

**Appreciating Linguistics: A typological approach**  
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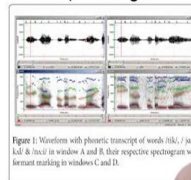
**Lecture - 26**  
**Introduction to Phonetics - Part 1**

Hi everyone, welcome to this session of my NPTEL course Appreciating Linguistics: A typological approach. In this session I am going to talk about phonetics, because I am going to begin with a new unit phonetic typology or you can say phonological typology. So, I am going to cover the phonetic aspect of linguistics or phonetic aspect of natural language.

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### Introduction

- Phonetics is tricky because no discrete unit works unlike writing system.
- Speech is continuous and cannot be broken into discrete units.
- Acoustic signal (sound wave) and speech articulators (the tongue and lips) are the key elements.
- *Bee, bah, boo*- Overlap in articulation



As I have always been talking about, this is an introduction level course which aims at making the participants aware or enabling the participants to understand the basic concepts of linguistics through a typological approach.

We have already discussed what is linguistics and why it is important, who is it important for. Then we have also discussed what is typology, and why typological approach is significant to understand linguistics as a discipline. There are many approaches to understand linguistics as a discipline. But what is the significance of typology? To approach linguistics as an academic discipline. We have already had a lot of discussion on that.

We also got to know a couple of things about words, typological discussion on words, morphemes. We will also go through the next sessions, which would deal with the sentence constructions or the full sentence structures. For this unit or for this section, I am going to talk about everything related to the sound system of any language. And when I say any language, I am talking about natural language; the languages that humans use to communicate and otherwise, for other purposes also.

Let me start the discussion with a question for my audience. Do you think all of you speak alike? No; obviously, the answer is no. Do you think everyone in your family speaks alike? Answer is no. Do you think there is anyone else who speaks exactly like you speak? No, not really.

So, each individual has her own way of speaking. We all have the ability to speak and we are speaking sometimes one language, sometimes multiple languages. If you are an Indian very likely you are a multilingual speaker, because linguistically India is extremely diverse and generally, a like people who belong to my generation at least they know at least three languages.

Obviously, when you speak, your speech pattern, your speech style is different from even your parents, your siblings. No two people on this earth would speak alike, whether it is your first language or the second language or a common language that you use to communicate in the society. For that matter, I am talking about English. The way I speak English and the way my students speak English, the way my fellow faculty members speak English is very different. Each of us has his or her own way of speaking English. And how to decide that this is my way of speaking English, that is her way of speaking English or people in India, they speak English in a particular way, people in Australia they speak in a different way, in U.S. they speak in a different way and in UK people speak in a different way.

How do you figure out? What exactly tells you that Indian English is different from British English or British English is different from American English? How do you decide? Does it really matter which aspect of language is important? That is what we want to figure out. Obviously, words are important, sentence are important, but what is most distinct or what

helps you to distinguish the varieties of a particular sound is the speech pattern or the sound pattern for that matter.

When it is related to the way you speak or the sounds that you deploy, the way you produce the sounds, that decides what kind of English you are speaking in any given context. So, obviously, the choice of words or the selection of words, sentences, grammatical constructions, lexical items, all of them, they contribute together to identify a particular variety of any given language. But most importantly, it is the speech sounds that decide whether one variety is different from the other one or not, besides the grammatical units. Grammatical units are equally important, but we also cannot ignore the importance of the sound system in any given word to find out whether this variety has any similarity with anything else or not.

We got to know that phonetics is very important to understand the sound system of any given language, but it is not that easy to study sound system of a language in a systematic manner. Why it is not that easy? We are going to talk about a couple of things about it. Unlike morphology or unlike syntax, or when you are trying to study the lexical items, the study of sound systems is known as phonetics. That is the simplest definition that I can give to explain, what is phonetics.

So, the scientific, or technical, or systematic you can use any of these phrases or all of them. To understand or to study the sound system of a language technically, scientifically, and systematically, you will call it phonetics.

It is easy to say this definition in just a few words, but the study of phonetics or the study of sound systems is a little tricky, primarily because there is no discrete unit that works unlike writing system. When you write something, you can actually check the letters or the words or the sentences, phrases, paragraphs. But when you speak, it is generally a continuous process. Because of the continuity of the process it is difficult for us to study phonetics, difficult for some of us, not for all of us for sure. We have wonderful phoneticians among us in different institutes working wonderfully. But in most of the cases, at least personally, I feel phonetics is a little tricky, primarily because of the non-discreteness of the units. We do not have any discrete unit when you are trying to study phonetics.

