

Part I

A. IPA Symbol description (voicing, place, manner or height, backness, rounding, tense/lax). 3pts each (18 pts total)

Indicate the place, manner and voicing for each symbol, below:

1. [ʒ] voiced palato-alveolar or post-alveolar fricative
2. [ɹ]voiced alveolar approximant or voiced alveolar retroflex approximant
3. [ŋ] voiced velar nasal
4. [dʒ] voiced palato-alveolar affricate
5. [y] high front rounded tense vowel
6. [k^h] voiceless aspirated alveolar lateral velaric ingressive click

B. Fill in the blanks

Complete the following statements by filling in the blank. 2pts each (20 pts total)

1. In producing /q/, the TONGUE BACK makes contact with the UVULA.
2. In producing /d/ the velum is CLOSED/UP and the UNDERSIDE OF THE TIP OF THE TONGUE touches in back of the alveolar ridge.
3. Speech sounds are said to be homorganic if they share the same PLACE (OF ARTICULATION).
4. The active (mobile) articulator of /ʃ/ is the TONGUE BLADE and the passive articulator (or target) is the BACK PART OF THE ALVEOLAR RIDGE.
5. The active (mobile) articulator of /v/ is the LOWER LIP and the passive articulator (or target) is the (UPPER) TEETH.
6. Apical sounds are made with the TIP of tongue and laminal sounds are made with the BLADE of the tongue.
7. The click [k!] has a VELARIC (INGRESSIVE) air stream mechanism and a ALVEOLAR/POST ALVEOLAR place of articulation.
8. All languages have sounds that use the PULMONIC EGRESSIVE airstream mechanism, and no languages use the PULMONIC INGRESSIVE/VELARIC EGRESSIVE airstream mechanism.

9. Two words that differ by only one phoneme are called a MINIMAL PAIR, and this diagnostic is used to establish a language's CONTRASTS/PHONEMES/PHONEMIC INVENTORY.

10. The sound [c'] has a EJECTIVE/GLOTTALIC EGRESSIVE air stream mechanism and a PALATAL place of articulation.

C. Correct the following statements (underlined portion). Use the feature matrix provided. 1 pt each (5 pts total)

1. Sonorants all share the feature [+son, -cons].
OBSTRUENTS

2. High vowels have a high second formant (F2).
LOW VOWELS

3. [ʒ, ʃ, ð, ŋ, r] are all pulmonic-ingressive sounds.
PULMONIC EGRESSIVE

4. Ø → [+syl, +high, -back] means that /i/ is deleted.
INSERTED

5. In creaky voicing the vocal folds are loosely approximated, there is very little vocal fold tension, and air is allowed to leak through at the arytenoid (cartilages at the anterior or front of neck) end.
BREATHY VOICING

D. Short answer: one or two sentences. 2 pts each (10 pts. total)

1. Why is it so hard to maintain voicing in oral stops, but so easy to maintain voicing in nasal stops?

AIR PRESSURE BUILDUP IN STOPS CAUSES THE VOCAL FOLDS TO CEASE VIBRATION, WHILE WITH THE VELUM DOWN (FOR NASAL SOUNDS) THE PRESSURE IS VENTED THROUGH THE NASAL CAVITY ALLOWING THE VOCAL FOLDS TO CONTINUE VIBRATING.

2. Describe how a uvular ejective is made.

1) GLOTTAL CLOSURE, 2) BACK OF TONGUE MAKES CONTACT WITH UVULA (SEALING OFF ORAL CAVITY), 3) LARYNX IS RAISED (CAUSING COMPRESSION AND INHIBITING VOICING), 4) ORAL STOP RELEASED, (GLOTTAL STOP RELEASED)

3. Why is /z/ so much more common than /ð/ in the world's languages?

/z/ HAS HIGHER AMPLITUDE FRICATION NOISE (IS MORE SIBILANT) IS LOUDER SO IT'S EASIER TO HEAR

4. Describe how to make an implosive bilabial stop.

1) GLOTTAL CONSTRICTION, 2) BILABIAL CONSTRICTION, 3) LOWER LARYNX (CAUSING RAREFACTION AND PRODUCING VOICING), 4) RELEASE BILABIAL CLOSURE, 5) RELEASE GLOTTAL CLOSURE

E. Match the anatomical configuration: Match the following descriptions with the midsagittal diagrams in Appendix I. 2 pts each (10 pts. total)

1. palatal stop C
2. labio-dental nasal B
3. retroflex nasal E
4. velar fricative D
5. alveolar stop A

Part II

A. Match the spectrogram to the description by marking the spectrogram's letter in the blank. (spectrograms on Appendix II) 2 pts each (10 pts total)

- a. high back vowel E
- b. low front vowel D
- c. high front vowel B
- d. low back vowel C
- e. voiceless alveolar fricative A

B. Fill in the blank. 1 pt each (5 points)

- a. Our perception of *pitch* is based on the FUNDAMENTAL FREQUENCY of a sound.
- b. A sound's *intensity* is basis for our perception of LOUDNESS.
- c. Vowel quality is based on the vowel's (FIRST AND SECOND) FORMANTS.
- d. Sounds that have a repeating pattern are termed: PERIODIC.
- e. Fourier's theorem states that all complex waves are MADE UP OF (COMPONENT) SIMPLE WAVES WITH DIFFERENT FREQUENCIES, AMPLITUDES (AND PHASES).

