Online Lecture N° 1

Level: Master II
Specialty: Language Sciences
Module: Analysis of Linguistic Levels

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Part One: *Phonological Level*

1. **Phonetics & Phonology**
2. **Redundancy & Distinctiveness**
3. **Double Articulation & Co-articulation**

Part One

I. Phonological Level

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1.1. Phonetics & Phonology

Among language levels of analysis, we have morphology, syntax, semantics and phonology. Each level of analysis shows a façade of the language under study and its role in knowing the constituant properties of that language linguistically speaking.

One of the pre-requisites for any language learner is to learn about the phonological aspects of the target language. However, in the case of the English language, phonology represents the grey side of the learning process of the language be it learnt as a second language or as a foreign one. The case really matters because of the notorious aspect of the English language in terms of correspondence between spelling and pronunciation. There is no wonder, therefore, to state the difficulty making parallel match of the written script of a large exhaustive list of English words and their phonological decoding. As a matter of fact, many EFL learners struggle finding their way to give a right acceptable pronunciation of certain words exposed to for the very first time; i.e., if the word has not been heard or uttered by another interlocutor, or being considered as a‟ *deja-vu*” word, the EFL learner feels as being put in a trap to produce the right sound equivalence of the written word. The instances are manifold, nevertheless, the most common disturbances faced concern these words as experienced within our daily teaching sessions, especially as teachers of phonetics and phonology: tomb, comb, shepherd, enough, thorough, ewe, Leicester, Edinburgh, psychic, lamb, etc.

The present section tries to jointly link the utility of studying phonetics and phonology; and at the same time reveals some of the aspects of disparity between the two branches. If phonology is the study of the way sounds function in languages, including phonemes, syllable structure, stress, accent, intonation, and whose sounds may be distinctive units with another language; phonetics; on the other hand, is the study of the physical properties of human speech sounds. It describes the process of their physiological production through the double medium of auditory and neurological perceptions and their representations by written symbols (phonemes).

Phonetics and phonology are two branches of linguistics. Both are meant to provide a scientific study of language, mainly concerned with the study of human (speech) sounds. The term “*phone”* constitutes the common point between the two concepts. We may assert that both concepts constitute the two faces of the same coin. Both concepts use the sound as the “phonic medium‟ and/or as a tool of study. In very brief points, the two terms are explained as follows:

1. *Phonetics is the science which studies how (speech) sounds are produced*.

The central concerns in phonetics are the discovery of how speech sounds are articulated, how they are used in spoken language, how we can record speech sounds with written symbols and how we hear and recognize different sounds

2. *Phonology is the science which studies the relation between the (speech) sounds and their combination to provide meaningful units*.

Phonology, as a science, aims at answering some basic questions such as: how do sounds combine? In addition, the most basic activity in phonology is the phonemic analysis in which the objective puts down the establishment of what a phoneme is (distribution) to come to a final phoneme inventory of a given language with its manifold representations. It goes beyond the phoneme providing detailed characteristics of each and the possible relationships between phonemes; i.e., how they form groups, their oppositions, their mutual influence, and also analysing the syllable structure.

The distinction between phonetics and phonology, however, is clearly stated below in the following table:

Phonetics	Phonology
- Is a science concerned with the study of the sounds of speech acts and their mode of production - Its concern is more general since it deals with the description of all sounds‟ production of all languages and their physical properties	- Is a description rather interested in the relationships between the sounds of a language and how they form patterns - It is rather more specific since it looks at the combination of sounds patterns in a given language

Table 1.1 phonetics and phonology (adapted)

1.1.1. Phonetics

What is phonetics?

Phonetics is the scientific study of the sound (the phonic medium). Phoneticians are not interested in all possible sounds but only those produced by human speech organs and playing a role in human language and used in communication.

The phonic medium (sound) may be studied from three (3) points of view: articulatory, acoustic and auditory aspects

1.1.1.1. Branches of phonetics

Phonetics describes speech sounds from a three-dimensional aspect; i.e., from the initial production of sounds by the speaker, the travel of sounds (in the form of) waves, to the reception of these sounds by (the ears of) the listener. The three branches of phonetics are explained below as follows:

a. Articulatory Phonetics

This branch investigates and classifies speech sounds. It deals with how sounds are articulated (produced) by the speech organs. This includes the description of all the process of sound making from the very beginning of air accumulation in the lungs which constitute the reservoir of air. Needless to assert that **air** is the principal source of speech sound‟s production.