And what is the reason for this? As I just mentioned, unlike writing system, speech is continuous. So, it is not that easy to break it into discrete units. The difference between the writing system and speech is that unlike the writing system, speech is continuous. Because of the continuity that speech has, it is difficult for us to identify the discrete units. And since there are no clear disparate units, it is difficult for us to study phonetics. There is a picture out here. If you look at the sound wave, it always flows in the waveform with a crest and a trough.

These pictures are not really very clear, but you can easily notice it. These are the ones which give us an idea that it is not that easy to understand or to study phonetics in a scientific method. But we will go into more detail of the speech sounds of natural language, primarily English. I will give you the examples from English, but I would expect you to know more about your own language. So, two things are important here, when I am talking about phonetics. What are the two things? One is the acoustic signal, that is the sound wave. The sound wave is the acoustic signal, remember. And then the second important thing are the speech articulators.

There are certain speech organs that we have in the human body that help us to articulate the speech or to utter the speech. The acoustic signal and then the speech articulates, these are the most important elements or you can say the key elements in the production of speech sounds in in case of humans. Now, let us see how the speech organs articulate sounds in case of human beings. Let us read the three words or the three onomatopoeic words given below; one is bee, the other one is baa, the other one is boo.

When it is bee, baa, boo, if you keep repeating it bee baa boo, bee bah boo, you will see that /b/ sound is common in all three. But what is different? The difference is the vowel sound or the post consonant sound. The /b/ is the consonant sound and /i:/ is the vowel sound. Again, the second word /b/ is the consonant sound, /a:/ is the vowel sound, third /ba:/ is the consonant sound and then /bu:/ is, when you say /u:/. So, /bi:/, /ba:/, /bu:/; so, /b/ and /i:/ together is /bo:/, /b/ and /a:/ together is /ba:/ and /b/ and /u:/ together is /bu:/.

In this case, what kind of articulatory overlapping that you see? Can you tell me? Can you think about it? Let us try to practice it once again. You are saying /bi:/, then you are saying

/b/ and then you are saying /bu:/. So, the common sound is /b/. If it is the common sound, check the speech organs or which part of your face or the mouth cavity. If I can use the face and the entire mouth cavity, could you please think about which two organs are deployed to produce sounds like /b/?

If you notice carefully it is basically the upper lip and then the lower lip. When you say /b/, there is a complete closure of air pressure and then after that you are releasing it suddenly. When you say /b/, the upper lip and the lower lip is completely closed and then the air pressure is flown or the air is being passed through. Then when you say /bi:/, the /i:/ sound, then after that /a:/ sound, then /u:/ sound.

If you notice it a little carefully or if you try to understand it, there has been some friction happening inside the mouth. When you say /i:/ and you say /a:/, there is something happening inside the mouth. We will find out which organs are responsible for the production of which sound. Then we have /bu:/. So when it is /u:/, where is it articulated? When it is /a:/, where it is articulated? And when it is /i:/, where is it articulated? So, these are the vowel sounds /i:/, /a:/ and /u:/ and /b/ is the consonant sound.

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Lend me your ears!

- Language starts with the ear.
- Babies can hear and imitate.
- Languages have boxes of sounds.
- Pick up the Englishness (or any language-ness).
- No language can be talked inside oneself.
- Listening (carefully and accurately) is the key and performance is the outcome.



We will check these things in more detail in a while. But before that, let me talk about a couple of simple things related to phonetics to begin with. Some introductory knowledge or

some basic information would help you in the long run, if you understand phonetics. That is why I would request you to lend me your ears.

So, when I said to lend me your ears, please listen to me carefully what I say and then eventually you are going to learn things on your own. You can always analyze the data. When I say data, I am talking about the linguistic data or the empirical data, and you can analyze the data set given which are available in your language, whether it is your first language or second language or any language that you are comfortable working with. Once you hear these things carefully as far as phonetics are concerned, it will be easier for you to analyze the phonetic data in your own language. Now, let us think about language and the way we use it. What do we do with language?

Every time I ask this question, most of my students would say that language we use it for communication. Obviously, that is I do not I do not disagree with that. We surely use it for communication, but is that the only function that language does? No, surely the answer is no. Language has many other functions, language controls your thought process, language helps you to understand like the genealogy, it can actually help the genealogical trace. It can also help the person to think in a more creative way.

So, language has multiple functions to play or multiple roles to play. But among all, communication is one of the major aspects of language. So, a whole lot of language and its parameters and its units, its domains are used for communication. I will try to go into the other details later in the different sessions. But first, I will begin with the communication aspect of language.

Think about a little baby in the family, if you have a sibling or a cousin or like maybe a nephew or a niece. If you see a little child who is speaking any given language that is spoken in your family with an ease, then how did she learn that or how did she acquire that? Acquisition and learning I am not going to talk about it now. But first let us think about whenever you are speaking a language, what are the different ways by which you are using it?

