



## PHYSIOLOGICAL CORRELATIONS OF ENGLISH SPEECH SOUNDS - A PRAGMATIC ANALYSIS

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### **Abstract:**

This study takes a close look at the link between English sounds as realized in normal speech. Sounds are discrete entities that carry in them abstractions which is the import of phonology in every language. The physical properties of sounds which are realized in speech production undoubtedly have an interrelation with this discrete nature of sounds. The researcher adopted a purely analytical approach in viewing this topic, with little reliance on literature. It may be described as a purely scientific study as the researcher uses practical examples and correlates to drum home the interconnection between abstract sounds and their physical properties. The study notes that a letter of the English alphabet, for instance 'y', has different production realisations as both a vowel and a consonant based on the articulatory nuances a phonetic analyst associates with it. And secondly, the study finds that English speech sound may or may not have the same physiological identification with its phonetic symbol.

**Keywords:** English sounds, discrete, entities, phonology, articulatory, realisations, phonetics, interrelation

### **1. Introduction**

In English, speech sounds are classified as either consonants or vowels. There are twenty six (26) letters of the English alphabet and out of the twenty six (26) twenty one (21) of them are consonants whilst five (5) are vowels. There are however, twenty four (24) different individual consonants speech sounds in most English accents and twenty (20) vowel speech sounds. We call these speech sounds "phonemes" and each phoneme, or speech sound, has a

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symbolic representation. All these phonetic symbols (symbolic representations) make up the International Phonetic Alphabet (I.P.A). English speech sounds are ABC's or letters. The speech sounds in English, and all other languages, have relations with their own physiological renditions. This write-up closely examines the nature of this relation between English speech sounds and their physiological correlations.

## 2. Discussion

We commence by looking at the consonant phonemes in English. In the opinion of Richard Nordquist (1976), a consonant sound is one that is not a vowel but a letter of the English alphabet that represents a speech sound produced by a partial or complete obstruction of the air stream by a construction of the speech organs. The twenty one (21) consonants letters in the written English alphabet include: B, C, D, F, G, H, J, K, L, M, N, P, Q, R, S, T, W, X, Y, Z. according to David Crystal (2003), *"because of the erratic history of English spelling, there is no neat one-to-one correlation between letters and sounds"*. Let us take a critical look at the chart below which represents the different consonant phonemes (speech sounds) derived from the twenty one (21) consonant letters in the English alphabet listed above. The twenty four (24) consonant speech sounds are illustrated with corresponding letters of the English alphabet and lexemes in which they manifest themselves.

**Table 1:** Consonant Ipa Phoneme/Grapheme Chart

Phonetic Symbol	Graphemes/ Letters Often Associated With Sound	Examples
P	p & pp	pail/happy/map
m	m & mm	map/swimming/ham
h	h	happy/hello
n	n & nn	nap/penny /hen
w	w & wh	wish/hen
b	b & bb	ball/rabbit/tub
k	c & k & ck	kit/ bacon/back
g	g & gg	goat/baggage/pig
d	d & dd & -ed	dog/window/dad/paddled
t	t & tt & -ed	take/tub/bat/pushed
~	ng & n	hanger/pink/ring
f	f & ff & ph	foot/telephone/different/half
j	y	yellow/yoyo
r	r & rr	red/carrot/car
s	l & ll	late/ballon/mail
	s & ss & c	sun/pencil/pass
s	ch & s & ss& ch ch & tch	chip/watching/match

z	sh & s & ss & t & ch	shoe/session/attention /chef
dø	J & g & dge	zoo/scissors/buzz/please
v	v	jack/badger/orange
θ	th (voiceless)	vest/shovel/stove
	th (voiced)	thumb/bath/math
ø	s & g	vision/ decision/massage

**Source:** (Katie Yea, MA CCC SLP © 2011)

From the illustrations in the table above, you will notice that most of the symbols for these speech sounds are the same as the letter of the alphabet we generally associate them with when reading or writing. For example, the phonetic symbol for the beginning sound in PoT is /p/, just as the letter P represents the same sound when reading and writing. However, “sh”, “ch”, and “th” are letter combinations that have different sound symbols representing them in the phonetic alphabet. These are called digraphs (a combination of two letters that represent ONE sound or phoneme). From the table, we have these digraphs represented with different sounds as flows:

