5.6 Phonetics 4

This tutorial introduces the vowel sounds. We will see how vowels are classified according to how they are formed in the mouth when they are said. We will also see where the particular vowel sounds of Australian English are represented on the IPA chart.

Introduction to Vowels

Remember that we said the difference between consonants and vowels is that consonants involve a significant obstruction of the airflow, but vowels don't. This means that *place of articulation* and *manner of articulation* don't apply to vowels, since those terms refer to an obstruction of the airflow.

So vowels are classified differently to consonants, and they are charted in a separate diagram on the IPA for that reason. We classify vowels on the basis of three factors - two are to do with the position of tongue - *height* and *backness* - and one has to do with the shape of the lips - *rounding*. We will be looking at these factors below.

Voicing also applies to vowels; they can be voiced or voiceless. However, because vowels are normally voiced, we don't bother mentioning voicing when we describe vowels. You should be aware though, that in some languages there are voiceless vowels.

Height, backness and rounding

When we make a vowel sound, our tongue is in a particular position to make that particular sound - it is at a certain *height* in the mouth, and at a certain place *forward or backward* in the mouth.

There are 3 degrees of *backness*: **front**, **central**, and **back**.

There are 4 degrees of *height*: **high**, **mid-high**, **mid-low**, and **low** (also called **close**, **close-mid**, **open-mid**, and **open**).

As well as backness and height of the tongue, another factor that effects which vowel sound is made is the shape of the lips. There are two basic lip shapes, **rounded** and **unrounded**.

Say the words "Oh, no!" - notice the shape of your lips - they are rounded.

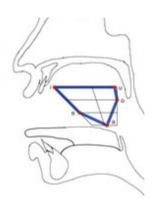
Now say the words "It is!" - now your lips are unrounded.



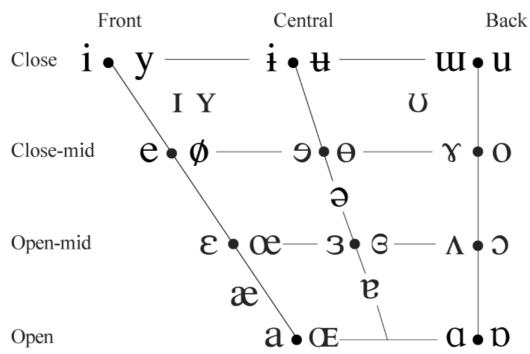
The name of every vowel will include its height, backness, and roundedness. For example, the vowel in the word see is referred to as *a high front unrounded vowel*.

The Vowel Chart

Vowels are represented on the *vowel chart* - you can see the IPA vowel chart below. This is not just a table - it is actually a schematic representation of the inside of the mouth - the way the vowels are laid out on the chart corresponds to their height, backness and rounding (see the diagram at right).



VOWELS



Where symbols appear in pairs, the one to the right represents a rounded vowel.

All vowels in all languages can be plotted somewhere on the vowel chart. Of course, no language has vowels in *all* the positions marked on the chart, and vowels can fall somewhere between the main vowel positions as well. For example, in Australian English we do not have vowels in the very low front position [a], but we do have the vowel [æ], which is produced somewhere between low front [a] and low-mid front [ϵ].

Each individual dialect has a *limited and specific set of vowels* that are consistent in that dialect. Each vowel sound is represented by a specific IPA symbol - one vowel sound has only one symbol - so that when you see a particular symbol, you know exactly which sound it represents in that dialect. We are going to focus only on the vowels in Australian English for now - identifying which particular vowels are used in that dialect.

Some vowels used in Australian English are not the same as American English or British English. The difference in vowels is one of the main reasons we hear different English "accents" - British, American, Scottish, Australian.

Front vowels

The first vowel we will look at is the vowel sound in see, he, and leap (note that this sound is spelled in a couple different ways in English). This vowel is made

at the highest point of the tongue for a vowel, and also at the most forward point of the tongue that's used for making vowels. The lips are unrounded, which is why we call it *high front unrounded*. The symbol for it is [i]. You must be careful with the symbols for vowels, since they often don't stand for what you might expect them to stand for: [i] stands for the vowel sound in see, he, and leap and not the vowel in bit.

Now let's think about the vowel in the word pet, bed and met. The front of the tongue is still raised, but not as much as for the vowel in see. The lips again are unrounded. We call this vowel a mid-low front $unrounded\ vowel$, and the symbol for it is $[\epsilon]$.

Some people use the letter <e>as the symbol for the vowel in bet, i.e. [e], and if you look at the IPA chart you'll see that this symbol corresponds to a mid-high front unrounded vowel. The reason for the use of different symbols is that this vowel falls between the mid-high and mid-low levels, and in some accents of English it's higher than in others; which symbol a phonetician uses depends on which accent of English he is describing.



