Principles and Parameters in Natural Language
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Lecture - 07
Language Acquisition

So far we have seen what is language, and what do we do in the whole field of linguistics. So, to answer that question based on what you know by now with all kinds of discussions that we have gone through. Language is really a fascinating human capacity and it is a system in itself. It is not an arbitrary thing, it is natural to us and humans have specific capacity to speak. That capacity is rule governed and it happens to us.

All aspects of language, all kinds of rules operating under language and all aspects meaning whether it is a phenomena of human mind or whether it is a social phenomena, whether we are looking at rules of sentences words and sounds or the rules of language used in society. It broadly speaking for E language and I language that is external language or internal language all kinds of aspects related to language that we study is going to be the domain of the discipline called linguistics. This is what we have we have seen so far.

We started looking at what is it that happens to us, when we end up internalizing this whole phenomena without realizing much about it. What is it that when we say language in a way develops in us it happens to us, it is just like a child grows incrementally language develops this is exactly what we are looking at. We will we will look at it in little bit more details and continue looking at some more aspects of it.
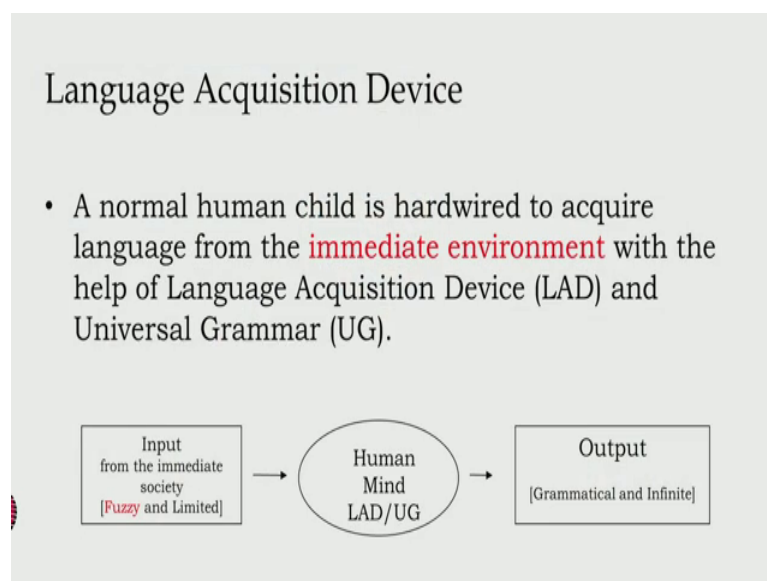
So, this is the particular scheme of language acquisition, which is every human child is born with this capacity to acquire language. There are lots of questions related to it why do other species not have language, do they really not have language do they not communicate with one another there are there could be lots of questions related to it to this aspect, the moment we start saying every normal human child is born with this capacity to learn a language.

To put everything aside right now, all we can say is a we are not talking about other species and b we do not know much about other species and we cannot blame anyone for that, because we do not know much about human language right. Remember some of the questions that we raised when we were talking about connections between language and human mind, then we really do not know which part of human mind actually functions for language. Neuroscientists with lots of efforts, kind of know that set of specialized set of neurons are responsible for different kinds of activities, but we do not know which set of neurons are responsible for language.

We do not know where there, there is a set of neurons that is responsible for language or not. So, we do not the point is we do not know much about human language. So, if we do not know much about language or communication system of other species, this is not a big surprise we should, but if we do not what can we do about it do about it. So, all we

can say we do not know much about other species therefore, we are not talking about them.

We are not saying that they do not have conclusively; however, some linguists some people studying language can tell you conclusively, that did either they do not have you understand the meaning of they either other species do not have language or if they do that system is very limited in it is functioning. That is like when dogs bark, that has a very limited function that that could be interpreted in couple of ways. It is like traffic signals when we have the red light it has a particular interpretation and when you have an yellow light it has a particular interpretation and when you have red light it is has a particular interpretation. So, that is also a language in a way, but those are limited in it in their function, they are similarly communication system of other species are probably limited in their function.

