CHAPTER 2. PHONETICS: THE SOUNDS OF LANGUAGE

Phonetics is the study of the articulation and perception of speech sounds. Important topics and concepts found in this section include the following:

1. International Phonetic Alphabet
2. Segments
3. Sound producing system
4. Consonant articulation
5. Vowel articulation
6. Phonetic transcription
7. Suprasegmentals
8. Processes

PHONETIC TRANSCRIPTION

The speech sounds of language are transcribed using the symbols found in the International Phonetic Alphabet (IPA). Here are some things to keep in mind when using the IPA:

- Each IPA symbol represents one and only one speech sound.
- Each speech sound found in language corresponds to one and only one IPA symbol.
- Since symbols represent sounds, the same symbols can be used in whatever language that sound occurs. See table 2.1 on p. 15 of the text for some examples of how the symbol [ð] can be used in different languages.

⇒ The focus in this chapter is on learning the sounds of English and their corresponding IPA symbols. For examples of some sounds not found in English and their IPA symbols, see tables 2.28 and 2.29 on p. 51.

⇒ It is important to remember that IPA symbols represent sounds and not how that sound is spelled in a particular language. To indicate this difference, symbols are enclosed in [ ] brackets. Don't forget to use them!

SEGMENTS

Words typically consist of a number of segments (individual speech sounds). Doing phonetic transcription involves determining what these segments are, along with their corresponding phonetic symbols. In doing transcription, it can be useful, as a starting point, to determine the number of segments in a word. But don't be fooled by spelling! Each of the following boxes illustrates a reason why we can't rely on spelling to determine the number of speech sounds in an English word.

Some letters or combinations of letters have more than one speech sound associated with them. In each of the example sets below, determine if the underlined letter (or letters) is pronounced the same way for all the words presented.

⇒	'o'	as in	h<u>o</u>t	ech<u>o</u>	w<u>o</u>man
⇒	'c'	as in	<u>c</u>areful	<u>c</u>entury	
⇒	'ou'	as in	sh<u>ou</u>ld	t<u>ough</u>	s<u>ou</u>nd

Sometimes one speech sound can be represented using different letters or combinations of letters. In each of the example sets below, determine if the underlined letters have the same or different speech sounds.

⇒	thr<u>ough</u>	cl<u>ue</u>	sh<u>oe</u>	t<u>oo</u>
⇒	r<u>ea</u>l	s<u>ee</u>	sorr<u>y</u>	Sh<u>ei</u>la
⇒	str<u>aw</u>	t<u>a</u>lk	f<u>ough</u>t	l<u>o</u>st

Many words in English contain double letters. Double letters do not necessarily mean that there are two speech sounds. Say each of the words below and determine if you pronounce the double letter twice.

str<u>ee</u>t	b<u>oo</u>k	mi<u>tt</u>en	ki<u>ll</u>er

Finally, many words in English contain silent letters. These are letters that we do not pronounce and that therefore do not correspond to a speech sound. Say each of the words below and determine if you pronounce all of the letters.

knife	leave	pneumonia	thumb

The above points also illustrate some of the reasons for using IPA rather than conventional spelling for doing phonetic transcription. In IPA, unlike in spelling, each symbol corresponds to only one sound and always the same sound. The lesson is . . . when you are doing phonetic transcription, you need to forget about spelling!

Practice! Practice! To get ready for transcription, try the following exercises.

1. Determine the number of speech sounds in each of the following words.

   a. thing _____ d. phosphate _____

   b. comb _____ e. scene _____

   c. psychic _____ f. fright _____

2. Say each of the following words. Which letter(s) correspond to the first sound in each word?

   a. Thomas _____ d. knee _____

   b. unemployed _____ e. choice _____

   c. committee _____ f. ease _____

3. Say each of the following words. Which letter(s) correspond to the last sound in each word?

   a. laugh _____ d. lamb _____

   b. sang _____ e. use _____

   c. bow _____ f. choice _____

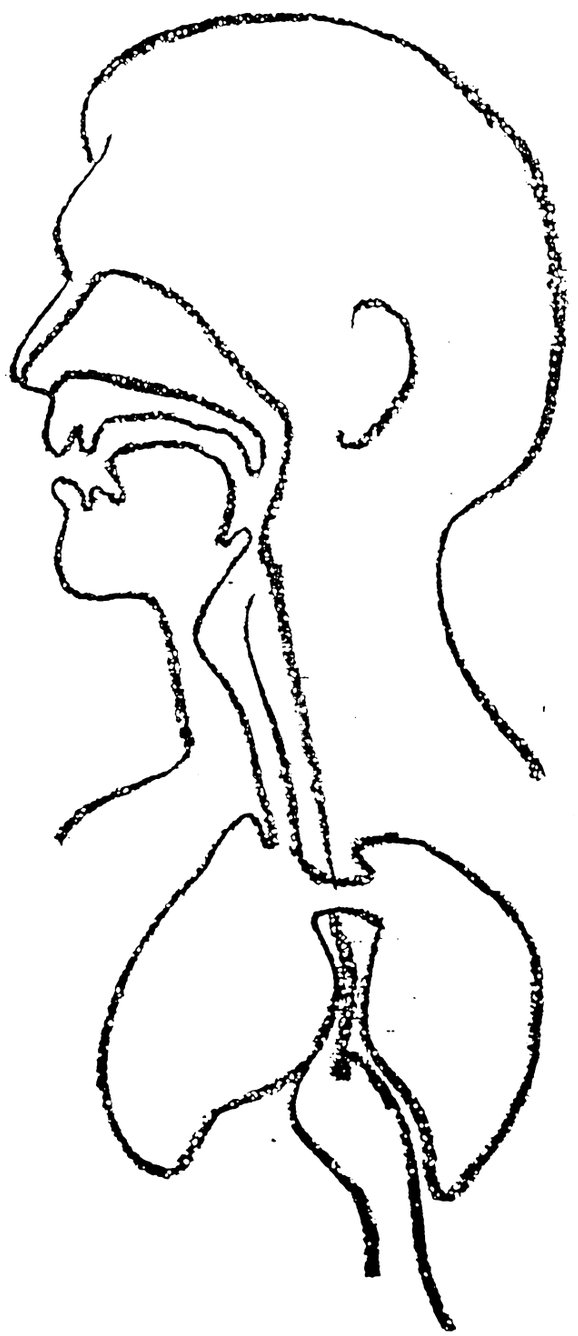
SOUND-PRODUCING SYSTEM

Human language contains a finite number of speech sounds, or phones. The system that produces these sounds includes the following.

⇒ **Lungs.** The lungs provide the moving air necessary for speech.

