

**Indian Institute of Technology Madras  
Presents  
NPTEL**

**National Programme on Technology Enhanced Learning  
Introduction to Modern Linguistics  
Lecture – 1  
Introduction  
Prof. Shreesh Chaudhary  
Dept. of Humanities and Social Sciences  
IIT Madras**

Good morning welcome to this course in introduction to linguistics today we will be talking about the objectives of the course. Why we should do a course in linguistics? how it helps us are there any practical advantages and that sort of fails I hope you will enjoy the course please relax and listen and ask me if you feel like if you have any doubt ask me to help or answer you will get along right why a course in linguistics how does it help you particularly those that are students of technology.

That are the students of Sciences or anyone else for that matter well there are you know two kinds of answers one classical answer is why not any body of knowledge any organized body of knowledge is helpful and knowledge has no boundaries we do not know where one ends and the other begins can you tell me where physics ends and chemistry begins can you tell me where history ends and literature begins can you tell me where economics ends in politics begins these are man-made boundaries knowledge.

In any form is useful is enlightening is you know enhancing it enriches you it enriches you more than wealth or physical power enriches you okay you can do without wealth you can do without physical strength you cannot do without knowledge human beings have been gifted this unique opportunity to cultivate and acquire knowledge you can put knowledge to any use from very mundane to very highly philosophical okay it is entirely up to you but you know acquiring knowledge is a pleasure in itself it is like going to a concert listening to some good songs people will ask you what is the benefit?.

Well what is the benefit of listening to a good song good music it is a pleasure in itself of course it can have some practical uses for linguistics also you can have some practical uses I was telling you yesterday that you could do engineering with it imagine you make a machine which

understands natural languages like you and I do which answers and speaks reads and writes recognizes voice and handwriting like you and how can I do imagine the kind of revolution you will bring in the world after all technology is all about.

Challenging the impossible you know in the realm of technology there is nothing like impossible who could have imagined in 19108 and 19109 or 19113 that 100s of people will be sitting in the comfort of their drawing room and flying across the world in no time at affordable cost maybe your grandchildren will go for summer vacation on the moon or the Mars or anywhere you know when I was your age when I was 20 or 21 it was unimaginable believe me at least in India that.

We could have a something called laptop put 6000 books here or 12000 books here and carry anywhere you like our Internet or email or a whole lot of other things or watching cricket you know there was the only way radio gave running commentary on cricket matches and we sat next to the radio sets listening to some commentator telling us that polygon rigor is now taking a catch or Farouk engineer is now taking a catch but today you can watch it live any part of the world any word you know that is engineering but for that kind of engineering to happen you have to look a whole lot of theory a whole lot of theoretical stuff similarly.

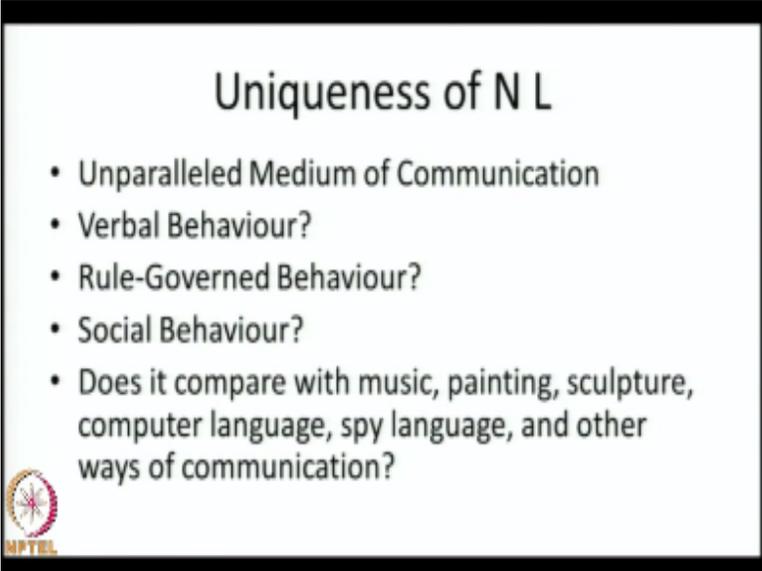
If you want to do something in language okay make a machine that recognizes the number of words make a machine that recognizes words anything you know anything you will need to know about natural languages so I would not I will not like to talk about applications of this knowledge because applications are in finite unlimited it is the only restriction there is your imagination and your intelligence you can put knowledge to any use you can write better letters if you know about language you can write better letters to your friends to your mother to your father the same two lines will please your father or mother or friend immensely they may like to keep those two lines forever you know the applications.

