

# PHONOLOGY

A Simple Book for Students

Phonology is defined as "... the language-specific selection and organization of sounds to signal meanings". As it is language-specific, sound systems of any languages are likely to be different. Taking the English sound from the Indonesian perspectives, then we can see that the specifications of the English sounds are really obvious. Borrowing the jargon of Microsoft Office- "what you see is what you get" (wysiwyg), the Indonesian language is more or less "what you see is what you say". However, it is not the case of the English language. Very rarely that we pronounce English word as it is written. In English, each letter does not represent a sound, and English words are not formed by reading out letters. Most words are pronounced differently from how they are written. Shortly, studying and understanding the speech sound of human language is the domain of phonetics and phonology. It can be mastered by learning this simple book.



"The advance of foreign language teaching approach makes the Indonesian curriculum apply communicative language approach in the teaching and learning of English. Through this simple book, it makes easy to understand and master English phonics, phonology, and phonetics rather than studying and practicing them a lot." - **Dr. Widhiya Ninsiana, M.Hum (Writer, Lecturer of Institut Agama Islam Negeri (IAIN) Metro)**



"In order to learn the language English well, learners must prioritize the learning of pronunciation of English in all its dimensions namely phonics, phonology and phonetics in the first place. Get this book and surf the point." - **Sigit Apriyanto, S.Pd., M.Pd., Ph.D (c) (Writer, Lecturer, and Director of Journal Corner and Publishing)**



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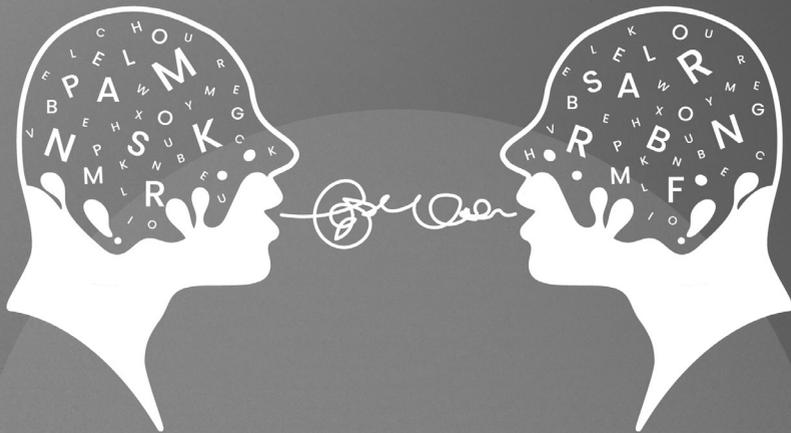


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A SIMPLE BOOK FOR STUDENTS

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## Preface

Phonology is a branch of linguistics that studies how languages or dialects systematically organize sounds. The term also refers to the sound systems or signs of certain languages. Then, phonology is the study of the systems, patterns and use of sounds that occur in various world languages. Without sound or sound, language will be very difficult to develop. How can humans interact, name objects, or call each other if not by voice? Humans can read and understand the meaning of the name of an object because it has gone through a process of understanding that is conveyed through sound. Therefore, studying about sound is crucial for anyone, especially the language learners. Like it or not, they must study phonology. In the English education program, phonology has always been a compulsory subject that must be taken. Students often complain about the difficulty of phonology courses. Therefore, this is the main reason for writers to compile short, concise and clear phonological material, with the hope that

students can learn it more easily. Alhamdulillah, thanks to Allah SWT for the completion of the compilation of the book ***Phonology A Simple Book for Students***. This book provides knowledge about phonology, this book is a form of the authors' contribution in providing reading resources in the world, especially in the field of phonology. This ***Phonology A Simple Book for Students*** book can be used for lecturers, practitioners, students and the general public, especially those interested in language and linguistics.

We thank to Dr. Wayan Satria Jaya, M.Si who always supports the progress of the lecturers in the STKIP PGRI Bandar Lampung campus, also to Dr. Akhmad Sutiyono, M.Pd and Drs. Imam Subari, M.M as the head of the study program and secretary of the English education department thanks to the advice and guidance, it means a lot to us. – to our beloved family, parents, spouse, and children, who fully support the writing of this book. Thanks are also conveyed to the editorial team of the Journal Corner and Publishing and CV. Tripe Consultants who have assisted in the preparation of this book.

We realize that this book is far from impeccable in fulfill the expectations and desires of the readers. Therefore, we expect criticism and suggestions from experts,

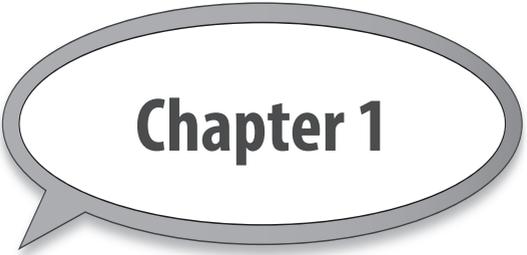
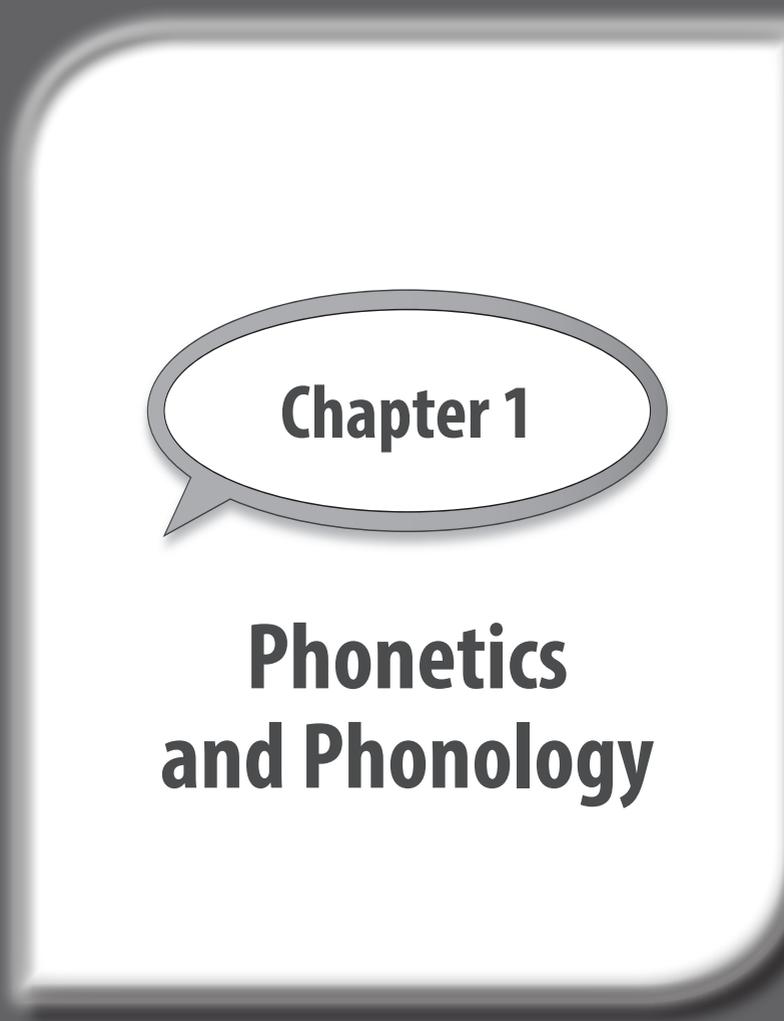
friends, and readers so that the authors can improve this book in the next edition. Hopefully this book is useful for all of us.

Lampung, October 2021

Writer

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# Chapter 1

# Phonetics and Phonology

## **Introduction**

Whereas syntax is about sentence formation, and semantics about sentence interpretation, phonetics and phonology cover the field of sentence utterance.

Phonetics is concerned with how sounds are produced, transmitted and perceived (we will only look at the production of sounds). Phonology is concerned with how sounds function in relation to each other in a language. In other words, phonetics is about sounds of language, phonology about sound systems of language. Phonetics is a descriptive tool necessary to the study of the phonological aspects of a language.

Phonetics and phonology are worth studying for several reasons. One is that as all study of language, the study of phonology gives us insight into how the human mind works. Two more reasons are that the study of the phonetics of a foreign language gives us a much better ability both to hear and to correct mistakes that we make, and also to teach pronunciation of the foreign language (in this case English) to others.

As phonetics and phonology both deal with sounds, and as English spelling and English pronunciation are two very different things, it is important that you keep in mind that we are not interested in letters here, but in sounds.

For instance, English has not 5 or 6 but 20 different vowels, even if these vowels are all written by different combinations of 6 different letters, “a, e, i, o, u, y”. The orthographic spelling of a word will be given in italics, e.g. *please*, and the phonetic transcription between square brackets [pli:z]. Thus the word *please* consists of three consonants, [p,l,z], and one vowel, [i:]. And sounds considered from the phonological point of view are put between slashes. We will use the symbols in figure (1).

## List of Symbols

### 1. Consonants

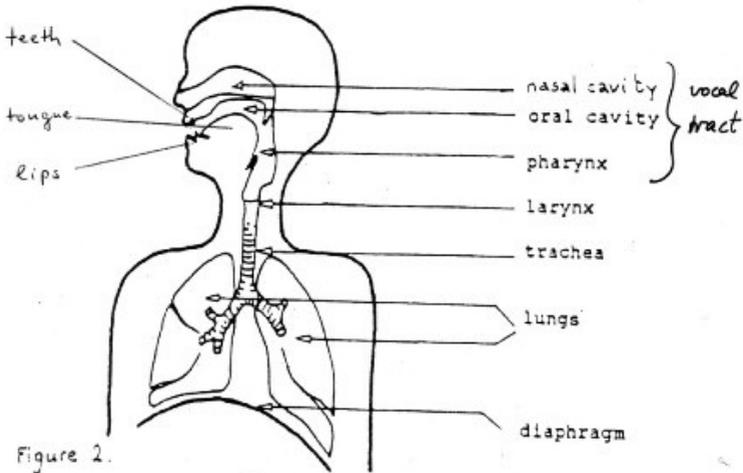
P	as in <i>pea</i>	b	as in <i>bee</i>
t	as in <i>toe</i>	d	as in <i>doe</i>
k	as in <i>cap</i>	g	as in <i>gap</i>
f	as in <i>fat</i>	v	as in <i>vat</i>
θ	as in <i>thing</i>	ð	as in <i>this</i>
s	as in <i>sip</i>	z	as in <i>zip</i>
ʃ	as in <i>ship</i>	ʒ	as in <i>measure</i>
h	as in <i>hat</i>	l	as in <i>led</i>
m	as in <i>map</i>	r	as in <i>red</i>
n	as in <i>nap</i>	j	as in <i>yet</i>
ŋ	as in <i>hang</i>	w	as in <i>wet</i>
tʃ	as in <i>chin</i>	ʤ	as in <i>gin</i>

## 2. Vowels

ɪ	as in <i>pit</i>	i:	as in <i>key</i>
e	as in <i>pet</i>	ɑ:	as in <i>car</i>
æ	as in <i>pat</i>	ɔ:	as in <i>core</i>
ʌ	as in <i>putt</i>	u:	as in <i>coo</i>
ɒ	as in <i>pot</i>	ɜ:	as in <i>cur</i>
ʊ	as in <i>put</i>	əʊ	as in <i>go</i>
ə	as in <i>about</i>	aʊ	as in <i>cow</i>
eɪ	as in <i>bay</i>		
aɪ	as in <i>buy</i>		
ɔɪ	as in <i>boy</i>		
ɪə	as in <i>peer</i>		
eə	as in <i>pear</i>		
ʊə	as in <i>poor</i>		

## Phonetics

### The Speech Organs



All the organs shown on figure (2) contribute to the production of speech. All the sounds of English are made using air on its way out from the lungs. The lungs pull in and push out air, helped by the diaphragm. The air goes out via the trachea, where the first obstruction it meets is the larynx, which it has to pass through. Inside the larynx the air passes by the vocal folds, which, if they vibrate, make the sound voiced. Afterwards the air goes up through the pharynx, and escapes via either the oral or the nasal cavity.

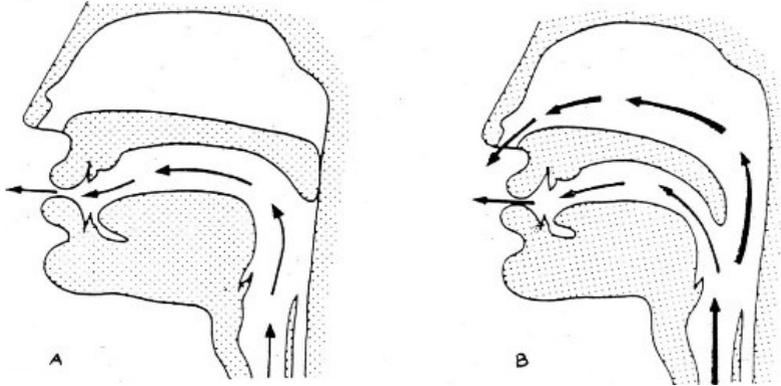


Figure (3): production of oral and nasal sounds. (Thomas 1976: 32)

Almost all the organs involved in speech production also have other functions. The lungs and the diaphragm are obviously involved in breathing, as is the nasal cavity, which cleans, heats and humidifies the air that is breathed in. The teeth and the tongue play a part in digestion, and in a way, so do the vocal folds, as they have to be closed when swallowing, to keep the food from going down the wrong way. There are 4 places in which a sound can be modified. You have to add to this the fact that the vocal folds can vibrate.

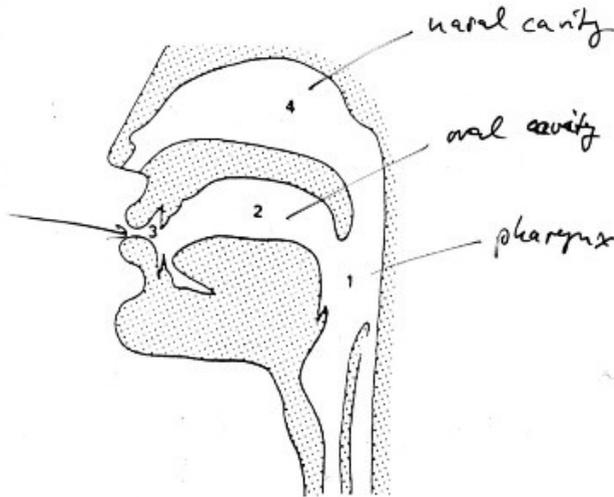


Figure (4): sound modification places. (Thomas 1976:33)

## Consonants

On the way out the air flow can be more or less obstructed, producing a consonant, or is simply modified, giving a vowel. If you pronounce the first sound of the word *paper* you close your mouth completely and that is the utmost obstruction, whereas if you pronounce the first sound of the word *after* the mouth is more open than normal, the air flows as freely as it possibly can.

Consonants are often classified by being given a so-called VPM-label. VPM stands for Voicing, Place and Manner:

- voicing means that the vocal folds are used; if they are not, the sound is voiceless (note that vowels always imply the use of vocal folds).
- place of articulation is the place where the air flow will be more or less obstructed.
- manner is concerned with the nature of the obstruction.

## Voicing

The larynx is in the neck, at a point commonly called Adam's apple. It is like a box, inside which are the vocal folds, two thick flaps of muscle. In a normal position, the vocal folds are apart and we say that the glottis is open (figure a). When the edges of the vocal folds touch each other, air passing through the glottis will usually cause vibration (figure b). This opening and closing is repeated regularly and gives what is called voicing.

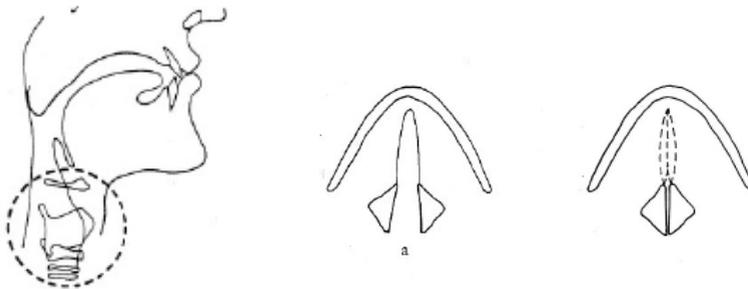


Figure (5): voicing

(Roach 1983:23,25)

The only distinction between the first sounds of *sue* and *zoo* for example is that [s] is voiceless, [z] is voiced. The same goes for *few* and *view*, [f] is voiceless, [v] is voiced. If you now say [ssssszzzzzsssss] or [fffffvvvvfffff] you can either hear the vibrations of the [zzzzz] or [vvvvv] by sticking your fingers into your ears, or you can feel them by touching the front of your larynx (the Adam's Apple).

This distinction is quite important in English, as there are many pairs of sounds that differ only in voicing. In the examples below the first sound is voiceless, the other is voiced: *pie/buy*, *try/dry*, *clue/glue*, *chew/Jew*, *thigh/thy*. This distinction can also be made in between two vowels: *rapid/rabid*, *metal/medal*, or at the end of a word: *pick/pig*, *leaf/leave*, *rich/ridge*.