⇒ **Larynx.** The larynx contains the vocal folds (or cords) that provide the source of the sound. See figure 2.2 on p. 18 of the text for a representation of the larynx. The vocal folds can be positioned in different ways. The space between the vocal folds is called the glottis. The different positions of the vocal folds are called glottal states. There are four glottal states that you should be familiar with; see figure 2.3 on p. 19 for a representation of each of these states.

- Voiced
- Voiceless
- Whisper
- Murmur



⇒ **Pharynx.** This is the tube of the throat between the larynx and the oral cavity.

⇒ **Oral cavity.** This is the mouth.

⇒ **Nasal cavity.** This is also known as the nasal passages. The velum controls airflow through the nasal passages. Raising the velum cuts off airflow through the nasal passages. Lowering the velum allows air to flow through the nasal passages.

The pharynx, oral cavity, and nasal cavity act as filters that modify the sound in various ways. Together they constitute the vocal tract.

Try This! Label the different elements of the sound-producing system on the diagram on the opposite page. You can also label the trachea (windpipe) and the velum. If you're having difficulty, refer to figure 2.1 on p. 17 of the text.

SOUND CLASSES

Sounds can be divided into three major classes: consonants, vowels, and glides. Each class of sounds shares some phonetic properties. The defining characteristics of each class are given below.

⇒ **Consonants.** Consonants are sounds that can be either voiced or voiceless and that are made with a narrow or complete obstruction in the vocal tract. This is an articulatory characteristic of consonant sounds.

⇒ **Vowels.** Vowels are sounds that are typically voiced and that are made with little obstruction in the vocal tract. Vowels tend to be more sonorous than consonants. As a result, we perceive vowels as louder and longer lasting. This is an acoustic characteristic of vowels. Vowels are also classified as syllabic sounds, meaning that they can form the nucleus of a syllable.

⇒ **Glides.** Glides are sounds that have characteristics of both consonants and vowels. They are sometimes called semivowels or semiconsonants. Glides are like vowels in their articulation, but they are like consonants in that they never form the nucleus of a syllable.

Exercise! Each of the following words has one or more letters underlined. The underlined letters correspond to one sound. Identify this sound as a consonant, vowel, or glide. The first is done for you.

1. ro<u>tt</u>weiler consonant
2. thr<u>ough</u> _____
3. <u>l</u>ovely _____
4. <u>y</u>ear _____
5. my<u>th</u> _____
6. <u>wh</u>istle _____
7. s<u>u</u>ffer _____
8. ju<u>dge</u> _____

REMINDER!

Some types of consonants can also be syllabic (i.e., function as the nucleus of a syllable). For this reason, you should think of sounds not just as being consonants, vowels, or glides, but as being syllabic or non-syllabic elements. This will be useful in doing phonetic transcription and also when doing phonology (Chapter 3).

CONSONANT ARTICULATION

Consonants are sounds that are made with obstruction in the vocal tract. Consonants do not normally form the nucleus of a syllable and can be voiced or voiceless. The following pages contain information about consonants that you should become very familiar with.

Articulatory Description

All sounds, regardless of whether they are consonants, vowels, or glides, are described in terms of how they are articulated. This information is contained in the sound's articulatory description. Consonants and vowels are described differently. There are three parameters necessary to describe consonant (and glide) articulations.

1. Glottal state
2. Place of articulation
3. Manner of articulation

⇒ Glottal state refers to whether a sound is voiced or voiceless.

⇒ Place of articulation refers to where in the vocal tract an obstruction occurs. Places of articulation are found

- at the lips (labial)
- within the oral cavity (dental, alveolar, alveopalatal, palatal, velar, uvular)
- in the pharynx (pharyngeal)
- at the glottis (glottal)

See figure 2.5 on p. 23 of the text for diagrams of places of articulation at the lips (labial) and at some points within the oral cavity (alveolar, interdental, palatal, and velar).

Try This! Each place of articulation has an articulatory term used to describe sounds made at that particular spot in the vocal tract. For example, sounds made with the lips are called labial sounds. Give the articulatory term describing sounds made at each of the following places of articulation.

a. lips and teeth _____

b. hard palate _____

c. uvula _____

d. alveolar ridge _____

Now … Label all places of articulation on the diagram on the following page. For each place of articulation, give the corresponding articulatory term. You can also label the different parts of the tongue (tip, blade, body, back, and root). If you are having difficulty, refer to figure 2.4 on p. 22 of the text.

⇒ Manner of articulation refers to the different types of sounds resulting from different positions of the lips, tongue, velum, and glottis. Manners of articulation include

- Stops (see tables 2.3 and 2.4 on p. 26)
- Fricatives (see tables 2.5 and 2.6 on pp. 27 and 28)
- Affricates (see table 2.7 on p. 28)
- Nasals (see tables 2.3 and 2.4 on p. 26)
- Liquids (see table 2.10 on p. 31)
- Glides

Now … Fill in the chart on the following page with the consonant and glide sounds of Canadian English. If you are having difficulty, refer to table 2.12 on p. 33.

Now Try This!

1. Give the phonetic symbol for the first consonant in each of the following words.

a. through	_____	d. whistle	_____
b. shave	_____	e. phone	_____
c. knee	_____	f. queen	_____

2. Give the phonetic symbol for the last consonant in each of the following words.

a. laugh	_____	d. myth	_____
b. sang	_____	e. lamb	_____
c. choice	_____	f. box	_____

QUICK REMINDER!

Every sound has one and only one articulatory description. And every articulatory description corresponds to one and only one symbol in the International Phonetic Alphabet (IPA).

CANADIAN ENGLISH CONSONANT CHART

MANNER OF ARTICULATION	GLOTTAL STATE	PLACE OF ARTICULATION: Bilabial	Labiodental	Interdental	Alveolar	Alveopalatal/ Palatal	Velar	Glottal
Stop	voiceless							
	voiced							
Fricative	voiceless							
	voiced							
Affricate	voiceless							
	voiced							
Nasal	voiced							
Liquid a. lateral	voiced							
b. retroflex	voiced							
Glide	voiced							

Some more about …

Voiceless Stop Articulations

⇒ **Aspiration.** Sometimes when the voiceless stops [p, t, k] are pronounced, they are produced with a small puff of air. This puff of air is called aspiration and is represented as [ʰ]. Aspiration is caused by a delay in voicing. See figures 2.6, 2.7, and 2.8 on pp. 29 and 30 for some diagrams outlining when and why aspiration does and does not occur in English.

Try This! Say the words in the boxes below. Pay close attention to the first sound, and see if you can feel when aspiration does and does not occur. You can feel this extra release of air by putting your hand close to your mouth as you produce the words.