The use of knowledge is unlimited that is why you may remember our scriptures say let knowledge come to us from all sides have you heard of this Slocan in Sanskrit what is it in Sanskrit in Sanskrit it goes like the following on overdraw karat young to petite let knowledge come to us from all sides so this is another body of knowledge on this course we will be talking about two things number one is natural language unique different from lots of other languages you know we hear of languages every day the language of machine the language of a spy's the

language of codes the language of birds the language of animals the language of a variety of kinds and there is the language that you and I use and then you know.

The second objective of the course is to talk about this structure of language is it a structure does it have a rule is there some way we can take it apart and put them together like a motor car like a bicycle like a rocket that goes into outer space can we take it apart put the components one side and then put them back together that is the objective of this course let us look at them okay natural language actually is unparalleled medium of communication.

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The slide is titled "Uniqueness of N L" and contains a bulleted list of questions. In the bottom left corner, there is a circular logo with a red and white design and the text "NPTEL" below it.

- Unparalleled Medium of Communication
- Verbal Behaviour?
- Rule-Governed Behaviour?
- Social Behaviour?
- Does it compare with music, painting, sculpture, computer language, spy language, and other ways of communication?

Nothing absolutely nothing as we know nature today or if you believe in God as we believe in Gods world today mankind is unique, mankind is different, mankind of womankind, him Humanity is different from animal world primarily because of the ability it has in language whatever we do together war or friendship building a hut or building a mansion or building a bridge or building anything you know we do through language the cooperation the collaboration the groups the family the society the community the country whatever we do happens through language and there is no other medium of communication.

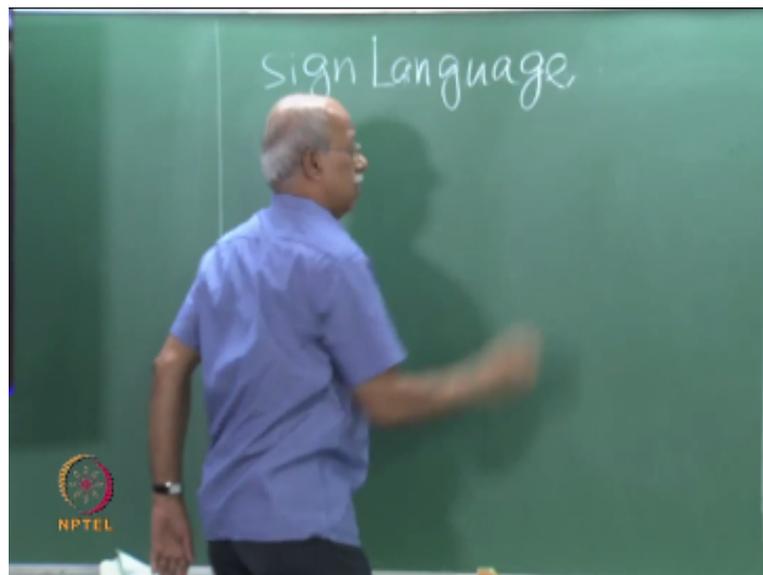
Which can come even close to the versatility the flexibility of language you can use language any way you can use language even when you are asleep right some people talk while sleeping have you heard of them yes or no yes or no please yeah do you know anyone who talks in sleep and even they talk grammatically correctly but have you heard of anyone who paints while

sleeping who does a sculpture while sleeping who does computer while sleeping have you yes or no please no we have not obviously you know because it is not so you and so language is unique it is a unique medium of communication.