In English the following consonants are voiced: b, d, g, v, ð, z, ʒ, l, r, j, w, ʤ, m, n, ŋ

The following ones are unvoiced: p, t, k, f, θ, s, ʃ, h, tʃ

## Places of Articulation

As we saw above [p,t,k] are all voiceless, so there must be another way to distinguish between them, otherwise we would not be able to tell *try* apart from *pry* or *cry*, or *pick* from *tick* or *kick*. Apart from the behaviour of the vocal folds, sounds can also be distinguished as to where in the oral cavity they are articulated (i.e. where in the mouth there is most obstruction when they are pronounced)

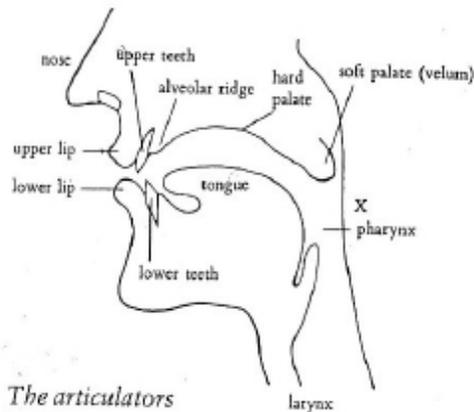


Figure (6): places of articulation. (Roach 1983:8)

**Bilabial** sounds are produced when the lips are brought together. Examples are [p], which is voiceless, as in *pay* or [b] and [m] which are voiced, as in *bay*, *may*.



*Bilabial articulation*

[p, b] ([m])

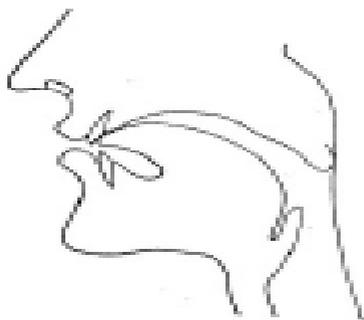
**Labiodental** sounds are made when the lower lip is raised towards the upper front teeth. Examples are [f] *safe* (voiceless) and [v] *save* (voiced).



*Labiodental fricative*

[f, v]

**Dental** sounds are produced by touching the upper front teeth with the tip of the tongue. Examples are [θ] *oath* (voiceless) and [ð] *clothe* (voiced).



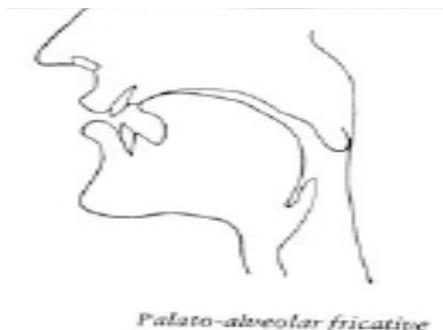
*Dental articulation*

**Alveolar** sounds are made by raising the tip of the tongue towards the ridge that is right behind the upper front teeth, called the alveolar ridge. Examples are [t,s] *too, sue*, both voiceless, and [d,z,n,l,r] *do, zoo, nook, look, rook*, all voiced.

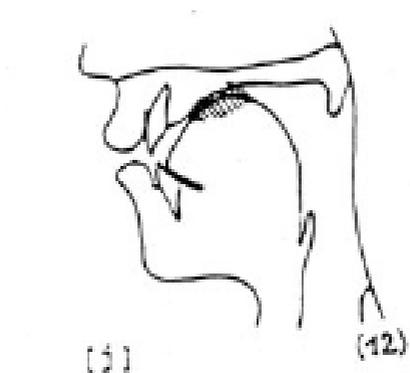


*Alveolar articulation*

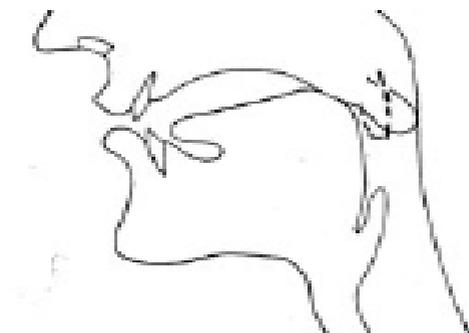
**Palato alveolar** sounds are made by raising the blade of the tongue towards the part of the palate just behind the alveolar ridge. Examples [ʃ, tʃ] *pressure, batch* (voiceless) and [ʒ, dʒ] *pleasure, badge* (voiced).



**Palatal** sounds are very similar to palato alveolar ones, they are just produced further back towards the velum. The only palatal sound in English is [j] as in *yes, yellow, beauty, new* and it is voiced.

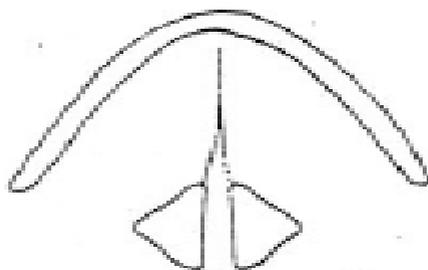


**Velar** sounds are made by raising the back of the tongue towards the soft palate, called the velum. Examples [k] *back*, voiceless, and [g, ŋ] both voiced *bag*, *bang*. [w] is a velar which is accompanied with lip rounding.



*Velar articulation*

**Glottal** sounds are produced when the air passes through the glottis as it is narrowed: [h] as in *high*. (Figure (14):Roach 1983:25)



## Manners of Articulation

We can now distinguish between English consonants from two points of view, that of voicing, and that of place. We can see that [b] and [t] are different in both respects, [b] is voiced and bilabial, and [t] is voiceless and alveolar. [p] differs from [b] only in being voiceless, as both are bilabial, and [p] differs from [t] only in being bilabial, as both are voiceless.

There are still pairs of sounds where we cannot yet describe the difference of one from the other, e.g. [b,m] *bend, mend* as both are voiced and bilabial, and [t,s] *ton, son* which both are voiceless and alveolar. As the examples show, we can however tell the words apart, and this is because the sounds are different in a way we have not yet discussed, and that is with respect to their manner of articulation.

The manner of articulation has to do with the kind of obstruction the air meets on its way out, after it has passed the vocal folds. It may meet a complete closure (plosives), an almost complete closure (fricatives), or a smaller degree of closure (approximants), or the air might escape in more exceptional ways, around the sides of the tongue (laterals), or through the nasal cavity (nasals).

**Plosives** are sounds in which there is a complete closure in the mouth, so that the air is blocked for a fraction of

a second and then released with a small burst of sound, called a plosion (it sounds like a very small explosion). Plosives may be bilabial [p,b] *park, bark*, alveolar [t,d] *tar, dark* or velar [k,g] *car, guard*. There is a fourth kind of plosive, the glottal stop. The word *football* can be pronounced without interruption in the middle as in [fTtbN:l] or with a complete closure of the glottis instead of [t]: [fʊtbɔ:l].

In English a voiceless plosive that occurs at the beginning of a word and is followed by a vowel, is rather special in the sense that at the release of a plosion one can hear a slight puff of air (called aspiration) before the vowel is articulated. Hence in "pen "we hear [pçen]. These aspirated voiceless plosives are not considered to be different sounds from unaspirated voiceless plosives from the point of view of how they function in the sound system. This difference, which can be clearly heard, is said to be phonetic.

**Fricatives** have a closure which is not quite complete. This means that the air is not blocked at any point, and therefore there is no plosion. On the other hand the obstruction is big enough for the air to make a noise when it passes through it, because of the friction. This effect is similar to the wind whistling around the corner of a house. Fricatives may be labio-dental [f,v] *wife, wives*,

dental [θ, ð] *breath, breathe*, alveolar [s,z] *sink, zinc*, palato-alveolar [ʃ, ʒ] *nation, evasion*, or glottal [h] *help*. [h] is a glottal fricative. As it has no closure anywhere else, and as all air passes between the vocal folds, this means that [h] is like aspiration unaccompanied by any obstruction.

A distinction may be made between **sibilant** and **non-sibilant** fricatives. Sibilant sounds are the fricatives with a clear “hissing” noise, [s, z, ʃ, ʒ] and the two affricates [tʃ, dʒ] *choke, joke*.

**Affricates** are a combination of a plosive and a fricative (sometimes they are called “affricated plosives”). They begin like a plosive, with a complete closure, but instead of a plosion, they have a very slow release, moving backwards to a place where a friction can be heard (palate alveolar). The two English affricates are both palate alveolar, [tʃ] which is voiceless, *chin, rich*, and [dʒ] which is voiced, *gin, ridge*. The way an affricate resembles a plosive followed by a fricative is mirrored in the symbols. Both consist of a plosive symbol followed by a fricative one: [t+ʃ], [d+ʒ].

**Nasals** resemble plosives, except that there is a complete closure in the mouth, but as the velum is lowered the air can escape through the nasal cavity. Though most sounds are produced with the velum raised, the normal

position for the velum is lowered, as this is the position for breathing (your velum is probably lowered right now when you are reading this). The three English nasals are all voiced, and [m] is bilabial, *ram*, [n] is alveolar, *ran*, and [ŋ] velar, *rang*. In the section on places, the dotted line on the pictures of bilabial, alveolar, and velar articulations illustrate the three nasals.

**Laterals** are sounds where the air escapes around the sides of the tongue. There is only one lateral in English, [l], a voiced alveolar lateral. It occurs in two versions, the so-called “clear l” before vowels, *light*, *long*, and the “dark l” in other cases, *milk*, *ball*. Words like *little*, *lateral* have one of each type. “Dark l” may be written with the symbol. “Clear” is pronounced with the top of the tongue raised, whereas for “dark l” it is the back of the tongue which is raised. Here again, as with aspirated and unaspirated voiceless plosives, even though “clear l” and “dark l” are phonetically different, they cannot be said to be different sounds from the point of view of how they function in the sound system. If you produce a “dark l” where usually you have a “clear l”, for example at the beginning of the word *long*, your pronunciation will sound odd but nobody will understand a different word.

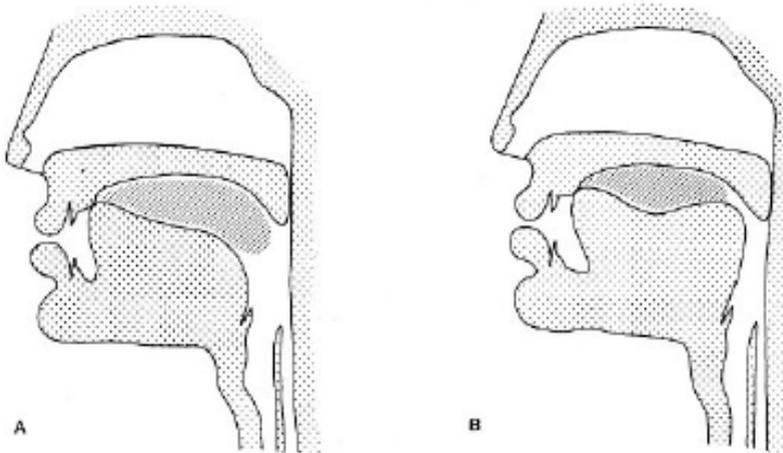


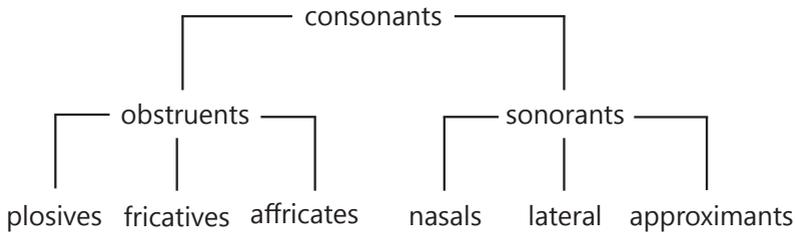
Figure 15: clear and dark "l".(Thomas 1976:44)

**Approximants** are sounds where the tongue only approaches the roof of the mouth, so that there is not enough obstruction to create any friction. English has three approximants, which are all voiced. [r] is alveolar, *right, brown*, sometimes called post-alveolar, because it is slightly further back than the other alveolar sounds [t,d,s,l]. [j] is a palatal approximant, *use, youth*, and [w] is a velar approximant, *why, twin, square*. [w] always has lip-rounding as well, and therefore it is sometimes called labio-velar.

[r] only occurs before vowels in southern British English, whereas other accents, e.g. Scottish, Irish, and most American ones, also can have it after vowels. Therefore

those accents can make a distinction between e.g. *saw* and *sore*, which are pronounced exactly alike in southern British English.

The manners of articulation can be put into two major groups, obstruent and sonorants. The obstruents are plosives, fricatives and affricates, all sounds with a high degree of obstruction. Obstruents usually come in pairs, one voiceless, one voiced, e.g. [p/b, t/d]. Sonorants have much less obstruction and are all voiced and therefore more sonorous. They include nasals, the lateral, and approximants. The manners can be illustrated as in the following diagram:



## Table of the Consonants

The discussion on consonants above can be summarised in the table below (Roach1983: 52). A sound on the left side of a column is voiceless, one on the right side is voiced.

	Bilabial	Labiodental	Dental	Alveolar	Palato-alveolar	Palatal	Velar	Glottal
<b>Plosive</b>	pb			t d			k g	
<b>Fricative</b>		f v	θ, ð	s z	ʃ ʒ			h
<b>Affricate</b>					tʃ dʒ			
<b>Nasal</b>	m			n			ŋ	
<b>Lateral</b>				l				
<b>Approximant</b>	w				r	j		

## Vowels

We shall first have a closer look at the way in which vowels differ from consonants. Then we shall analyse vowels phonetically, i.e. according to:

- ✓ tongue position: how high in the mouth is the tongue, and which part of the tongue is the highest?
- ✓ length: are the vowels long or short?
- ✓ rounding: are the lips rounded or not?
- ✓ nasality: is there free passage of air through the nose?
- ✓ diphthongs: are they steady, or do they somehow change in character?

The last section is a table of the vowels. (There are other points of view which we shall not deal with here, since they are irrelevant for our study).

## Difference from Consonants

Even though all the languages of the world contain both vowels and consonants, and although almost everybody has some idea of whether a given sound is a vowel or a consonant in his language, there is actually more than one way to distinguish between the two classes of sounds. From a **phonetic** point of view one way of distinguishing is by considering which sounds have the highest degree of obstruction. Although vowels have

almost no obstruction, and some consonants (obstruents, nasals, and the lateral) have a high degree of obstruction, there is a group of consonants (the approximants) which would be classified as vowels if this criterion was used: approximants have no more obstruction than vowels. This can be seen by comparing the approximant [j] in *yeast* [ji:st] with the vowel [i:] in *east* [i:st].

From a **phonological** point of view, it is possible to distinguish between vowels and consonants by testing which sounds may be the nucleus of a syllable, i.e. the part of a syllable that cannot be left out. If you consider a syllable such as [kɑ:t] *cart*, the initial [k] may be left out and we still have a syllable, [ɑ:t] *art*, the final [t] may be left out and we still have a syllable, [kɑ:] *car*. In fact [k] and [t] may both be left out, and the remainder is still a syllable, [ɑ:] *are*. If however you try to leave out the vowel, then there is no syllable anymore: \* [kt]. [ɑ:] is then the sound that cannot be left out. Compare with *yeast* whereas [j] can be left out, giving [i:st], [i:] can't: \* [jst]. Syllabicity seems to be the criterion to determine whether a sound is a vowel or a consonant.

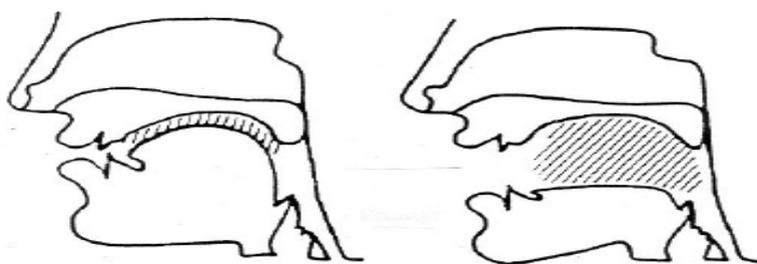
The above discussion would not be complete if we didn't mention the problem of so-called **syllabic consonants**. This is the case when sounds like / r,l,n / may function as a separate syllable consisting of an only sound, as in / kɒt+n/ *cotton* or /æp +l/ *apple*, where English speakers

clearly hear two separate syllables. In these words, the /n/ and /l/ seem to function as the nucleus of the second syllable of these words. However, they cannot be classified as vowels, as they can never occur alone as a word.

## Tongue Position

Tongue position is described using two criteria: the height (how high is the tongue) and the part of the tongue involved in the production of the sound.

In English the tongue may either be **high**, i.e. when the speaker produces e.g. [i:, u:] in [bi:t, bu:t] *beat, boot*, **intermediate**, e.g. [e:,ɔ:] in [bet, bɔ:t] *bet, bought*, or **low**, e.g. [æ,a:] in [bæ:t, ba:t] *bat, Bart*.