Voiceless Aspirated Stops		**Voiceless Unaspirated Stops**	
[pʰ]	pit punk	[p]	spit spunk
[tʰ]	take tab	[t]	stake stab
[kʰ]	kill car	[k]	skill scar

⇒ **Unreleased Stops.** Sometimes when the voiceless stops [p, t, k] are pronounced, they are not released. That is, the articulation ends with either the lips closed or the tongue on the place of articulation. The symbol for this articulation is a raised [˺].

Try This! Say the words in the boxes below. For the words in the first column, pay close attention to the first sound, and see if you can feel your lips opening or your tongue moving away from the place of articulation. For the words in the second column, pay close attention to the final sound and see if your lips remain closed or if your tongue remains at the place of articulation.

Voiceless Aspirated Stops		**Voiceless Unreleased Stops**	
[pʰ]	pit punk	[p˺]	cap leap
[tʰ]	take tab	[t˺]	pot most
[kʰ]	kill car	[k˺]	back sack

Fricative and Affricate Articulations

⇒ **Strident/Sibilant.** Some fricatives and affricates are noisier than others. Say the words in the box below. See if you can hear which fricatives and affricates are noisier. The noisier fricatives and affricates are considered to be strident (sibilant). The quieter fricatives and affricates are considered non-strident. This is an acoustic criterion used in describing fricatives and affricates.

Non Strident Fricatives		**Strident Fricatives & Affricates**	
[f] and [v]	fit vat	[s] and [z]	sip zen
[θ] and [ð]	thick though	[ʃ] and [ʒ]	ship pleasure
		[ʧ] and [ʤ]	cherub gem

Now … Go back to the Canadian English consonant chart on p. 17 and put a box around the group of fricatives and affricates considered to be strident. If you are having difficulty, see table 2.8 on p. 28.

Liquid and Nasal Articulations

l and *r* Articulations

⇒ *l*. Since [l] is normally voiced, *lateral* usually means voiced lateral. However, [l] can also be voiceless, in which case it is represented as [l̥]. Say the words in the table below and see if you can hear the difference between the voiced and voiceless laterals.

Voiced Lateral		**Voiceless Lateral**	
[l]	lip love lullaby lamp	[l̥]	please play clean clever

⇒ *r*. Like [l], [ɹ] (or less commonly, [ɻ]) is normally voiced. *Retroflex* therefore usually means voiced retroflex. Like [ɹ], it can also be voiceless, in which case it is represented as [ɹ̥]. English also has a flap sound, which is another type of sound commonly identified with *r*. A flap is made when the tip of the tongue strikes the alveolar ridge as it passes by. [ɾ] represents a flap. Say the words in the following table and see if you can hear the difference between the voiced and voiceless [ɹ], and the flap.

Voiced Retroflex		Voiceless Retroflex		Flap	
[ɹ]	ride right car	[ɻ̥]	pray train crayon	[ɾ]	bitter butter

⇒ **Alveolar and Velarized *l*.** Not every lateral [l] is pronounced in the same way. Say the words in the table below. Pay close attention to where your tongue is when you articulate the [l] sound. See if you can feel if your tongue is more towards the front or back of your mouth. The [l] in the first group is considered to have an alveolar articulation, while the [l] in the second group is considered to be velarized. The alveolar [l] is often called "clear l" and the velarized [l] "dark l".

Alveolar *l* (clear)		Velarized *l* (dark)	
[l]	lip love lullaby	[ɬ]	swallow guilt silk

⇒ **Syllabic and Non-syllabic.** Liquid and nasal articulations can be either syllabic or non-syllabic. Remember that a syllabic sound (e.g., a vowel) forms the nucleus of a syllable. It is only when a liquid or nasal forms the nucleus of a syllable that it is considered to be syllabic. If the liquid or nasal does not form the nucleus of a syllable, it is considered to be non-syllabic. Say the words in the table below and see if you can hear when the liquid or nasal is syllabic and when it is non-syllabic. See table 2.11 on p. 32 for some more examples of English syllabic and non-syllabic liquids and nasals.

	Some syllabic sounds	Some non-syllabic sounds
Liquids	twinkle father	lawn rain
Nasals	glutton winsome	hamburger master

Exercise!

1. Say the following words. Put a checkmark beside those words containing aspirated voiceless stops.

   1. scratch _____ 4. pending _____
   2. talk _____ 5. stripe _____
   3. segments _____ 6. careful _____

2. Say the following words. Put a checkmark beside those words containing a syllabic liquid or nasal.

   a. laugh _____ e. kitten _____
   b. bottom _____ f. bushel _____
   c. mad _____ g. rugby _____
   d. suffer _____ h. note _____

3. Say the following words. Put a checkmark beside those words containing a velarized (dark) [*l*].

   a. malign _____ d. pull _____
   b. silly _____ e. lamb _____
   c. allow _____ f. meal _____

VOWEL ARTICULATION

Vowels are sounds that are sonorant, are articulated with little obstruction in the vocal tract, and are syllabic (can form the nucleus of a syllable). Vowels are also usually voiced.

Articulatory Description

Four parameters are necessary to describe vowel articulations.

1. Height
2. Backness
3. Tenseness
4. Roundness

⇒ Different vowel sounds are made by varying the position of the body of the tongue. High, mid, and low (height), and front and back (backness) are used to describe tongue placement.

⇒ Tenseness refers to the amount of constriction in the vocal tract muscles when the sound is articulated. Vowels made with greater constriction are described as tense. Vowels made with less constriction are described as lax. Tense vowels tend to be longer than lax vowels.

⇒ Roundness refers to whether the lips are rounded. Vowels with the lips rounded are described as rounded; vowels without lip rounding are described as unrounded.

Simple Vowels and Diphthongs

⇒ Simple vowels are vowels whose quality does not change during their articulation, while diphthongs are vowels that exhibit a change in quality within a single syllable. This change in quality is the result of the tongue moving away from a vowel articulation to a glide articulation. Say the words in the table below and see if you can hear the change in quality during a diphthong articulation.

Some simple vowels	Some diphthongs
sit	boy
lost	now
cup	cry
met	pray
bat	sew

⇒ Diphthongs can be classified as either major or minor. The major diphthongs are those whose quality change is easy to hear. The quality change in the minor diphthongs is harder to hear. Say the words containing diphthongs in the above table again, and see if you can tell which are the major diphthongs and which the minor diphthongs.

See table 2.13 on p. 35 of the text for some examples of simple vowels, and major and minor diphthongs in Canadian English.