You can talk in the dark you can talk underwater you can talk in the outer space you can be climbing on the branch of a tree and you can talk you can be swimming in a lake and you can talk but can you paint while swimming in a lake can you do concerts while climbing a branch of the climb of the branch of a tree can you do a sculpture any other medium of communication any other man-made medium of communication is nowhere close to language you can communicate even when you lose voice.

There are people who because of some defect or because we do not understand the reasons adequately are unable to speak ok even they communicate through gestures and they have fully-fledged you know the sign language as we call it okay.

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Sign language is another expression of natural language it is only that those people cannot hear and cannot speak but they understand and express themselves in natural language it is unique there is nothing that can parallel the versatility and flexibility of natural language. We will talk more about this you know maybe tomorrow how do we define language can you try can you give me a definition anybody please can you try you may not be right it does not matter classroom.

Is about the only place where you can make a mistake and yet you can grow I do not mean examination all I mean the classroom try can you define language come on do try what is language at least somebody please for the sake of the prestige of our Institute you know so that when it goes to the you two nobody sees or knows to Lingo so after all these are I ITV takes oh come on please somebody okay try I think that you feel like answering this question okay would you try what is language more common rules which everyone except for a time period.

That is as I am so the rules are integral to it you know it is rule bond many people call it verbal behavior it is a form of behavior but verbal you know by which is meant you know words language not written no writing is not common to all of us what is speaking is so it is a form of verbal behavior some kind well is it we will see is it rule governed perhaps yes much of you know a good deal of language though not entirely is rule governed you know for example take a language like Hindi lots of words have either to be masculine or feminine chair is feminine curtsy a chi hair table is masculine made achihay but there are sometimes exceptions.

Okay so you know much language or a good part of language is rule-bound okay it is a form of behavior so in that sense it is it social behavior do you use language only when you are with friends yes or no maybe quite often you know when we are with friends can you imagine two friends going silently together I have seen man and wife going silently together you know even without a quarrel but two friends going silently sometimes yes is language only a form of social behavior yes or no sometimes.

We also talk to ourselves we write we speak to ourselves we write poetry we write stories you know we constitute compose our thoughts okay so language is social and language is more than social it is all of us it is all around us it is inside us Outsiders we are surrounded by language enveloped covered by language okay how does it compare with music a painting or a sculpture you know arts or computer language you know computer language is complicated you have to learn it in a particular manner you have to know a lot of things.

Before you can learn computer language is that correct yes or no please okay, but in natural language there is no precondition you have to know nothing before you know Telugu or Hindi or English or Swahili okay as you are born you are not say okay, obtain a certificate in mathematics before you can learn Telugu nothing no preconditions it is the nature it is like oxygen around us all you have to do is be there okay so there is no precondition or man-made languages such as a

spy language a group language but natural languages are different okay they are all around us it is difficult to define it is extremely difficult to define natural language.

Why because definitions create boundaries definitions create limits limitations natural language has no limits no limitations okay how do we understand it in this we do try we will try you know like we are try and understand the universe we do not know where the universe ends we have not yet created a map of the cosmos but we understand some physics we understand some astrophysics and we make sense of that so similarly you know we do not know how much is covered by language but from the little that we know we will try and see.

What language is but it is difficult you know I have given you a list of books you will not find a definition of language in any book okay in the end our old sages also did not define language they said it was God's gift it was goddess Saraswathies gift one of the many names of Saraswathi is can anyone please tell me walk Devi walk is speech Devi is Goddess Saraswathi is the goddess of his speech she has given us by which our sages said we do not know our knowledge ends here it is natures gift God's gift or in India.