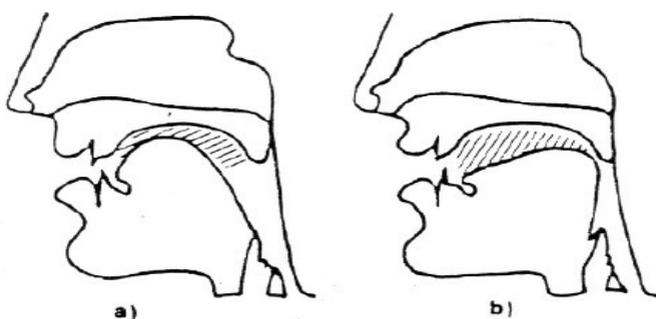
a) tongue is at the highest

b) tongue is at the lowest

Figure 16: tongue height. (Thomas 1976: 56)

Depending on the language we can have several intermediate tongue heights. English has three heights: high, mid and low, whereas French has two intermediate tongue heights with a total of four tongue heights: high, mid high, mid low and low.

The part of the tongue involved in the production of a vowel can also be illustrated with the examples above. If you say [i:] and then [u:] just after it, you almost have the feeling that you are moving your tongue backwards. This is because [i:] is a **front** vowel, and [u:] is a **back** vowel, or in other words, the highest point in the pronunciation of [i:] is the front of the tongue, whereas the highest point in [u:] is the back of the tongue. Figure (17) gives you two examples of tongue position: a) is an example of the front of the tongue being at the highest) it is the back of the tongue which is nearest to the palate.



(a) front and

(b) back. (Thomas 1976:56)

Figure 17: tongue position

For example [ɛ] is front and [ɔ:] is back, and [æ] front, [ɑ:] back. There are also vowels in between front and back, called **central**, namely [ɜ:,ə,ʌ] as in [wɜ:d, fɔ:wəd, mʌd] *word, forward, mud*. [ɜ:] for instance is between [e] and [ɔ:], as can be seen from [bed, bɜ:d, bɔ:d], *bed, bird, board*.

To give an accurate account of tongue position one has to combine height of the tongue and part of the tongue involved.

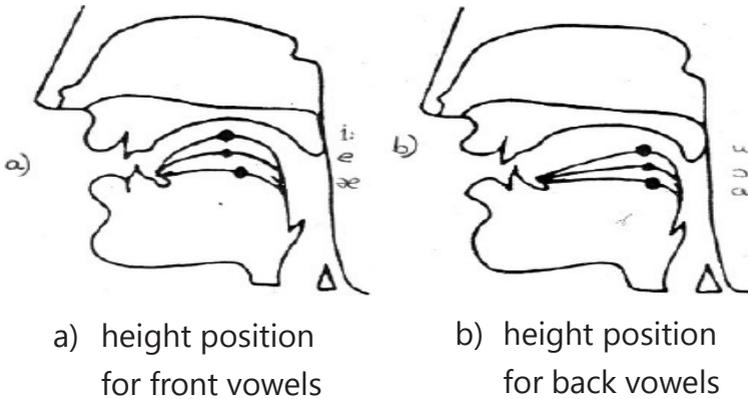


Figure 18: tongue position (Thomas 1976:57)

If you put 18a and 18b together and isolate tongue position, you get the following diagram:



Figure 19: vowel diagram (Thomas 1976:57)

The diagram in (19) is conventionalised as: The complete diagram of English vowels is is:

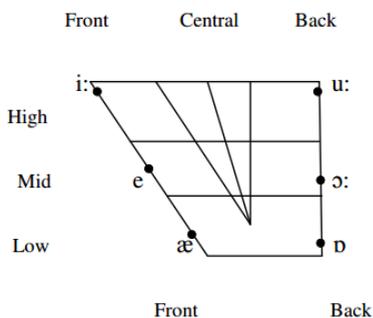


Figure 20:  
conventionalised  
diagram.

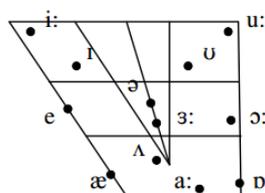


Figure 21:  
diagram of  
English vowels.



Phonologically, one can establish the rule such as only long vowels may be the last sound of a syllable, whereas short vowels are always followed by at least a consonant. If we take away the final [t] from court, [kə:] is a possible syllable (core) whereas [kɔ] could not possibly occur. (Exceptions from this are the three short vowels that occur in completely unstressed syllables, [sɪtɪ, ɪntʊ, swetə] *city, into, sweater*).

## **Rounding**

Vowels may also be different from each other with respect to rounding. If you compare [i:] in [tʃi:z] *cheese* with [u:] in [tʃu:z] *choose*, you will see that not only is [i:] a front vowel and [u:] a back vowel, but [i:] is also unrounded where [u:] is rounded. When pronouncing [u:] your lips are rounded, but when pronouncing [i:] the corners of the mouth are much further apart.

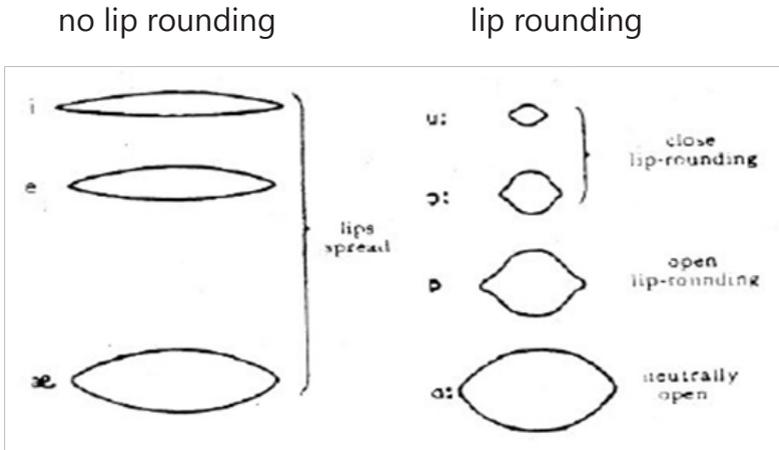


Figure 22: rounding. (McCarthy 1967: 31)

## Nasality

There are no nasal vowels in British English, i.e. no vowels in which the air also escapes through the nose.

## Diphthongs

So far we have only been considering vowels that were constant, i.e. vowels that were pronounced at one and the same place. Such vowels are called monophthongs, and English has 12 of them.

English also has 8 diphthongs, which are vowels that change character during their pronunciation, that is, they begin at one place and move towards another place. Compare for example the monophthong in *car*

with the diphthong in *cow*, or the monophthong in *girl* with the diphthong in *goal*. The vowels of *cow* and *goal* both begin at a given place and glide towards another one. In *goal* the vowel begins as if it was [ə], but then it moves towards [ʊ]. Therefore it is written [əʊ], as in [gəʊl] *goal*, with two symbols, one for how it starts and one for how it ends.

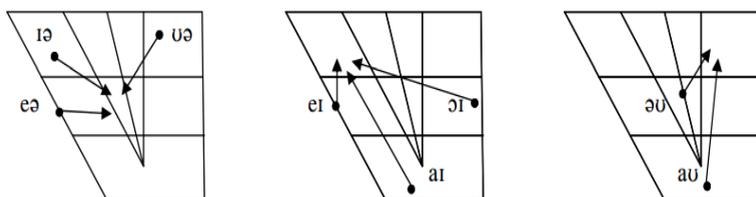
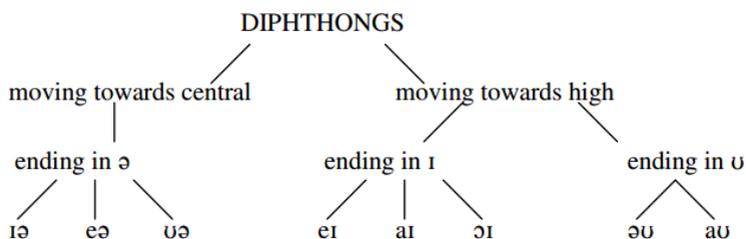


Figure 23: table of diphthongs.

The easiest way to remember them is in terms of three groups composed as follows:



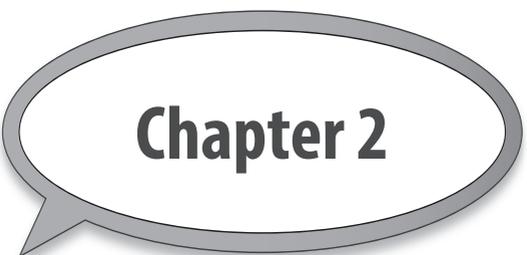
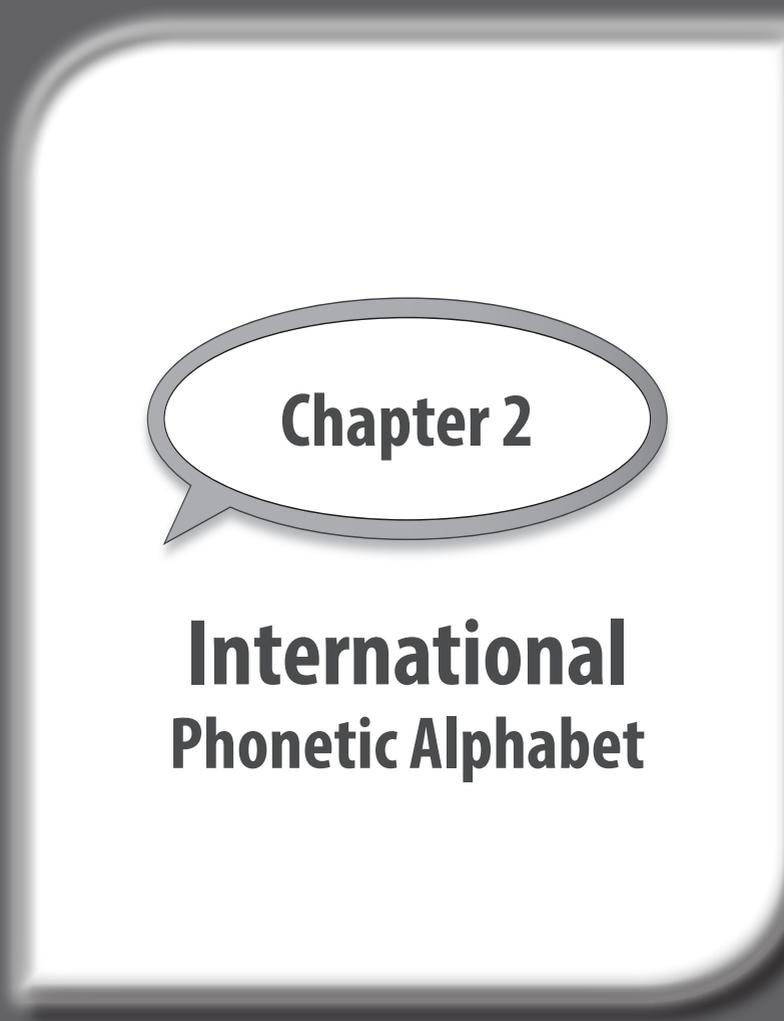
Note that some people speak of triphthongs for groups of diphthongs + schwa (?) Example:

- [məʊə] *mower*.

## Table of Vowels

As we saw above, the best way of noting the tongue position is by using the vowel diagrams, as on p.14, but as they do not contain information about length and rounding, we can summarise the description of English vowels in the following table:

i:	long high front unrounded monophthong
ɪ	short high front unrounded monophthong
e	short mid front unrounded monophthong
æ	short low front unrounded monophthong
ʌ	short low central unrounded monophthong
ɑ:	long low back unrounded monophthong
ɒ	short low back rounded monophthong
ɔ:	long mid back rounded monophthong
ʊ	short high back rounded monophthong
u:	long high back rounded monophthong
ɜ:	long mid central unrounded monophthong
ə	short mid central unrounded monophthong
eɪ	diphthong moving from mid front unrounded to high front unrounded
aɪ	diphthong low central unrounded to high front unrounded
ɔɪ	diphthong low back rounded to high front unrounded
əʊ	diphthong mid central unrounded to high back rounded
aʊ	diphthong low central unrounded to high back rounded
ɪə	diphthong high front unrounded to mid central unrounded
eə	diphthong mid front unrounded to mid central unrounded
ʊə	diphthong high back unrounded to mid central unrounded



## **Chapter 2**

# **International Phonetic Alphabet**

The International Phonetic Alphabet (IPA) is a system of phonetic notation devised by linguists to accurately and uniquely represent each of the wide variety of sounds (phones or phonemes) used in spoken human language. It is intended as a notational standard for the phonemic and phonetic representation of all spoken languages. The International Phonetic Alphabet was created soon after the International Phonetic Association was established in the late 19th century. It was intended as an international system of phonetic transcription for oral languages, originally for pedagogical purposes. The concept of the IPA was first broached by Otto Jespersen in a letter to Paul Passy of the International Phonetic Association and was developed by A.J. Ellis, Henry Sweet, Daniel Jones, and Passy in the late 19th century. The Association was established in Paris in 1886 by French and British language teachers led by Paul Passy. Its creators' intent was to standardize the representation of spoken language, thereby sidestepping the confusion caused by the inconsistent conventional spellings used in every language. The IPA was also intended to supersede the existing multitude of individual transcription systems. It was first published in 1888 and was revised several times in the 20th and 21st centuries. One aim of the International Phonetic Alphabet (IPA) was to provide a unique symbol for each distinctive sound in a

language—that is, every sound, or phoneme, that serves to distinguish one word from another.

In the August–September 1888 issue of its journal, the Phonetic Teachers’ Association published a standardized alphabet intended for transcription of multiple languages, reflecting its members’ consensus that only one set of alphabet ought to be used for all languages, along with a set of six principles:

1. There should be a separate sign for each distinctive sound; that is, for each sound which, being used instead of another, in the same language, can change the meaning of a word.
2. When any sound is found in several languages, the same sign should be used in all. This applies also to very similar shades of sound.
3. The alphabet should consist as much as possible of the ordinary letters of the roman alphabet; as few new letters as possible being used.
4. In assigning values to the roman letters, international usage should decide.
5. The new letters should be suggestive of the sounds they represent, by their resemblance to the old ones.
6. Diacritic marks should be avoided, being trying for the eyes and troublesome to write.

The principles would govern all future development of the alphabet, with the exception of and in some cases until they were revised drastically in 1989 has also been loosened, as diacritics have been admitted for limited purposes. The devised alphabet was as follows. The letters marked with an asterisk were “provisional shapes”, which were meant to be replaced “when circumstances will allow”.

The IPA primarily uses Roman characters. Other letters are borrowed from different scripts (e.g., Greek) and are modified to conform to Roman style. Diacritics are used for fine distinctions in sounds and to show nasalization of vowels, length, stress, and tones.

The IPA can be used for broad and narrow transcription. For example, in English there is only one *t* sound distinguished by native speakers. Therefore, only one symbol is needed in a broad transcription to indicate every *t* sound. If there **is a need to transcribe narrowly in English, diacritical marks can be added to indicate that the *t*'s in the words *tap*, *pat*, and *stem* differ slightly in pronunciation.**

**The IPA did not become** the universal system for phonetic transcription that its designers had intended, and it is used less commonly in America than in Europe. Despite its acknowledged shortcomings, it is widely

employed by linguists and in dictionaries, though often with some modifications. The IPA is also used by singers.

### **Why is the IPA very important?**

Basically once phonetics had got going it became necessary to create a single written representation of sounds that was independent of any particular language, accent/idiolect and spelling system. This is because neutrality is important to avoid bias and because phoneticians need to learn one system and be consistent with it rather than fiddle around with lots of different ones, confusingly. It's also a fact that whatever the 'official' or standard pronunciation of a language is there are many accents and idiolectal variants and a code that focuses on the sound per se enables that to be recorded and understood.

Now the IPA *is* kind of biased because of course it's an alphabet rather than some other kind of writing system and it's based mostly on the Latin alphabet rather than the many other alphabets. But if you want to represent all relevant details of sounds it's difficult to see how an ideographic or syllabic system would work. And statistically the Latin alphabet is easily the most used in the world, so basing the IPA on that reduces the global amount of learning curve required.

We could conceivably create an original notation system based on features rather than phones/phonemes. This would represent a finer level of sound detail than even a phonetic alphabet. There might be less to learn with such a system, but it might take up more space or require more strokes than the IPA, and it would be more unfamiliar to those who already know the Latin alphabet and various diacritics. If we did use this system we could then ask “Why is the [this system] important?” and it would have the same answer.

It makes a good point that the IPA is not just for linguists and phoneticians. Learning it requires a certain amount of time and application, and realistically learning some phonetics at least at a theoretical level. But once a person has that their language-learning, accent imitation and other pronunciation/comprehension skills will improve. With the IPA you can actually pronounce languages you’ve never heard before and don’t understand. It allows anyone who understands the International Phonetic Alphabet (IPA) to **correctly pronounce** IPA-transcribed utterances in any language whatsoever.

