

# English Phonetics and Phonology for Spanish Speakers

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(CONTIENE  
CD)

2ª EDICIÓN

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## PREFACE

I taught English Phonetics and Phonology on my own at the University of Barcelona from 1972 to the early 1990's, having previously been in charge of the subject at the University of Saragossa from 1969 to 1972. Classes were often overcrowded and the acoustic conditions usually poor. Nevertheless, despite these setbacks and the intrinsic difficulty such a technical subject presented to many students, all of them recognized it as a valuable part of their linguistic training, and throughout these years I was sometimes asked whether I intended to publish the content of my course. Subsequently, 1991 saw the first edition of my *A Course in Phonetics and Phonology for Spanish Learners of English* (EUB, University of Barcelona).

This first edition left much to be desired as regards formatting and general layout, but served its purpose for several years by providing students with back-up material to my classes, which prior to 1991 were only supplemented by an anthology of notes, although, of course, students were always referred to the standard works of Jones and Gimson. Thanks to useful feedback from both colleagues and students, in 1996 I was able to produce a revised version, which updated the phonetic symbols and included more phonetic transcription of examples than the previous edition. This second edition was still deficient in many ways, not least the typesetting and general presentation, so in 2000 the old coursebook became *English Phonetics and Phonology for Spanish Speakers*, published by UB, no. 41 in its Manuals series. This was a rewritten version of the old text with a chapter on the syllable added, plus many new exercises throughout the work, and numerous changes and new examples after extensive revision. The same desire to improve the existing version and keep up with progress in the field has provided the impetus for this second edition, which incorporates the modifications to transcription in the *Longman Pronunciation Dictionary* as presented in the third edition (LPD 2008), notably the extended use of the unstressed FLEECE vowel (see chapter 4), and takes account of the recent shifts in the articulation of the vowels of RP (or SSB, as some prefer to label the model). Although, on the whole, I follow LPD3 as regards phonetic notation for English, there are a few minor cases in which I disagree with Wells' transcription. It is, after all, extremely difficult to decide on some occasions which weak vowel is actually

used in an unstressed syllable. Such is the case of the word *event*, for which LPD3 gives /ɪ'vent/, but which could just as easily, and more consistently, be represented as /i'vent/. Use of the KIT vowel here seems unnecessarily confusing as it contradicts Wells' rules for use of the unstressed FLEECE vowel as set out in LPD3, but fortunately such cases are few and far between.

As Phonetics has become increasingly technical and experimental in recent years, it also seemed essential to include some explanation of data obtained from the acoustic analysis of speech (though there are still modern elementary coursebooks in the subject that manage very well without it – notably Roach 2009). Accordingly, the text has been provided with a limited number of waveforms, spectrograms and F0 tracings, though anyone wishing to look further into these aspects of the physics of speech will need to consult the more specialized books on the market, such as Ashby & Maidment 2005 or Clark, Yallop & Fletcher 2007.

The present text provides rather more detail in some areas, such as the supra-segmentals, than the average introductory course on English phonetics and phonology, but it is hoped that it will serve both beginners and more advanced students and teachers alike. Phonetics and Phonology in the English Department of the University of Barcelona is now taught in two parts lasting a semester each, so that some chapters of the book can be covered in *Fonètica i Fonologia Anglesa I*, and others in *Fonètica i Fonologia Anglesa II*, and students and academics from other institutions will be able to adapt the book to their own needs. There is also abundant material for students of History of Language and for language enthusiasts in general to delve into.

Thanks to the artistry of Joan Carles Mora, there are many illustrations of the organs of speech and, in particular, the sagittal sections of the speech organs that show the articulation of the individual sounds of English in chapter 5. Advances in audio technology have allowed me to produce better recorded material and add to that already presented on the CD accompanying previous editions.

I decided to eliminate most of the recordings of sounds from languages other than English which I used in my 1991 and 1996 publications in order to constrain the scope of the book. For the same reason, the original chapter 15 of the 1996 publication and various appendices have also been removed, except for the one on British and American English, which has been revised and expanded in view of the equal importance of the two varieties around the world.

Bibliographies are notoriously frustrating to update in this age of information, when new editions of publications appear with alarming frequency, but it is hoped that, at least in the most important cases, the latest edition of works has been cited.