Some other vowels …

⇒ [a] is found in Canadian English as a single vowel only before [r] in words such as *car*.

⇒ [ɔ] is found in Canadian English only before [r] in words such as *more*.

Now … Fill in the chart on the following page with the phonetic symbols corresponding to both the simple vowels and diphthongs found in Canadian English. Circle all tense vowels. See figure 2.11 on p. 37 if you are having difficulty.

Practice! Give the phonetic symbol for the vowel sound in each of the following English words.

a. stool_____ d. pot _____

b. sight_____ e. sit _____

c. meet_____ f. put _____

QUICK REMINDER

For every articulatory description, you need to be able to provide the corresponding phonetic symbol:

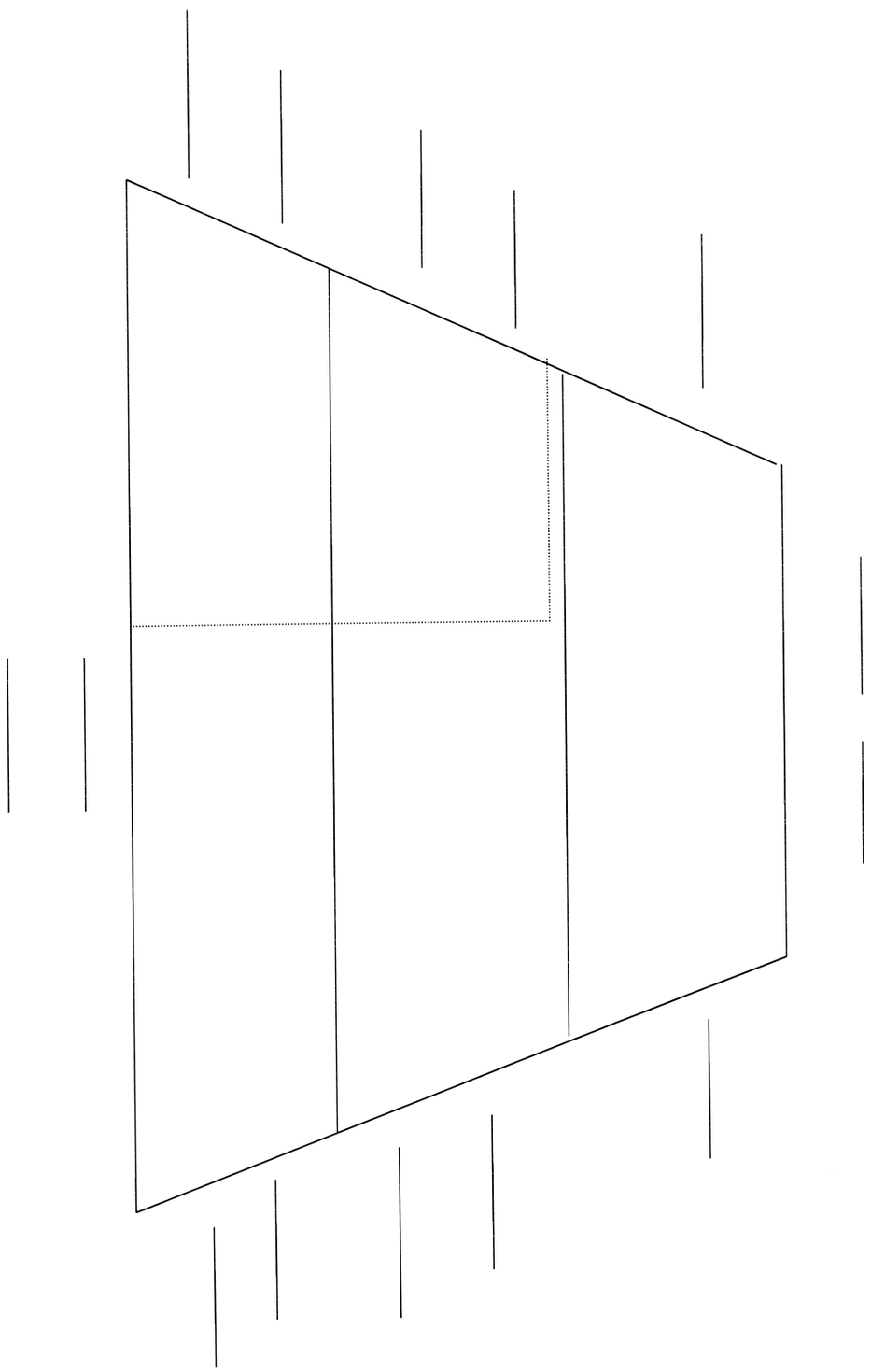
e.g., voiceless bilabial stop → [p]

For every phonetic symbol, you need to be able to provide the corresponding articulatory description:

e.g., [p] → voiceless bilabial stop

You need to be able to do this for both consonants and vowels!

CANADIAN ENGLISH VOWEL CHART

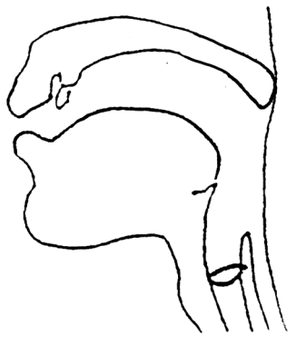


FACIAL DIAGRAMS FOR CONSONANTS

There are four important parts to either completing or deciphering facial diagrams for consonants.

Glottal State. Voiced sounds are shown by two wavy lines where the larynx would be. Voiceless sounds are represented by two lines shaped like an ellipse.

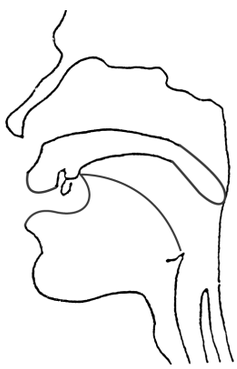
Voiced



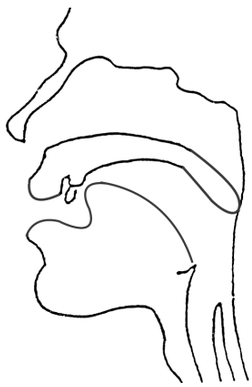
Voiceless

Place of Articulation. The narrowest point in the airstream passage is the place of articulation.