The making of the speech sounds initiates from the accumulation of sufficient air amount in the *lungs* which are, then, pressed to let the air mount through the *air pipe*. Automatically, the air carries its path through the *trachea* and the *larynx.* At that level, there are two membranous cartilages (forming a box) in the sides of the throat, exactly known as ‟A*dam apple*".. Inside the box made of cartilages, there are *the vocal cords* (also called vocal folds). There is a gap (opening) between them through which the air passes. This gap is called *the glottis.* At that level, sounds are produced as voiced or voiceless depending on, respectively, a narrow or wide glottis. Then, the air continues its path either through the mouth to produce *oral sounds* or through the nose to produce *nasal sounds* depending another time on another important organ called: ‟*velum*".

More details are provided in the section of speech organs and their functions

b. Acoustic Phonetics

It is concerned with describing the physical properties of the sound waves created by the activity of the speech organs. In other terms, the sound travels from the mouth of the speaker to the ears of the listener and this makes a potential link between production and perception. In view of that, adequate conditions of production (acoustics, articulation) pave the way to a good perception; i.e., if we produce or articulate correctly with favorable conditions of reception, then we can assure understanding. Otherwise, if we produce utterances in bad conditions (vacuum, open air, noise, mispronunciation...) the reception will endure impediments of good reception and then understanding.

c. Auditory Phonetics

It is concerned with the perception of speech sounds by the ears and the brain. The process of listening and comprehending a verbal utterance is tightly associated to the above mentioned branches where production and perception with favorable conditions of sound travel guarantee a permanent understanding between interlocutors (speakers and listeners).
So, though the three branches of phonetics are discretely approached for the sake of providing ample data on each branch; practically, they are connectedly related since any speech sound is naturally uttered and received by the three-based system of production, sound-wave travelling then reception; all of which, normally ends up with communications feedback and outcome

1.1.1.2. Kinds of transcriptions

In using phonetic symbols, one can transcribe any word of any language. Transcription is the writing down of a spoken utterance using a suitable set of symbols (IPA). The latter was used as the speech sounds because of a real need for a standardized system of phonetic and/or phonemic transcription the term „IPA‟ stands for "*International Phonetics Alphabet*." It is a system created in 1888 by world phoneticians to ease the burden for language learners throughout the whole world in their process of learning and/or teaching of a language, be it second or foreign. In its original meaning, the term *"transcription"* implies converting written representations into phonetic symbols which are commonly used as two known kinds of transcription:

 Broad phonemic transcription. This transcription puts forward the phonemic representations of vowel and consonant sounds as they, initially and originally, appear as independent speech sounds. It ignores as many details as possible. It captures only the representations of vowel and consonant sounds which represent the smallest unit of sound capable of changing the meaning of words in language, usually using slashes **/ /**

 Narrow phonetic transcription. This transcription refers also to allophonic transcription usually including the four details so far known as: aspiration, devoicing, velarisation and syllabic function of some consonants and typically used between square brackets[ ]. The allophone represents the other possible representations of the same phoneme. In general, consonants are the phonemes concerned with different realisations in which each consonant phoneme can be realized at least in two different ways and some, like the phoneme /l/ can have till four possible realisations according to the environment where it occurs.

1.1.2. Phonology

Phonology is the other face of the same coin covering the overall representation of speech sounds. However, the additive aspect of phonological analyses of the sounds (already phonetically described) clears up some hidden characteristics not provided through the mere representations and descriptions provided in the phonetic study. Clearly stated, phonology searches the possible combinations sounds make in a given language. It (phonology) looks at the possible distributions of (certain) sounds in different languages where some sounds cannot be found in certain positions as compared to other languages. A very simple example can be seen through the sound /ʒ/ in the beginning of English words; oppositely, the same sound is largely used in other languages like French or Arabic. For this and that, further analysis of the phenomenon will be sketched out in the coming titles where distinctive phonological features are displayed to show what really distinguishes phonology from phonetics and what makes this study of great importance to any language learner of English. In the same line of thought, we will discover that each language has got its own phonology and that certain combinations which are suitable and appropriate in one language cannot work in another language. So how (speech) sounds behave in a given language could easily be different from the same (speech) sounds in other languages. That is why the importance of studying both disciplines in parallel is significant for linguists, teachers and language learners in general.