Sh-session/attention chief

Ch- watching/match

Th- bathing/sooth/math

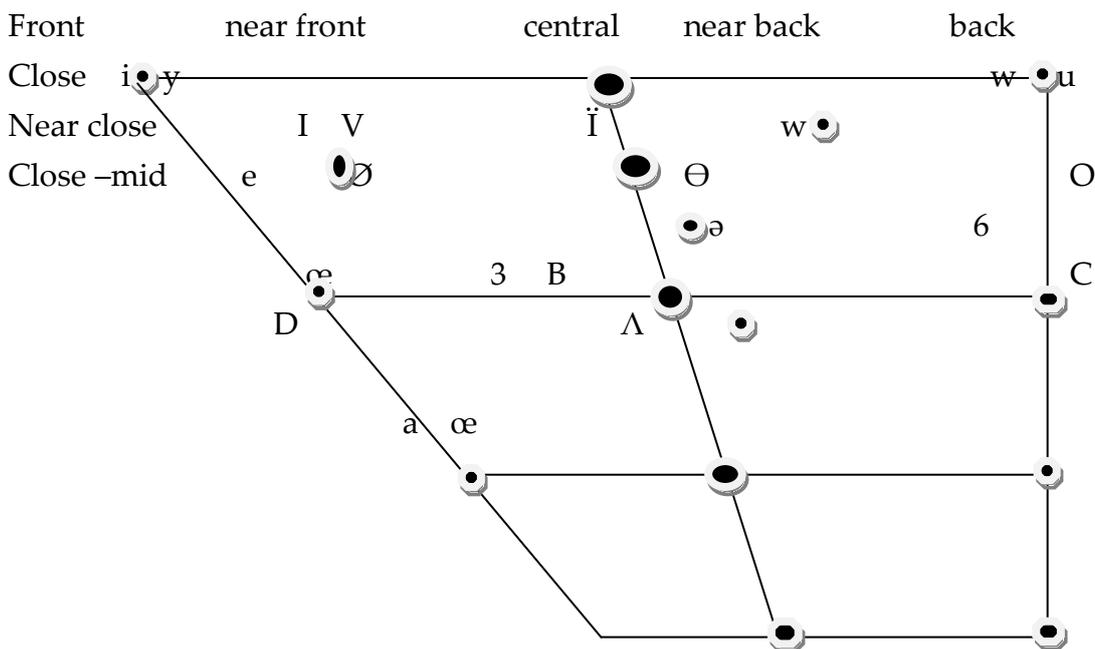
In describing the relations of sounds and their physiological correlations in English, one confusing factor to some learners is the distinction between a blend and a digraph. A blend refers to two or three consonant sounds next to one another within the same syllable in a word where each individual sound is produced. Some common examples of blend include the /l/ (plane, blue, clown), the /r/ (frog, crayon, green) the /s/ (slide, swing, ask, star), etc. “sh”, “ch” and “th” on the other hand are digraphs and not blends. Physiologically therefore whilst the blend has its phonetic symbol the same as the consonant letter representing it (e.g. /l/=plane, blue, clown), a digraph has a different sound symbol representing it (e.g. “sh”=session, attention, chef).

Still on blends, the table above has no “q” and “x”. This is because the speech sounds are produce when we say words with the “x” and the “q” are actually blends. The “x” is a blend o the /k/ and /s/ sounds. For example, “box” is actually pronounced as a blend of “gz”. The “q” is actually a blend of /k/ and /w/ in most words like “quiet” and “quick”. For example, “quick” is actually pronounced as /KWIK/. We can therefore notice a subtle manifestation of these two alphabets in combinations of two of the consonant phonemes. The two letters (“q” and “x”) therefore have a very different physiological representation from their representation in English speech sounds.

Taking the discussion to vowel phonemes in English, a vowel is a sound in spoken language pronounced with an open vocal tract so that there is no build-up of air pressure at

any point above the glottis. This stands in contrast with consonants which have a construction or closure at some point along the vocal tract. The English vowels include A, E, I, O, U and sometimes Y. each of these can be pronounced at least three ways: as a long sound, as a short sound and as a "shwa". These five (5) are the vowel letters in the English alphabet and the twenty (20) vowel speech sounds talked about earlier are derived from these five (5) vowel letters. The twenty letters (20) vowel sounds derived from the five vowel letters are represented in the I. P. A. vowel chart below.

*I.P.A VOWEL CHART*



**NB:** The paired vowels are **ROUNDED** or **UNROUNDED**.

From the vowel chart above, the five (5) vowel letters have clearly shown their different manifestations in terms of speech sounds. The physiological correlations of each of the five (5) vowel letters and how they relate with their sounds in production are discussed one after the other as follows.

First and for most the English letter/vowel A has several pronunciations. The table below lists the I.P.A symbol and standard symbol in used in many English dictionaries. The phonetic transcription of each word is in parenthesis.