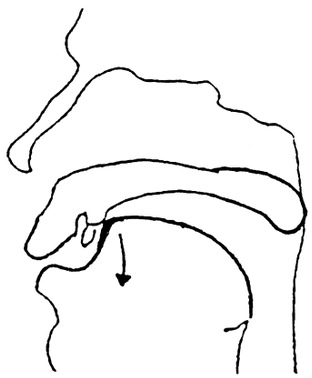
Manner of Articulation. If no air escapes past a given articulator (i.e., in a stop), then the articulator must touch the place of articulation. If the air does escape (i.e., in a fricative), then there is a space between the articulator and the place of articulation. If the sound is an affricate, then the diagram is shown with the articulator touching the place of articulation and an arrow indicating the direction in which the articulator moves.



Stop



Fricative



Affricate

Nasal Passage. For oral sounds, the nasal passage is closed, while for nasal sounds the nasal passage is open.

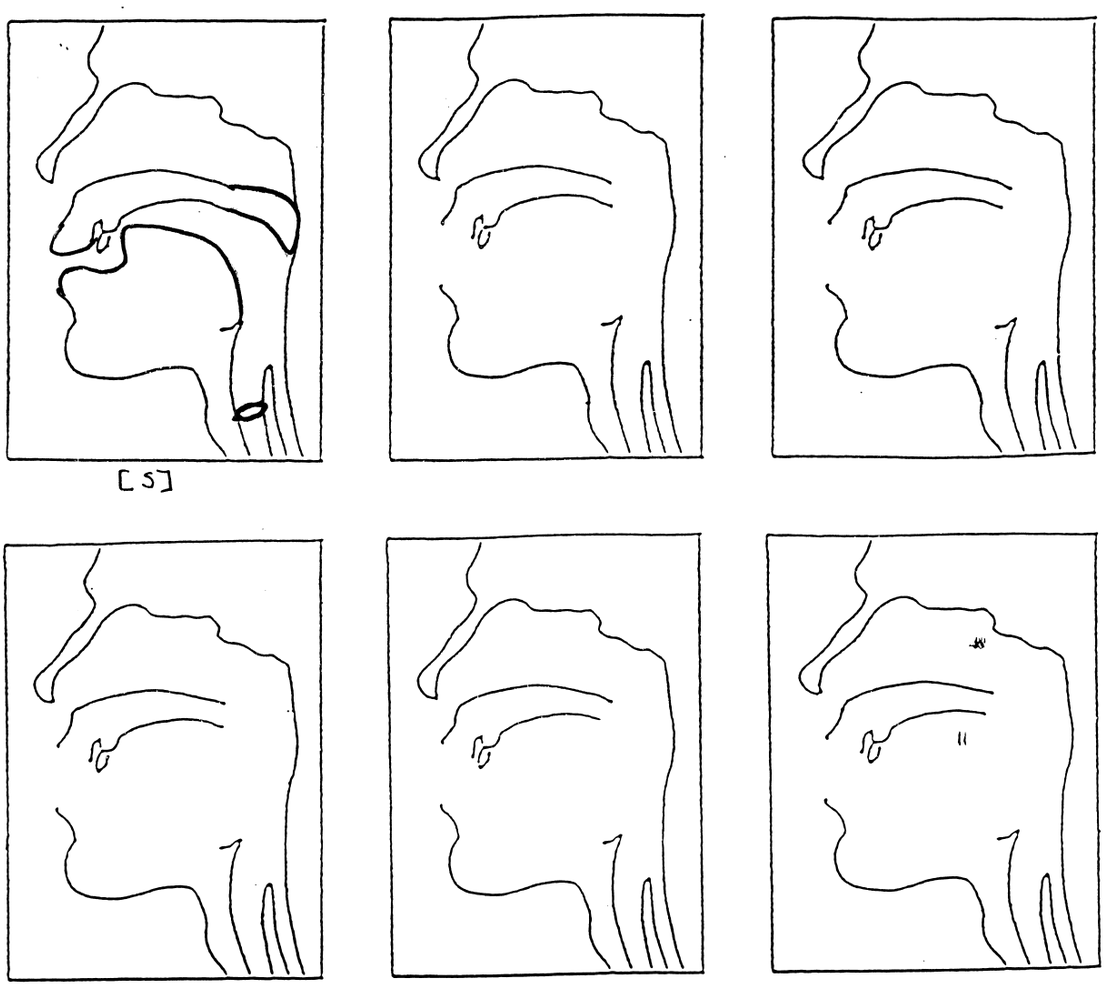
Complete the following diagrams so that each of the sounds listed below is depicted.

1. [s]
2. [p]
3. [ʧ]
4. [n]
5. [g]
6. [ð]

To complete the diagrams, you must do the following:

- Draw in the glottal state: either voiced or voiceless.
- Draw in the lips: either closed or open.
- Draw the tongue to indicate the place of articulation (see figure 2.5 on p. 23 for some examples) and the manner of articulation.
- Draw in the velum: either raised or lowered.

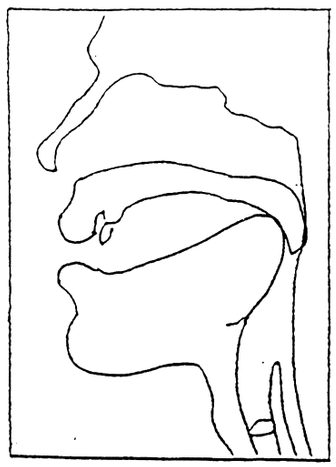
The first sound has been done for you.

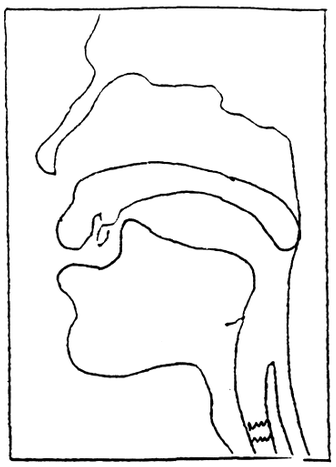


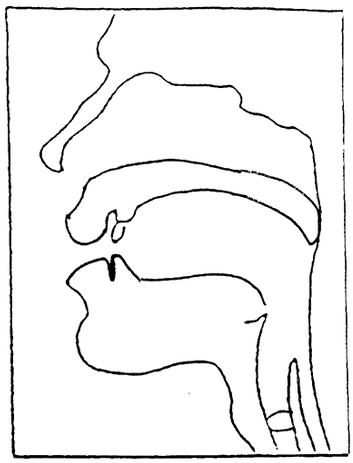
For each drawing presented below, there is only one sound that could be produced by the vocal tract position. You are to figure out which consonant sound is represented and write the phonetic symbol for that sound between square brackets below the drawing.