The IPA is not based on the sound system of any one language. For that reason, it generally requires some training in **phonetics**. For example, unless you are a native speaker of an African language such as Xhosa, you will probably not know how to produce a lateral click.

Most dictionaries and materials for foreign learners now use the IPA as a pronunciation guide.

The IPA is a large collection of symbols used for precisely representing the sounds of (theoretically) every language in the world. This tool can be used for many things:

- 1) documenting the sounds of an unknown language (field linguist)
- 2) jotting down a client's speech errors (speech language pathologist)
- 3) introducing foreign students to the sound system of languages such as English, which has a complex spelling system, and correcting their mistakes (EFL teacher).

The International Phonetic Alphabet is the premier descriptive instrument of linguistics, which is fundamentally a scientific discipline that seeks to *describe* the variegated structures, distribution, and social application of a given discourse. By formalizing the totality of the human phonetic inventory, the IPA wields equivalent utility to the Latinate taxonomic names in biology. It permits linguists, who are themselves habituated to particular phonetic configurations (for no language utilizes the entirety of possible phonemes), to comprehend diverse patterns of speech and their interrelations that form the "generative grammar of speech" postulated by Chomsky.

Below are a few applications of the IPA:

1. Tracing patterns of code-switching, language change, and creolization (e.g. the Great Vowel Shift in English). It is difficult to chronicle sound change with conventional spelling or respelling keys due to consistencies in orthographic practices (e.g. French “est” (ɛ) from Latin “est” [ɛst]). Usage of IPA is especially relevant in documenting unwritten languages, often manifesting itself as an instrument of political neutrality (is it not a colonialist practice to transpose English orthography unto an unrelated language, for example?).
2. Providing an objective pronunciation key. I am frequently confused by the application of “A with macron” in representing English /æ/, and I predict confidently similar confusion in kindred readers. IPA permits readers hailing from diverse linguistic backgrounds to interpret the complex pronunciation of one language relative to the reader’s own. It is thus indispensable in promoting language learning and sound distinction across several languages equipped with dissimilar phonemic inventories.
3. Accurately describing (along with verbal supplements) the psycho-social dimensions of language. Examples of “just how these people speak” in particular circumstances are invaluable in describing the linguistic

social psychology of ethnic groups and their languages. While “speaking with exaggerated aspirants in sacrificial rituals” is somewhat useful, an accompanying description in IPA (e.g. /p<sup>h</sup>ɑ) permits an exactitude of understanding that complement study in the linguistic expressions of social conventions and norms.

## Phonetic symbols

used in the dictionary

### Consonants

p	pen	/pen/	s	so	/səʊ/
b	bad	/bæd/	z	zoo	/zu:/
t	tea	/ti:/	ʃ	shoe	/ʃu:/
d	did	/dɪd/	ʒ	vision	/'vɪʒn/
k	cat	/kæt/	h	hat	/hæt/
g	got	/gɒt/	m	man	/mæn/
tʃ	chain	/tʃeɪn/	n	no	/nəʊ/
dʒ	jam	/dʒæm/	ŋ	sing	/sɪŋ/
f	fall	/fɔ:l/	l	leg	/leg/
v	van	/væn/	r	red	/red/
θ	thin	/θɪn/	j	yes	/jes/
ð	this	/ðɪs/	w	wet	/wet/

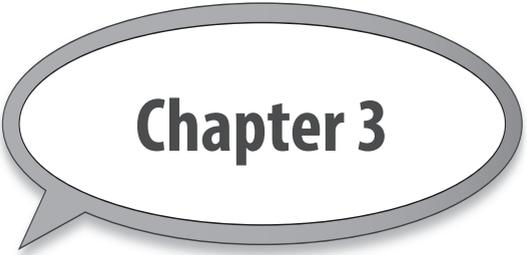
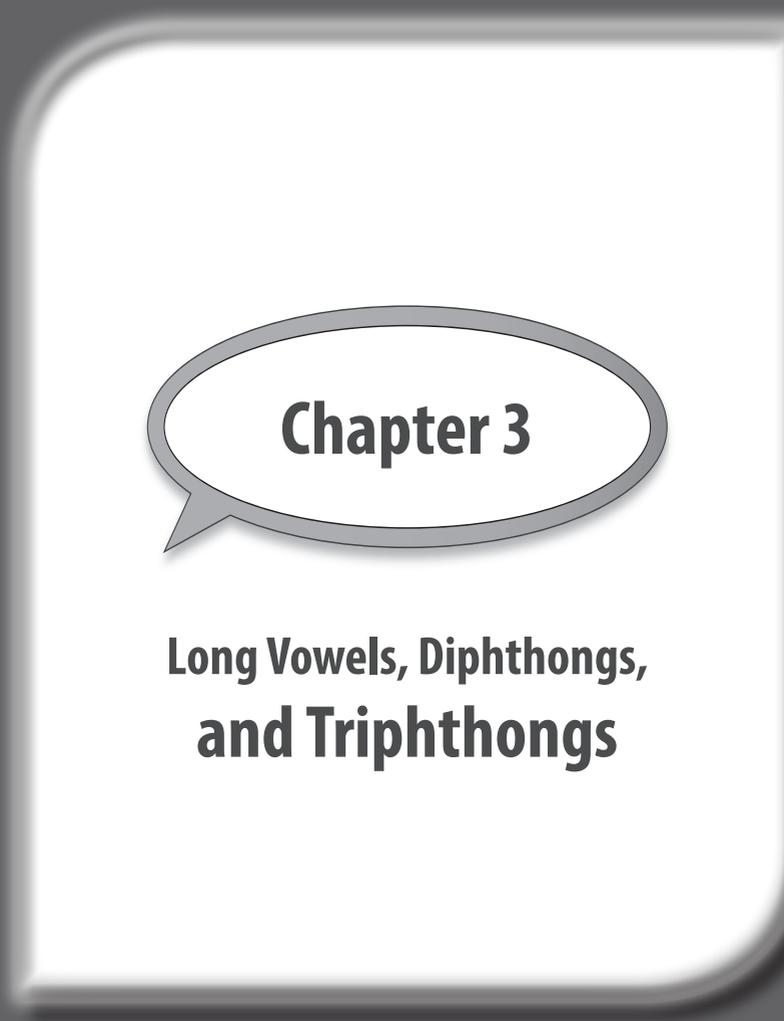
### Vowels and diphthongs

i:	see	/si:/	ʌ	cup	/kʌp/
i	happy	/'hæpi/	ɜ:	bird	/bɜ:d/
ɪ	sit	/sɪt/	ə	about	/ə'baʊt/
e	ten	/ten/	eɪ	say	/seɪ/
æ	cat	/kæt/	əʊ	go	/gəʊ/
ɑ:	father	/'fɑ:ðə(r)/	aɪ	five	/faɪv/
ɒ	got	/gɒt/	aʊ	now	/naʊ/
ɔ:	saw	/sɔ:/	ɔɪ	boy	/bɔɪ/
ʊ	put	/pʊt/	ɪə	near	/nɪə(r)/
u	actual	/'æktʃʊəl/	eə	hair	/heə(r)/
u:	too	/tu:/	ʊə	pure	/pjʊə(r)/

(r) indicates that British pronunciation will have /r/ only if a vowel sound follows directly; otherwise it is omitted. In American pronunciation, every 'r' of the ordinary spelling is retained.

**Conclusion:** The IPA is important because it allows everyone, not just linguists, to learn the pronunciation of an utterance- no matter what language is used. The IPA has one phoneme (symbol) per sound. The complete IPA table includes all the phonemes for all

known sounds in every language. Because the IPA is universal, anyone can use it. They'll just need to learn the terminology and categories for each phoneme.



# **Chapter 3**

## **Long Vowels, Diphthongs, and Triphthongs**

## Tricky Vowel Sounds (Monophthongs, Diphthongs, and Triphthongs)

**Vowel sounds** are an especially tricky part of English pronunciation because of how flexible and malleable they can be. While consonant sounds are fairly uniform throughout various dialects, vowel sounds can have slight variations in pronunciation from one region to another.

Another aspect of vowel sounds that can be confusing is when multiple vowel sounds blend together within a single syllable. Because there are no clear divisions between the sounds like there are for consonants, these blended vowel sounds can be difficult to pronounce correctly. In this section, we'll look at the three ranges of vowel sounds: **monophthongs** (single vowel sounds within a syllable), **diphthongs** (two vowels sounds combined within a syllable), and **triphthongs** (three vowels sounds combined within a syllable).

A monophthong is a simple vowel sound that a person does not have to move his mouth to make, like the "oo" sound in "book." In a diphthong, the person combines two different monophthongs, as with the "oi" sound in the word "oil." The person starts with the mouth in the position to make an "o" sound, then quickly moves the mouth to make a hard "e" sound. Another example is

the “ou” sound in the word “house.” The mouth starts out making a sound like the soft “a” sound in “flat,” then moves to make the a hard “oo” sound like the one in “boots.”

The main difference is that a monophthong is a phoneme that consists of only one (“mono” means one) vowel sound and a diphthong is a phoneme consisting of two (“di” means two) vowel sounds that are “connected” or “linked” to each other.

So, **monophthong** is a vowel (in the sense of a sound rather than a letter of the alphabet) that has the same sound throughout its pronunciation, such as the short vowels in «pap», «pep», «pip», «pop» and «pup», as opposed to a **diphthong** (eg, /aɪ/, the vowel in «pipe»)

Monophthong Example:

æ: man  
ɪ bit  
ɔ lot  
o: tall

Diphthong Example

æɪ main  
aɪ bite  
əʊ low  
ɔɪ toy

Monophthong comes from the Greek and means 'one single sound'. Correspondingly diphthong means two sounds. It refers to the pronunciation of vowels. With the monophthong the vowel sound is single and 'pure', with diphthongs there is a vowel glide towards other vowel sounds. English is characterised by its large number of diphthongs in vowel pronunciation.

### **Monophthong:**

- It occurs when there is one vowel sound in a syllable,
- Here, vowel is spoken with exactly one tone & one mouth position.
- All 'e' sounds are monophthongs.

*List:*

[i:], [i], [e], [æ], [a:], [o:], [o], [u:], [y:], [u], [ə], [ə]

*Examples:*

four [o:] - 1 mouth movement

burn [ər] - 1 mouth movement

Teeth [ee] - long vowel sound monophthong

funny [ʌ & i] - **2 monophthongs**

## Short vowel monophthongs

Most of the monophthongs in English are commonly known as "**short vowels**," which are usually produced when a vowel is followed by one or more consonants in a **syllable**.

Most vowel letters have a specific short-vowel sound, though **U** can create two types of short-vowel sounds. The semi-vowel **Y** can also create a short vowel sound, but it is the same as the letter **I**.

Let's look at some examples of each type of short vowel:

Vowel Letter	IPA Symbol	Example Words
<b>A a</b>	/æ/	<b>a</b> pple (/'æpəl/) m <b>a</b> p (/mæp/) tr <b>a</b> ck (/træk/) m <b>a</b> n (/mæn/)

<p><b>E e</b></p>	<p>/ɛ/</p>	<p><b>set</b> (/s<u>ɛ</u>t/)</p> <p><b>jet</b> (/dʒ<u>ɛ</u>/)</p> <p><b>bend</b> (/b<u>ɛ</u>nd/)</p> <p><b>met</b> (/m<u>ɛ</u>t/)</p>
<p><b>I i</b></p>	<p>/ɪ/</p>	<p><b>tip</b> (/t<u>ɪ</u>p/)</p> <p><b>strip</b> (/str<u>ɪ</u>p/)</p> <p><b>imply</b> (/<u>ɪ</u>m'pl<u>ɪ</u>/)</p> <p><b>fin</b> (/f<u>ɪ</u>n/)</p>

<p><b>O o</b></p>	<p>/ɑ/</p>	<p><b>t<u>o</u>p</b> (/t<u>ɑ</u>p/)</p> <p><b>h<u>o</u>t</b> (/h<u>ɑ</u>t/)</p> <p><b><u>o</u>ffer</b> (/'ɑf<u>ə</u>r/)</p> <p><b>p<u>o</u>llen</b> (/'p<u>ɑ</u>lən/)</p>
<p><b>U u</b></p>	<p>/ʌ/</p>	<p><b><u>u</u>t</b> (/k<u>ʌ</u>t/)</p> <p><b>h<u>u</u>g</b> (/h<u>ʌ</u>g/)</p> <p><b>m<u>u</u>tt</b> (/m<u>ʌ</u>t/)</p> <p><b>str<u>u</u>t</b> (/str<u>ʌ</u>t/)</p>

## Diphthong:

- It occurs when there are two vowel sounds in a syllable or two vowel sounds that are “connected” or “linked” to each other.
- Here, the mouth moves in two different positions to make the vowel sound.
- Combination of 2 Monophthongs.

Simply: a monophthong is a single vowel and a diphthong is a double vowel.

### *Examples:*

bay [ei] - combined vowel sound

mail [ai] - combined vowel sound

### *Combined Example:*

Behind [ ə & ɪ ] - 1 monophthong, 1 diphthong

The “ay” in “day” is an example of a diphthong, because the vowel sound is a combination of a short “e” as in “hen” and a long “e” as in “scheme”. Two monophthongs make a diphthong. Both the long “e” and the short “e” are monophthongs.

Long “I” as in “Ibis” = diphthong

Short “I” as in “Inner” = monophthong

All pronunciations of "e" are monophthongs

Short "u" as in "umbrella" = monophthong

Long "u" as in "tune" = diphthong

Short "o" varies according to region

Long "o" as in "home" = diphthong

<b>U u</b>	/ʌ/	<b>cut</b> (/kʌt/) <b>hug</b> (/hʌg/) <b>mutt</b> (/mʌt/) <b>strut</b> (/strʌt/)
<b>U u</b>	/ʊ/	<b>put</b> (/pʊt/) <b>push</b> (/pʊʃ/)

		<b>full</b> (/f <u>u</u> l/) <b>sugar</b> (/ʃ <u>u</u> gər/)
<b>Y y</b>	/ɪ/	<b>myth</b> (/m <u>ɪ</u> θ/) <b>system</b> (/'sɪ <u>s</u> təm/) <b>rhythm</b> (/'rɪ <u>θ</u> əm/) <b>crypt</b> (/kr <u>ɪ</u> pt/)

## Long vowel monophthongs

Most of the traditional “**long vowels**” (vowel sounds that approximate the name of their corresponding vowel letters) are diphthongs, so we’ll look at those further on. One traditional long vowel that *is* a monophthong, though, is “**long E**,” represented in IPA by /**i**/. This sound is usually produced by the letter **E**, but it can also be

formed by the letter **Y**, as well as a number of **vowel digraphs**. For example:

- me (/it/)
- concrete (/ˈkɒnkri:t/)
- happy (/ˈhæpi/)
- friendly (/ˈfrɛndli/)
- feel (/fil/)
- eat (/it/)
- categories (/ˈkætɪ, ɡɔːrɪz/)

There are also a few other long vowels besides those that sound like the names of vowel letters. Most of these occur in various vowel digraphs, though some can be produced by single letters, while others occur when a vowel is combined with the consonant **R**.

### ***/u/***

- exclude (/ɪkˈsklud/)
- prove (/pruv/)
- true (/tru/)
- cruise (/kruz/)
- chew (/tʃu/)
- loot (/lut/)
- through (/θru/)

## /ɔ/

- water (/ˈwɔtər/)
- across (/əˈkrɔs/)
- thought (/θɔt/)
- dawn (/daʊn/)
- author (/ˈɔθər/)

## /ɜ/

- nerve (/nɜrv/)
- stir (/stɜr/)
- work (/wɜrk/)
- curve (/kɜrv/)
- search (/sɜrtʃ/)
- journey (/ˈdʒɜrni/)

## Triphthongs

Very rarely, a single syllable may contain three vowel sounds that quickly glide together; this compound vowel sound is known as a **triphthong** (pronounced /ˈtrɪf θɔŋ/).

There are three triphthongs that are generally agreed upon in American English: /aʊə/ (“ah-oo-uh”), /aɪə/ (“ah-ih-uh”), and /jʊə/ (“ee-oo-uh”). We’ll briefly look at each

here, but you can find out more about them in the full section on **Triphthongs**.