Brian Mott  
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# 1. PHONETICS AND PHONOLOGY

## 1.1. Introduction

Phonetics is an empirical science (i.e. one based on the observation of facts) which studies human speech sounds. It tells us how sounds are produced, thus describing the articulatory and acoustic properties of sounds, and furnishes us with methods for their classification. It is concerned with the human sound-producing capacity in general and examines the whole range of possible speech sounds. Therefore, the information which is afforded by phonetics need not apply necessarily to any language in particular. The subject is a pure science and, strictly speaking, it does not form part of linguistics, although, naturally, it plays an important role in the teaching of foreign languages. It is also useful in the acquisition of good diction, in speech therapy for people with speech impediments, in helping the deaf and deaf-mutes, and in sound transmission. As is known, vowels are made up of formants, i.e. a number of different frequencies, the most dominant of which combine to produce their distinctive qualities. Only the first two formants are essential for the identification of a vowel, and this fact is of special interest to researchers in such fields as telecommunications, speech synthesis and Automatic Speech Recognition (ASR). One of the applications of ASR is to be found in the field of aviation. If machines can be trained to respond to messages, then many of the tasks normally performed by pilots can be taken over by them, which means that the pilot will have his hands free to carry out more important jobs.

Phonetics is divided into three main branches:

- (i) ARTICULATORY PHONETICS, which studies the nature and limits of the human ability to produce speech sounds and describes the way these sounds are delivered;
- (ii) ACOUSTIC PHONETICS, which studies the physical properties of speech sounds (e.g. pitch, frequency and amplitude) during transmission from speaker to hearer (from mouth to ear);
- (iii) AUDITORY PHONETICS, which is concerned with hearing and the perception of speech, or our response to speech sounds as received through the ear and brain.

Unlike phonetics, phonology is a branch of linguistics, the other major areas being grammar (including syntax) and semantics. If phonetics provides descriptions of sounds and ways of classifying them, phonology is a kind of functional phonetics which employs this data to study the sound systems of languages. It applies linguistic criteria to the material provided by phonetics, so its concern is scientific theory, studying the linguistic functions of sounds.

Out of all the speech sounds which it is possible to produce, individual languages make use of only a small number (see figure 2). Thus, they act rather like a sieve. The sounds which are used vary from language to language, and within each language these sounds resolve themselves into “families” and form a system of contrasts. It is these contrasts which are of interest to the phonologist, who uses the terms **DISTINCTIVE**, **CONTRASTIVE**, **FUNCTIONAL** or **INFORMATION-BEARING** to describe such oppositions as that of /k/ and /b/ in the words *cat* and *bat* in English. The sounds /k/ and /b/ have a semantic value in that they serve to distinguish words in English, and are called **PHONEMES**, which are the basic units of phonology.

It is important to distinguish these contrastive units, phonemes, which have a communicative value within a given language system from other sounds that are non-contrastive. For example, English has two principal types of [l], which are impressionistically labelled “clear” and “dark”, respectively. The so-called “clear” [l] occurs before vowels, as in the word *lake*; the other [l] (symbol [ɫ]) appears after vowels, as in the words *tall* and *child*. Now, if I substitute “dark” [l] for “clear” [l] in *lake*, I do not change the meaning of the word. My pronunciation will sound a little odd because of the different distribution of the two varieties of [l] in English (“dark” [l] is not used before vowels), but as there is no phonemic opposition between these two sounds, no semantic change occurs. These similar but non-contrastive sounds are called **ALLOPHONES**.

In addition to the fact that not all the different sounds in a language are contrastive, it is equally important to note that different languages organize sounds differently and have different systems of contrast (see figure 3), a fact which is of supreme importance for the language learner (see 12). In English, the two kinds of [l] we have described belong to the same phoneme (note that the phoneme is not a single sound!), but in Russian, “clear” [l] and “dark” [l] are distinctive. This means that, if we substitute “dark” [l] for “clear” [l] in certain Russian words, we may produce other words with different meanings, just as, if I substitute /b/ for /p/ in the English word *pat*, I produce a recognizably different sequence of sounds with a different meaning or, if you like, another English word, *bat*. An example is provided by the Russian form *dal*, which means ‘distance’ if pronounced with “clear” [l], but ‘he gave’ if pronounced with “dark” [l].

Let us take another example. In addition to the two [l]-sounds described, there is another in English which is called devoiced. To understand in what way this [l] is different from the others we have mentioned, say the words *blade* and *played*

to yourself. If you then try and isolate the segments [bl] and [pl] and say them by themselves, it should be possible for you to notice that the [l] in [pl] is not quite the same as the one in [bl]. At least the beginning of the [l] in the sequence [pl] sounds as if it is preceded by aspiration (an [h]-sound). Once again, however, the two types of [l] do not serve to distinguish words, they do not make any difference to meaning. On the other hand, they may do in other languages and, in fact, in Welsh these sounds are in opposition (just as /p/ and /b/ or /p/ and /t/, for example, are in opposition in English).

Other examples of allophones are provided by the [k]-sounds in the English words *cool* and *keep*, the [p]-sounds of English *spot* and *pot*, and the [s] and [z] in Spanish *desear* and *desde*, respectively. In all these pairs of words, variants of sounds are used depending on the position in which they occur. But these positional variants are not perceived as different by the native speaker and, as far as s/he is concerned, they are the same sound, just as slightly different shades of red are still reds, and a jacket with two buttons and a jacket with three buttons are still jackets.