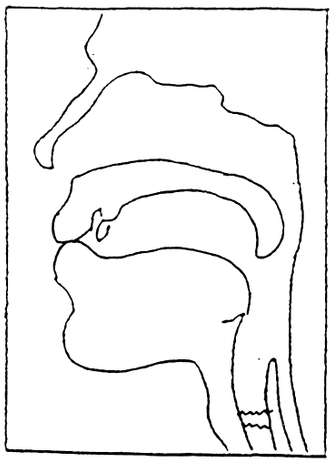
Make sure that you pay attention to voicing, place and manner of articulation, and the position of the velum.

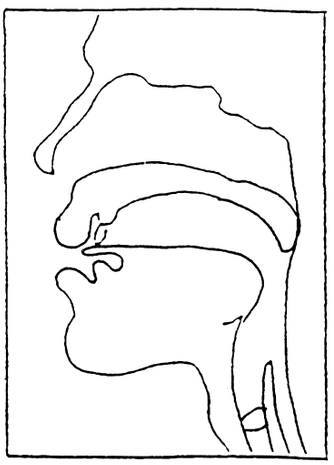
The first drawing has been labelled for you.

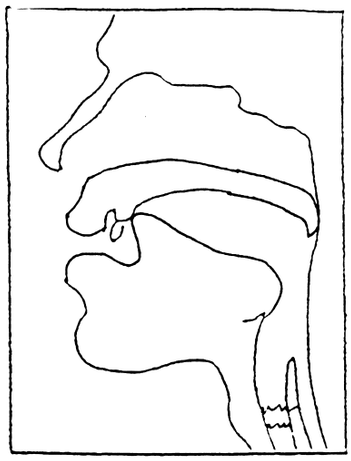












FACIAL DIAGRAMS FOR VOWELS

There are four important parts to either completing or deciphering facial diagrams for vowels.

Glottal State. Vowels are always voiced. As on facial diagrams for consonants, voicing is shown by two wavy lines where the larynx would be.

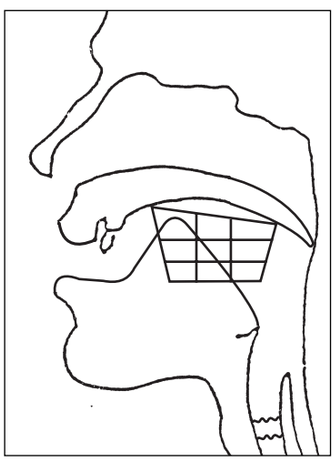
Nasal Passage. For oral vowels, the nasal passage is closed, while for nasal vowels, the nasal passage is open.

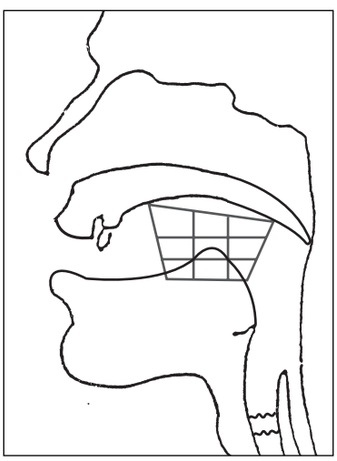
Lip Position. Vowels are either rounded or unrounded. For rounded vowels, the lips are closer together, while for unrounded vowels, the lips are more spread apart.

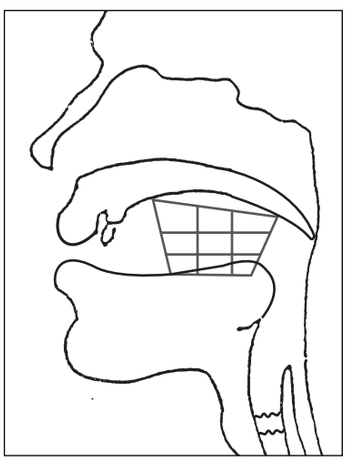
Unrounded:

Rounded:

Tongue Placement. The height and position of the tongue determine the particular vowel articulation being depicted. For example, if the front of the tongue is high in the mouth, then a high front vowel results. If the main body of the tongue is neither high nor low, then a mid central vowel results. If the back of the tongue is low, then a low back vowel results.





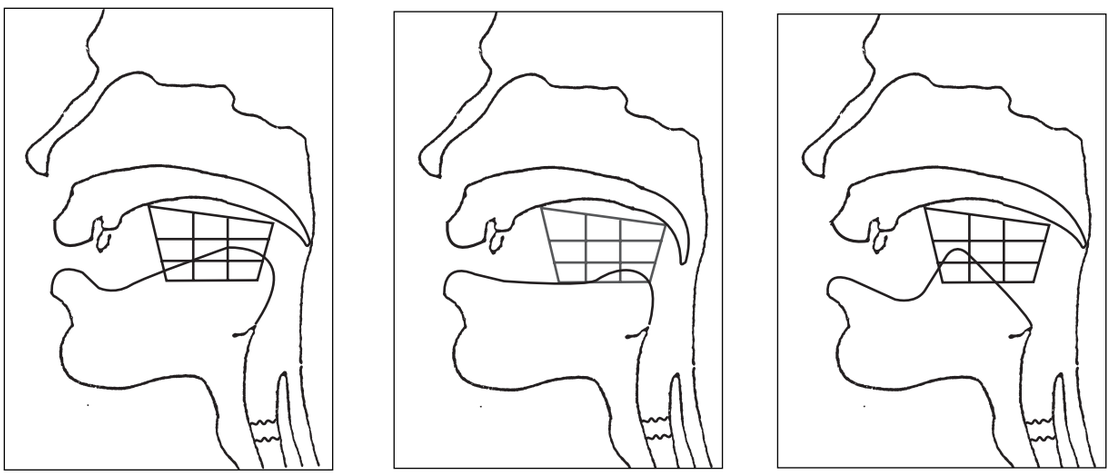


Complete the following diagrams so that each of the sounds listed below are depicted.
1. [æ] 2. [ʌ] 3. [ĩ]

To complete the diagrams, you must do the following:

- Draw in the glottal state.
- Draw in the velum: either raised or lowered.
- Draw in the lips: either rounded or unrounded.
- Draw the appropriate portion of the tongue to the appropriate height.

For each drawing presented below, determine which vowel sound is represented and write the phonetic symbol for that sound between the brackets below the drawing.



