Linguistics 20, Homework 3

Michael Wu

UID: 404751542

TA: Eleanor Glewwe

Discussion 1F Friday 9:00-9:50 AM
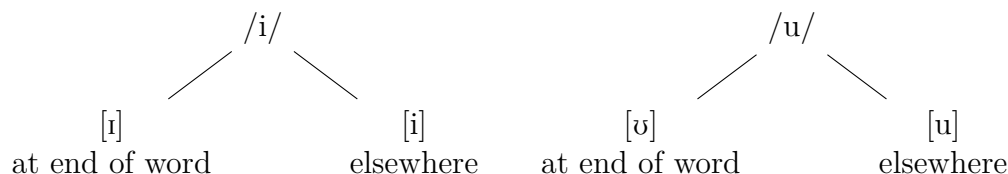
April 22nd, 2019

Chapter 3, Problem 1

They are separate phonemes, since [pʰul] has a different meaning from [pul]. This is a minimal pair where the aspirated sound changes the meaning of the word, indicating that they are different.

Chapter 3, Problem 2

i) The [i] and [u] sounds are different phonemes, since the minimal pair [iglumit] and [iglumut] have different meanings and only differ by these two sounds. The [a] and [u] sounds are different phonemes, since the minimal pair [anigavit] and [aniguvit] have different meanings and only differ by these two sounds. The [i] and [a] sounds are different phonemes, since the minimal pairs [ini] and [ani], [iglu] and [aglu], and [pinːa] and [panːa] have different meanings and only differ by these two sounds.

ii) [ɪ] is an allophone of the phoneme /i/. [ʊ] is an allophone of the phoneme /u/.

iii)

```
            /i/                              /u/
          /     \                          /     \
        [ɪ]      [i]                     [ʊ]      [u]
   at end of word  elsewhere      at end of word  elsewhere
```

iv) In addition to the features that shared by all vowels, the underlying phoneme of [ɪ] and the underlying phoneme of [ɛ] are also both high and tense. The single feature that distinguishes both [ɪ] from its underlying phoneme and [ʊ] from its underlying phoneme is that [ɪ] and [ʊ] are both lax vowels, while their underlying phonemes are tense.

Chapter 3, Problem 3

I believe [i] and [i̥] are allophones of the same phoneme. Both sounds are high front unrounded tense vowels, but [i] is voiced while [i̥] is unvoiced. In our dataset [i] and [i̥] occur in the following mutually exclusive environments.

| [i]	t_#, k_#, p_l, p_d
[i̥]	p_s, k_s, k_t

The sound [i̥] occurs in locations before a voiceless sound, while [i] occurs elsewhere.

```
                    /i/
                  /     \
               [i̥]       [i]
       before voiceless sound   elsewhere
```
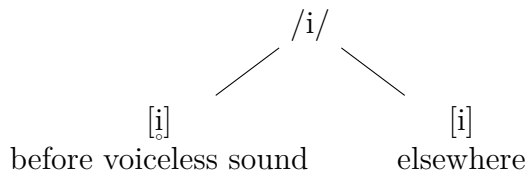
I believe [u] and [u̥] are allophones of the same phoneme. Both sounds are high back rounded tense vowels, but [u] is voiced while [u̥] is unvoiced. In our dataset [u] and [u̥] occur in the following mutually exclusive environments.

[u]	#_d, d_k, l_dʒ, dʒ_k
[u̥]	t_p, p_k, s_p

The sound [u̥] occurs in locations following a voiceless sound, while [u] occurs elsewhere.

/u/
[u̥]   [u]
following voiceless sound   elsewhere
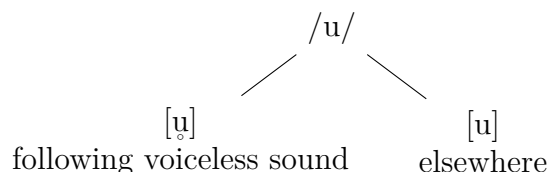
Chapter 3, Problem 4

I believe [b] and [ḅ] are separate phonemes. In our dataset [b] and [ḅ] occur in the following environments.

| [b]	#_a, #_i, #_o
[ḅ]	#_a, #_i, #_ɛ, #_ə

Although there is no minimal pair, they both occur in the shared environments #_a and #_i. Thus there is no rule making them allophones of the same phoneme, so they must be separate phonemes.