If you pronounce the words *keep* and *cool* slowly, you should be able to feel your tongue making contact in each case with a different part of the roof of the mouth. In *keep* the contact is made further forward than in *cool*. However, this degree of frontness does not bring about a SYSTEMIC difference, i.e. a change in the system from one sound to another with a consequent change of word meaning. It is a NON-SYSTEMIC (NON-DISTINCTIVE / REDUNDANT / PREDICTABLE) feature in English. But there is a language, Macedonian, a Slavonic language related to Bulgarian, which opposes these two kinds of [k]. Thus, in this language, *kuka* with the [k] of *cool* means 'hook', whereas *kukja* with the [k] of *keep* means 'house'.

In English, certain consonants are aspirated (pronounced with a puff of air after them, rather like an [h]) before stressed vowels. This is the case of the [p] in *pot*. On the other hand, if [s] precedes, as in *spot*, no aspiration is heard. The importance of this aspiration in English and its actual occurrence will be dealt with later in the book (5.4.1, 12.1, 12.3.3.1), but for the moment suffice it to say that it is a redundant feature. If we pronounce *spot* with an aspirated [p], we will not change the word; it will just sound strange. However, in other languages aspiration may be used as a distinctive feature. Thai opposes aspirated and unaspirated [p], and in Hindi there are not only aspirated and unaspirated [p]-sounds but also [b]-sounds distinguished by the presence or absence of aspiration, so that this language has the phonemes /p, p<sup>h</sup>, b, b<sup>h</sup>/.

English has the phonemes /s/ and /z/ in words like *Sue* and *zoo*, respectively, and Romanian also uses this contrast: *virtuos* 'virtuous' v. *virtuoz* 'virtuoso'. In Spanish, these sounds also exist, but they are allophones of the /s/ phoneme: [z] occurs before certain consonants like [d] and [g], as in *desde* and *desgarrar*, while [s] occurs in other positions (*saber*, *desear*, *más*).

The examples of phonemic opposition which have been given so far are all consonantal, but languages also have different vowel contrasts. English, for example,

has the phonemes /i:/ and /ɪ/, long and short varieties of an [i]-type vowel, which serve to distinguish words like *sheep* and *ship*, *beat* and *bit*, *heat* and *hit*, etc. Many languages do not have such a contrast, and speakers of these languages find it difficult to hear and make the difference when learning English. Similarly, Catalan has two types of [e], as exemplified in the words *déu* ‘god’ (close [e]), and *deu* ‘ten’ (open [e]). More will be said about the meaning of the terms *close* and *open* as applied to vowels later in this book (3.2); for the time being, we can simply say that the open variety of [e] has a lower tongue position during articulation than the close variety. Spanish has only one phoneme in this area of articulation: /e/; therefore, Spanish speakers have difficulty in distinguishing the two aforementioned phonemes of Catalan, although Spanish does in fact have a closer [e] in *pera* ‘pear’ than in *perra* ‘bitch’ with no contrastive value.

As we have seen, the non-distinctive realizational variants of phonemes, (called allophones), tend to occur in specific phonetic contexts, so that we can say that the English /p/ phoneme has two principal allophones, one of which is aspirated and occurs in particular before stressed vowels, and the other unaspirated occurring after [s]. As these allophones do not occupy the same positions in words, we say they are in COMPLEMENTARY DISTRIBUTION. The opposite of complementary distribution is FREE VARIATION (see 13.1).

Words like *sheep* and *ship*, *chip* and *ship* which are distinguished by one phoneme are called MINIMAL PAIRS (see also 13.2).

As phonology is concerned with the semiotic value of sounds, it is related to semantics. In fact, Saussure, the father of modern linguistics, attempted to inaugurate a discipline labelled “semiologic phonetics”, which was later tentatively renamed “phonology” by his follower Albert Sechehaye. The term “phonology” was adopted by the Prague School of Linguistics in the early 1920’s and has remained in use since then.

## 1.2. Phonotactics

Apart from describing the sound system of a language and determining its phoneme inventory, phonology is also concerned with phonotactics, that is, statements of permissible strings of phonemes. Two given languages may have certain sounds in common, but these sounds may not be combined in the same way. For example, both Spanish and English have the consonant sound which we call theta (symbol [θ] – the initial sound of the English word *thin*) but, whereas in English theta can be followed by [r] at the beginning of words (as in *three*, *thread*, *thrill*, etc.), in Spanish this is not a possible consonant sequence. Similarly, Russian permits initial [gd] as in *gde* ‘where’, Italian has initial [zb] as in *sbaglio* ‘mistake’, and Czech has initial [hl] as in *hlava* ‘head’, while Modern English possesses none of these consonant clusters (although Old English did, in fact, have [hl] in many words like *hlūd* ‘loud’).