the larynx would be, whereas voiceless sounds are represented by two lines shaped like an ellipse at the larynx level, indicating an open glottis. Also note whether the air passage to the nasal cavity is open or closed (i.e., velum is lowered or raised). The first one is done for you.

[k]   [ ]   [ ]

[ ]   [ ]   [ ]
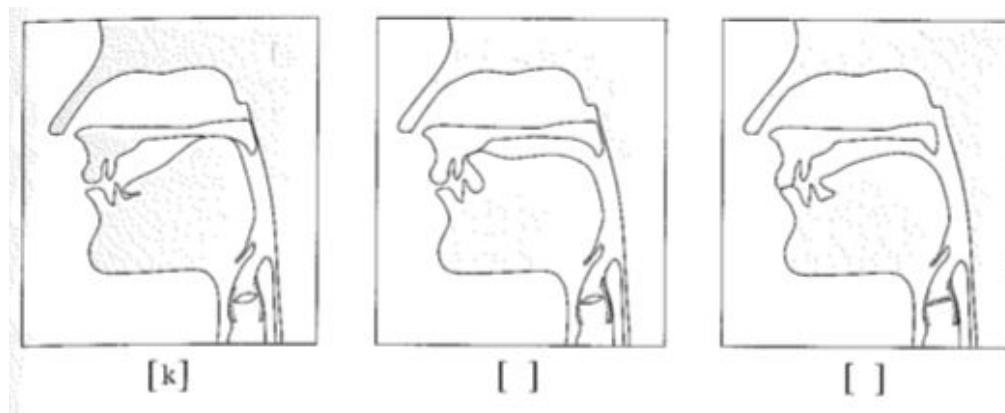
> **Solution**
> Top row: [k], [t], [m], bottom row: [ð̥], [p], [z]

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(3) Explain why your vocal folds don't vibrate when you whisper.

> **Solution**
> The vocal folds don't vibrate during a whisper because they are only partially closed. Air can pass through them without causing enough buildup in air pressure to force vibration.

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(4) Write the phonetic symbol representing each of the following sounds (don't forget to use square brackets). The last one is given as an example.

- (a) voiceless post-alveolar affricate
- (b) voiced velar nasal
- (c) voiced glottal fricative
- (d) voiced labiodental fricative
- (e) voiced interdental fricative
- (f) voiced post-alveolar fricative
- (g) voiced alveolar lateral liquid
- (h) voiced palatal glide - **[j]**

> **Solution**
>   (a) [t͡ʃ], (b) [ŋ], (c) [ɦ], (d) [v], (e) [ð], (f) [ʒ], (g) [l]

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(5) Write the three-part articulatory descriptions for the consonant sounds represented by the following symbols. The last one is given as an example.

   (a) [f]
   (b) [z]
   (c) [n]
   (d) [ɳ]
   (e) [ʃ]
   (f) [ɹ]
   (g) [ʒ]
   (h) [t͡ʃ]
   (i) [g]
   (j) [ʔ]
   (k) [j] - **voiced palatal glide**

> **Solution**
> (a) voiceless labiodental fricative, (b) voiced alveolar fricative, (c) voiced alveolar nasal , (d) voiced retroflex nasal , (e) voiceless post-alveoar fricative , (f) voiced alveolar approximant, (g) voiced post-alveolar fricative, (h) voiceless post-alveolar affricate, (j) voiced velar stop, (k) voiceless glottal stop

(6) For each group of sounds, identify the segment that differs in place of articulation from the other three.

   (a) [s], [n], [ɹ], [v]
   (b) [k], [n], [ŋ], [g]
   (c) [m], [p], [l], [w]
   (d) [ʃ], [d͡ʒ], [d], [t͡ʃ]
   (e) [t], [n], [d], [k]

> **Solution**
>   (a) [v] is labiodental; the others are alveolar
>   (b) [n] is alveolar; the others are velar
>   (c) [l] is alveolar; the others are bilabial
>   (d) [d] is alveolar; the others are post-alveolar
>   (e) [k] is velar; the others are alveolar

(7) Based on the articulatory description of consonants, of the two pictures below, which do you think could be an instance of [t] and which an instance of [s]? How do you know? What other sounds could make the pattern seen in (a) and (b)?
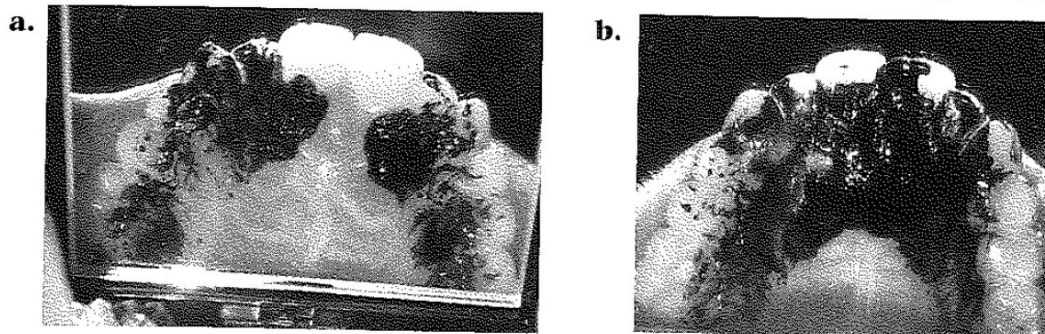
Solution

These are static palatography pictures. Picture (a) could be an [s], because it is a fricative, which should have a gap in the charcoal residue. Picture (b) could be a [t] because it would show complete closure by having charcoal spread across the entire front of the alveolar ridge (and around the sides) with no gaps. Picture (a) could also be a [z] and (b) could be a [d] or an [n], because static palatography doesn't tell us anything about voicing or nasality.