1.1.3. Importance of Studying Phonetics and Phonology

If a mere immigrant lives in England for a period of time, he will speak the language of that country; if a professional football player signs his contract with a club there, he will be able to use the language at least for acceptable communication. So, why should other people (EFL students and teachers) bother studying phonetics and phonology? The reason behind is simple: to understand the way we write words with the sounds they represent. What is quickly apparent are a host of orthographic inconsistencies. This fact makes the English language being known by its „notorious aspect" where spelling forms very often differ from the intended pronunciation. This constitutes a major obstacle for learners of English and forms the basic impediment to learners who feel reluctant in their learning because of this difficulty. Fortunately, a student of phonetics can capture each individual sound using the International Phonetic Alphabet (IPA). Below are some examples of orthographic inconsistencies:

1. Sometimes the same sound is spelled using different letters, such as:

s**ee**, s**ea**, sc**e**ne, rec**ei**ve, th**ie**f am**oe**ba, mach**i**ne →/i:/
king, **qu**een, **c**ar, pi**ck**, **ch**aracter, s**ch**ool →/k/

2. Sometimes the same letters can stand for different sounds, like:

sign, plea**s**ure, re**s**ign
charter, **ch**aracter, ma**ch**ine
f**a**ther, **a**ll, **a**pple, **a**bout, **a**ny, **a**ge

3. Sometimes a single sound is spelled by a combination of letters, for instance:

Lo**ck**, **th**at, b**oo**k, b**oa**st, b**ee**, **sh**op, she**ph**erd.

4. Sometimes a single letter stands for more than one sound, for example:

E**x**it, **u**se

5. Sometimes letters stand for no sound, some illustrations are as follows:

Know, dou**b**t, thou**gh**, i**s**land, **p**sychology, psyc**h**ic, han**d**some

Below are very significant examples showing what really means to know about a language phonetically and phonologically. The provided examples will have ample and deep analyses in their appropriate sections; namely: redundancy and distinctiveness, elision, assimilation or intonation and other phonological aspects relatedly congruent with the phonetic properties of sounds in different languages. These illustrations are as follows:

- ✓ *Tone use*

In Chinese language, for instance, the same word with in spelling may diverge in meaning according to the tone used.

- "ma"→ with rising tone (pitch) ma↗ → means "mother"
- "ma"→ with falling tone (pitch) ma↙ → means "home"

⇒ tone in Chinese is distinctive, however, in English is redundant

✓ *Phonetic features*

English	**Vs**	**Arabic**
/b/ is a plosive, labial, voiced consonant		/b/ is a plosive, labial consonant
/b/ has three features		**/b/ has only two features**
The words: "pin" and "bin"		the allocution: سبحان الله
e.g., [pɪn] & [bɪn] In English, this is distinctive Meaning changes from voiceless [p] or voiced [b]		e.g., [sʊpħænæ] In Arabic, it is redundant Meaning does not change from devoiced [b] or voiceless[p]

✓ E*lision: slurred or mute sounds*

English	Arabic	French
/p"li:s/→ "*police*" /k"neɪrɪ/→"canary"	"اهبطوا قلنا **/kʊlnæ'hbitu: /**	"ʒ've/→ "*je vais*" /p'tɪ t/→ "*petit*"

✓ *words ending and sound changes*

1. Words ending in **/ɪ/ or / i:**/ tend to change into / **j** /

In English: /**si: jɪt**/ & /**ðeɪ jɔ:l**/→ ("see it" & "they all")

In French: / s**ə**si **e mæ sɜ :**/ & /il **jæ j ʊn**/ → ("*ceci est ma sœur*"& "*il y'a une*")

2. Words ending in /**ʊ**/ or /**u:**/ tend to change into / **w**/

In English: /g**əʊ waʊ**t/ & /tu: wi: zɪ□/ → ("*go out*" & "*too easy*")

In French: /u: **w'**e/ → ("*ou est*")

✓ *-Assimilation and sounds influence*

English	French (Algerian)	Arabic
e.g., "dogs" /dg**ɒ**z/	e.g. "sage femme" /s**æʃ**f**æ**m/	e.g.**نتعها** "its hers" /nt**æħæ/**

Importance of Studying Phonetics and Phonology

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1. Sometimes different letters stand for the same sound

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The words: 'pin' and 'bin'		the allocution: 'سبحان الله'
e.g., [pɪn] & [bɪn]		e.g., [sʊpħænæ]
In English, this is distinctive		In Arabic, it is redundant
Meaning changes from voiceless [p] or voiced [b]		Meaning does not change from devoiced [b] or voiceless[p]

- E*lision: slurred or mute sounds*

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. **/p'li:s/**→ *'police'* . **/k'neɪrɪ/**→ 'canary'	**"قلنا اهبطوا"** . **/kʊlnæ'hbitu: /**	. **/p'tɪ t/**→ *'petit'* **. / ʒ've/**→ *'je vais'*