But I would like to take a point take a position then we do not know much of much about that therefore, let us not even worry about them. What we know or what we what researchers have tried to understand what happens to humans and in that we say we this is the beginning point which is of course, hypothetical as I have told you last time that human children are born with this capacity that is point number 1. Point number 2 that capacity is called language acquisition device, which is not a physical device it is a hypothetical thing and this is what we mean when we say we are born with the capacity to acquire language. So, we are born with this language acquisition device.

This device happens to have two things two parts of it, one is principals and the other is parameters and languages are structured around these principles and parameters which we are going to unfold and see very soon with various different examples.

What else happens to this is this the set of principles and parameters together is known as universal grammar, and that universal grammar refers to knowledge of all aspects of language of humans, that is all languages of the world could be hypothetically part of that that universal principles of language which is embedded in language acquisition device all right. It make making sense so far and then when a child is born, it operates it functions in a society and by society here we do not mean a much larger society whatever the child interacts with and that child acquires the language of only that society. We have empirical evidence that a child acquires the language of that society based on

this empirical fact what again has been proposed that the input child receives from that immediate society functions as a trigger to language acquisition device which eventually triggers universal grammar and triggers when we say trigger, we mean triggers the rules of that language that unfolds such rules and that unfolding is called acquisition and then the output is the same language.

There a child is based on this hypothesis based on this functioning of based on this idea of language acquisition, we can say probably a child will be able to acquire all the languages of the world can we say that? However, there has to be a condition for them and that condition is if I speak Telugu, only because I grew up in Telugu speaking area my immediate society was speaking Telugu. So, if I grew up in a society and my society was speaking all the languages of the world, then I will be speaking all the languages of the world.

Only on the basis of that point, it can hypothetically be said that a child will be able to speak all the languages of the world. And this is not a small claim that this hypothesis, this acquisition principle is making this is very tall claim. The strength of this tall claim is it is not empirically falsifiable; we cannot falsify this claim why can we not falsify this claim.

Student: Because Pawan has experimental with a term there is no such area also where (Refer Time: 11:11).

Its it is not possible for anyone to show a particular area that look, this area speaks all the languages of the world, but children living in that area do not have speak all the languages of the world, get this? Therefore, this will not be falsifiable and however, on the other hand, we do see that if a child is growing up in areas like Delhi, it the child easily speaks Hindi, Punjabi and let us say if you look at more a specific areas of Delhi certain places like Green Park is speaks Bangla. So, a child growing up in Green Park will easily acquire Hindi, Punjabi, Bangla and if it if the child also interacts with English they will acquire English. So, whatever is the languages around the child has absolutely no difficulty in acquiring such languages therefore, the role of immediate society is very significant for what the child acquires.

And again I want to underline and draw your attention to the fact, that children do not acquire Tamil Telugu Hindi Punjabi or at least they do not know that they are acquiring

Tamil Telugu Hindi Punjabi, they are acquiring the language that is spoken to them and therefore, they speak whatever they speak all right good.

Another important aspect of that acquisition is, I think we briefly underlined this thing last time when we were discussing this that it is not very the input is not very sophisticated, you understand this when we say input is not sophisticated that is input is not really very clear. Input is not sufficient which is this is what we mean when we say input is fuzzy and limited in it is quality and quantity both. It is really not clear.

However when the child starts speaking something, it is perfectly grammatical and infinite. I am going to send you a paper on the on this particular aspect and I would like you to take a look at it is a easy reading by ray jackend off, which takes you through several steps of language acquisition and how child how a child incrementally starts developing language. There is a claim in that paper it is its part of a book which is about biological foundation of language in the mat in the timeframe of 18 months to 24 evoke, the total strength of vocabulary among children grows from 70 to 100 words to 10,000. 70 to 100 at the age of let us say 17 or 18 months by the end of 24 or it is there is no hard and fast line of 24, 25, 26 the amount is approximately 10000 does this not sound surprising?

