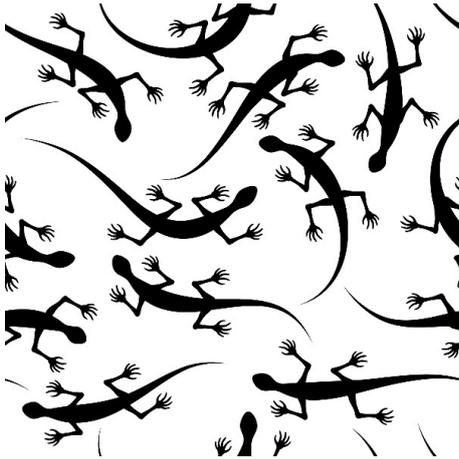# English Phonetics

Paco Gómez

1 Vowels

A vowel is a sound produced by making the vocal chords vibrate and letting the air pass through the oral cavity without obstruction. Vowels are always part of syllables. The position of the tongue determines the production of the different vowels. **The position of the tongue** is governed by two factors: first, vocal height, its position with respect to the roof of the mouth; second, **the vocal backness** its position with respect of the mouth as measured from front to back . The height of the tongue may range from open, as in [ɑ], to close, as in [i]. In general, there are three distinctive positions, namely, open, mid and close positions, and also other in-between, more subtle positions, near-open, open-mid, close-mid, and near-close positions. Notice that vocal height is somewhat associated to jaw opening.

The tongue is a very flexible and quick muscle that may be positioned at several places in the mouth. Its position within the mouth defines the vocal backness. The tongue may be at the back, almost touching the **soft palate** or **velum**, as in the sounds [ʌ] and [u]; it may be at a central position, as in [ə]; or it may be at the front, almost reaching the teeth, as in [i].

The chart below represents all the English vowels as a function of vocal height and vocal backness. A third feature that affects the quality of a vowel is whether the lips are rounded or not. This is called the **roundness** of the vowel. For example, [u] is pronounced by rounding the lips, but [ɑ] is not (it is an unrounded vowel). In places where vowels are paired, the right represents a rounded vowel (in which the lips are rounded), while the left is its unrounded counterpart. Sounds in the chart are represented by using the *International Phonetic Alphabet*; see [Wik09b].
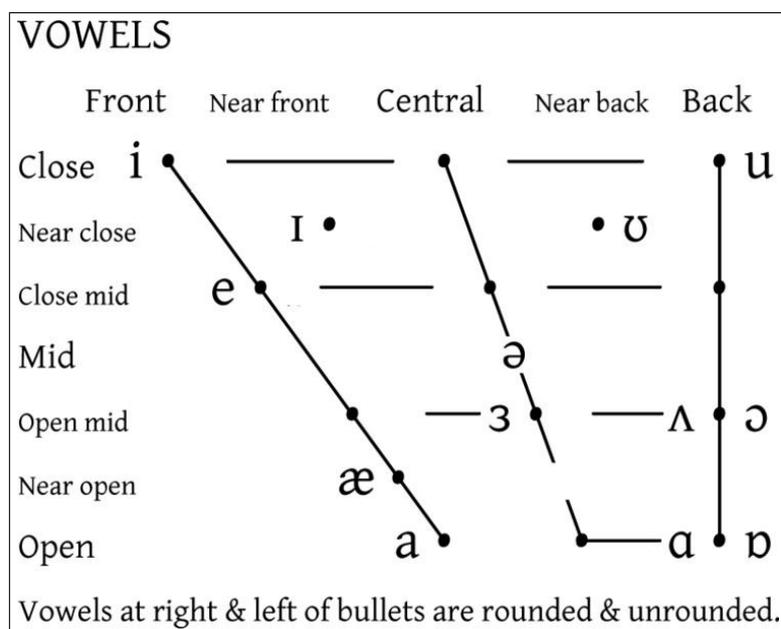
Figure 1: English vowels sound.

In terms of duration, sounds can be classified as short or long. We denote a long sound by adding a colon (:) to a vowel, as in [i:]. In the chart above only short sounds are shown.

Besides dialectal variants, there are roughly 12 vowel sounds in English. We strongly recommend the reader to check out the web page *Phonetics: The sounds of American English* [oS01], built by the Department of Spanish of the University of Iowa, where clear and graphical description and Flash animation of the production of English vowels are given. Next, we will describe the vowels sounds and give several examples.

The English vowels:

1. Open back unrounded vowel [ɑ], normally pronounced as a long vowel ([ɑ:]). For example: heart[hɑːt], or palm[pɑːm]. In this vowel the tongue is at the bottom of the mouth, as far as possible from the roof of the mouth. Also, the tongue is positioned as far back as possible in the mouth. The jaw is open; in fact, it is more open than in the Spanish [a].