- *words ending and sound changes*

1. Words ending in **/ɪ/ or / i:**/ tend to change into / ʲ/

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In French: / s**ə**si**ʲe mæ sɜ:**/ & /il**ʲæʲun**/ → ('*ceci est ma sœur*' & '*il y'a une'*)

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In English: /g**əʊ w**'a**ʊ**t/ & /tu: **w'i**:z**ɪ**/ → ('*go out*' & '*too easy*')

In French: /u: **w**'e/ → ('*ou est*')

- *Assimilation and sounds influence*

English	French	Arabic (Algerian)
e.g., 'dogs' /d**ɒ**g**z**/	e.g., 'sage femme' /sæʃfæm/	e.g.,**نتعها** 'it's hers' /ntæħhæ/

1.1.1. Phonetics vs. Phonology

The present section seeks to catch some of the discrepancies between the speech sounds as provided through the two phone mediums, namely: phonetics and phonology. In simple terms, the contrastive study between phonetics and phonology leads to acknowledge a down-to-earth reality where the same speech sound is analysed differently via the two studies.

In brief, the present section puts the two phonic studies in the following sphere of definitions:

- Phonetics is concerned with speech and its physical properties
- Phonology is concerned with the structure and function of these sounds in conveying meaning

Trubetzkoy, one of the founders of the Prague School of Linguistics, wrote (1930:10):

"It is the task of phonology to study which differences in sound are related to differences in meaning in a given language, in which way the discriminative elements are related to each other, and the rules according to which they may be combined into words and sentences"

Thus, "*A phonetic study tells how the sounds of a language are made and what their acoustic properties are. A phonological study tells how these sounds are used to convey meaning"*

Both phonetic and phonological studies refer to the inventory of segments in a language; but as pointed out by Edward Sapir (1925: 16-18) "*two languages can have the same inventory of phonetic segments but have very different phonologies"*

e.g.	German	English
	'salz' / zalts /	'salts' / sɔ:lts /

→The two words in both languages end with equivalent sound sequences / t s /; but. their consideration differs from one language to another one because of some phonological or distributional aspects of certain sounds. As a matter of fact, the two sequences are contrastively viewed as follows:

a. <u>In English</u>

The sequence'<u>t s'</u> of the word 'salts' is considered as two independent consonant sounds by English speakers for two reasons:

1- The singular form is known as 'salt'→'s'is an additional segment (linguistically defined as: inflectional bound morpheme)

2- The sequence ‘t s’ is not found in initial position in English words, unlike: / dʒ ,tʃ/
⇒So, ‘t s’ as ‘t’+’s’ fits the pattern or structure of the (English) language

b. In German

The sequence‘t s’ in the German language can be found in initial position and it is spelt as ‘z’ as it can be found also at final position. So, the German speakers analyse (mentally) the sequence‘t s’ as one segment **[ts]** as opposed to the instance mentioned above in the English language as two separate segments or allophones **[** t **]** and **[** s **]**

Likely, the two pronunciations of ‘t**s**’ – in English and in German- are identical phonetically. Thus, a purely phonetic study would miss distinction, i.e., it is in a phonological study that the difference between **[** t s **]** and **[ʦ]** is captured. In other terms, in English, we have two phonological segments **/t/** and **/s/** occurring in sequence; however, in German- in addition to **/t/** and **/s/**- there is a phonological segment **/ʦ/**

1.2. Double Articulation & Co-articulation

In the present section, we will shed some of the light on the possible interferences that may occur when certain sounds are produced in a particular sequence with parallel or simultaneous articulation belonging to the same rank (whereby, double articulation); otherwise, we will be dealing with another type of articulation, namely: subordinary or secondary articulation which induces automatically that another primary articulation has already been performed.

In specifying vowel sounds, we need to mention two places of interference, namely: the tongue and the lips; since for every tongue position, we may have two or more lip positions, e.g., [i]and [ʲ]

In consonants too, we may have to specify two places of interference. These two places will identify a sequence of articulation relevant to either a double of sounds sharing the same rank (both plosives and both fricatives) or secondary articulation where a primary articulation is felt first to be followed simultaneously by another articulation, hence, secondary articulation. They are exposed clearly below as follows:

1.3.1. Double Articulation

In [P^K] →two places at which the air stream is blocked (lips and velum). However, when both stops (plosives) are realized simultaneously, the resulting sound is different in [P]and [K] separately: e.g., the sequence [PK]→ in '*upkeep*' meaning "*maintenance*"

Sounds, such as: [k^p] [g^ɓ]→ **occur in 'Igbo language'.**

This double articulation is a labio-velar one with an equal interference (bilabial/ velar) going on the same time. Such sounds are not commonly found in English or in French and in Arabic either.