It is goddesses gift to us okay essentially that is what we are saying how can we study it well we know two things as in nature you know nothing in nature is such that is not rule-bound so here also language is also rule-bound okay anything that has a structure anything that has a system has two properties please right one is it has units what is a bicycle it has units the larger unit is it has two wheels it has a saddle it has a frame then you know wheels themselves have units what are the units of wheels somebody please okay can you please capture them can you please answer one by one.

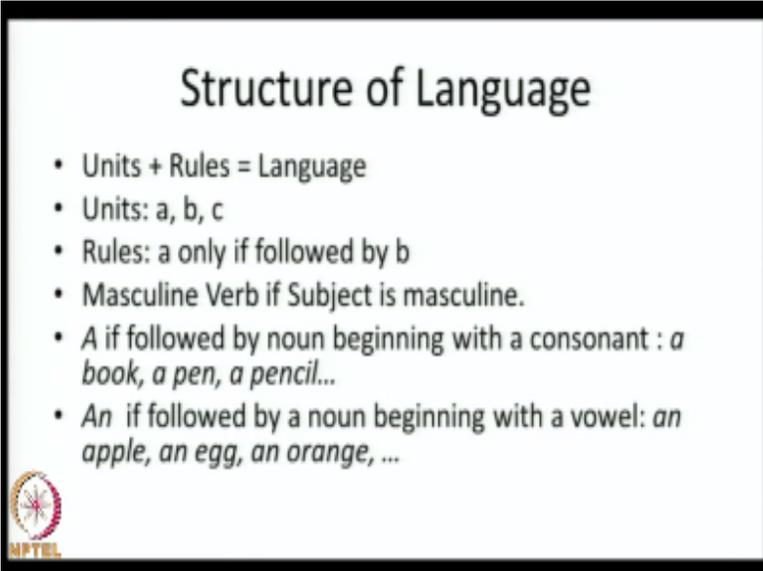
Spokes you can talk to the camera okay please then next what are the units of a bicycle wheel tires tubes themselves are a composition what are the units of tubes you have a valve you have a mouth the mouth has a hole okay come on give me what are the constituents of a bicycle wheel lots of things pokes a spokes are attached to a rim okay a circular rim and you know under the circular rim or over the circular rim there are other things so there are groups of units from very tiny to very large in the end as physicists prove it so easily we are all nothing but a structured collection of molecules atoms or nano particles.

So in language there are units and there are rules that put those units together just as in the bicycle there is a rim there is a tyre and there is a tube but there is a rule the rule says what comes first what comes next can you imagine putting the tyre first and tube next maybe your generation will build a bicycle is it impossible is it impossible we do not know you know engineering says nothing is impossible okay but as of today there is a rule you first have rim then you have come on please in the bicycle wheel.

What do you have after the rim - then tyre so there is a rule you know in that order similarly in language similarly in any structured space in any structured space you have units and you have rules that combined those units you will not have that body you will not have the structure you will not have organization if there are low units new rules this is true of social structures as well see we are a community here IIT Madras Indian Institute of Technology Madras community we have units what are our units we have students we have come on please speak up you know we have faculty.

We have teachers then we have administrators and we are all put together you know we will not be able to work if there are no students we will not be able to work if there are no teachers we will not be able to work if there are no administrators and there are rules which put us together which define our roles which define our responsibilities similarly in nature you know similarly in language there are units and rules units maybe A,D or C look at the screen okay the PPT screen.

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## Structure of Language

- Units + Rules = Language
- Units: a, b, c
- Rules: a only if followed by b
- Masculine Verb if Subject is masculine.
- A if followed by noun beginning with a consonant : *a book, a pen, a pencil...*
- An if followed by a noun beginning with a vowel: *an apple, an egg, an orange, ...*



Rules may be A, B or C but they are sort of units maybe A, B or C but there are rules combining them a only if followed by B or B only followed by C see only preceded by a there are rules like that say for example look at Hindi, or look at French, look at Hindi , you know if the subject is masculine then the verb has to be masculine if the subject is feminine then the verb is famous in Hindi you cannot say Larky Jot ahead and we have similar things in other languages okay singular plural okay if the noun is singular the verb is singular if the noun is plural the verb is plural you know in English if you talk about.