2. Open front unrounded vowel [a]. This vowel, which is very similar to the Spanish [a], appears only in diphthongs (see Section 4). For example: height[haɪt], light[laɪt], or now [naʊ], cow [kaʊ]. As in the previous vowel, the tongue is at the bottom of the mouth and the lips are unrounded, but the tongue is positioned as far forward as possible in the mouth, just below the teeth. Again, the jaw is open.

3. Near-open front unrounded vowel [æ], a short vowel, as in man[mæn], hat[hæt], very frequently pronounced in monosyllabic words with a (as in bat[bæt], cat[cæt], fat[fæt],

gap[gæp], hat[hæt], rat[ræt], sat[sæt], etc.). This vowel is similar to the previous one, except that the tongue is slightly raised.

4. Close-mid front unrounded vowel [e], a short vowel more closed than the Spanish [e]. The tongue is still more raised than in [æ]. For example: bed[bed], red[red].

5. Long close front unrounded vowel [i:]. The tongue is as far forward as possible in the mouth, and as close as possible to the roof of the mouth. Lips are very spread, like in a smile; the jaw is quite closed. In English it is always a long sound, as in eat[i:t], or heat[hi:t].

6. Short near-close near-front unrounded vowel [ɪ], a short sound as in it[ɪt], hit[hɪt]. Now, the lips are not spread so much, and the tongue is lower, both in position and height, than in the vowel [i:]. Also, the jaw is not as closed as before.

7. Mid central unrounded vowel [ə], a short sound as in rare[reə], or so[səʊ]. The tongue is placed halfway between the front and back positions.

8. Open-mid central unrounded vowel [ɜ:], a long sound as in fur[fɜ:], bird[bɜ:d]. It is pronounced as in the previous vowel, but slightly more open.

9. Open-mid back unrounded vowel [ʌ], a short sound as in hut[hʌt], but[bʌt]. The tongue is positioned as far back as possible in the mouth, almost touching the soft palate. This sound does not exist in Spanish.

10. Open back rounded vowel [ɒ], a short sound produced with the tongue as far back as possible, and with the lips rounded. It appears in the British pronunciation of words such as hot[hɒt], dog[dɒg] (but hot[hɑ:t] and dog[dɔ:g] in American English). The only difference between this vowel and [ɑ] is roundedness (and sound duration in the case of English pronunciation).

11. Long open-mid back rounded vowel [ɔ:], a long sound as in thought[θɔ:t], caught[kɔ:t]. If sound duration is disregarded, the only difference between this vowel and [ʌ] is roundness; see the chart above.

12. Close back rounded vowel [u], a long sound as in moon[mu:n], use[ju:z].

13. Near-close near-back vowel [ʊ], a short sound as in put[pʊt], book[bʊk].

Remarks:

- The length of a vowel is a quality that distinguishes between words, as the following examples show:

    - It[ɪt]⟹ eat[i:t].
    - Shit[ʃɪt]⟹ sheet[ʃi:t].

3

- Hill[hɪl]⟹ heel[hi:l].

- Vocal backness and vocal height also discriminate between sounds.

  - Heart[hɑ:t], hut[hʌt] and hat[hæt] are three different words.
  - Vocal backness only also discriminates sounds: were[wɜ:(r)]⟹war[wɔ:(r)].
  - Vocal height by itself distinguishes sounds, too: man[mæn]⟹men[men].

- Roundness also discriminate between sounds.

  - Dug[dʌg] (past participle of dig) ⟹ dog[dɔ:g] (in American English).
  - Lunch[lʌntʃ]⟹ launch[lɔ:ntʃ].

1.1 British English and American English

Like many other languages spoken in such a vast territory and by so many people, spoken English presents wide variation in pronunciation. In spite of that wide variation, three standard pronunciations are distinguished: (1) The Received Pronunciation, also called Oxford English or BBC English, is the standard pronunciation of British English; (2) The General American is the accent considered as standard in North America, and as such it is the pronunciation heard in most of American films, TV series, and national news; (3) The General Australian is the English spoken in Australia. The study of the differences between British and American English is beyond the scope of these notes. However, to illustrate those differences, we will briefly study the case of letter o in certain contexts.

In English letters do not strictly represent a given sound. Therefore, a letter can be pronounced differently depending on the word. For example, the letter o is pronounced in several distinct ways, as it can see below:

- Hot ⟹ [hɒt] (in British English).

- Love ⟹ [lʌv].