[ ] or [ ] [ ] [ ]

PRACTICE WITH SOUNDS

1. Give the phonetic symbol for each of the following articulatory descriptions.

   a. [ ] voiceless glottal stop

   b. [ ] high front unrounded tense vowel

   c. [ ] voiced bilabial nasal

   d. [ ] voiceless interdental fricative

2. Give the articulatory description that corresponds to each of the following phonetic symbols.

   a. [æ] _____

   b. [f] _____

   c. [j] _____

   d. [ʌ] _____

3. Each of the following groups of sounds contains at least one shared phonetic property (e.g., glottal state, place of articulation, manner of articulation, tongue height, lip position, etc.). For each group of sounds, give some phonetic properties that the sounds have in common. Include as many as possible.

   a. [b, d, g] _____

   b. [ʃ, ʧ, ʒ] _____

   c. [j, r, n] _____

   d. [ɑ, o, ʊ] _____

   e. [æ, ɪ, ɛ] _____

4. For each of the following groups of sounds, circle the sound that does not belong and state a phonetic property that the remaining sounds share. There may be more than one possible answer!

   a. [f ð v z] _____

   b. [d t n g] _____

   c. [ɑ o ɪ u] _____

TRANSCRIPTION HINTS

Each of the boxes below contains some examples of sounds that often cause difficulty when students are beginning to do transcription. For more examples of transcribed words containing Canadian English vowel and consonant symbols, see tables 2.16 and 2.17 on pp. 39 and 40.

SYLLABIC CONSONANTS

r	[r] for the 'r' sound in 'real', 'right', etc. [ər], [ɻ], or [ɚ] for the syllabic 'r' sound in 'butter', 'bird', 'purr', etc. [ɾ] for the 't' sound in words like 'butter', 'writer', 'putter', 'potter', etc.
l	[l] for the 'l' sound in 'light', 'pill', 'please', etc. [əl] or [l̩] for the syllabic 'l' in 'bottle', 'puddle', 'poodle', etc.
m	[m̩] for the syllabic 'm' in 'bottom', 'winsome', etc. [m] for any other 'm' sound
n	[n̩] for the syllabic 'n' in 'button', 'hidden', etc. [n] for any other 'n' sound

DIPHTHONGS

Diphthongs are transcribed as vowel-glide sequences. Remember that diphthongs are a single speech sound. Remember as well that diphthongs are described in terms of the vowel, not the glide.

- Use [a], not [ɑ], for the major diphthongs (i.e., [aj], [aw], not [ɑj], [ɑw]). The symbols [a] and [ɑ] do not represent the same vowel sound.
- The mid tense vowels [e] and [o] are considered to be minor diphthongs and are transcribed as [ej] and [ow].
- The high tense vowels [i] and [u] are sometimes also considered to be minor diphthongs. You may be required to transcribe these as [ij] and [uw].

VOWELS BEFORE [r]

[r] is a very powerful sound, making it difficult to hear the preceding vowel sound. The following examples may help.

[bir]	beer	[bɔr]	boar	[bejr]	bear
[bar]	bar	[bur]	boor	[bər], [bɻ̩], or [bɚ]	burr

SCHWA AND WEDGE

Schwa [ə]	Wedge [ʌ]
– used for unstressed vowels e.g., [əbawt] 'about' – found before [r] e.g., [bərd] 'bird' – used in the words 'the' and 'a'	– used when there is some degree of stress on the vowel e.g., [sʌ́pər] 'supper' – not found before [r]

ASPIRATION

p, t, k	use [pʰ, tʰ, kʰ] for any 'p', 't', 'k' sound that occurs at the beginning of a syllable followed by a vowel that receives some degree of stress. e.g., [pʰæt] 'pat', [tʰɑt] 'taught', [kʰejk] 'cake' [əpʰír] 'appear', [ətʰǽk] 'attack'
	use [p, t, k] for any other 'p', 't', 'k' sound. e.g., [splæt] 'splat', [stown] 'stone', [skejt] 'skate'

You may also be required to transcribe the following:

⇒ Unreleased voiceless stops. Use the symbol [˺].

⇒ Velarized *l*. Use the symbol [ɬ].

TRANSCRIPTION EXERCISES

A Start! Transcribe the following words as you would say them in normal everyday speech. Remember to include brackets and remember to forget spelling. Watch out for syllabic consonants!

1. craft
2. rich
3. thought
4. sigh
5. tape
6. had
7. health
8. vague
9. exit
10. luge
11. rooster
12. sugar
13. frog
14. instead
15. unit
16. paddle
17. bottom
18. question
19. angel
20. church

Vowel Practice!

1. key
2. cheese
3. bone
4. due
5. ate
6. east
7. loaf
8. wheeze
9. mainsheet
10. made
11. through
12. throw

More Vowels! This time watch out for vowels before *r* sounds.

1. cheer
2. there
3. chair
4. car
5. star
6. score
7. sir
8. her
9. floor
10. oar
11. horse
12. course
13. heart
14. hard
15. harm
16. sharp
17. shirt
18. thwart

Practice with Diphthongs. Transcribe the following words as you would say them in normal everyday speech. Watch out for those diphthongs!

1. voice
2. trial
3. bicycle
4. hour
5. oily
6. goat
7. eyes
8. prize
9. embroider
10. sailing
11. crow
12. cried
13. prowl
14. counter
15. lazy
16. knifed
17. down
18. daze

Remember … transcription takes a lot of practice!

Practice with Schwa and Wedge. In this one, pay close attention to the schwa and wedge sounds. You might want to determine which vowel gets primary stress to help you out.

1. sludge
2. thunder
3. hung
4. quality
5. behave
6. oven
7. luck
8. separate
9. stuff
10. nation
11. announce
12. understand

One More Try! This one has everything in it. Again, transcribe as you would say the word in normal everyday speech. Watch out . . . they get harder!

1. days
2. agitate
3. gnome
4. Xerox
5. roast
6. pinstripe
7. guess
8. theatrical
9. masculine
10. yellow
11. bargain
12. precious
13. science
14. machine
15. formula
16. motorcycle
17. surrounded
18. comedy
19. extinguish
20. costume
21. graduate
22. implement
23. ponder
24. irrigate
25. isolate
26. timetable
27. unforgivable
28. frighten
29. lemonade
30. called

Reverse Transcription. Give the correctly spelled English word for each of the following transcriptions.

1. [liʒər]
2. [ʃaj]
3. [pʰajp]
4. [æks]
5. [swit]
6. [sɑfənd]
7. [wərði]
8. [tʰub]
9. [fowni]
10. [wʌns]
11. [ʧojs]
12. [stætʃuw]
13. [ʃejd]
14. [mɛnʃən]
15. [skwɛr]

SUPRASEGMENTALS

Suprasegmentals refer to inherent properties that are part of all sounds regardless of their place or manner of articulation. The three main suprasegmentals are pitch, length, and stress. Pitch is further divided into tone and intonation.