So, and that he brings as an evidence that the output through different stages and when we moved to a particular stage really becomes infinite and then it keeps growing and growing to the extent that we do not even know how much we know how many things we know about language and then when the child starts speaking we continue continue and never stop, that is the meaning of infinite grammatical simply means. What is the meaning of grammatical? Here can someone say can someone tell what is the meaning of the word grammatical that you in general understand anybody.
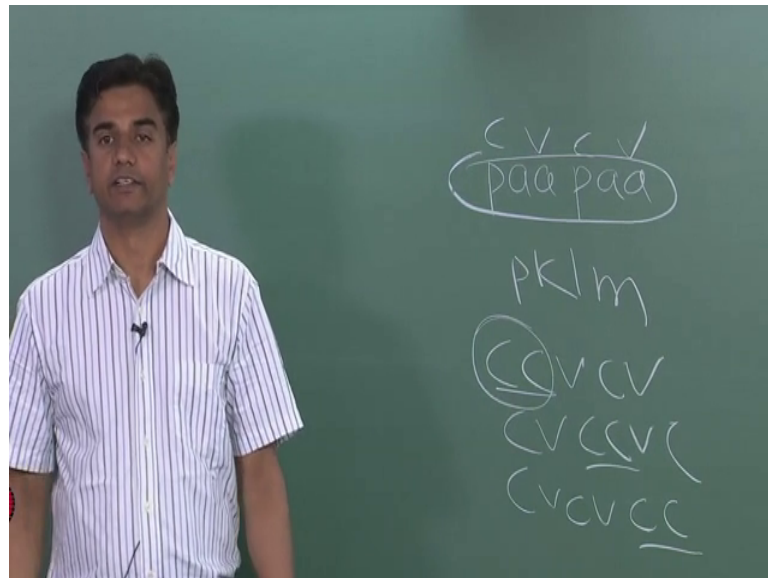
Student: Proper structure (Refer Time: 16:22) proper structure for sentences.

Proper structure for sentences good words right.

Student: (Refer Time: 16:31).

Yes grammatical here also refers to you right proper structure, but then we need to know what is the proper what is that proper structure. Grammatical here also means acceptable;

that is an acceptable is commonly agreed between people. So, when a child says something after a certain point, we do not say that we do not understand and that is also grammatical in the sense that at the level of sound what happens is see if there is a word which is like.

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See this thing this is like this is the word like [FL] what through these kinds of things what children figure out and this is what is what refers to underlying patterns? Is this pattern that a word requires a consonant a vowel, a consonant and a vowel. You will not find any child saying things like what is this word anybody? You do not know can you say this word at least no do you know why you cannot say this word.

Student: (Refer Time: 18:24).

Does not have a vowel right this word does not have a vowel now what I want to tell you is children do not learn I mean of course, they learn [FL], but what they are not learning is not individual words, what they are figuring out is the underlying pattern of word formation that is bay and again this happens on the basis of this limited input. As I have told you just now that until the age of 20 18 months, whatever a child goes through has only a limited vocabulary of let us say 15, 15 to 20 to 30 to 70 words, it jumps exponentially at a particular stage during a particular timeframe.

Now, that gymnastics is not that important, what is important is what happens is this, this is cleared that that you cannot have a word which does not have a vowel. What the child also figures out that not every word is going to be consonant vowel, consonant vowel consonant vowel. That is what the child figures out that they are going to be a words which are going to be like this where you may have two consonants as a cluster in the beginning, the child also figures out that at times you may have two consonants of two consonants as a cluster somewhere in the middle of a sentence, and then probably we may have a cluster at the end of it too.