One double articulation we may hear in English is a glottal stop with the fortis stops [p,t,k] in words, like: 'super- letter- lucky' or in French: 'maintenant'

To resume, double articulation requires that two structures shall be of equal rank, e.g., "stop+stop" or "fricative+fricative"; otherwise, we will be dealing with subordinary articulation, i.e., one primary, the other secondary

1.3.2. Secondary Articulation

An obvious example of primary/secondary articulation is the production of the sound /s/ with close lip sounding ⇒ this includes an alveolar stricture as primary step and a lip stricture as a secondary action. That peculiar simultaneous stricture provides:

a labialized-alveolar fricative sound [s^w] in the word 'swim' →[s^wwɪm]

a labialized- alveolar plosive [t^w] in the word 'twin' → [t^wwɪn]

Also in the so-called 'dark 'l' as in '*feel'* or 'bottle' or 'cold'⇒ the tongue tip forms a complete closure at the alveolar ridge and at the same time, the back of the tongue is raised high towards the soft palate, we get *[ɬ]*

Here, the alveolar closure is primary and the open velar articulation is secondary

In Arabic, four sounds represented by the letters /ص,ظ, ط, ض / are said to be velarized as the back of the tongue is raised back high towards the velum (secondary articulation)

These sounds are represented as follows:

Arabic sounds	Phonetic symbols
ص	[s̪ˠ]
ض	[d̪ˠ]
ط	[Tˠ]
ظ	[ðˠ]

They can represent minimal pairs when identified as allophones in Arabic specifically or phonologically. E.g., بسمة _ بصمة ⇒[b′æsmæ] vs. [b′æsmæ]

Examples of minimal pairs	Transcriptions
سم صم	[sʊḿʊn] [sʊḿʊn]
د ل ض ل	[də′ læ] [đ æɬæ]
ط ل ت ل	[tæ′ læ] . [ʈə′læ]
ذ ل ظ ل	[ðə′l æ] Vs. [ðæ′ læ]

Practice & Testing

- *Question One:*

Given that a phonetic study tells how the sounds of a language are made and what their acoustic properties are; and that a phonological one explicates how these sounds are used to convey meaning; this gives a thorough picture about the concerns of both phonetics and phonology. However, Sapir's view 'two languages can have the same inventory of phonetic segments but have very different phonologies' launches the debate otherly.

To what extent is Sapir's view significant in the case where two or more languages are brought to share some of the phonological aspects?

- *Question Two:*

From your experience learning (acquiring) languages, what types of middle ground aspects of phonology, like: elision, linking and/or others may these languages have in common

Using examples mainly from English, French and Arabic, provide a holistic view about the shared phonological phenomena

- *Question Three*

Could we do without elision, Intonation, and Weak and strong forms?

- *Question Four*

From your collected lectures, try to explain the role of studying linguistic levels analysis

References

- Allen, W.S. (1970) Living English Speech. Longman, London
- Crystal, D. ((1985). Linguistics. Great Britain: Richard Clay (the Chaucer Press)
- Dinnen, S. J. (1967). An Introduction to General Linguistics. New York: Holt, Rinehart and Winston, INC.
- Finch, G. (2003). Linguistic Terms and Concepts. London: Palgrave Macmillan
- Fromkin, V. (2001). Linguistics: An Introduction to Linguistic Theory. Oxford: Blackwell Publishing
- Hewings, M. (2002) Pronunciation Tasks. A course for Pre-intermediate Students. C.U.P. Cambridge
- Kuiper, K. and Allan, W.S. (2003). An Introduction to English Language. London: Macmillan Press LTD.
- Ladefoged, P. (2001) A Course in Phonetics, 4th ed, Harcourt Brace
- Lyons, J. (1995). Language and Linguistics: An Introduction. Great Britain: CUP
- Roach, P. (1992) Introducing Phonetics. England: Penguin English.
- Trubetzkoy, N. S. (1969) Principles of Phonology. Berkley: University of California Press
- Wells, J.C. (2000). The Longman Pronunciation Dictionary, 2nd Ed, Longman. London
- Widdowson, H.G. (2000). Linguistics. Oxford: OUP
- Yule, G. (1997). The Study of Language. Cambridge: CUP