- Corn ⟹ [kɔ:n] (in British English).

- Continue ⟹ [kənˈtɪnju:].

- Moon ⟹ [mu:n].

- Coast ⟹ [kəʊst] (in British English).

- House ⟹ [haʊs].

We will turn our attention to the case where letter o is associated with the so-called "short o", a sound often appearing in a stressed syllable with one letter o, as in dog, or model. In British English that sound is pronounced as an open back **rounded short** sound [ɒ], as in hot[hɒt], possible [ˈpɒsəbl]. In American English that it is pronounced either as an open back **unrounded long** sound [ɑ:], as in hot[hɑ:t], or as an open-mid back **rounded long** vowel [ɔ:], as in dog[dɔ:g]. Note that British English prefers a short sound as opposed to American English, which prefers a long sound in all cases. Table 1 shows several words in both pronunciations.

Word	**British English**	**American English**
Box	[bɒks]	[bɑ:ks]
Chocolate	[ˈʧɒklət]	[ˈʧɑ:klət] or [ˈʧɔ:klət]
Clock	[klɒk]	[klɑ:kl]
Cost	[kɒst]	[kɔ:st]
Dog	[dɒg]	[dɔ:g]
Gone	[gɒn]	[gɔ:n]
Got	[gɒt]	[gɑ:t]
Hot	[hɒt]	[hɑ:t]
Job	[ʤɒb]	[ʤɑ:b]
Lot	[lɒt]	[lɑ:t]
Not	[nɒt]	[nɑ:t]
Off	[ɒf]	[ɑ:f] or [ɔ:f]
Possible	[ˈpɒsəbl]	[ˈpɑ:səbl]
Sorry	[ˈsɒri]	[ˈsɑ:ri] or [ˈsɔ:ri]
Stop	[stɒp]	[stɑ:p]
Want	[wɒnt]	[wɑ:nt] or [wɔ:nt]
Wasn't	[wɒznt]	[wʌznt]
What	[wɒt]	[wɑ:t] or [wɔ:t]

Table 1: Differences between British and American English consonants.

2   Consonants

A consonant is a sound produced by a partial or complete obstruction of the air stream. That obstruction may be accomplished by several means. Here there is a classification of consonants.

- **By manner of articulation**, that is, the method to articulate the consonant: nasal (the air gets out through the mouth and the nose), stop (complete obstruction of air; also called plosive consonants), or approximant (vowel-like consonants).

- **By place of articulation**, that is, where in the vocal tract the obstruction of the consonant takes place, and which speech organs are involved. Places include, among

others, bilabial (both lips), alveolar (tongue against the gum ridge), and velar (tongue against soft palate).

- **By voicing**, that is, by taking into account whether the vocal cords vibrate during the articulation. When the vocal cords vibrate fully, the consonant is called voiced; when they do not vibrate at all, it is voiceless.

We will not go into further details about consonant production, but we refer the reader to the comprehensible and demystifying book of Roach [Roa09]. The following table shows the consonant phonemes found in English. When consonants are shown in pairs, voiceless consonants appear on the left and voiced consonants on the right.

Consonants	Bilabial	Labio-Dental	Dental	Alveolar
Nasal	m			n
Plosive	p, b		t ,d	
Affricate				
Fricative		f, v	θ, ð	s, z
Approximant				r
Lateral				l

Consonants	Post-Alveolar	Palatal	Velar	Glottal
Nasal			ŋ	
Plosive			k, g	
Affricate	ʧ, ʤ			
Fricative	ʃ, ʒ			h
Approximant		j	w	

Table 2: English consonants.

The distinction between voiceless and voiced consonants is crucial in English. For example, such distinction regulates the pronunciation of the endings in the Past Simple; see the section below. The following table shows the English consonants paired by voice (voiceless are on the left and voiced on the right).

Voiceless	Voiced
[p] pet	[b] bet
[t] tin	[d] din
[k] cut	[g] gut
[tʃ] cheap	[ʤ] jeep
[ʃ] she	[ʒ] measure
[θ] thin	[ð] then
[f] fat	[v] vat
[s] sap	[z] zap

Table 3: Examples of English consonants.

Sounds [m], [n], [ŋ], [l], [j], [w] and [r] are all also voiced. Sound [h] is voiceless.

Remarks:

- The voicing of a consonant is more important in English than in other languages.

  - Often, it determines the grammatical function: advice[ədˈvaɪs] is a noun and its corresponding verb is advise[ədˈvaɪz].

  - It may distinguish between words: rice[raɪs]⟹rise[raɪz].

- The pronunciation of Past Simple is based on the voicing of the final sounds of verbs, as we will see below.