However again based on the same input which is for every child of every language of every place on this planet, input remains fuzzy and limited. But on the basis of the same thing a child figures out that probably the language that is being spoken around me does not allow a cluster. The example that I was trying to give you last time was from Punjabi that, Punjabi is speaking children who acquire Punjabi or are growing up in Punjabi speaking areas try to simplify clusters even from the languages which may have clusters and therefore, words like school becomes sachool for them or they end up saying school; words like scooter becomes sacooter get it.

So, they and they have figured it out get this point? That that is what I am trying to say that the input is limited fuzzy, output is grammatical. So, the when a child says the word like [FL] it is a perfectly grammatical grammatically acceptable pattern of words that the child is producing. Right now we are talking about pattern of grammaticality at the level of word, but the similar kinds of pattern patterns are visible at every stage.

Grammatical also means sacooter and this is important for me to underline to you here. The when a Punjabi speaking child says sacooter, this is a grammatical pattern for them does is this making sense to you why is this a grammatical pattern for them because.

Student: Because it is accept acceptable in (Refer Time: 22:42).

It is acceptable pattern for them get it therefore grammatical does not refer to what I think is right, geometrical also refers to acceptable patterns and then there are overlaps between grammaticality and acceptability which we will get to some other time. Along with the paper from ray jackendoff, which you should read which is a nice reading you should be done it is a very interesting reading as well you would not stop reading it if you are interested in looking at how development takes place. I will also send you the

book that has these things in it Lillian Hagman's book on government and binding theory, which is about principles and parameter. I did not find it in the library website and if it is available it was showing one copy, but it must be somewhere, but I will send you the electronic copy please keep that copy and not only just keep that keep reading that all as well.
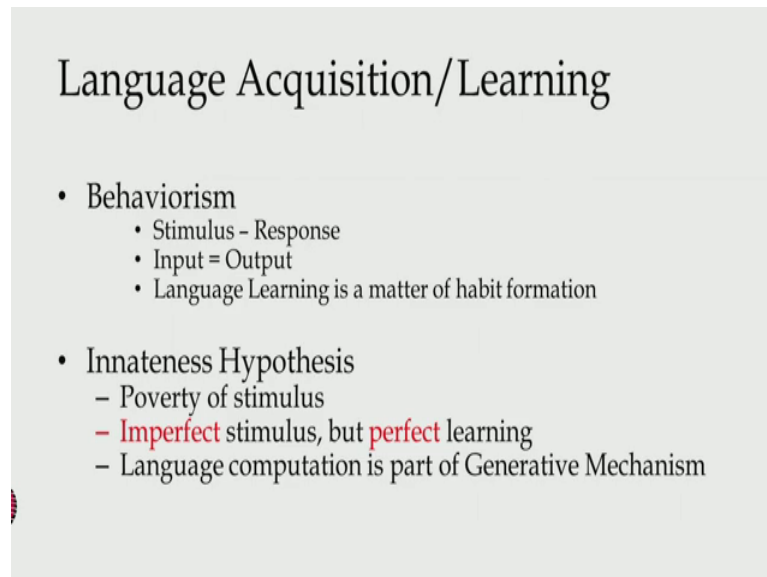
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Now, moving ahead from here we have seen these things in the sense that, language learning is really not very complicated for children. It happens normally, it happens on it is own, it does not take much of effort, that is exactly what we mean by language learning it is childs play and what I do want you to understand that there are some key words that are important here, key word is effortlessly. There is no effort that is being putting, it happens without specific instruction. These are the two key points in language learning, when a child is learning a language effortlessly without any instruction based on limited input from the environment output is infinite and grammatical. The role of human mind that is language acquisition device that is universal grammar and it is components as principles and parameters are responsible for this.

Before this theory before these principles came in to existence people did not pay proper attention to the role of human mind in understanding language in acquiring language. This is why we say language learning is a special type of cognitive ability, this is the things that we have discussed that we learn other kinds of things like singing swimming

dancing flying and ends various other things when we are grown up therefore, those there is a clear distinction between language and everything else and on the basis of that we say language has a specific special purpose cognitive ability.