Pitch

⇒ Tone languages are languages in which pitch movement is used to signal differences in meaning. Mandarin Chinese is a good example. Tone languages may use register and/or contour tones. A register tone is a level pitch, while a contour tone is a moving pitch. See figure 2.14 on p. 42 for some examples of register and contour tones in Mandarin. Figures 2.12 and 2.15 on pp. 41 and 42 give some examples from other tone languages.

⇒ Intonation is pitch movement that is not related to differences in word meaning. For example, rising pitch is often used to signal a question (an incomplete utterance), and falling intonation a statement (a complete utterance). See figures 2.16 to 2.19 on p. 43 of the text for some examples of different intonations and their representation.

Length

⇒ Long vowels and consonants are sounds whose articulation simply takes longer relative to other vowels and consonants. Length is indicated with [ː]. See table 2.19 on p. 44 for some examples of short and long vowels in Yapese and table 2.20 on p. 45 for some examples of short and long consonants in Italian.

Stress

⇒ Stress is associated with vowels. Stressed vowels are perceived as more prominent than other vowels. The most prominent vowel receives primary stress. Primary stress is usually indicated with [ˊ]. In English, stressed vowels tend to be higher in pitch, louder, and longer than unstressed vowels. See table 2.21 on p. 45 for some examples of differing stress placement in English.

Exercise! Mark primary stress on each of the following words.

1. scorned
2. discovery
3. explosion
4. genius
5. macaroni
6. duplicate
7. dictate
8. occupied
9. informative
10. idolize

Now … Go back and transcribe each word.

PROCESSES

Processes describe articulatory adjustments that occur during speech. Processes typically function to make words easier to articulate. Processes also occur to make speech easier to perceive. The boxes below define and illustrate the different articulatory processes found in language.

ASSIMILATION

Assimilation involves sounds changing to become more like nearby sounds. While there are many different kinds of assimilation, in general, assimilation can be divided into three main types:

1. Voicing Assimilation:
   - A sound takes on the same voice as a nearby sound
   - Includes voicing
     devoicing

2. Assimilation for Place of Articulation:
   - A sound takes on the same place of articulation as a nearby sound.
   - Includes palatalization
     homorganic nasal assimilation . . . and more!

3. Assimilation for Manner of Articulation:
   - A sound takes on the same manner of articulation as a nearby sound
   - Includes nasalization
     flapping . . . and more!

In addition … some types of assimilation, such as nasalization, can be either regressive or progressive. In regressive assimilation, a segment takes on some characteristic of the following segment. That is, a sound is influenced by what comes after it. In progressive assimilation, a segment takes on some characteristic of the preceding segment. That is, a sound is influenced by what comes before it. See tables 2.22 and 2.24 on pp. 47 and 48 of the text for examples of progressive assimilation, and table 2.23 on p. 48 for examples of regressive assimilation.

DISSIMILATION

A sound changes to become less like a nearby sound so that the resulting sequence of sounds is easier to pronounce: e.g., fifths: [fɪfθs] → [fɪfts].

DELETION

The process of deletion simply removes a sound from a phonetic context. Deletion frequently occurs in rapid speech: e.g., fifths: [fɪfθs] → [fɪfs]. See table 2.25 on p. 49 for some examples of schwa deletion in English.

EPENTHESIS

The process of epenthesis adds a segment to a phonetic context. Epenthesis is common in casual speech: e.g., warmth: [warmθ] → [warmpθ]. See tables 2.26 and 2.27 on p. 50 for more examples of this process.

METATHESIS

Metathesis is a process that changes the order of segments: e.g., prescribe → perscribe. Metathesis is common in the speech of young children: e.g., animal → aminal.

VOWEL REDUCTION

In vowel reduction, vowels move to a more central position when they are in unstressed syllables. That is, a vowel is pronounced as a full vowel when in a stressed syllable, and as a schwa when in an unstressed syllable.

Identifying Processes … To identify processes, you need to look for differences between the starting and ending pronunciations.

⇒ If a sound is missing, **deletion** has occurred.
⇒ If a sound has been added, **epenthesis** has occurred.
⇒ If the order of sounds has changed, **metathesis** has occurred.
⇒ If a sound has changed, you need to determine if either **assimilation** or **dissimilation** has occurred. To do this, take the following steps:
- Determine the phonetic property that has changed (voice, place, or manner of articulation).
- Compare this phonetic property with the phonetic properties of the nearby sounds.
- If the changed phonetic property matches a phonetic property of a nearby sound, then **assimilation** has occurred. The phonetic property that matches will tell you the specific type of assimilation that has occurred.
- If the phonetic properties do not match, then **dissimilation** has occurred.

Remember … For assimilation, you also need to be able to identify when processes such as nasalization or place of articulation assimilation are regressive and when they are progressive. To determine this, you need to look at whether the influencing sound comes before (progressive) or after (regressive) the sound that is undergoing the change.

An example …

prince: [prɪns] → [prɪ̃nts]

⇒ [t] occurs in the final pronunciation but not the starting; therefore, epenthesis has occurred.

⇒ [ɪ] has changed to [ɪ̃]. Remember that [˜] indicates a nasalized sound. The vowel, therefore, has changed from an oral to a nasal sound, and since the following sound is a nasal, assimilation–in particular nasalization–has occurred. The influencing sound is the following nasal, meaning that the nasalization is regressive.

The change in the pronunciation of the word 'prince' from [prɪns] to [prɪ̃nts] involves two processes: epenthesis and regressive nasalization.

Try These! Identify the process(es) at work in each of the following:

1. ask: [æsk] → [æks] _____
2. winter: [wɪntər] → [wɪ̃nər] _____
3. clear: [kl̥ir] → [kəlir] _____
4. puddle: [pʰʌdəl] → [pʰʌɾəl] _____
5. sixths: [sɪksθs] → [sɪksts] _____
6. wash: [wɑʃ] → [wɑrʃ] _____
7. sandwich: [sændwɪʧ] → [sæ̃mwɪʧ] _____

REVIEW! REVIEW! Make sure you know the following:

- the different parts of the sound-producing system, including the vocal tract
- the difference between voiced and voiceless sounds
- the difference between nasal and oral sounds
- the characteristics of consonants, glides, and vowels
- the places and manners of articulation for consonant sounds
- the different tongue placements required to describe vowels
- the difference between tense and lax, and rounded and unrounded vowels
- the symbols and articulatory descriptions for English consonants
- the strident fricatives and affricates
- the symbols and articulatory descriptions for English vowels
- when and why aspiration occurs
- how to complete and decipher facial diagrams
- how to identify processes
- the suprasegmentals of tone, intonation, length, and stress
- transcription, transcription, transcription!

QUESTIONS? PROBLEMS? DIFFICULTIES?