- The pronunciation of plurals, possessives and third person of Present Simple are also formed according to voicing.

- In English the pronunciation of [p], [b], [t], and [d] are much more plosive than in Spanish. The hard sound of these consonants is characteristic of the English language.

3 Semi-consonants

Semi-consonants are not considered as vowels because the passage through which the air passes is very narrow. The semi-consonants are [j], as in yes[jes], and [w], as in wood[wu:d]. They are always followed by a vowel.

- The semi-consonant [j]. It is pronounced as an [i], but by bringing the tongue close to the palate very much. This sound is, therefore, approximant and palatal. It appears in words like union[ju:niən], you[ju:], student[stju:dənt] (British English, but student[stu:dənt] in American English). In Spanish there exists this sound, as in *ayer*[aˈjer] or *hierba*[ˈjerba].

- The semi-consonant [w]. This semi-consonant is a voiced labiovelar approximant sound. That means it is articulated with the back part of the tongue raised toward the soft palate and the lips rounded. It can be found in words like were[wɜ:(r)], water[ˈwɔtɜ:(r)].

4 Diphthongs

Diphthongs are sounds produced by pronouncing one vowel and then gradually changing to another, normally through a glide between them. The English diphthongs are the following.

- Diphthong [aɪ], as in rise[raɪz], height[haɪt].

- Diphthong [eɪ], as in frame[freɪm], crane[creɪn].

- Diphthong [əʊ], as in low[ləʊ], so[səʊ]

- Diphthong [aʊ], as in now[naʊ], cow[kaʊ].

- Diphthong [eə], as in rare[reə(r)], fare[feə(r)].

- Diphthong [ɪə], as in rear[rɪə(r)], gear[gɪə(r)].

- Diphthong [ɔɪ], as in boy[bɔɪ], coy [kɔɪ].

- Diphthong [uə], as in sure[ʃuə(r)], lure[luə(r)].

5 Pronunciation of plurals

The pronunciation of plurals depends on the final sound of the noun, in particular, whether such sound is a sibilant consonant. Sibilant consonants produce the sound by forming a very narrow passage and letting the air pass through it. The sibilant consonants are showed in the following table.

Sibilant Consonants	Alveolar	Post-Alveolar
Affricate		ʧ, ʤ
Fricative	s, z	ʃ, ʒ

Table 4: Sibilant consonants.

Note that the sounds [f, v] are not sibilant because the air is stopped when passing through the teeth. Also, the affricate post-alveolar consonants [ʧ, ʤ] are sibilants since after pronouncing the [t, d], the narrow passage is formed.

Rules for the pronunciation of the plural of nouns:

1. If the word ends by a vowel sound, then the plural is pronounced by adding the sound [z]. For example:

   - Day[daɪ]⟹days[daɪz].
   - Boy[bɔɪ]⟹boys[bɔɪz].

2. If the word ends by a non-sibilant sound, then the plural is pronounced by adding the sound [s] when it is a voiceless consonant and the sound [z] when it is a voiced consonant. For example:

   - Pet[pet]⟹pets[pets] (voiceless case).
   - Dog[dɒg]⟹dogs[dɒgz] (voiced case).

3. If the word ends by a sibilant sound, then the plural is pronounced by creating a new syllable [-ɪz]. For example:

   - Beach[bi:ʧ]⟹beaches[ˈbi:ʧɪz].
   - Bridge[brɪʤ]⟹bridges[ˈbriʤɪz].
   - Bush[buʃ]⟹bushes[ˈbuʃiz].
   - Garage[gæˈra:ʒ]⟹garages[gæˈra:ʒɪz].
   - Bus[bʌs]⟹buses[ˈbʌsɪz].
   - Rose[rəʊz]⟹rose[ˈrəʊzɪz].

   Note from the example that the stress of word in the plural does not change.

There are a few exceptions to the previous rule: house[jaʊs]⟹houses[ˈjaʊziz], or mouths[maʊθ] ⟹mouth[maʊðz].

Moreover, the same pronunciation rules are applied to possessives (Saxon genitive):

- Mark[ma:k]⟹Mark's[ma:ks].

- Joe[ʤəʊ]⟹Joe's[ʤəʊz].

- George[ʤɔ:ʤ]⟹George's[ˈʤɔ:ʤɪz].

6 Pronunciation of the Third Person of Singular of Present Simple

When writing the third person of singular of Present Simple takes either an -s or an -es. The pronunciation of the new added consonant follows the same rules as in the plural.

- I want[aɪˈwɒnt]⟹He wants[hi:ˈwɒnts].