Another front vowel is the vowel sound in the words *bat* and *glad* (in Australian English). If you look at the IPA chart you'll see that it's quite low, though not at the bottom of the chart, and we can refer to it as a *low front unrounded vowel*. The symbol for it is an a and an a poined together: a

If you look the IPA vowel chart you'll see that there's a completely low front unrounded vowel, the vowel that has a printed letter <a> as a symbol: [a]. Technically this is the *low front unrounded vowel*, but because we don't have this in Australian English we use that same description for [æ].

The highest point of the tongue when making the vowel sound in the word *hit* is quite high, but not quite as high as that of [i]; it's between the heights of [i] and [e]. Some people call it a semi-high vowel. You can see from the IPA vowel chart that it's also not quite as far forward as [i]. The symbol for this sound is [I] - a small capital letter <I>.

NOTE: The IPA uses several capital letters as symbols. When you are transcribing phonetically, you shouldn't use capital letters (at the beginnings of sentences or for names) unless you mean to indicate the sound for which the capital letter stands.

Central vowels



Look on the chart and you will see the low central vowel, is [v]. When we say this sound, the highest point of the tongue is between the front and the back. In Australian English, it occurs in words like *card* and *far* (note that there's no *r*-sound in these words, in spite of the spelling). Although this vowel is [v] on the chart, the usual way of representing it for Australian English is [a].

Australian English also has another low central vowel - the vowel in *cut*. This is usually represented using the symbol $[\Lambda]$ (called 'caret'). You will notice that on



the IPA chart, this symbol is supposed to represent a mid-low back unrounded vowel. In Australian English, this vowel is actually said with the tongue further forward (not as far back), but the symbol $[\Lambda]$ is used for this particular Australian English vowel.

For these two low central vowels, the mouth is in a close position for both of them - we can call them both low central, but: $[\Lambda]$ is a *lax* low central unrounded vowel while [a] is a *tense* low central unrounded vowel. The mouth is slightly more tense when saying [a].

3

There is an open-mid (i.e. mid-low) unrounded vowel, the symbol for it is [3] (it looks a bit like the number 3, but it's not). It occurs in the words *herd* and *word*; note again that there's no *r*-sound in these words, in spite of the spelling, and that different letters are used to spell this sound in English.

Just above this vowel in the chart is an upside-down backwards letter <e>:[ə].



This is a very common vowel of English; it's called the *schwa*. It occurs in many unstressed syllables (we'll discuss stress in the next tutorial) - it is in the first syllable of the word *above*. Schwa never occurs in stressed syllables in English. You'll see that it's right in the middle of the vowel chart, and it's unrounded, so we call it a *mid central unrounded yowel*.

Schwa and [3] are in close positions to each other in the vowel chart, and we can use the tense/lax distinction again, and call them both mid: [3] is a *tense mid central unrounded* vowel while schwa is a *lax mid central unrounded* vowel.

U

Now let's look at high central vowels. In many dialects of English the vowel in words like blue is a high back rounded vowel, for which the symbol is [u]. This is the symbol used for this vowel in Australian English, even though it is not strictly accurate. In Australian English, the vowel in words like blue is produced by most speakers as a high central rounded vowel (for which the

correct symbol is a $[\mathfrak{t}]$, or "barred u"). There are no high central *unrounded* vowels in Australian English, but if you're familiar with New Zealand English you'll know the distinctive vowel occurring in *fish*. This vowel is a high central unrounded vowel, and the symbol is a "barred i", $[\mathfrak{t}]$.

Back vowels

In many dialects of English the vowel in *blue* is the high back rounded vowel [u], but as we just saw, in Australian English it is usually central, so we use the



[u] symbol for our high *central* rounded vowel. Look on the chart and you will see there's a vowel in a position a little lower than [u], for which the symbol is [v]. This is the sound in the words *book* and *put* (note once again the same sound is represented in more than one way in English spelling).

The vowel in the English words *caught*, *raw*, *port*, and *bought* is also a back vowel. In many dialects it is considerably lower (i.e. the highest part of the tongue is not very high) - it's a *mid-low back rounded vowel*, and

the symbol for it is [3], which looks like a backwards <c>. In Australian English this vowel is actually said higher – it is a *mid-high back rounded vowel*, (for which the correct IPA symbol is [0]). However, the symbol used for Australian English for this sound is usually [3].



Australian English also has a *low back rounded vowel*, the vowel in *cot* (American English has a different vowel here), and the symbol for it is [p], which looks like a backwards version of the letter $\langle a \rangle$ when you write it.

