Introduction to Linguistics
Homework 1: Articulatory and Acoustic Phonetics

Spring 2020
Assigned: April 13th
Due: April 20th, 11.59p on Canvas

Part 1: Natural classes (30 points)

(12 points) A **natural class** is a group of phones that share one or more articulatory features in common. A natural class includes all of the sounds of a language that meet the criteria given, and excludes all sounds that do not. For the descriptions below, give all the sounds of American English that meet the criteria.

1. voiced fricatives

2. postalveolars

3. high vowels

4. bilabials

(18 points) Identify the natural class formed by each of the groups of sounds given below. You should give the *most specific* possible label (hint: for each dimension of the IPA chart, check to see if the sounds have the same specification for that dimension; more dimensions → more specific).

5. [k], [g], [ŋ], ([x])

6. [p], [t], [k], ([ʔ])

7. [u], [ɑ], [ɔ]

8. [p], [ʃ], [f], [t], [h], [s], [θ], [k], ([ʔ]), ([x])

9. [v], [f]

10. [w], [l], [ɹ], [j]

Part 2: Reading the IPA (10 points)

Identify each of the English words for which an IPA transcription is given below.
Hint: Trusten Sie das Spelling nicht!

1. [wɪp]
2. [tɛlɪŋ]
3. [stɪnʤi]
4. [spaɪtfəl]
5. [ʤɚni]
6. [smʌðɚ]
7. [dɑlz]
8. [noʊteɪʃən]
9. [kloʊð]
10. [tɑɪɾi]

Part 3: Transcribing words with the IPA (10 points)

Transcribe each of the English words given below using the IPA.
Hint: "Who's the more foolish: the fool, or the fool who [trusts spelling]?"

-Obi Wan Kenobi

1. golden
2. time
3. oracle
4. state
5. champions
6. arena
7. warriors
8. splash
9. three
10. brothers

Part 4: Articulatory phonetics (30 points)

Describe in prose the articulatory process for pronouncing /tʃ/ and /ŋ/ in English. In your descriptions, please include the airstream mechanism (how is airflow generated), direction of airflow, the path (nasal or not) and (non-)centrality of airflow, the positions of relevant articulators and the voicing. As much as possible, try to get the correct ordering of the articulatory movements/events involved. Please try to be concise with your descriptions; bullet points work will be accepted.

Part 5: Spectrograms (20 points)

(8 points) Match the descriptions below with the corresponding spectrogram.
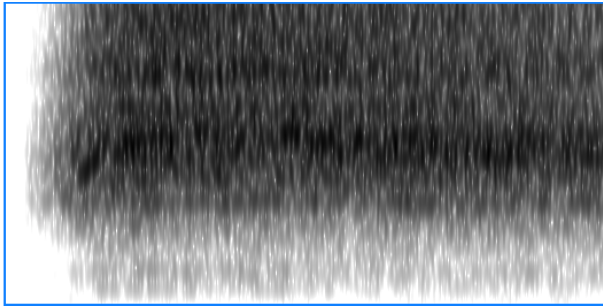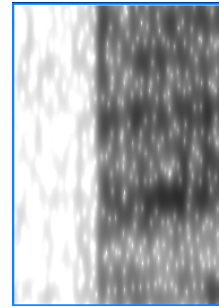
monophthong   voiceless oral stop   diphthong
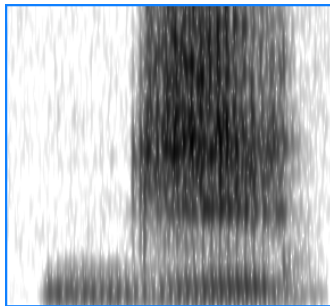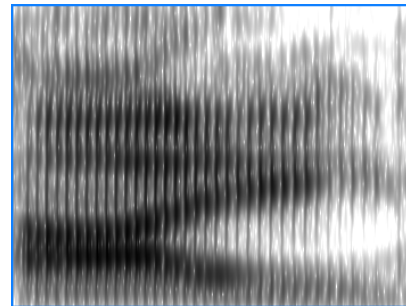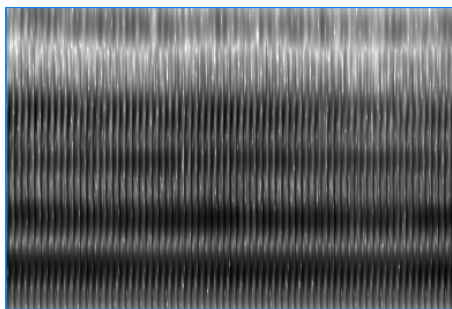voiceless fricative   voiced affricate

A

D

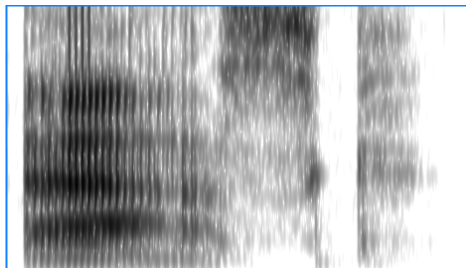
B

E

C

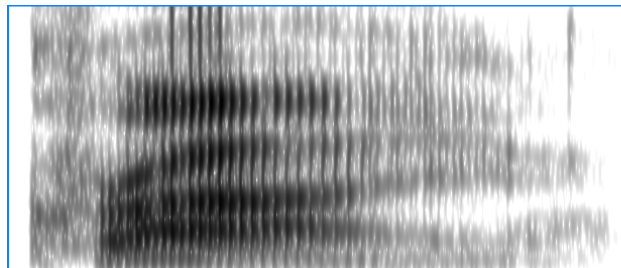(12 points) Match the words below with the corresponding spectrogram.
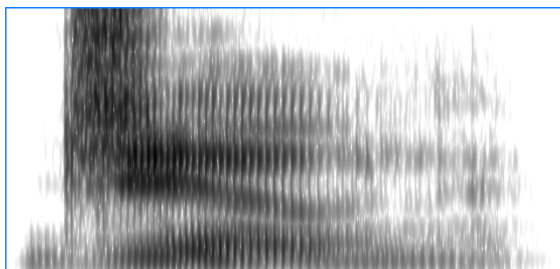
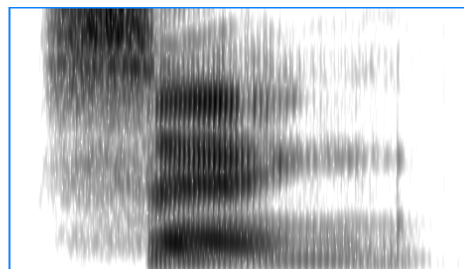June   leer   ask
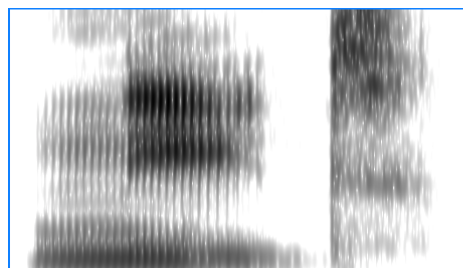cry   neat   sing

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