- I read[aɪˈri:d]⟹He reads[hi:ˈri:dz].

- I bet[aɪˈbet]⟹He bets[hi:ˈbets].

- I teach[aɪˈti:ʧ]⟹He teaches[hi:ˈti:ʧɪz].

7 Pronunciation of Past Simple

The pronunciation of Past Simple is based on the voicing (voiceless versus voiced) of the final sound of the verb. We recall the reader the voiceless consonants: [p, t, k, f, ʧ, θ, s, ʃ, h]; and the voiced consonants: [m, n, ŋ, b, d, g, v, ð, z, ʤ, ʒ, r, l, j, w].

Rules for the pronunciation of Past Simple (regular verbs):

1. If the word ends by a voiced sound different from [d], then the Past Simple is pronounced by adding the sound [d]. For example:

   - I explain[aɪ eksˈpleɪn]⟹I explained[aɪ eksˈpleɪnd].
   - I file[aɪˈfaɪl]⟹I filed[aɪˈfaɪld].

2. If the word ends by a voiceless sound different from [t], then the Past Simple is pronounced by adding the sound [t]. For example:

   - I kiss[aɪˈkɪs]⟹I kissed[aɪˈkɪst].
   - I risk[aɪˈrɪsk]⟹I risked[aɪˈrɪskt].

3. If the word ends by [d] or [t], then Past Simple is pronounced by adding [ɪd]. For example:

   - I need[aɪˈniːd]⟹I needed[aɪˈniːdɪd].
   - I want[aɪˈwɔːnt]⟹I wanted[aɪˈwɔːntɪ d].

8 Names of the IPA Symbols

In order to facilitate learning the IPA symbols we provide the reader with a table with their somewhat puzzling names.

IPA Symbol	Name	IPA Symbol	Name
i	i	m	m
ɪ	small capital letter	n	n
e	e	p	p
ə	schwa[ʃwɑ:]	b	b
ɜ	reversed epsilon	f	f
æ	ash[æʃ]	v	v
u	u	θ	theta
ʊ	upsilon	ð	eth [eð]
ʌ	turned v	s	s
a	a	z	zed[zed]
ɔ	open o	r	r
ɑ	script a	l	l
ɒ	turned script a	ŋ	engma
k	k	g	g
ʃ	esh[eʃ]	tʃ	t-esh
ʒ	yogh[ʒɔ:]	ʤ	d-yogh
h	h	j	j
w	w	t	t
d	d		

Table 5: Names of the IPA symbols.

9 Notes

Although largely disregarded in language teaching, phonetics is the only way to learn how to pronounce properly, except if the language is learnt at an early age. Spanish has only five vowels, whereas English, as seen above, has twelve vowels. How will a native Spanish speaker map his vowels onto the English ones? Many methods are purely based on repetition. However, that does not work in general and results in a deficient pronunciation, sometimes even on the verge of intelligibility, and often kept for many years. By learning phonetics, first of all, learners will be able to recognize what sound they are hearing and, therefore, they gain confidence in their understanding of English. Also, they will acquire accuracy in their pronunciation as the rules for producing the sound will be now clear.

Fortunately, there are many resources both online and in form of books to learn English phonetics. We already recommended the excellent web page of the University of Iowa [oS01]. The encyclopedia Wikipedia has two well-written and enlightening articles on phonetics, one about the IPA [Wik09b] (the International Phonetics Alphabet), and the other about English phonology [Wik09a]. As an online dictionary including phonetics transcriptions we recommend Oxford Advanced Learner's Dictionary [Pre09]. As a comprehensive treatise on phonetics we propose the book of Roach [Roa09]. Lastly, for a work integrating phonetics and grammar in a straightforward way we advise the reader to look at the book of Swan [Swa05].

References

[oS01]   The Department of Spanish. Phonetics: The Sounds of American English. http://www.uiowa.edu/ acadtech/phonetics/english/frameset.html, 2001.

[Pre09]   Oxford   University   Press.   Oxford   Advanced   Learner's   Dictionary. http://www.oup.com/oald-bin/web_getald7index1a.pl, 2009.

[Roa09]   Peter Roach. *English Phonetics and Phonology Paperback with Audio CDs (2): A Practical Course.* Cambridge University Press, 2009.

[Swa05]   Michael Swan. *Basic English Usage.* Oxford University Press, Oxford, 2. edition, 2005. 1. editon 1984.

[Wik09a]   Wikipedia. English Phonology. http://en.wikipedia.org/wiki/English_phonology, 2009.

[Wik09b]   Wikipedia. International Phonetics Alphabet. http://en.wikipedia.org/wiki/Ipa, 2009.