### ***/aʊə/***

This triphthong is pronounced “ah-oo-uh,” and it occurs when the digraph **OU** is followed by an **R**. For example:

- our (/aʊər/)
- hour (/aʊər/; **H** is silent)
- flour (/flaʊər/)
- sour (/saʊər/)

### ***/aɪə/***

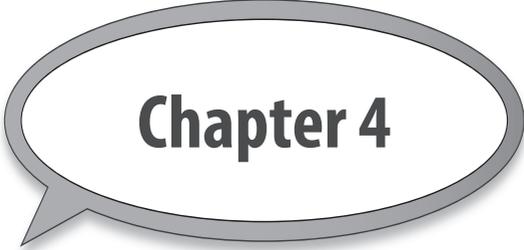
This triphthong is pronounced “ah-ih-uh,” and it occurs with the letter combination **IRE**. For example:

- fire (/faɪər/)
- dire (/daɪər/)
- inspire (/ɪn'spaɪər/)
- Ireland (/ˈaɪərlənd/)

### ***/jʊə/***

This triphthong is pronounced “ee-oo-uh,” and it sometimes occurs when the combination **UR** comes after a hard consonant and is followed by an **E**, **Y**, or **I**. For example:

- cure (/kjʊər/)
- pure (/pjʊər/)
- fury (/ˈfjʊəri/)
- curious (/ˈkjʊər.iəs/)



**Chapter 4**

**Syllables  
and Word Stress**

## The syllable

A syllable is a single segment of uninterrupted sound which is typically produced with a single pulse of air from the lungs. A syllable is made up of one or more letters with a vowel sound at its core. Speakers certainly have an intuitive notion of how many syllables each word contains: for instance, speakers of English would generally agree that *meadow*, *dangerous* and *antidisestablishmentarianism* (allegedly the longest word in the language) have two, three and twelve syllables respectively. It is less easy for speakers to reflect consciously on the internal

structure of syllables, or to decide where one stops and the next starts; but a wide variety of cross-linguistic studies have helped phonologists construct a universal template for the syllable, within which particular languages select certain options. A syllable which ends in a consonant is called a closed syllable. A syllable which ends in a vowel sound is called an open syllable. Recognizing and understanding syllables helps us state some phonological processes (for example involving English /l/ and the aspiration of voiceless plosives) more accurately and succinctly. The syllable and the next unit, the foot, are also crucial in analyzing and determining the position of stress within each word. Finally, in whole utterances consisting of a sentence or more,

phonological processes may apply between words, and rhythm and intonation produce the overall melody of longer stretches of speech.

## Word Stress

Upon hearing an English sentence - even without understanding its meaning - one can distinguish a certain number of prominent syllables. The prominence is at its highest on the vowels, which are louder, longer, higher in pitch and sometimes different in quality. In the word /bʰn@:n?/ *banana*, the syllable which bears the **stress** is /na:/. It is pronounced with more strength, it lasts longer and it reaches a higher pitch than the surrounding syllables; it also differs from them because it has a full vowel as opposed to /?/ (schwa), which is the most central and hence the most neutral of all vowels.

This prominence does not belong to the vowel itself but characterises the whole syllable. This explains why stress is called **suprasegmental** as opposed to phonemes which are segmental. At this stage we can clarify the distinction between different types of phonological elements:

- distinctive features always appear simultaneously in bundles that are characteristics of the phonemes

- phonemes are maximal bundles of distinctive features and have their own time-space. This is why they are segmental
- supra-segmental elements include:
  - a) syllables: they are supra-segmental units formed of phonemes and characterised as units by the presence of the vowel
  - b) stress: it is a supra-segmental feature characterising the units which we intuitively recognise as words.

## Word and Stress

To avoid interference with meaning we have chosen to examine an accidental gap consisting of a whole sentence:

(14) 'dʒi:kɪzə'nju:s'hɪspet

This sentence can be divided into six syllables, the limits of which are not always obvious. Let's examine the first and the last syllables.

We know that /dʒ/ is the beginning of the first syllable and that /i:/ is the nucleus. However, this syllable could either stop directly after the nucleus and we would have a syllable /dʒi:/ or it could have a termination /k/,

producing the syllable /  $\widehat{d}zi:k/$ . The next syllable could then have either a zero onset / $\emptyset$ ./ or the onset /k/: /k $\emptyset$ .../.

The last syllable finishes with /t/ and has /e/ as a nucleus. However, it could:

- have no onset and yield a syllable /et/
- have an onset consisting of /p/ and yield a syllable /pet/
- have an onset consisting of the cluster /sp/ and yield a syllable /spet/.

All this is possible because the previous syllable can be either /h $\emptyset$ sp/ or /h $\emptyset$ s/ or /h $\emptyset$ /.

Usually the notion of stress is related to the notion of word and there is one stressed syllable per word. In our example, if this were true, we would have three words. Where would the word boundaries be, bearing in mind that there is no meaning to help us?

Here are some of the possible words:

- (15) a.  $\widehat{d}zi:kiz\emptyset$  |  $\prime nju:s$  |  $\prime h\emptyset spet$   
b.  $\widehat{d}zi:$  |  $kiz\emptyset \prime nju:s$  |  $\prime h\emptyset spet$   
c.  $\widehat{d}zi:kiz$  |  $\emptyset \prime nju:s$  |  $\prime h\emptyset spet$

## Effects of Stress on Words

In actual fact, our accidental gap sentence an English sentence in disguise:

(16) /'dʒɒn ɪz ə 'naɪs 'hʌzbənd/

John is a nice husband

Now that we know what the sentence means, we realise that there are more words than stresses. So the notion of word as it is usually understood is not always absolutely compatible with the notion of stress. We have five words and yet two of them, i.e. /ɪz/ and /ə/ do not bear any stress even though they are well formed syllables. Each word has a potential word stress, even “little” words like articles, prepositions etc. For instance, *into* /ɪn'tu/ has a stressed syllable and an unstressed one even though most of the time the stress is not realised. Why then are *is* and *a* not stressed in our example?

In the realisation (utterance) of a sentence, functional words (i.e. our former “little words”: articles, prepositions, auxiliaries, conjunctions etc.) do not receive stress as lexical words do.

In polysyllabic lexical words, there is one and only one prominent syllable, where the **primary stress** is realised. There can also be a so-called **secondary stress** in long

words (ex: *photographic* / ,fəʊtə'græfɪk/) but this stress is not a phonological sign since its placement never results in an opposition between two words; it may indicate word structure. Primary word stress is signalled with an apostrophe ( ' ) which precedes the stressed syllable, and secondary stress with a comma before the stressed syllable.

As we have said, prominence is also achieved through quality, which affects mainly the vowel. As an example, let's examine the triplet

- (17) a. Phone                    'fəʊn  
       b. phonology            fəʊ'nɒlədʒɪ  
       c. phonological        fəʊnə'lɒdʒɪkəl

Notice first that the three words in (17) all bear a primary stress and the word *phonological* bears an extra, secondary stress. Even though these words are derived from the same root, the stress is placed on different syllables (the placement of stress may follow certain rules some of which are dealt with in exercises 13 and 14).

The nucleus [əʊ] of the first syllable remains unchanged even though in (17a) it appears in a stressed syllable, in (17b) it appears in a weak syllable and in (17c) in a syllable with a secondary stress. But not all nuclei remain

constant. Let's examine the nuclei of the second and third syllables in *phonology* and *phonological* (example (17b) and (17c)).

The nucleus of the second syllable in *phonology* is stressed and is realised as / ɒ / whereas the same nucleus in *phonological* is unstressed and is realised as / ə /; the vowel of the third syllable of *phonology*, being unstressed, is realised as / ə / whereas its counterpart in *phonological* is stressed and realised as / ɒ /.

We see that the vowel / ə / is never found in a stressed syllable. Recall our example of a foreign word such as *banana*. As the spelling indicates, it was pronounced / banana/ ( the / a / sound is like

the French one in /lak/ *lac* ) when it was borrowed from the Spanish and Portuguese who themselves imported it from a Guinean word. The placement of the stress in English required that the only "full" vowel / a / to be kept as such was the one in the stressed syllable. The others, being unstressed, came to be pronounced in a very neutral way: /bə'nɑ:nə/

## **Stress and Oppositions**

Stress placement is linked to vocalic quality. There are many pairs of words which are spelled the same way

but are pronounced differently due to the placement of stress:

(18) a. 'kɒndʌkt	(N)	-	kən'dʌkt	(V)	<i>conduct</i>
b. 'dezət	(N)	-	dɪ'zɜ:t	(V)	<i>desert</i>
c. 'preznt	(N,A)	-	pri'zent	(V)	<i>present</i>

In such cases we can verify our theory that placement of stress affects the quality of the nucleus of the syllable. Stressed /C ɒ C/ in /'kɒndʌkt/ becomes unstressed /C ə C/ in /kən'dʌkt/; stressed /C e / in /'dezət/ becomes unstressed /C ɪ / in /dɪ'zɜ:t/ and unstressed /C ə C/ becomes stressed /C ɜ: C/.

Even more interesting is our third example (16 c) where in the unstressed second syllable of /'preznt/ we find a syllabic consonant, i.e. no vowel at all, which appears as vowel+consonant /en/ in an unstressed syllable.

It has been argued that in English one can find a certain number of minimal pairs in which it is the placement of stress which determines the opposition, the string of phonemes being rigorously the same. For example /'æbstrækt/ *abstract* (A) differs from /æb>strækt/ *abstract* (V) because the adjective bears the stress on the first syllable and the verb on the second one. The same is

true for *import, increase, insult* . One can discuss whether it is really worthwhile creating a category of opposition due to placement of stress only from such a small corpus of evidence. The fact that these vowels do not change (whether they appear in a strong or in a weak syllable) is perhaps due to some of their intrinsic characteristics such as length, position or quality. There could also be a morphological explanation linked to the presence of a prefix.

## Compounds

Let's take a case where a lexical word loses its own stress. Compound words are single words that can be analysed into two lexical words, both of which exist independently as English words and hence bear their own stress.

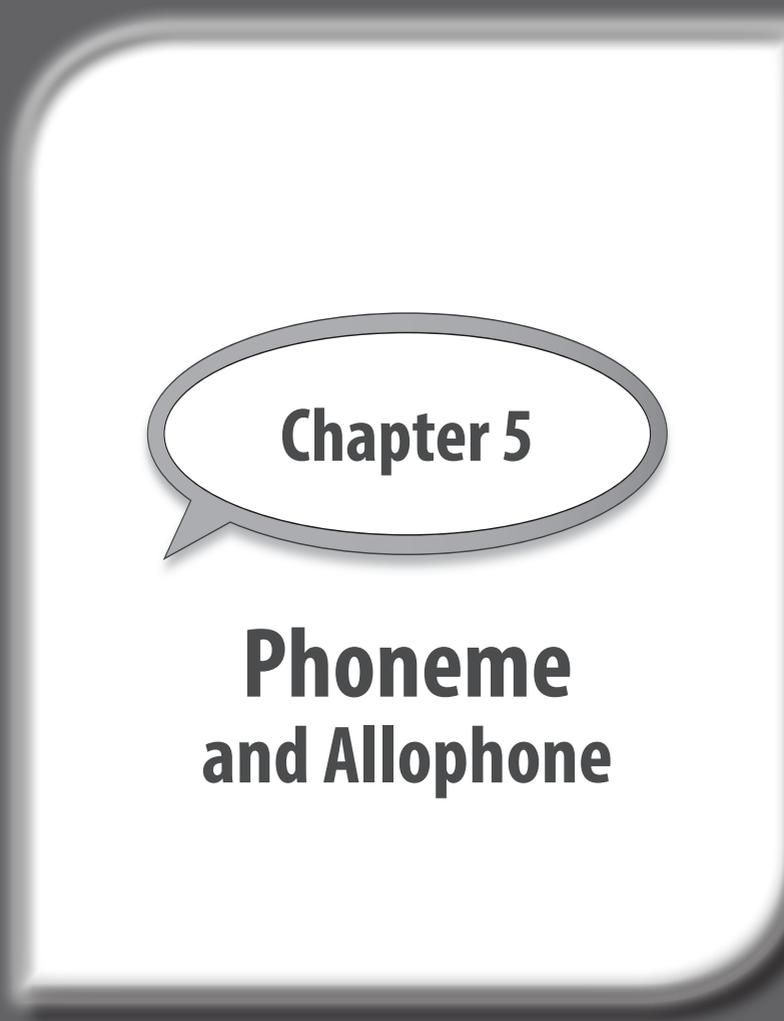
Examples of this are *White House* which can be analysed into 'white and 'house; 'typewriter which can be analysed into 'type and 'writer ; 'car-ferry which can be analysed into 'car and 'ferry . As one can see, when these words are brought together, one of them loses its stress. However, it is not always possible to predict which one.

Some compounds like *loudspeaker* have not yet been subjected to a univocal treatment. According to some authors the stress placement is ' loud- speaker, which is

rather a combination of two words, since they both bear a primary stress; others see it as *loud 'speaker* , i.e. a compound.

If one considered *cupboard* /'kʌbəd/ as a compound word, one could say that upon losing its stress, the word *board* /'bɔ:d/ changed the nucleus of its single syllable into a schwa. This case of compounding would tend to prove that unstressed syllables lose the specific quality of their vowel.





**Chapter 5**

**Phoneme  
and Allophone**

## Mark and Mary Brown (Segmental Phonology)

### Phonemes

Mark and Mary Brown are both doctors in the same hospital. One of them is a physician, the other is a biologist. When an invitation addressed to Dr M. Brown arrives, the secretary of the hospital wants to know which Dr Brown is invited. She asks a colleague: "Who's the physician?". The answer is: "She is". Hence it is Mary who's invited. Had the answer been "He is", it would have been Mark. This important information is conveyed by a single segment of the utterance. If we transcribe the two possible answers in phonetic symbols, we get:

- (1) a. [ˈʃi:ɪz]
- b. [hi:ɪz]

These two answers refer respectively to Mary and Mark

- (2) a. [ˈʃi:ɪz]        she is = mary
- b. [hi:ɪz]        he is = mark

If we permute [ ʃ ] and [ h ] we change the meaning of the sentence and hence we aren't speaking about the same person.

Consider the following sentence:

- (3) [ðə kæt ɪz ɒn ðə mæt]
- the cat is on the mat

If we change the first consonant of the noun *cat* and insert [ h ] instead we get the sentence

(4) [ðə hæʔ ɪz ɒn ðə məʔ]

the hat is on the mat

which does not have the same meaning.

Again, if in (3) we substitute [b] for [k], we get

(5) [ðə bæʔ ɪz ɒn ðə məʔ]

the bat is on the mat

The three strings of sound [kæt], [hæt] and [bæt] differ only because of their initial sound and thus are potentially three different words.

As in the case of Mark and Mary the substitution of one sound for another one changes the meaning completely.

Now if we say:

(6) a. the cat is on the mat

b. the mat is on the cat

What is the difference in sounds?

What is the difference in meaning?

Obviously the set of sounds uttered in (6a) and (6b) is identical. So the difference lies in the order in which these sounds appear: [k]and [m] permute in (6b). We see

that the order of appearance can alter meaning. In (6a) and (6b) the relationship between the cat and the mat is inverted.

In our examples we produce a change in meaning through a substitution of segments in a string of sounds. These segments are called **phonemes**. A precise definition will be given later on.

Now imagine you're in London and you want to go to Bond Street. You ask a couple: "Excuse me, could you tell me where Bond Street is?". They both answer in chorus: "Second left and then right", which can be transcribed as

- (7) a. [sekənd left ən ðen raɪt]  
b. [sekənd left ən ðen Rɑɪt]

Both have given you the same information although you perceive a difference in the sounds used, that is, the woman has used [r], the regular English / r / sound, whereas the man used the rolled lingual [R] instead. They are transcribed phonetically respectively as [raɪt] and [Rɑɪt] This difference in the pronunciation, which allows you to deduce that the wife is English and the husband Scottish, doesn't entail a change in meaning.

The two segments [r] and [R] can be used indifferently since there is no change of meaning: the difference between the two is said to be **phonetic**. This was not the

case for the substitution of [h] for [ʃ] in [ʃi:ɪz] - [hi:ɪz] which brings about a change in meaning and is said to be **phonological** (or **phonemic**).

## Minimal Pairs

Let's come back to the concept of phoneme. Since the substitution of [h] for [ʃ] changes *she* into *he*, [h] and [ʃ] belong necessarily to two different phonemes. Whereas [r] and [R], which under no circumstances change the information given, are said to belong to the same phoneme /r/. In the discussion of phonological versus phonetic differences, what matters is whether the substitution of one sound for another brings about a change in meaning or not; the description of this change does not enter the field of phonology.

Generally, when we wish to decide whether two segments belong to the same phoneme or, on the contrary, are realisations of two different phonemes, we put them in an identical context, that is the same string of sounds. When there is a difference between two otherwise identical strings of sound and this difference results in a change of meaning, these two strings are said to constitute a **minimal pair**. Examples of minimal pairs were given in (1a) and (1b), and in (3), (4) and (5) above.

If we substitute one segment for another and this results in a change in meaning the two segments belong to two different **phonemes**. Thus [k] and [m] are realisations of two different phonemes /k/ and /m/ because substituting one for the other as first element of the string [-æʔ] gives two different words: /kæʔ/ (*cat*) and /mæʔ/ (*mat*).