Only one person boy then you have to say goes if you talk about two people boys then you can say go you know so there are units there are rules say for example in English you can say a book a pen or a pencil but can you say an book yes or no can you say that you cannot say an book why not what is the rule can you speak slowly and please kindly take my friend I will smile and tell the camera please so before vowel sounds we have an give me an example an expression and umbrella and egg yeah and honor okay lovely really okay so you know there are these rules what are the units and in honor a hand book.

We put them together through rules so this language like anything else in nature is nothing but a structure of units following rules look at another example you know as I said any followed by a noun beginning with a vowel just an apple and an orange but you are a Gowah or Mango etcetera I said structures can be large like I said bicycle first you have wheels then you have frame now wheels themselves have inner structure they themselves have units so in language also you can go from very large to very small okay from tiny to the great okay our sages said that how big there is no limit they said Maha Tome hem it can be bigger than the big okay and how is small it can be smaller than the small unknown I am okay it can be smaller than One it can be smaller than Adam okay but they are all bound together by rules even in language you can go with you know the highest structure we recognize in languages discourse or paragraph.

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## Hierarchies of Structure of Language

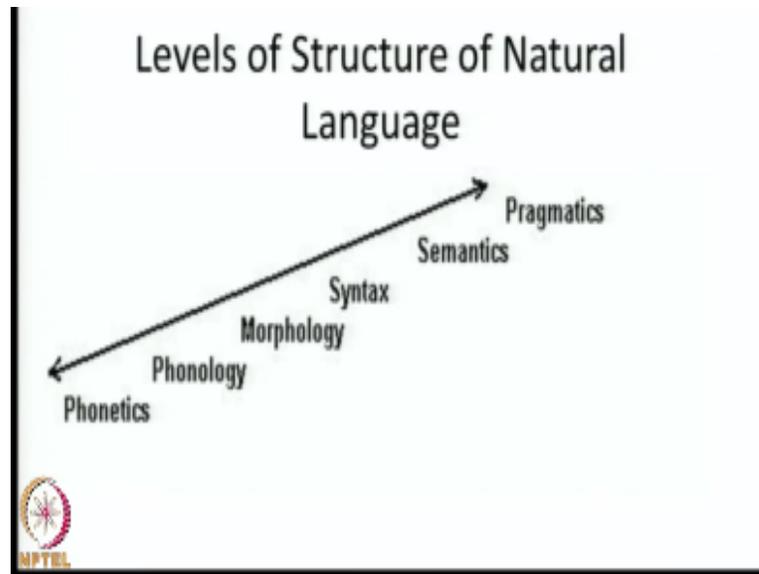
<u>Levels of Structure</u>		<u>Subject</u>
1. Discourse	↓	Pragmatics
2. Sentence		Syntax
3. Phrases, Clauses		Syntax
4. Words		Morphology
5. Syllables		Phonology
 6. Sounds		Phonetics

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Okay several sentences together the unit is smaller than that is sentence paragraphs are made up of sentences a discourse is made up of sentences themselves are made up of phrases we will talk about all of them phrases themselves are made up of words okay words are made up of syllables are made up of sounds so you know there is and sound itself is not one sound whatever you think is one sound whether a or curve a car or gay whatever is not one sound it is a bundle of several features on this course.