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Just now what I told you people did not pay attention pay much attention in the acquisition of language and particularly the role of human mind in it, so they simply be simply be he believed that we learn through practice and this is referred as stimulus and response. So, you hear something that was called stimulus and when you respond to that learning takes place. So, a child listens to the word [FL] and it says [FL] it finds out [FL] says [FL] says [FL] keep saying these things you learn this.

Now, we are not trying to laugh at this thing, we are only saying that this was based on limited observations, this was based on not much of effort was put into understanding language and the simple thing which was not looked at was how is this that output is not equivalent to input, where the proposal from the theory would say the input will be the output will be equivalent to input which is not true at the age of 5 and 6, you see the output is infinite. Probably a child would not have gone through that much of input in 5 years of age 4 years of age.

So, how is that possible this was not paid much attention to and they believed that it is a matter of habit formation, that you keep repeating things you hear things and therefore, you learn it. Even now when you ask people a lot of not lot, but in a simple way how do

you think we learn language. Lot of things people would say without knowing the term behaviorism or a stimulus and response.

What whatever people are going to tell you is are going to be around these things, that we listen to things we repeat things we learn from our parents, we learn from people around us see huge part of that is true, it is not that everything that they are saying is not true. The only thing that we are not people we are not paying attention in this was the role of human mind in it. And therefore, this when people started looking at the role of human mind that that is called innateness hypothesis, where you we have you have seen how it how it works and then it becomes really a critical thing. And therefore, you must have I can say heard, but you must have studied that human mind is different from minds of other species. One of the ways in which it is varied it is very different is language, that we do not know much about that is the part of human mind responsible for language learning that is which part of it is responsible for language learning is something that we do not know.

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- With the help of inbuilt Language Acquisition Device (LAD), a complex system and generative capacity miraculously develops.

- This process is fast, effortless, and requires no instruction. It recognizes patterns, develops rule, and generates a perfect system called Language.

- Results into a body of knowledge – 'Knowledge of Language (KoL)'.

Now, I want to come to this last part we have already covered most of it. So, see did deducting the rules that is deducting abstract patterns from the available input right is actually what we mean by language acquisition, that is I am listening to words and of course, I am producing physical words like [FL] and [FL] and all other words; however,

what I am what a my mind is actually doing is deducing abstract principles of words word formation.

The capacity to do so, is called generative capacity get this thing? So, you are you are going to hear this word, you are going to read these words in many chapters that you are that you when if when you look at the book, you are you are going to find this word generative and it is important to understand generative simply means the capacity to deduce to deduct rules and then the ability to produce new things on the basis of those rules. So, if we have other words like on of this pattern.

So, what we know is this pattern that is, it is an acceptable pattern of word formation which is cv; cv that is a very regular and productive pattern. Once we have acquired that then we can come up with n number of words through this thing. Every word every sound that you are going to fit into this every set of sounds that are going to fit here are going to be grammatical an acceptable pattern may not be in one language, but definitely in some other language.

So, can you come up with the word on the pattern of these this which you may not have heard so far? You are smart engineers can you do you understand my question. So, on the basis of this pattern, can you come up with a word which you think you may not have heard so far?

Student: (Refer Time: 32:42) [FL] x a x a.

So, that is that will be [FL] say it loudly I did not hear that.

Student: [FL].

So, we remember we are not talking about how we write it we are talking about how we say it. So, the word will be.

Student: [FL].

[FL].

Student: (Refer Time: 33:09).

[FL] have you not heard this word before [FL]? It we may not be writing it with x a x a, but the word [FL] means.

Student: Go.

Go.

Student: Go.

And [FL] means.

Student: Go.

Some something of that is are right here we have heard that word you can do much better than that try. Something that you we you think we have not we may not have heard, no I let me keep telling you while you are working on this and when you the moment you come up with that raise your hands and I want to get that word.