## Allophones

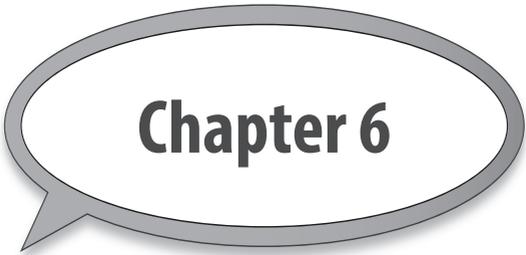
Each phoneme can be described as a maximal set of distinctive features. We have seen that /p/ must be described as 'voiceless bilabial plosive' to account for all the oppositions it can be found in. Every sound which is a realisation of a given phoneme must show the same set of distinctive features. The realisations of phonemes - or **phones** - are called **allophones**. All allophones of a phoneme share the same set of distinctive features but each one can also show additional features. For example the phoneme /p/ is realised as [p<sup>h</sup>] in [p<sup>h</sup>ɪt] , as it would be every time it occurs in a word as initial consonant before a vowel, and as [p] in all other cases. [p<sup>h</sup>] and [p] are said to be allophones because

- 1) they can both be described as voiceless bilabial plosives and
- 2) if we substitute one for the other we do not get any change in meaning but rather an odd pronunciation.

The feature 'aspirated', which we find in [p<sup>h</sup>ɪt], is context-bound. Its relevance is not a change of meaning but its position in a string of sounds or context. [p<sup>h</sup>] and [p] are realisations of the same phoneme, i.e. allophones that are **in complementary distribution** : [p] can never occur instead of [p<sup>h</sup>] and vice-versa. Note that these non-phonological variations are not always perceived.

Allophones can also be in **free variation**. That is, there are no restrictions as to their appearance. Probably no one ever utters the same phoneme twice in the very same way: with an appropriate acoustic instrument, one could always find a small difference between two allophones, a difference which can be attributed to a physiological state, the sort of conversation held, the climate, etc. More systematic instances of allophones may be due to regional "accent": we have already mentioned the case of the two / r / : [r] and [R], which can occur in exactly the same context without change of meaning, hence with an identical set of distinctive features but accompanied by non-distinctive features indicating that the speaker is, for example, a Scotsman.





**Chapter 6**

**Intonational  
Phonology**

## **Intonation and the design features of language**

Intonation characterizes the highest supra-segmental unit of the English sound system that we want to study (the other units were the syllable and the word). The scope of intonation being rather large, it very often goes beyond the field of linguistics. Therefore, we shall not study intonation when it is used to express emotions and attitudes. Neither shall we look into the discourse function of intonation since we want to limit ourselves to the utterance of sentences. It would be hard to say in one or two sentences what intonation is and how it works. There are so many aspects to consider: people use it to express their feelings; it encodes the information structure of the sentence; it appears sensitive to syntactic categories like 'argument' and 'predicate'; it appears to have different phonetic forms in different segmental conditions; it is integrated with lexical tone distinctions in tone languages, and so on. A useful way to start is to try and answer the old question whether intonation is part of the grammar or whether it is an expressive system which is overlaid on language. In the latter case, it is technically a form of animal communication, in which a signal has some meaning, and the intensity of the signal is related to the intensity of the meaning.

Tone and Intonation are two types of pitch variation, which are used by speakers of many languages in order to

give shape to utterances. More specifically, tone encodes morphemes, and intonation gives utterances a further discursual meaning that is independent of the meanings of the words themselves. In this comprehensive survey, Gussenhoven (2004) provides an up-to-date overview of research into tone and intonation, discussing why speakers vary their pitch, what pitch variations mean, and how they are integrated into our grammars. He also explains why intonation in part appears to be universally understood, while at other times it is language-specific and can lead to misunderstandings.

## **Intonation**

Languages use pitch variation contrastively for the expression of discursual meaning and for marking phrases. One of the important points developed in Ladd (1996) is that intonation is structural, just as lexical tone is structural, or morphological paradigms are. In principle, an intonation contour has two structures: a morphological one, which identifies the morphemes and thus gives the meaning of the contour; and a phonological one, which gives its tones. Intonational tones appear either on (or near) accented syllables, in which case they are (intonational) pitch accents, or at the edges of prosodic constituents, like the intonational phrase, in which case

they are boundary tones (Pierrehumbert1980; Pierrehumbert and Beckman 1988). Pitch accents are tones like H\* and L\* or tone complexes like H\*L and LH\*. The bitonal ones have either a leading tone before the T\* or a trailing tone after T\*, whereby the starred tone associates with an accented syllable. Such syllables, a subset of the stressed syllables, are assumed to be marked with a feature 'accent', which means that they require a pitch accent. Their location is determined by a variety of factors in English, and other languages will share these factors with English.

There are first of all lexical rules, like those that determine the main stress and thus the accent location in a citation pronunciation of, say, *piANO*, and the Compound Rule, which removes this accent in the second constituent of *GRAND piano*. These lexical rules do not exist in French. Phrasal phonology subsequently imposes rhythmic distributions, as in *a VErY nice PICTure*, where the accent on *nice* is absent because it is too close to the other accents. A third factor is focus, or information structure, which will cause further accent deletions on words that represent known information.

## The Tonic Syllable

It is quite safe to say that unless some intonation is produced one doesn't know whether an utterance is complete or not. Where exactly this utterance ends, giving thus the limits of the sentence, cannot be decided easily. The most common form of intonation is the fall in pitch which occurs on the last stressed syllable, i.e. the stressed syllable of the last lexical word, which we will call **tonic syllable**. Usually we can decide where the utterance stops after the tonic syllable thanks to:

1. meaning
2. silence
3. the beginning of a new utterance

There are other intonation marks. A sudden rise in pitch can also indicate that the utterance is complete. This rise in pitch is used to indicate that the sentence uttered is a question when there is no the begin interrogative word or auxiliary-subject inversion to convey this meaning.

(19) you  eat it?

Instead of

(20) Did you  eat it?

Did you eat it?

There are also double changes in pitch direction (rise fall  $\wedge$  or fall-rise  $\vee$ ). However, they do not seem to have the same function as rise or fall only. Fall rise, for example, tells us more about internal boundaries within the sentence than actual utterance boundaries.

(21)

a. those who sold  $\vee$  quickly  $\frown$  made a  $\frown$  profit

b. those who  $\vee$  sold + quickly + made a profit

This fall-rise indicating the boundary between two parts of the sentence enables us to disambiguate the utterance. In (21a) it is the quick sale that yielded a profit and in (21b) it is the sale that yielded a quick profit. (21) is a good example of how the possible divisions of a sentence (here through the use of intonation) allow us to organise meaning differently. In this sense, this fall-rise intonation could be said to have a grammatical function.

In the literature on intonation rise-fall intonation is said to convey rather strong feelings of approval, disapproval or surprise, such as

(22) Isn't the view lovely?

$\wedge$  Yes

Rise-fall doesn't seem to have anything to do with utterance boundaries, as in  *yes* or even with a question, as in  *yes* but merely with what we called attitudinal function of intonation. However, the matter would be worth investigating, especially because of the parallel that could be established with the less problematic fall-rise intonation.

## Emphasis

Emphasis is a very clear-cut case in which the manipulation of intonation serves a grammatical purpose specific to English. It consists of singling out a word of the sentence by giving it the intonation pattern that would normally occur on the tonic stress, i.e. the stressed syllable of the last lexical item. For example, in the sentence

(23) it was very boring

the intonation is moved from *boring* (last lexical word) to *very* to indicate emphasis on this word. We can go a step further. Consider examples in (24) (from Roach 1983):

- (24) a. [aɪ , wʌnt tə , nəʊ weə hɪz 'trævəlɪŋ tu]  
I want to know where he's travelling to
- b. [aɪ , wʌnt tə , nəʊ weə hɪz , trævəlɪŋ tu]  
I want to know where he's travelling to

The contrast between (24a) and (24b) lies in the fact that in (24b) to is emphasised. Usually this is understood as an implicit opposition with another possible word that could take its place, for example *from*. Hence (24b) could be understood as:

(24) c. (implicit: I don't want to know where he's travelling from, but)

I want to know where he's travelling to

If these two sentences were actually uttered in a sequence, one would get:

(24) d. I 'don't want to 'know where he's 'travelling ✓  
from

I ,want to ,know where he's ,travelling — to.

Note that the ✓ on *from* serves two functions:

- 1) it indicates sentence-internal boundary
- 2) as it is removed from the last lexical word (*travelling*) onto a normally unstressed grammatical word (*from*), it indicates emphasis.

## Tone languages

The earliest distinction within the group of tone languages is between those that just have *level tones*, which require the syllable to reach a certain pitch height, and those that also have *contour tones*, which require the syllable to be said with a pitch movement. Pike (1948) termed these 'register tone languages' and 'contour tone languages', respectively. Additionally, tone contrasts have a *paradigmatic* dimension, the number of tonal contrasts possible on a given syllable, and a *syntagmatic* dimension, the number of positions in a word where these contrasts are used. As for the first dimension, many tone languages just have a binary level contrast, and the symbols H (high) and L (low) – shorthand notations for the two values of a binary feature like [ $\pm$ High tone] – therefore often suffice to describe them. The number of level tone contrasts may, with increasing rarity, reach three, four, or five (Maddieson 1978). A three-way contrast occurs in Yor'ub`a (Laniran 1990), a four-way contrast in Mambila (Connell 2000), and a five-way contrast in Benc`non (Wedekind 1983), which language additionally has a contour tone, a rise. Admittedly, the lowest level tone of Benc`non may be somewhat falling and the highest somewhat rising, but these features seem to be there to improve distinctiveness. Benc`non may well hold the world record for the number of

contrasting phonologically level tones. The highest tone in the five-level tone system of Trique only co-occurs with the next highest on a word-final syllable, where the tones may generally form contours. As a result, a minimal quintuplet with five-level tones is systematically ruled out (Longacre 1952). Clearly, to represent these contrasts more is needed than a binary feature. The introduction of a further binary feature [ $\pm$ upper] increases the number of contrasts to be expressed to four, but no consensus exists on what is the best feature system (Hyman 2001b). The number of contrasts including contour tones may go up to eight, as in lau (West Papua) or more (Bateman 1990). Sagart (1999) estimates the range for Chinese languages to be from three to ten, with tonal complexity increasing as one goes from northwest to southeast. Establishing the number of contrasts can be difficult, because in many cases there are segmental correlates, with some tones only appearing before glottal stops, for instance, or voice quality correlates, with some tones combining with breathy voice and others with creaky voice. The latter type of variation is known as 'register' variation.

Along the syntagmatic dimension, languages vary in the number of positions in which a tone contrast can be made. The densest case was earlier taken to define the notion 'tone language' by Pike (1948: 3), for whom a tone

language was 'a language having lexically significant, contrastive, but relative pitch on each syllable'. He explicitly excluded languages restricting tonal contrasts to specific syllables, like Norwegian and Japanese, but reserved judgement on what the best typology would eventually be (1948: 14). Languages with a contrast on every syllable, for which Voorhoeve (1973) introduced the term 'unrestricted tone language', are in fact relatively rare, and most tone languages are thus 'restricted' in this sense. 'Restricted' tone distributions can often be usefully described in terms of 'word melodies', whereby a number of tone patterns are abstracted from the number of syllables in the word.

Below, the formal representation of tone (H,L) is discussed. Informal notations vary per sub discipline. In a widely used notation system introduced by Africanists, lexical tone is indicated by typographical accents over the vowel, as in (1). A tonal interpretation is given in the third column.

(1)

'	high	H
'	low	L
^	falling	HL
v	rising	LH

- ~ falling-rising      HLH
- ~ rising-falling     LHL
- mid                    M

Sinologists frequently use the system introduced by (Chao 1930), which comes in two forms. One is the use of 'letters' showing the pitch trajectory, and the other is the use of minimally two digits from 1 (low) to 5 (high), as in the second and third columns of (2) for the four Mandarin tones. A tonal interpretation is given in the fourth column. These tone letters are also used in work on American languages, where the scale is reversed such that 1 is the highest tone. The rise in (2c) may be due to an utterance-final boundary tone.

(2)

- |    |         |      |          |          |
|----|---------|------|----------|----------|
| a. | ma55    | H    | 'mother' | (tone 1) |
| b. | ma35    | LH   | 'hemp'   | (tone 2) |
| c. | ma21(4) | L(H) | 'horse'  | (tone 3) |
| d. | ma51    | HL   | 'scold'  | (tone 4) |

More than half of the languages in the world are tone languages (cf. Yip 2002: 1; Crystal 1987: 172). Dense concentrations are found in South East Asia and Japan, Africa, and the Americas. Many of the languages spoken

in New Guinea (East Papua and the Indonesian province of West Papua) are tone languages (Donohue 1997; Cahill 2000), while there are a few languages with lexical tone in Europe, specifically the Swedish–Norwegian dialect continuum, Lithuanian, what is now called Serbian, Slovene, the Central Franconian and Limburg dialects of German and Dutch, some varieties of Basque, and languages in the Caucasus (van der Hulst 1999), as well as sporadically in the Pacific (Rivierre 2001). Most descriptive and theoretical work has been done on the languages in Africa, Mexico, South East Asia, and Japan, while less attention has been given to the languages of Caucasus, the Amazon, and the eastern Indonesian archipelago. For more information, including maps showing tonal areas, see Yip (2002).

## **Conclusion**

Our consideration of the question how pitch functions in language brought up a number of challenging typological questions. Stress was characterized as a phonological position: the strong syllable of a foot (Selkirk 1980; Hayes 1989). The tentative assumption has been made that all languages have feet, but that the phonetic difference between stressed and unstressed syllables is greater in some languages than in others.

If there is a difference, however, a stressed syllable will be longer and less reduced than an unstressed syllable in otherwise equivalent circumstances. The connection between pitch and stress is established through tone: stressed syllables, like final syllables, are attractive locations for (lexical or intonational) tones.

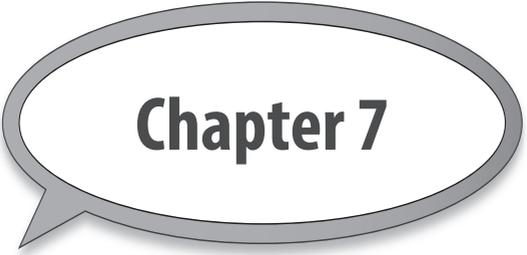
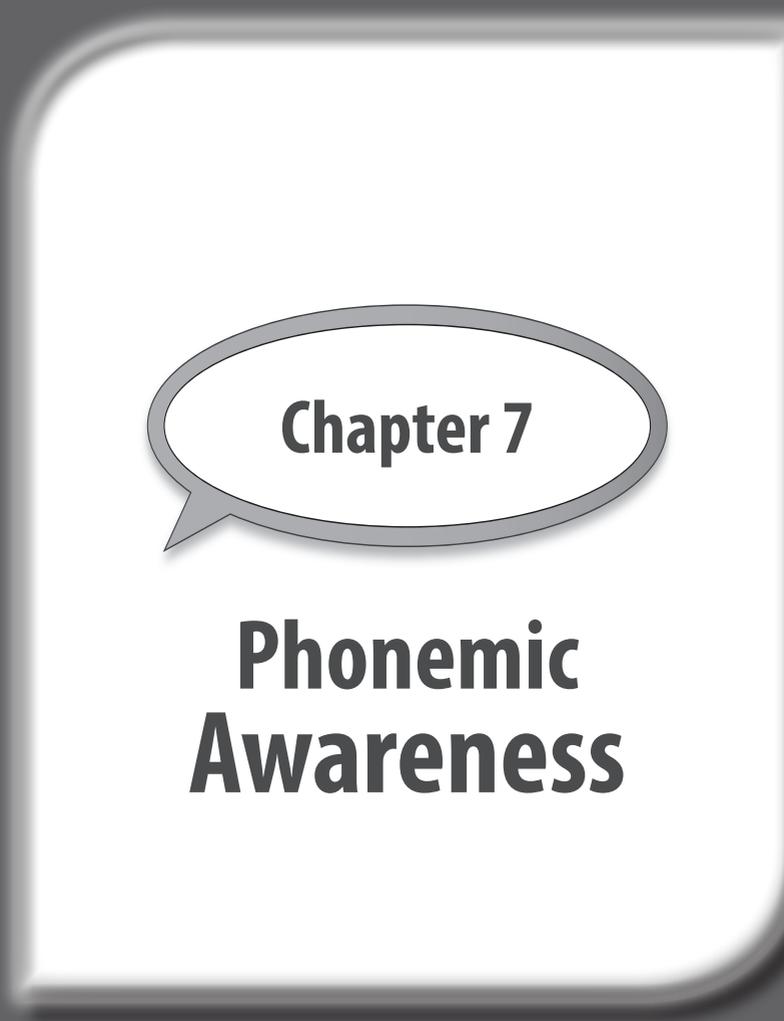
We have followed Hyman (2001) and others when drawing a typological distinction between languages with and languages without lexical tone, calling the former 'tone languages'. The term is used regardless of the density of lexically contrastive tones on words, as it seems difficult to draw a dividing line between languages with contrastive tone on (almost) all syllables and languages with tone contrasts in more restricted locations in the word. Standard Chinese and Swedish are thus both tone languages by this definition.