We will talk about the science of phonetics the production of his speech sounds and you will see that what we think one sound is actually not one sound is actually a bundle of 15 or 16 features at least put together you can think of,

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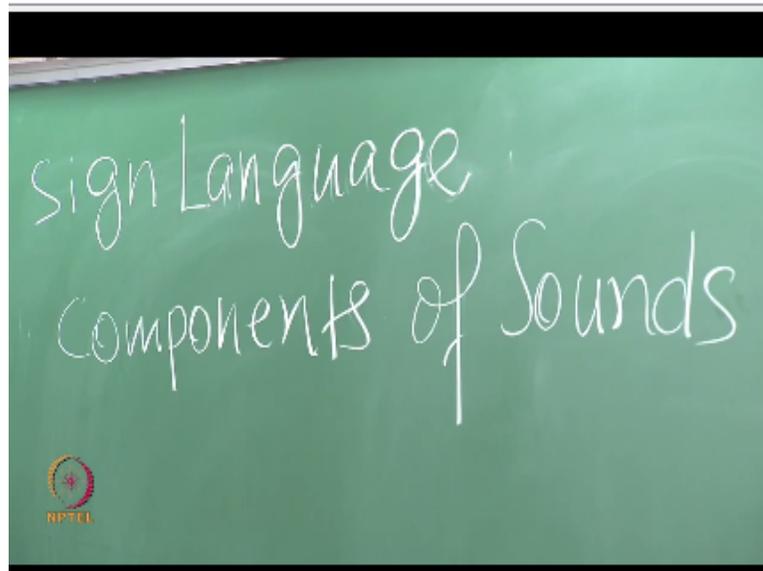
You know these are visual imagination it is not that one is at the top the other is at the bottom we do not know about the geometry of language we do not know about the trigonometry of language we do not know how it is organized we do not know whether we learn sentence before we learn word we do not know whether we learn word before we learn sentence it all comes together it is a package you know you take one you take all you take all you take one okay the only thing we know is that we can break the structure of language.

We can analyze it by thinking of these levels at one end is can you tell me what is at one end pragmatics the rules of social behavior okay language reflects culture if in that society gender is important then you know your language reflects gender if singular plural is important then it reflects singular plural in India in many languages verb is one kind for plural another kind for singular for many people says neingal ukkarungal okay in Telugu which a ucchae kuichandi Hindi we say bitiah sorry locally Akola byte kucha ukkaru okay it is important but if it is a king even if the king is only one person.

Or if it is Rahual Gandhi we cannot set out in the battle way Cossack thank you he is our future prime minister general secretary of a very important political party we cannot say that you know we say biteah ahiyah ukkarunga kuchandi okay so you know these are social rules so that is at one end now it does not mean it is hi you cannot say lot of people imagine it vertically highest rule lowest rule do you see the point are you with me everybody please are you with me right there is nothing like high or low we cannot see social rules are the highest we only can say that at

one end we have social rules at the other we have language rules linguistic rules if you break them apart one by one then you find in the end you are looking at components of sounds. Please right we you are looking at then you will find you are looking at components of sounds.

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Not even one sound okay sounds themselves are constituted of things in between we have semiotics looking at the sign language there is also a grammar of sign language okay looking at a structure of sentences syntax a structure of words morphology a structure of syllables sounds coming together phonology and individual sounds phonetics okay.