Though all I am trying to say that even though you have not heard that word it does not mean anything that is an acceptable word, and it is likely that word will acquire some meaning someday not necessarily it will acquire, but it is a possibility, but that will acquire some meaning someday also. So, that that part of word formation tells you that association between the meaning any word is also not really that important. It is just a coincidence that rest of the words that we know has association between the word that is a product of this pattern or this pattern or this pattern or any other pattern and what it refers to. I am talking about something where I need your attention, I hope you understand this thing that it is a coincidence that that connection exists in lot of them at the same time it is also possible that for a lot of such words this connection does not exist that is there is no object associated with those words; however, they are possible words.

Simply because they follow a particular pattern; however, some sounds that you may be familiar with if they come out of unacceptable pattern, that is neither going to be acceptable as a word and therefore, it is almost negligible as a possibility that that will acquire any kind of association with any object or a or that as a word. I hope this is making sense to you now I am giving you this example to indicate what I mean by generative capacity.

What I mean by the word generative? The word generative simply means the capacity to deduce to deduct rules, the capacity to understand patterns and the ability to use that pattern for new words, and this is the capacity that is responsible for infiniteness of what we do as language. And that is the capacity which makes distinction between innateness hypothesis and behaviorism that in behaviorism that capacity was missing that link was missing. I mean not that people would not learn language the way that that we are learning people were learning language the same way it is just that we did not understand, we did not have things to say that we are saying about saying about now ok.

People who are learning language the same way, it really did not people did not care whether you call it behaviorism or innateness they were learning the same way ever since. It is just that we did not know that how does this happen that we have this infinite capacity to come up with words. The only thing that innateness hypothesis has done is it helps us understand that it is our generative capacity that is responsible for any word any sentence that we may be speaking. In fact, we can also come up with words that may not have any meaning, but may be acceptable pattern may be accept, may be acceptable word.

I hope this is generative capacity is clarity, we will be giving lots of examples of such things you did not come up with a word of that sort it is if you did not come up with that word, work on that word which we may you may not have heard and that does not have to be from English or Hindi that could be from any language.

And this capacity develops miraculously, I have just given you an example of 20 e18 months to 24 months, I am going to send you a paper you will you can see that. So, the important claim is this generative capacity miraculously develops, this is what we mean when we say language happens to us language develops in us. That is the capacity to deduct rules is the meaning of language learning and this is the capacity which is responsible for in for infiniteness.

I have told you about the words like effortless and other things you can see in the second point, this process that is this process of deducting rules it is so fast. So, effortless that it requires no instruction this generative capacity recognizing patterns develops rules and generates perfect system called language, this is exactly what I have been underlining so far and I will be giving you more more and more examples of these things and these

things. I am going to come to this pattern very soon when we have looked at sounds. So, maybe very tomorrow we will look at sound systems.

Now, this whole body of rules that we this whole capacity that we know a generative capacity results into the bulk of things which is called knowledge of language and knowledge of languages are under inverted codes, which means knowledge of when we say knowledge of language in the field of a study of language we do not mean the knowledge of Tamil Malayalam, English or French we mean the knowledge of these rules, the knowledge of rules that are responsible for infiniteness get it.

And that rules that that rule refers that rule also means that see we know all those rules that is when you learn you when you a learning words as a child, you had also figured out this thing I had figured out these thing every child everybody figures out these things, but if someone tells us how did we start learning words it will not be possible for us to tell them the first I figured out cv cv pattern.

In fact, we cannot even list all the sounds forget about abstract rules. So, knowledge of language has this specific thing which is it is a of course, it is an outcome of universal grammar, universal principles, parameters and all those things, but this is the specific thing that we need to know about it. It is a specific set of rules that we have internalized long time ago that is we know all such rules, but we do not know that we know them if we did not know those rules we would not be able we would not be speaking get it, but I do not know all those rules, I mean I do not know that I know all of them it is impossible for any human being to list them that is also part of generative capacity that is exactly what we mean by generative capacity.