Accent was defined as a marker for the insertion of tone (cf. Goldsmith 1976; Hyman 1978; Hyman 2001a; Gussenhoven 1991a; Yip 2002, as well as van der Hulst 1999, who additionally allows the accent position to be filled with other elements than tone, like duration). The notion 'accent' was argued to be of the same class as the notion 'word melody', and both terms refer to analytical abstractions of the location of a tone contrast (accent) and strings of tones (word melodies) from the word-based tonal patterns on the basis of distributional restrictions.

As such, the treatment distances itself from a definition of accent as 'prominence', as used in Beckman (1986), Downing (forthcoming), and Fox (2000).

The term 'stress accent' was introduced by Beckman (1986) to refer to the situation in which the F0 features co-occur with durational and other features to create prominence of a syllable, as in English. Beckman opposed it to 'pitch accent', which refers to the situation that exists in Japanese, where the F0 features alone are responsible for signaling prominence. 'Accent' in this usage is thus equivalent to 'phonological prominence', and the labels 'stress' and 'pitch' indicate the way in which the prominence is achieved phonetically (cf. also Fox 2000). The term is not always easy to apply, however. In Limburg Dutch dialects, where both the intonational pitch accent and the lexical tone occur in the stressed syllable, the notion 'stress accent' comprises two different types of tone, since in both cases the pitch features co-occur with the vowel quality and vowel quantity characteristics of stressed syllables. Or again, in Somali, accent is on a more while stress, as always, is on a syllable. The notion 'stress accent' would appear to combine the syllabic notion of stress and the (potentially moraic) notion of tone.





## **Chapter 7**

# **Phonemic Awareness**

Phonemic awareness needs to be understood as one small aspect of phonological awareness, which itself is part of a bigger notion called metalinguistic awareness. Although the terms phonological awareness and phonemic awareness are sometimes used interchangeably, they do have slightly different meanings. Phonological awareness is the larger of the two ideas; it is the awareness of various sound aspects of language (as distinct from its meaning). Phonemic awareness is more specific: the ability to detect each phoneme (the smallest unit of speech) in words.

Metalinguistic awareness, an omnibus term that includes an entire array of concepts related to language and literacy, develops in the preschool years and continues into adolescence and beyond. The major strands, or big ideas, of metalinguistic awareness (shown in the first box in Figure 1) include awareness or understanding of the

- functions or purposes of language and literacy,
- visual-perceptual features of text,
- structural characteristics (from micro or word level to macro or text level),
- procedural knowledge (from encoding to self-regulating metacognitive reading and writing strategies),

- metalanguage (language used to talk about language and literacy, including grammar of sentences and genres), and
- symbolic nature of writing and its relationship to oral language.

Each of these major metalinguistic concepts can be separated into more discrete components. Key insights that children develop about the symbolic nature of writing and its relationship to oral language (shown in the second box in Figure 1) include the alphabetic principle (that there is a relationship between letters of the alphabet and speech sounds), the phonetic principle (that there are regular relationships between speech sound patterns and letter patterns), and phonological awareness (awareness of the sound dimension of oral language).

Phonological awareness can be further divided into smaller components such as abilities to hear alliteration, rhyming words, word boundaries, and parts of words (e.g., syllables, beginnings and onsets, endings, and phonemes, the smallest units of speech; see the third box in Figure 1.) Two key aspects of phonological awareness comprise phonemic awareness: (a) the ability to segment words into phonemes and (b) the ability to blend phonemes into words(see the last two bullets in the third

box in Figure 1). Segmenting and blending phonemes have received a lot of emphasis in the research because they are the aspects of phonemic awareness most closely related to reading and spelling (Ehri&Nunes, 2002).

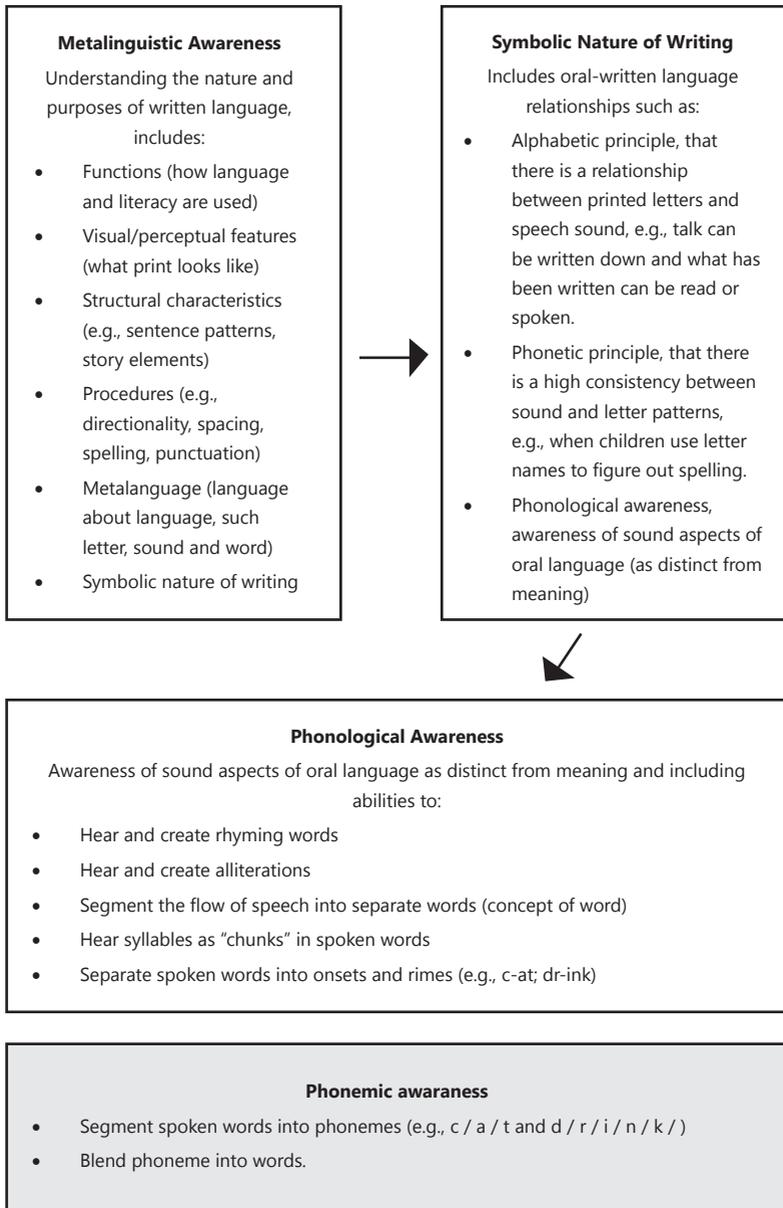
Children who have phonemic awareness are able to segment (break apart) a word into phonemes in order to write the word and to blend (put together)phonemes in order to read a word. Children with phonemic awareness, and who also have some knowledge of letter-sound relationships, are able to come up with an approximate spelling of a word (an invented spelling) or an approximate pronunciation, which must be checked with context and meaning cues in order to make sense of what is being read.

Although phonological and phonemic awareness are both important in learning to read, phonemic awareness tends to receive more attention because it is considered by some to be of critical importance in learning to read (Adams, 1990). While psychologists and researchers who work from a psychological perspective argue that phonemic awareness is the critical factor in literacy acquisition ,in a joint position statement, the International Reading Association and the National Association for the Education of Young Children (IRA &NAEYC, 1998) state, "Although children's facility in phonemic awareness has been shown to be strongly related to later reading

achievement, the precise role it plays in these early years is not fully understood" (p. 202). Although psychologically oriented researchers argue that phonemic awareness is a prerequisite to reading, there is also evidence that it develops as a consequence of learning to read and write. When looking at the research literature as a whole (using the criteria articulated by Allington, 1997b), the convergence of evidence points to a reciprocal relationship between phonemic awareness and learning to read and write. In other words, phonemic awareness helps children learn to read and write, and learning to read and write helps children develop phonemic awareness (Weaver, 1998).

There is also evidence that the alphabetic principle, understanding the relationship between speech and print, is the "linchpin of 'real' reading" (Roberts, 1998, p. 44). Furthermore, although young children's performance on phonemic awareness tests correlates with literacy achievement later on, language development, not phonemic awareness, is the highest correlate with reading achievement (e.g., Catts et al., 1999). When one takes into account a broader knowledge base in literacy development and learning, it is apparent that while phonemic awareness plays a role in literacy learning, other factors play important roles and should not be overlooked.

Figure 1:



## **WHAT DO WE KNOW ABOUT LEARNING AND TEACHING PHONEMIC AWARENESS?**

Research into phonemic awareness can be divided into two major, very different perspectives of the reading process: a psychological-cognitive perspective and a language literacy-oriented perspective. Psychological-cognitive research focuses on word reading while language literacy-oriented research focuses on comprehension of text. Some of the confusion teachers face is that many claims are based on a very narrow, skills-based perspective (e.g., Simner, 1998) that takes into account only clinical, experimental research. Much of this research may not apply to children in classroom settings (Chapman, 1999; Troia, 1999). It is also important that practitioners are aware of misinterpretations of research findings. As Weaver (1998b) notes, interpreters of phonemic awareness research “often overlook the forest for the trees” (p. 342), for example, by emphasizing very slight but statistically significant differences that support their beliefs while ignoring much more substantial and statistically significant differences, a “kind of distortion [that] is running rampant these days” (p. 342). Using the criteria recommended by Allington (1997b), the writer reviewed a comprehensive array of research in order to address some of the most frequent claims about phonemic awareness and to clarify what the research

actually shows about phonemic awareness. There are fifteen claims that we want to know are those right or not. All the claims has the clarifications.

**1. Phonemic awareness is the single most important factor in learning to read.**

Clarification: Phonemic awareness is an important factor, but it is only one of many abilities that children need in order to learn to read and write. As Wells (1986), Adams (1990), Braunger and Lewis (1997), and Gee (2001) have noted, children who fare well in school literacy have had language and literacy rich preschool experiences that provide many opportunities for talk, experiences with oral and written stories, appropriate verbal interactions with adults during storybook readings, and opportunities to draw and write. Although phonemic awareness is an important predictor of literacy achievement, the ability that correlates most highly with literacy achievement is language development, not phonemic awareness.

**2. The cause of reading problems is lack of phonemic awareness.**

Clarification: While many older students who have difficulty reading do have problems with phonemic

awareness, others with reading problems do not. There are many things that contribute to reading problems: social and cultural factors, poverty, language issues, lack of literacy experiences, inadequate reading instruction, and various individual differences. There is no single cause of reading problems. However, the children who are most at risk of reading problems are poor children (Coles, 2000; Gee, 2001; Snow et al., 1998).

### **3. All children need to be tested in phonemic awareness to identify potential reading problems.**

Clarification: “Tests of early phonological awareness (or lack thereof ) do not fruitfully select those students who will later have problems in learning to read” (Gee, 2001, p. 14). Many kindergarten children with “weak phonological sensitivity” will go on to become adequate readers. Although kindergarten and first-grade teachers do need to assess children’s phonological and phonemic awareness, they need not resort to tests. Instead, they should engage in ongoing direct, mostly informal assessments of children in language and literacy activities. Because it is difficult to do this in a whole class setting, it is best to observe children’s phonemic awareness abilities in small group or individual activities. A child’s writing is

a powerful source of information: if a child can write with invented spellings that represent all or most phonemes, then that child is phonemically aware and need not be tested for phonemic awareness.

#### **4. Phonemic awareness screening should take place at the beginning of kindergarten.**

Clarification: At the beginning of kindergarten many, if not most, children who will “become normally achieving readers have not yet attained much, if any, appreciation of the phonological structure of oral language, making them nearly indistinguishable in this regard from children who will indeed encounter reading difficulties down the road” (Snow et al., 1998, p. 112). Given that most typically developing children do not have phonemic awareness at this time, the beginning of kindergarten is not an appropriate time for phonemic awareness screening, although assessing more global aspects of metalinguistic awareness and phonological awareness that are precursors to phonemic awareness is warranted. In kindergarten classrooms that engage children in language and literacy rich experiences, children’s phonological awareness becomes increasingly refined, and many children begin to develop phonemic awareness. The second half of kindergarten is a more appropriate

time to begin assessment of phonemic awareness (Ayres, 1998; Weaver, 1998c). Monitoring children's development in phonemic awareness should continue through first grade. Children's invented spellings are a powerful resource for this purpose.

**5. Phonemic awareness activities need to start at the beginning of kindergarten, or earlier.**

Clarification: Children benefit from phonemic awareness activities when they have a firm understanding of the functions of print. It is appropriate to conduct activities to help children understand the nature and purposes of print and to engage in phonological activities such as rhyming and so on in the first half of kindergarten. Children need onset-rime activities before the teacher focuses on phonemic awareness. Phonemic awareness activities are more appropriate in the second half of kindergarten and in Grade 1 (Ayres, 1998 phonemic awareness training can interfere with their literacy development and cause what John Downing refers to as "cognitive confusion" about the process of reading.). Indeed, if children do not have the prerequisite knowledge,

**6. It is important to identify children with phonemic awareness problems as early as possible so as to prevent reading problems.**

Clarification: As noted previously, some children begin to develop phonemic awareness during the mid-part of kindergarten. Most children (80–85%) acquire phonemic awareness by the middle of Grade 1 as a result of typical experiences at home and at school. Although most children who do not yet have phonemic awareness in kindergarten or early Grade 1 will not go on to have reading problems, ongoing monitoring of children’s progress in concepts shown in Figure 1 during kindergarten and first grade is essential so that appropriate interventions can be implemented that address a child’s difficulties (which may or may not include phonemic awareness).

**7. Kindergarten children need phonemic awareness training in order to become good readers.**

Clarification: Most kindergarten children will develop phonemic awareness in literacy rich classrooms. Literacy-rich classrooms include a variety of activities to help children develop all aspects of metalinguistic awareness, concepts of print, and phonological awareness. The goal is not just a matter of learning

phonemic awareness, but also being able to apply phonemic awareness in the context of real reading and writing (Ericson & Juliebo, 1998; IRA & NAEYC, 1998; Yopp & Yopp, 2000). Unfortunately, it is sometimes the case that research studies are not interpreted accurately by some advocates of direct training. For example, Scanlon and Vellutino's (1997) research, which showed that the more effective classrooms in their study engaged the children in significantly greater amounts of phonemic awareness activity (9% of the time in comparison to 6%), did not prove that phonemic awareness training is the best way to achieve phonemic awareness. The authors noted that more effective classrooms engaged the children in more meaning-oriented writing activities (with invented spellings) where children had opportunities to develop knowledge of how words work, including phonemic awareness.

## **8. Without phonemic awareness training, most children will become reading failures.**

Clarification: Most children do not need direct phonemic awareness training in order to learn to read. Almost all children, however, do benefit from phonemic awareness activities that are meaningful and that help them make connections with what

they are learning to reading and writing. Teachers should make phonemic awareness activities playful and engaging for young children. It is also important to be aware of the caveat in *Preventing Reading Difficulties in Young Children*: "The effects of training [in phonological awareness, particularly in association with instruction in letters and letter-sound relationships], although quite consistent, are only moderate in strength, and have so far not been shown to extend to comprehension".

## **9. Phonemic awareness teaching needs to be systematic and intensive.**

Clarification: Phonemic awareness teaching does need to be systematic, but this does not mean a commercial or lockstep program. Knowledge of the typical sequence of literacy development and ongoing assessment of children's literacy progress (using their writing and invented spellings, for example) is the best guide for planning phonemic awareness teaching. The degree of intensity will vary for individual children. Ehri and Nunes (2002) point out that segmenting appears to be key: teaching segmenting is as effective as teaching both

segmenting and blending, and teaching only blending is not effective(p. 121). Phonemic segmentation is central to spelling and can and should be addressed systematically within the context of children's writing and spelling. Clarke (1988) found that children in classrooms where invented spelling was modeled and encouraged developed superior spelling and phonic analysis skills in comparison to children where it was not encouraged or allowed. She concluded that children using invented spelling "benefited from the practice of matching sound segments of words to letters as they wrote and from using their own sound sequence analysis". Phonemic awareness instruction does not have to be lengthy to be effective. Indeed, as Ehri and Nunes point out, the optimal amount of time for phonemic awareness instruction is between 5 and 18 hours; there are only moderate effects for less than 5 hours or more than 18 hours. Despite the fact that this information was also included in the National Reading Panel report (2000), many teachers are being required to teach phonemic awareness for significantly greater amounts of time, which, besides being ineffective, takes time away from other important aspects of literacy learning and teaching.