Part III

A. fill in the blank. 1 pt each (6 pts total)

1. The phonological process by which one sound becomes less like a neighboring sound is called DISSIMILATION.
2. "Vowel harmony" refers to the phonological process in which ONE VOWEL ASSIMILATES TO ANOTHER.

3. The underlying form is phonemic and the surface form is ALLOPHONIC/PHONETIC.
4. Two sounds are said to be in complementary distribution when THEY CAN'T OCCUR IN THE SAME ENVIRONMENT
5. Speech sounds that share a distinctive feature that causes them to act as a group are called NATURAL CLASS.
6. In phonology, the term "alternation" describes ALLOPHONIC CHANGES.

B. describe what the following rules do 3 pts each (15 pts total)

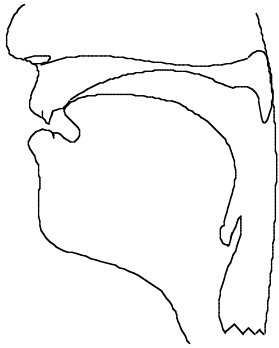
1. [-son, +cont] → [-voiced] / [-voice] _____ #
FRICATIVES BECOME VOICELESS WHEN THEY ARE WORD FINAL AND FOLLOW A VOICELESS SOUND
2. [+syl, +hi] → [-syl] / _____ [+syl, -hi]
HIGH VOWELS BECOME GLIDES WHEN THEY PRECEDE NON-HIGH VOWELS
3. [-son, -cont] → [+cont] / _____ [-son, -cont]
STOPS BECOME FRICATIVES WHEN THEY PRECEDE A STOP
4. [+syl] → [- back] / _____ + [+syl, - back]
VOWELS BECOME FRONT WHEN THEY ARE PREFIXES BEFORE A STEM WITH A FRONT VOWEL AND (HAS TO HAVE THE MORPHEME BOUNDARY, THE BACKNESS)
5. [+nasal] → [+ ant, + cor] / _____ [-cont, + ant, + cor]
NASALS BECOME ALVEOLAR/ASSIMILATE IN PLACE TO A FOLLOWING ALVEOLAR STOP OR NASALS BECOME [n] BEFORE [t, d].

C. Write a rule for each of the following descriptions 3 pts each (9 pts total)

1. Nasal prefixes are deleted when they precede a stem initial voiceless obstruent.
[+nas] → Ø / # _____ + [-son, -voice]
2. /l, r, j, w/ become stops when preceded by a nasal prefix.
[+approximant] → [-son, -cont] / [+nas] + _____
3. Glides become voiceless when they are preceded by a word initial voiceless fricative.
[-syl, -cons] → [-voice] / # [-son, +cont, -voice] _____

Appendix I: Articulatory Phonetics

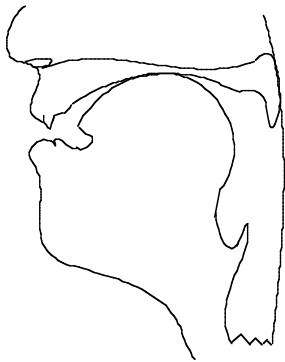
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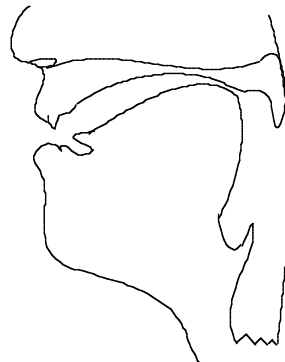
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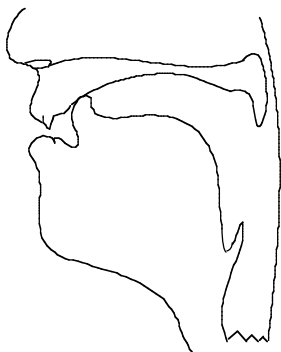
C