Name	IPA	Std	Example		
short a	œ	ã	and (ænd)	black (blæk)	
long a	eɪ	ã	April (eɪprəl)	taste (teɪst)	quay (keɪ)
short o	a	ä	avocado (avəkadou)	massage (məsəʊ)	
C	C	ô	also (Clso....)	fall (fɔl)	
schwa ə	ə	ə	about (əba...t)	garage (gərəʊ)	fauna (fanə)

Secondly, the English vowel/letter E has several pronunciations as listed in the table below.

Name	IPA	std	Examples		
short e	x	ê	elegant (xləgent)	hello (hxlo....)	
long e	i	è	evil (ivəl)	green (grɪn)	he (hi)
long a	ei	ã	resumé (rxzumei)		
schwa ə	ə	ə	eleven (əlxvən)	enemy (xnəmi)	

Note that the letter “e” at the end of a word is almost always silent as in: taste= (teɪst), axe (æks), five (faɪv), blue (blu), etc. There are exceptions, however, as in me (mi), she (ʃi) he (hi) we (wi) and be (bi) etc. When the word ends in a double “e” it is not silent as in see (si), employee (!mplɛɪ), agree (Cgrɪ) etc. Also, when the “e” at the end of a word has an accent mark, èt in not silent as in financè (finasɛɪ), rèsumè (rxsumɛɪ), macramé (mækrəmeɪ), etc.

Thirdly, the English vowel/letter I equally has several pronunciations as conveyed in the table below.

Name	IPA	Std	Examples		
short i	I	ĩ	Is (Is)		
long i	aɪ	ĩ	ice (aɪs)		
long e	i	ē	kiwi (kiwi)		
schwa	ə	ə	animal (ænəməl)		

Fourthly, the English vowel/letter O has different several pronunciations as illustrated in the table below.

Name	IPA	Std	Examples		
short o	a	Ō	October (alkto..b..l)	hot (hat)	
long o	o...	Ō	only (o..nli)	hello (hxlo..)	
long u	u	Ū	ooze (uz)	noddle (nudəl)	who (hu)   too (tu)
		ó	book (b..k)		
schwa ə	ə	ə	oppose (əpo..z)	opposite (apəsɪt)	

Fifthly, the English vowel/letter U has several different pronunciations. The table below depicts these sounds variations.

Name	IPA	Std	Examples	
short u	ʌ	ʊ	us (ʌs)	summer (Sʌm.I)
long u	Ū	ū	Tuesday (tuzdei)	flu (flu)
..	..	ó	put(p..t)	
schwa ə	ə	ə	focus (fo..kəs)	
ju	ju	y ū	unite (junaIt)	humid (hjumId)

Note that no vowel in English begins with the letter “Y” as a vowel. As a consonant however, it has a strong /j/ sound as in yacht= /jat/.

From the illustrative discussion above about vowel sounds, it is clear that the English vowel sounds have various manifestations when it comes to their production in speech. Whilst some words depict the vowel letter the same way as its pronunciation, other words reveal different realizations of the same vowel sound or letter. This underscores the nature of the relations between English vowel sounds and their physiological correlations.

### 3. Conclusion

Drawing down the curtains on this discussion, English speech sounds are derived from the letters of the English alphabet which has a twenty six (26) letters. The twenty one (21) consonant letters of the English alphabet, which are basis for the twenty four (24) consonant speech sounds we have in English, represent sound systems not necessarily similar to their physiological forms. The five (5) vowel letters in English equally show this attribute of difference between their sounds and their physiological rendition, giving rise to the discovery of twenty (20) vowel sounds in the English language. The letter “Y” stands in the ways of both consonant and vowel sounds and whether it is to be seen as a vowel or a consonant depends on the articulatory nuances a phonetic analyst associates with it. The vowels and consonants in English which are the citadel of English speech sounds are clearly identified as follows:

<b>Vowels</b>	a			e			i									o					u				y	
<b>Consonants</b>		b	c	d		f	g	h		j	k	l	m	n		p	q	r	s	t		v	w	x	y	z

The table shows the letters that are vowels and consonants. But the important thing which converts these letters into phonetic symbols is the sound and not the letter. Often the sound

and the letter are the same but not always. An English speech sound may or may not have the same physiological correlations with its phonetic symbol.

## References

1. MLA: Coogan, Cory C. "Phonetic and Phonological Research Sharing Methods, "The Kabod3. 3 Article 1. Liberty University Digital Commons. Web. [xx Month xxxx].
2. APA: Coogan, Cory C. "Phonetic and Phonological Research Sharing Methods "The Kabod 3, Article 1. Retrieved from <http://digitalcommons.liberty.edu/kabod/vol3/iss3/1>
3. Turabian: Coogan, Cory C. "Phonetic and Phonological Research Sharing Methods "The Kabod3, no. 3.
4. [Handbook of the International Phonetic Association](#)

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