Look at the second point third point rather here does the sound to you do you agree with this that these underlying rules help generative mechanism of a native speaker speak unheard of sentences, and enable them separate grammatical sentences from ungrammatical ones right.

So, if someone makes any error anywhere right and I am not giving you any example because I want to keep it open for all the languages. So, check with your language someone makes an error, how long does it take for you to figure out that an error has taken place. So, Sandeep right and I as I have asked you many of many of you understand Hindi right. So, and I am giving you a Hindi example because I speak and I understand Hindi. So, if I say Sandeep [FL] that a good sentence no an error has occurred how long did it take you to figure this out

Student: Instantaneously.

Instantaneously we do that right. Now it will be unfair to a lot of people if I ask this question to a lot of people now what is this error about. So, what is wrong with the sentence that that is and that could be an unfair question because I do not expect every speaker of language to understand significance of grammatical agreement in terms of gender that is not important, but the fact that in error has occurred takes no time that is in a that is a result of generative capacity that is to separate grammatical ones from ungrammatical sentences.

Within no time and even if someone is speaking very fast you keep paying attention to that if that person keeps making if there are patterns that are not acceptable and someone is saying you immediately figure out that this person is not a speaker of the language that he is he is speaking that is at least not a native speaker of that language. I will talk to you about native speakers and what we mean by nonnative speakers and native speakers some other time right now I want you to understand these points that I have highlighted for you and also hum I will come to that in a moment.

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- Linguistic Computation and Human Cognition uses socio-culturally grounded context.

- The knowledge of language that grows in human mind is not an out come of stimulus response; rather it (KoL) is part of generative apparatus as a special kind of cognitive ability.

- KoL has got serious consequences for Language (second) Teaching/Learning and defining language as multilinguality on a continuum.

So, see look at the first point here I know we are running out of time, I will stop in couple of minutes linguistic competition and human cognition uses socio culturally grounded context. Now there are three part three phrases here linguistic computation human cognition and socio culturally grounded context. These are not complicated things I just want you to understand linguistic computation simply means activating generative mechanism that is how we come up with sentences how we speak something that is linguistic computation which is part of human cognition that is all that computation takes place here. And we are not even aware of that come that computation when it is going on, because at every single point nobody knows what you are going to say next that is I do not have a sentence for the next moment I come up with the sentence instantaneously.

So, these two things have a great have great coordination between them human cognition and linguistic computation; however, what is important for someone to be able to speak

properly and to function in society with the explicit knowledge of e language is not just these things, but also socially socio culturally grounded contexts that is what is appropriate and what is not appropriate. Remember the other day I gave you the I asked you the example of the when how do we say when someone dies there are different ways of saying things one is acceptable the other may not be one may be appropriate the other may not be appropriate, right

So, what is appropriate is acceptable what is not appropriate is not acceptable. Now not necessarily what is not appropriate is ungrammatical get it, what may not be appropriate may not be acceptable, but maybe grammatical. So, grammaticality is not the only condition for acceptability and appropriateness when we put the coordination between grammaticality acceptability and appropriateness that is part of what we know is socio culturally grounded context my point here is, first two parts linguistic computation and human cognition refers to I language socio culturally grounded context refers to e language. Now my point here is both are part of generative mechanism that is we do not learn about appropriateness and connection between grammaticality acceptability, and appropriateness separately they come together get this point should not be very should not be very difficult.

Therefore, all of them are part of generative mechanism. And the knowledge of language that grows in human mind is not an outcome of stimulus response that I just told you that is not part of behaviorism rather it is part of generative apparatus as a special kind of cognitive ability. And third point is not really that important for us, I mean it is an important part that knowledge of language has got serious consequences for learning and teaching where we need to understand what knowledge of language actually guarantees is that continuum. That why it is difficult to name a language right which is part of external language. Remember the continuum that we have we have talked about knowledge of language in that continuum is embedded in knowledge of language. So, names of languages as external manifestations are our creations, what we know are just language.

I stop here. And we begin talking about sounds tomorrow.