Speaking is only one aspect of it. What are the other domains of language use? If I give you some time to think about it, please think about it for yourself. But let me tell you that any

kind of language use starts with the ear. First you have to listen to something then only you can go to the other skills of language. If have not ever listened to any language, you have not heard about anything of it. Then if there is absolutely no way by which you can actually use a language. So, language starts with the ear.

First you have to listen to it, then you are going to speak, then you are going to read and finally, you are going to write. So, this is the L S R W. This happens chronologically. So, I was talking about, if you have a little nephew or a niece or a cousin at home, just try to notice, how did the baby, your baby nephew or baby niece or baby cousin, they started speaking or they started reading, writing at a later stage. A human baby first starts to listen to others, and whatever language the family is going to speak, the child is going to pick it up. And after the child listens to a particular language, she tries to speak. There are certain milestones which come in the due course of time.

So, first comes listening. If the baby is healthy enough, there is absolutely no problem physically, then the child will listen to it. Then after that, the child will try to speak, then the child will go to school and would start reading and finally, the child would be able to write.

This is if you start from listening, then speaking, then reading, then writing. The easiest skill is listening skill and the most complex skill is the writing skill. We are not going to go into writing and reading and all these aspects now, because we are not going to talk about the written system of language rather we are focusing on the spoken system of language. So, in the spoken system, you have listening and then speaking. If you listen carefully, you are going to speak it better That is the general understanding of language.

However, you need to keep in mind that unless you have listening ability, you cannot acquire any other ability of language. That is a scientific thing or technical thing. How then do babies speak? The babies first hear and then they try to imitate, in most of the cases, not always. The research in child language acquisition gives us an idea that it is not that the babies always imitate, but mostly they do.

There are certain grammatical constructions that babies use, which will never be found in the adult speech. It is not necessary that they always imitate, they also create their own constructions going by the kind of knowledge that they have about language. This is called

innate capacity. We are not going to go into the innate capacity for the moment. But then babies do hear, they can hear and they also imitate what the adults are speaking. So, by that they try to speak.

In most of the cases their speech is influenced by the adult speech, but that does not mean that it is always influenced. Children have their own ability to speak and then considering language, there is certain grammatical competence which is innate. So, language is an innate ability of the human beings or a human baby or a human child in that sense.

I do not say that they always imitate, but a significant amount of their speech comes from imitation. They hear and then they speak. When this begins, this goes on as a process. When we try to move into phonetics as an academic discipline or as a formal discipline, we must be aware about the fact that each language in the world has this lexicon, this repository or the box of sounds. Certain sounds are available in certain languages, certain sounds are not available in certain languages. There are two things: number of possible sounds or available sounds, number of languages.

They do not have one-to-one connection. It is not that these many sounds are there in all languages, not really. Each language has its own sound repository. It is like a box. Imagine a mental box and then you have all these possible sounds stored in it for your own language. So, these are for small ls. If you approach it from the big L, then I would say that big L or natural language has boxes of sounds. And these boxes are different from different L1s. So, if L1 has 20 different sounds, L2 might have 40 sounds. L10 might have 50 sounds.

It depends on the individual or independent languages, how many sounds would they have. But overall, if you approach it from the natural language perspective, then obviously, natural language has these boxes of sounds. That is why when you speak a particular language, you have to pick up that languageness. Let us say I am speaking English, I have to pick up Englishness. If I am speaking Hindi, I have to pick up Hindiness. If I speak Odia, I have to pick up Odianess. Considering these three languages that I speak, Odia is my first language, Hindi is my third language, in that sense and English is my second language.

So, when I speak, I try to pick that particular languageness, and that holds true for all the speakers. Being humans, when we are speaking or when we are using the language, we try to



pick up that languageness. When I say languageness, there are certain sounds which are exclusively available in your language, which may not be there in the second language that you are speaking or the third language that you are speaking. You should be able to figure out the idiosyncrasies or the unique features of the phonetic system of a given language.

So, that is the reason why I have written Englishness. When I say Englishness, if you are speaking English, you have to find out what are some basic rudimentary sounds of English which are available across the varieties of English and why do we need to pick it up? Why is it important for us to pick up any languageness? Because no language can be talked inside oneself. Soliloquies are definitely there; that is a literary device. We did read it when we were reading Shakespeare. So, these are the theatrical devices or literary devices.

But in the real life situation we do not talk inside ourselves. There are certain instances when we try to introspect our own action, that is a different thing, then we are trying to talk to ourselves. But otherwise, language is generally used for the communication purpose as I have just told. Since this is used not inside oneself rather it is used to communicate with another person, we have to be very careful sometimes. If we are talking to another person who is not a native speaker of your language or who might speak a different variety of your language.