**10. Direct instruction in phonemic awareness is the best approach, particularly for children at risk for failure.**

Clarification: Research does not support this despite claims of publishers and some advocates of direct instruction. No approach to phonemic awareness has been shown superior to others (Ehri&Nunes, 2002). While direct instruction may assist children to do some tasks on phonemic awareness tests or tests of decoding, there has not been shown to be an improvement on reading comprehension when direct assessments are used. Children do benefit from explicit instruction, but this does not equate with direct methods such as rote learning or skill and-drill. All children, and those at risk in particular, need literacy instruction that helps them develop language and literacy in the broadest sense, not just performance on skill tasks. There is a strong body of evidence showing that indirect approaches to phonemic awareness, particularly writing with invented spelling, fosters children's development in phonemic awareness.

## **11. Phonemic awareness training will solve future reading problems.**

Clarification: Phonemic awareness training may help some students, but because the causes of reading difficulty are various and complex, phonemic awareness will not solve all literacy problems. Phonemic awareness training has not been proven as the magic solution despite the claims of its advocates. Gee (2001) and Wells (1999) argue that we need to look beyond skills and abilities to look at the sociocognitive resources (e.g., world and discourse knowledge) and dispositions towards literacy (e.g., identity as members of a literate community) that children bring to school literacy. While direct instruction in phonemic awareness (and phonics) has been shown to provide initial gains for at-risk students, “it does not bring them up to par with more [socio-economically] advantaged students, and they tend to eventually fallback, fueling a fourth-grade or later ‘slump’.

## **12. Schools need special tests to screen children for phonemic awareness.**

Clarification: Direct assessments of children engaged in activities that involve phonemic awareness are most

helpful (Au, 1998). There are a number of informal assessments that use standardized procedures (as opposed to standardized tests) that teachers may find useful. Children's invented spellings are an invaluable source of information about children's phonemic awareness.

### **13. Schools need special materials to teach phonemic awareness.**

Clarification: There is no evidence to support this claim. Instead, teachers need to develop a repertoire of language and literacy activities that foster children's overall literacy development, including phonemic awareness. Professional development and resource books with teaching strategies are more helpful than special phonemic awareness materials. There is no research that supports the use of decodable texts such as *The bug is in the big bag*. Decodable texts are more difficult for children to read than texts with natural language patterns and a wider range of vocabulary. They do not engage children with ideas, which is what all print should do even at the youngest levels of schooling.

**14. Whole language is the reason why so many children have trouble with reading because whole language teachers don't teach phonemic awareness or other phonics skills.**

Clarification: There is no research evidence—only rhetoric—to support the claim that whole language has caused literacy problems. Advocates of direct instruction often ignore a great deal of research relevant to early literacy and research in whole language classrooms. Studies of young children's literacy learning in whole language classrooms show they develop phonological and phonemic awareness at least as well as those in traditional classrooms. Many direct instruction proponents also claim that whole language teachers do not teach skills or do not use explicit instruction.

**15. Research has proven that there is a best way to teach children to read and that is direct instruction in phonemic awareness and phonics.**

Clarification: Phonemic awareness and phonics are part of a comprehensive literacy program. There is no evidence that any approach—traditional or whole language—is superior in developing phonemic awareness (Ehri&Nunes,2002). There is no research

that proves there is one best way to teach phonemic awareness, phonics, or reading.

## **WHAT CAN WE EXPECT YOUNG CHILDREN TO LEARN AND WHEN?**

Training studies have demonstrated that phonemic awareness can be taught to children as young as age 5. Yet, whether such training is appropriate for younger children is highly suspect. Other scholars have found that children benefit most from such training only after they have learned some letter names, shapes, and sounds and can apply what they learn to real reading in meaningful contexts (Cunningham,1990; Foorman, Novy, Francis, &Liberman, 1991). Even at this later age, however, many children acquire phonemic awareness skills without specific training but as a consequence of learning to read (Ehri, 1994;Wagner &Torgeson, 1987). (International Reading Association &National Association for the Education of Young Children, 1998,p. 202)

The timing of phonemic awareness instruction is important. Purcell-Gates (1995) and others have shown that for children who lack basic understanding of functions, forms, and characteristics of spoken and written language, phonemic awareness training is meaningless and what they learn through training is not applied to

literacy tasks. It is clear that children do not make much sense of phonemic awareness instruction until they have developed some other aspects of phonological awareness. A key development appears to be awareness of onsets and rimes, which acts as an intermediate step between segmenting words into syllables and segmenting into phonemes. An onset is the beginning part of word before the vowel; the rime is what follows (see Figure 1 for examples).

“Linguists call onsets and rimes the psychological units of a syllable” (Moustafa,1998, p.139) because young children find it much easier to separate words into onsets and rimes than into phonemes. Thus there is strong support for the sequence of teaching children how to analyze spoken syllables into onsets and rimes and later to analyze onsets and rimes into phonemes (Goswami&Bryant, 1990; Moustafa, 1998; Treiman, 1985; Yopp&Yopp, 2000).

A review of research indicates the following sequence (based on Au, 1998;Ayres, 1998; Moustafa, 1998; Stahl, 1997), a developmental schema which suggests that rather than being the first step in teaching children to read and write, children’s development of phonemic awareness should be situated within the global context of language development and metalinguistic awareness and, within this, the context of phonological awareness.

There is strong evidence that children's development proceeds from larger, more global concepts to more specific ones (Au, 1998; Moustafa, 1998) as shown in Figure 1. Children's literacy learning (including phonemic awareness) is thus supported through the follow in sequence:

- Immersion in experiences with oral and written language to develop a strong language base and a repertoire of rhymes and stories(selected for their rhyme, alliteration patterns, and text features) helps children develop vocabulary knowledge, understanding of functions of print, awareness of forms of print (e.g., letters), and awareness of the sound dimension of language as distinct from its meaning (phonological awareness).
- Rhyming and alliterative play foster phonological awareness globally; this addresses concepts that are precursors to phonemic awareness(Bryant, MacLean, Bradley, & Crossland, 1990).
- Segmenting into syllables fosters the phonological skill of hearing parts of words; syllables are units that children become aware of well before they can discern phonemes (Moustafa, 1998; Snow et al., 1998).
- Onsets and rimes are an important bridging step to phonemic awareness, a psychological unit that

children acquire with relative ease. They help children make the important step towards phonemic awareness and also to make analogies in reading and writing(Goswami& Bryant, 1990; Treiman, 1985).

- Phonemic segmentation, blending, and letter-sound correspondences address phonemic awareness specifically (Ehri&Nunes, 2002;Ericson & Juliebo, 1998; Yopp&Yopp, 2000). Segmenting is especially important (Ehri&Nunes, 2002).

It is important to provide an immersion in oral and written language and to introduce rhyming and alliterative play (often using children’s names) in the first half of the kindergarten year. For most children, it is appropriate to introduce syllabic segmentation in the second half of kindergarten and then move to onsets and rimes (Ayres, 1998). The vast majority of children need support in phonemic segmentation, blending, and letter-sound correspondences in the latter part of kindergarten, continuing through Grade 1. A suggested teaching sequence many teachers find helpful is provided in Ericson and Juliebo (1998).Rigid adherence to a sequence, however, should be avoided. “Phonemic awareness development is not a lock-step process” (Yopp&Yopp, 2000, p. 142).One phase (e.g., matching) does not have to be mastered before providing experiences with another (e.g., blending).

## **HOW CAN TEACHERS FOSTER DEVELOPMENT OF PHONEMIC AWARENESS?**

Phonemic awareness is very likely to develop as a consequence of learning phonics, learning to read, and learning to write, especially when teachers encourage children to use invented spellings (Adams, 1990; Allington & Cunningham, 1996, 1999; Cunningham, 1990; Snow et al., 1998). There is some evidence that direct instruction may produce higher initial scores on standardized tests of phonemic awareness and word attack skills, particularly with children labeled at risk or reading disabled when they are tutored one-on-one or in very small groups. On the other hand, there is also evidence that children's phonemic awareness develops equally well in traditional and whole language classrooms (Griffith, Klesius, & Kromrey, 1992; Klesius et al., 1991). After reviewing a broad spectrum of literacy research, Weaver (1998c) concluded that students in classrooms where skills were taught in the context of reading and writing typically make substantially greater advances in a variety of literacy related skills, strategies, behaviors, and attitudes. Thus, such teaching may be superior overall to skills-intensive and phonics-intensive teaching, at least for the majority of our children (p. 39).

Children need to develop all aspects of language and literacy awareness shown in Figure 1 (not just phonemic

awareness) in order to become successful readers. Phonological awareness instruction “must involve the sound system, with countless opportunities to hear stories, to repeat phrases, to invent similar sounding patterns, and to play with sounds in a manner that focuses children’s awareness of the language upon syllables and phonemes” (Ayres, 1998, p. 249). Some children may need more explicit instruction in phonemic awareness, but in general the development of phonemic awareness is supported by:

- language play, especially games that emphasize rhyming and thinking about the structure of words, particularly at the onset-rime level rather than the individual phonemic level;
- opportunities to help children notice and use letters and words, for example, alphabet centers and word walls;
- invented spelling, children’s independent attempts at figuring out words when they write;
- language experience, dictation of children’s own language;
- reading for meaning, including modeling through reading aloud, of demonstrating and problem-solving using phonemic knowledge while reading aloud, and

providing manageable texts for beginning readers to apply their phonemic knowledge successfully (but not decodable texts, such as *Nan can the man*, for which there is no research support);

- rich experiences with language, environmental print, patterned stories, and Big Books that provide opportunities for modeling, demonstrating, and explicitly teaching phonemic awareness. (Braunger& Lewis, 1997, pp. 42–43)

Early experiences with literacy instruction influence children’s motivation and attitudes toward literacy, with far-reaching consequences. “Therefore, classroom activities for young children must be captivating enough to hold the imagination, engaging enough to sustain active involvement for a period of time, and stimulating enough to motivate further literacy exploration” (Ayres, 1998, p. 214). Activities that are meaningful to children help them make connections to real reading and writing. Isolated phonemic awareness exercises, on the other hand, may actually create cognitive confusion about the nature and purposes of literacy (Chapman, 1999; Downing, 1971–1972; Tunmer, Herriman, & Nesdale, 1988). Yopp and Yopp (2000) suggest three principles in phonemic awareness instruction:

1. It should be child appropriate, which they describe as “playful and engaging (p. 132).”
2. It should be deliberate and purposeful (intentional, not accidental).
3. It should be viewed as part of a much broader literacy program.

One of the best ways to teach phonemic awareness is through writing. In language experience activities or shared writing, teachers can model how to stretch out words to hear the phonemes and represent them with letters. This can be modeled through whole class language experience activities and shared writing. Teachers can also use this approach in interactive writing with small groups and individual children (Fountas&Pinnell, 1996). Children should also be encouraged to write with invented spelling. Far from ignoring skills, invented spelling is likely the best way for children to apply their phonological skills and sound-symbol knowledge.

Invented spelling is very much misunderstood by the public and some educators. Yet, it is endorsed as an appropriate strategy for developing phonemic awareness, for example, by the U.S. National Research Council report, *Preventing Reading Difficulties in Young Children* (Snow et al., 1998), and the joint position

paper on early literacy by the IRA and NAEYC (1998). As Allington and Cunningham (1996) so aptly state: Children who are allowed and encouraged to 'invent spell' develop an early and strong sense of phonological awareness. For too long, we have failed to recognize the potential of early and regular writing activities in developing children's awareness of print detail and their understanding of how speech and print are related. (p. 130)

## **CONCLUSIONS**

A reading program that emphasizes decoding to the virtual exclusion of other areas, such as comprehension, meaning, and positive attitudes towards reading, runs the risk of creating new problems instead of (or as well as) solving old ones. It is very important that we maintain a variety of instructional options to accommodate these individual differences in children. No single program can yield a quick fix for all reading problems (Spear-Swerling, 2001). An increasing interest in phonemic awareness has been fueled by advocates of direct instruction and by publishers of reading programs that emphasize decoding. Educators have been inundated with research (often used in promotional materials for commercial reading programs) that has led to confusing and conflicting

information about phonemic awareness, its role in early literacy development, how to address it, and when to address it. Many kindergarten and primary teachers are unsure whether phonemic awareness training will help or hinder children's literacy development. In this article I have attempted to explain phonemic awareness and its relationship to literacy development and to clarify what research shows about learning and teaching phonemic awareness. I have suggested strategies for assessing phonemic awareness in developmentally appropriate ways. I have also described ways of fostering phonemic awareness that are language based and child appropriate, and I have reviewed intervention strategies for children who need additional support .Rather than a commercial phonemic awareness training program (as a separate package or as part of a decoding-emphasis reading program), teachers really need a knowledge base in literacy development, a repertoire of developmentally appropriate and language-based strategies for assessment and instruction, and a few well-selected resources such as the ones recommended earlier in this article. Given the limited resources for education, and literacy in particular, it is disturbing that schools spend thousands of dollars on published programs (especially consumables such as workbooks) and standardized phonemic awareness and phonics

tests when this money could be so much better spent on books for classroom and school libraries and for professional development. Phonemic awareness, though important, is only one aspect of literacy development. Although fostering phonemic awareness helps children off to a good start in school literacy, it does not contribute to gains in comprehension or solve the problem of the fourth-grade slump. There are no quick fixes and there are no programs that will help all children. It is thoughtful and knowledgeable teachers that make the difference in supporting all children in becoming literate, which includes fostering their language and literacy knowledge and skills in the broadest sense as well as their phonological and phonemic awareness.

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# THE EXERCISES

## Exercise 1

1. Why I should study English Phonology? (based on your own opinion)
2. What is the first job of a phonetician?
3. Why phonetics had an important bearing on human relations?
4. Write the differences between phonetics and phonology.
5. Mention the reasons why phonetics and phonology are worth studying?

## Exercise 2

1. Where is the place of vocal cords?
2. Mention the other functions from all the organs in speech production?
3. What is VPM stands for? And explain one by one.

4. What do you know about oral and nasal sound?  
Please, explain by your own language.

### Exercise 3

Mention the word list of these sounds (including the symbol). Each of the sounds must have ten words.

- a. bilabial sounds
- b. alveolar sounds
- c. velar sounds

### Exercise 4

- a. Circle the words that begin with a bilabial consonant:

mat gnat sat bat rat pat

- b. Circle the words that begin with a velar consonant:

knot got lot cot hot pot

- c. Circle the words that begin with a labiodental consonant:

fat cat that mat chat vat

- d. Circle the words that begin with an alveolar consonant:

zip nip lip sip tip dip

e. Circle the words that begin with a dental consonant:

pie    guy    shy    thigh    thy    high

f. Circle the words that begin with a palato-alveolar consonant:

sigh    shy    tie    thigh    thy    lie

### Exercise 5

12. a. Put the following words in the relevant column according to the manner of articulation of the underlined consonant.

sɪstəm, sɪləbəl, meɪl, kɒndəʒ, vauʃəlɪŋ, fəʊni:mɪk, leŋθ, stres, tɪ:tʃə, meɪʒə, rɪdʒ, vɪ:ləm,  
wʌn, jæp, ʃɔ:t, prələt, brʌʃə, spɛlɪŋ, wɪ:k, læŋɡwɪdʒ, hær, gləʊʃəl, laʊd, dentl

plosive	fricative	affricate	nasal	lateral	approximant

b. Give the English spelling of the words in 12 a.

## Exercise 6

1. What is IPA?
2. What is the function of IPA?
3. Give the example of the words that the sound consists of two vowels in one syllable. You may use your dictionary.
4. Explain about ( r ) symbol.
5. Write the special symbols and its explanation.
6. Why is the IPA very important?
7. Explain about a few applications of the IPA.

## Exercise 7

1. What is syllable?
2. What is stress?
3. How are stress and syllables connected?
4. Why stress is very important for your speaking and listening?
5. If you see a new word, can you know where the stress is? How do you determine it?

6. Find the stress from these words below.

- a. Lucky
- b. Banana
- c. Add
- d. Answer
- e. Annoy

### **Exercise 8**

- 1. What is allophone?
- 2. What is free variation? Give example.
- 3. Explain about contrastive distribution and give example.
- 4. What is the difference between contrastive and complementary distribution?
- 5. Explain briefly about bracketing convention.

### **Exercise 9**

- 1. Why we should learn about Intonation in English Phonology?
- 2. Mention the uses of these tones below.

- a. High/rising tone
- b. Low/falling tone
- c. Rise-falling tone
- d. Fall-rising tone

### **Exercise 10**

1. What is phonemic awareness? What is the difference between phonemic awareness and phonological awareness?
2. Mention two key aspects of phonological awareness that comprise phonemic awareness.
3. The lack of phonemic awareness is not the only one cause of reading problems. Mention other things that contribute to reading problems.
4. Based on Adams (1990) there are five levels of phonological ability. Mention one by one.
5. All children need to be tested in phonemic awareness to identify potential reading problems. Do you agree? State your opinion.
6. What is the powerful source of information if we want to know our students phonemically aware or not? Please, explain briefly.

7. What is the best guide for planning phonemic awareness teaching?
8. Yopp and Yopp (2000) suggest three principles in phonemic awareness instruction, mention and explain all of them.
9. What is metalinguistic awareness?
10. Explain about alphabetic principle and phonetic principle.

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