Diphthongs

All of the vowels that we've looked at so far have something in common - whatever tongue and lip position they have had, they have kept the same throughout their duration - they don't change part of the way through saying them. But, there are also vowels that *do* change tongue and/or lip position. The tongue and/or lips move from one position to another. These vowels are called *diphthongs* and there are several of them in Australian English. (Vowels that do not change are called *monophthongs*.)

The symbols for diphthongs are easy, they are made up of the symbol for the vowel representing the initial position followed by the symbol for the vowel representing the final position.

Three Australian English diphthongs have [I] as their end point. These are *front* raising diphthongs:

- In the vowel in the word bay the tongue starts out in the position of [e] and ends in the position for [I], and so the symbol for it is [eI].
- the vowel in the word buy involves a movement from the position of [a] and ends in [i] and the symbol for it is [ai].
- the vowel in the word boy starts out with the tongue and lip position for [2] and moves to the position for [1], and thus the symbol for it is [21].

Two other Australian English diphthongs have [v] as their end point. These are back raising diphthongs:

- [aυ] as in how,
- and [ου] as in low and toe.

There are three other diphthongs in Australian English, where the tongue moves toward the mid central position of schwa, [ə]: These are called *centring diphthongs*.

- [1a] as in here, beer, and near,
- [εə] as in bear, care, and hair,
- and [uə] as in *lure*. (Note there's no 'r' sound in these words, and again these sounds are represented in more than one way in English spelling.)

A Summary of Vowels in Australian English

Conventional symbols used (Macquarie Dictionary)

Simple vowels (Monophthongs)		Diphthongs	
h ee d	i	b uy	aı
h i d	I	b ay	еі
h ea d	3	b oy	IC
h a d	æ		au
h a rd	a	h ow	OÜ
	Λ	h oe	ΙƏ
h u t	υ	h ere	eз
h o t	Э	h air	υə
h oa rd	U	/ure	
h oo d	u		
wh o 'd	ə		
	3		
a bove			
h ea rd			
		•	



- Do some research online about the changes in Australian English (specifically focusing on pronunciation and phonetics) over the decades.
- Try and find some video/audio clips of Australians speaking in past decades. Listen to how the Australian English dialect has changed. Think about which particular vowel sounds have changed.
- 3. Now you have learned all the symbols for the sounds of Australian English, you can try some phonetic transcription for yourself. Transcribe the fifty words below, using the IPA symbols you learned for consonants and vowels. Say the word several times, then transcribe it using broad transcription (no need to write diacritics or stress markers.) Once you have attempted to phonetically transcribe all the words, check your answers on the page following. If you have made a mistake or had trouble with particular sounds or symbols, review the notes on those sounds.

1	car	18	mouse	35	strength
2	eat	19	wash	36	helm
3	map	20	fade	37	robbed
4	role	21	tax	38	cash
5	boy	22	tenth	39	you'll
6	fine	23	pride	40	grasp
7	thought	24	creep	41	slow
8	purse	25	dwell	42	flare
9	youth	26	taps	43	tired
10	beige	27	link	44	wink
11	jog	28	caused	45	frowned
12	then	29	spliced	46	loins
13	cheers	30	script	47	stewed
14	tin	31	scrunched	48	square
15	dare	32	bulged	49	welsh

16	shove	33	crusts	50	hinged
17	hang	34	sixths		

(Answers on next page. Note: If you speak a different dialect of English, your transcription will be different from the answers, which are for Australian English - note the particular variations and where they differ from Australian English. Even for Australian English speakers, some vowel sounds may vary from person to person, as it is difficult to transcribe vowels consistently even within one dialect.)

	•				
1	ka	23	baasd	45	bncæut
2	it	24	qiry	46	loɪnz
3	mæp	25	dwɛl	47	st∫ud
4	lueı	26	tæps	48	skwε
5	ıcd	27	lɪŋk	49	wɛlʃ
6	faɪn	28	kozd	50	hɪndʒd
7	θot	29	splaest		
8	рзѕ	30	skııpt		
9	juθ	31	skɹ∧nt∫t		
10	bæɪʒ	32	baldʒd		
11	dʒɔg	33	kunsts		
12	ðεn	34	sɪksθs		
13	t∫ıəz	35	stuεŋkθ		
14	tɪn	36	helm		
15	dε	37	bdcı		
16	ſΛV	38	kæ∫		
17	hæŋ	39	jul		
18	mæɔs	40	gaæsp		
19	wɔʃ	41	sləu		
20	fæɪd	42	flε		
21	tæks	43	taɛəd		
22	tεnθ	44	wɪŋk		