Even in your own language, there could be different varieties. If the other person does not use this kind of a variety then you have to be careful about it. That is why the languageness is important. There are different varieties in even one given language, primarily, because of the variations in the speech sounds. Obviously, I am not ignoring the grammatical aspects, the grammatical components of it, the grammatical units, that also decide the varieties of a given language, but we also should not and must not ignore the phonetic aspect of it.

That is why listening is important. You need to listen carefully and accurately and accordingly, when you speak that language, the performance is going to be better. So, that is why please lend me your ears. And when I say lend me your ears, I request you to listen to me carefully, because this particular unit has a lot of sound related issues. Considering it has sound related issues, we have to be very careful by listening to it.

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## Phonetics



- Phonetics is the study of actual sounds that make the words of a language.
- Every language has certain characteristics and they are distinct.
- English: 26 letters/alphabet but 42 sounds.
- Articulatory Phonetics/Production: How the sounds are produced by our vocal organs.
- Auditory Phonetics/Transmission: How the sounds are perceived by our hearing mechanism.
- Acoustic Phonetics/Reception: How the sounds are transmitted in the air.



Now, since we realized that phonetics is tricky to study, because of its non-discrete nature of the speech sounds, at the same time it is also important to understand how the human language works, how a particular language has been studied as far as the varieties are concerned or dialects for that matter, the sociolinguist would call it dialects, a theoretical linguistics going to call it a variety. That is to avoid all these socio-political issues.

So, eventually we got to know that phonetics is important and for each language we have a different set of sounds. For this session I will focus on English, as I have just mentioned a while ago. Considering the medium of instruction is English, we are going to talk about the sound system of English. Now let us look for a better definition or a more detailed definition of phonetics. So, phonetics is the study of actual sounds that make the words of a language. Two things are important; one is the actual sounds. When you speak, you have to identify what are the different sounds deployed to make a word, that is one thing.

The second thing is that it must be the systematic study, or a scientific study. That is why rather I would say phonetics is the scientific study of actual sounds that make the words of a language. And why I am focusing on the phrase actual sounds? Because every language has certain characteristics. So, if you are looking for the characteristics of a particular language then you have to focus on the actual sounds of it, which are distinct. In case of English, the

English alphabet has 26 letters. And these 26 letters contribute to the number of 42 speech sounds.

So, if you tally them, number of letters 26, number of speech sounds 42. There are certain words, which are written in a different way, but spoken in a different way, that is the feature of most of the Germanic languages, unlike South Asian languages. In South Asian languages there are certain instances of writing and speech mismatch, but in most of the cases what we write, that we read. But in case of English and other Germanic languages, you will see that there is a bit of mismatch between the letters and the alphabet. That is the reason why English as a language has 26 letters, but 42 speech sounds I would say.

With this information, I will just give you a brief idea how phonetics is generally studied by linguists. I am not a phonetician in that sense, or I am no phonetic specialist, nor a phonologist. But my basic understanding of phonetics says that there are three different domains where you need to study speech sounds. You can study speech production, transmission or reception. So, the discipline or the domain of speech production is articulatory phonetics, the domain of speech transmission is acoustic phonetics and the domain of speech reception is auditory phonetics. Remember this: articulatory phonetics-production, acoustic phonetics-transmission and auditory phonetics-reception.

For my discussion, I am not going to focus on transmission and reception, because these are not very important from a typological perspective. For this particular course, my focus is going to be on production of speech sounds. And how that decides which phoneme or which speech sound contributes to the formation of which word, and how the varieties emerge or occur, how we decide on the types of language on the basis of the production of the speech sounds.

So, our focus is going to be on the first one that is articulatory phonetics. So, let us see what is in store for us. When I am talking about articulatory phonetics, I am going to discuss how the sounds are produced by our vocal organs. We have certain vocal organs, which help us to produce or to speak and that is what I am going to discuss in detail in the coming sessions. And auditory phonetics, which deals with how the sounds are perceived by our hearing mechanism is beyond the scope of this course.

Similar is the case with acoustic phonetics or reception of sounds. I am like if that would have been the focus of this course, I would have discussed how the sounds are transmitted in the air. So, that is the communication aspect. One is the communication aspect, the other one is the transmitting aspect and here for this course I am focusing on the production aspect of it. I am going to give a lot of importance to the speech production through our vocal organs.

Keywords: phonetics, acoustic signal, speech articulators, language acquisition, lexicon, articulatory phonetics, acoustic phonetics, auditory phonetics