Chapter 3, Problem 5

I believe [b] and [β] are allophones of the same phoneme. Both sounds are voiced bilabial consonants, but [b] is a stop while [β] is a continuant. In our dataset [b] and [β] occur in the following mutually exclusive environments.

| [b]	#_r, #_a, m_r, m_o, #_i
[β]	i_o, o_i, a_e, i_a

The sound [β] occurs in positions following a vowel while [b] occurs elsewhere.

/b/
[β]   [b]
following a vowel   elsewhere
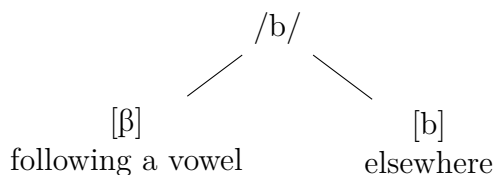
I believe [d] and [ð] are allophones of the same phoneme. Both sounds are voiced coronal consonants, but [d] is a stop while [ð] is a continuant. In our dataset [d] and [ð] occur in the following mutually exclusive environments.
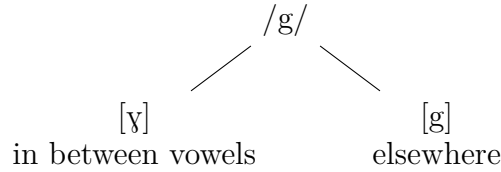
[d]	#_i, #_ũ, #_u, l_e, n_e, u_z
[ð]	u_e, y_ɛ, a_o

The sound [ð] occurs in positions that are in between vowels while [d] occurs elsewhere.

$$/d/$$

[ð]	[d]
in between vowels	elsewhere
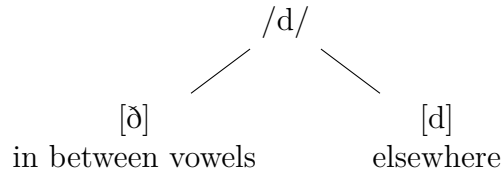
I believe [g] and [ɣ] are allophones of the same phoneme. Both sounds are voiced velar consonants, but [g] is a stop while [ɣ] is a continuant. In our dataset [g] and [ɣ] occur in the following mutually exclusive environments.

[g]	#_u, ŋ_w, #_a, ŋ_#, a_r
[ɣ]	i_a, i_u, u_ɛ

The sound [ɣ] occurs in positions that are in between vowels while [g] occurs elsewhere.

$$/g/$$

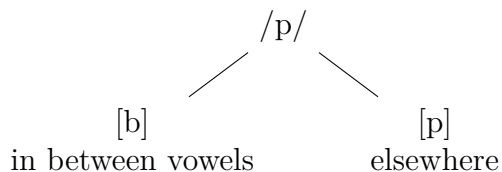| [ɣ]	[g]
in between vowels	elsewhere

Chapter 3, Problem 6

i) I believe [p] and [b] are allophones of the same phoneme. Both sounds are bilabial stopped consonants, but [p] is voiceless while [b] is voiced. In our dataset [p] and [b] occur in the following mutually exclusive environments.

[p]	#_a, i_t, a_#, ə_t, t_ə
[b]	i_i, a_ɛ, a_a, ə_ə, ɛ_u

The sound [b] occurs in positions that are in between vowels while [p] occurs elsewhere.

$$/\text{p}/$$

[b]
in between vowels

[p]
elsewhere

Chapter 3, Problem 11

a) Omitted.

b) [continuant]

c) [tense]

d) [high]

e) Omitted.

f) [anterior]

g) [tense]

h) [voice]

i) [reduced]

j) [strident]

k) [tense]

l) [high]

Chapter 3, Problem 12

a)

$$\begin{bmatrix} \text{-back} \\ \text{+tense} \end{bmatrix}$$

b)

$$\begin{bmatrix} \text{+continuant} \\ \text{CORONAL} \\ \text{-anterior} \end{bmatrix}$$

c)

$$\begin{bmatrix} \text{-round} \end{bmatrix}$$

d)

$$\begin{bmatrix} \text{+anterior} \\ \text{-voice} \end{bmatrix}$$

e)

$$\begin{bmatrix} \text{+voice} \end{bmatrix}$$

f)

$$\begin{bmatrix} \text{DORSAL} \\ \text{-back} \end{bmatrix}$$