D

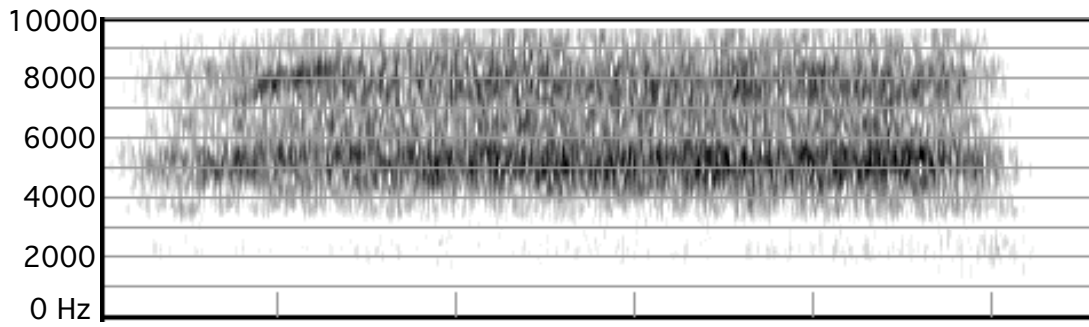


E

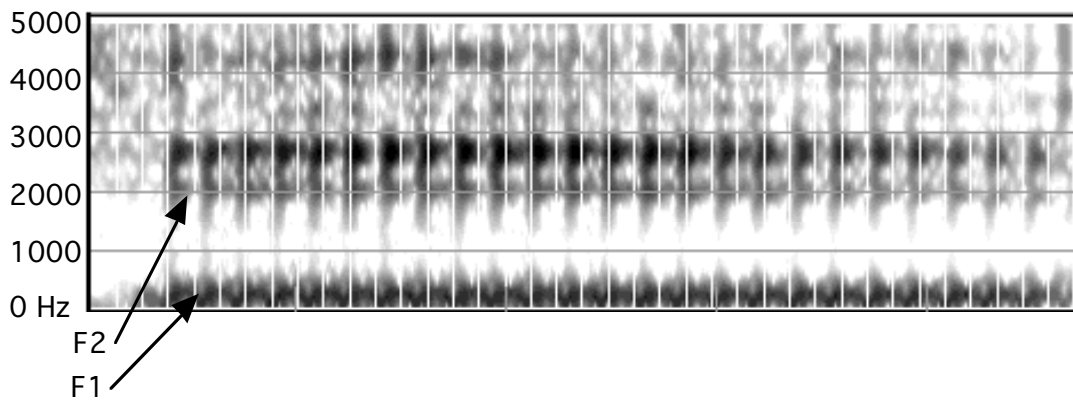


Appendix II: Spectrograms

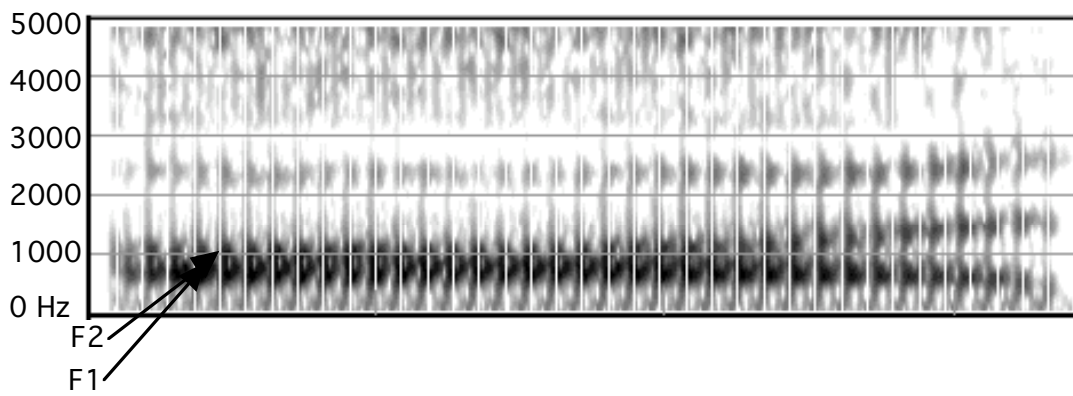
A.



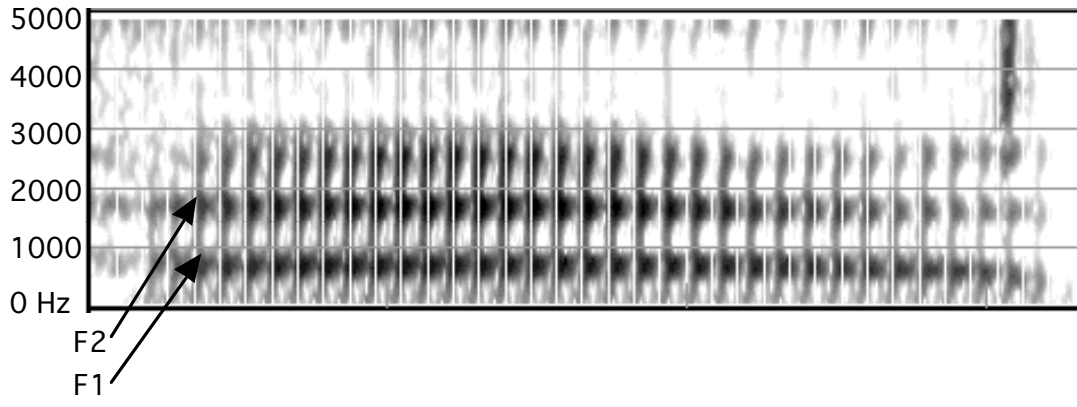
B.



C.



D.



E.