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## Structure of Language

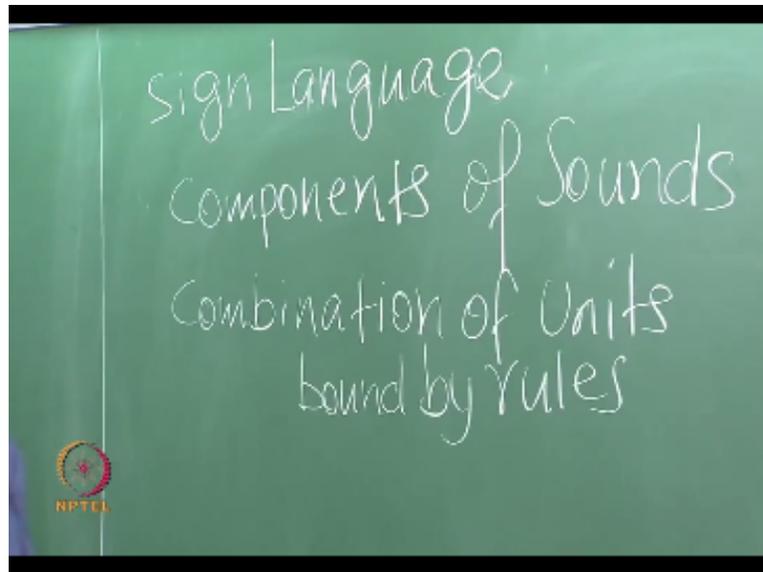
- Phonic Unit + Phonic Unit = Sound
- Sound + ( Sound ) = Syllable
- Syllable + (Syllable) = Word
- Word + (Word) = Phrase
- Phrase + Phrase = Sentence
- Sentence + (Sentence) = Discourse



Just as here you know when phonic unit one sound unit Phyllis another sound unit makes a sound we study it under phonetics and phonology sound plus sound makes a syllable we will talk about syllable okay that we study under phonology syllable plus syllable make a word we talked about that under morphology similarly you know we look at phrase plus play how a phrase is built and how it behaves how it goes with another phrase we studied that under syntax and there we study sentences sentence plus sentence.

We look at the discourse so you can go from one end to the other or from the other end to one but no matter what you do language like anything else in nature is nothing but a combination of units please write.

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Following rules combination of units combination of units bound by rules okay so we have units and we have rules you looked at the unit you can have sound the unit you can avoid unit you can a phrase unit you can have sentence unit you can have other kinds of unit's okay how do they work.

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### Structure of Language

- Feature + Feature +..... = Sound
- 1. Vibration of Vocal Chords + Pressure on the Root of Tongue + Flat Lips = /a/
- 2. No Vibration of Vocal Chords + Constriction of Pharynx + Open Jaws = /h/
- 3. There are many phonic features. They combine differently and produce diff. sounds.



Let us look at sound okay I will just give you one example what we know as ahhh please produce that sound ahhhh produce it okay keep your mouth open like that okay camera please kindly capture all the interesting mouths in this country okay now what happens is before you to

produce this sound several features come together first you vibrate your vocal cords say it once again everybody planes to it so there is if heee does not vibrate you will have no are let us see for example watch me no vibration low sound do it just let us say no do not libratory.

That is a do you feel any vibration you do not so that is featured move on next you have pressure on the root of your tongue when you say ah say it now say e again say ah when you say oh where is the pressure on the tip of the toe or the root of the tongue root of the tongue okay so that is another feature all of these are very interesting and significant features without them you cannot produce a particular sound not only that when you say are your lips are spread you say ah do you see or do you say that try round your lips and say ah can you do that round your lips.

And say II try and say you cannot do that spread your lips and say ooh spread your lips and now say can you cannot this is how nature works with simple things and this is the challenge for engineering can engineering replicate nature can you do better than nature imagine if cars had legs like human beings rather than you know wheels we will not read roads imaginary planes could take vertically suddenly you not flying will become cheaper than traveling by bullock cart two-thirds of the cost go towards maintaining airports if Bullock if flights could take off vertically every rooftop will have an airport okay and you could imagine how cheap it will become ok thank God it is not so cheap.

Okay so you know everything even an ordinary sound like ah has I have mentioned only four features it has 16 features when we talk about phonetics I will tell you how those 16 features come together so that we can produce a sound like ah similarly others are look at another sound curl as in-house as in heat okay look at now for to happen no vibration of vocal cords you just keep it switched off okay then we have constriction of pharynx your lungs constrict and then your jaws are open can you say with closed doors close your Johns and say you cannot all the different sounds all the different sounds we produce we produce people say 50 different kinds of sounds actually.

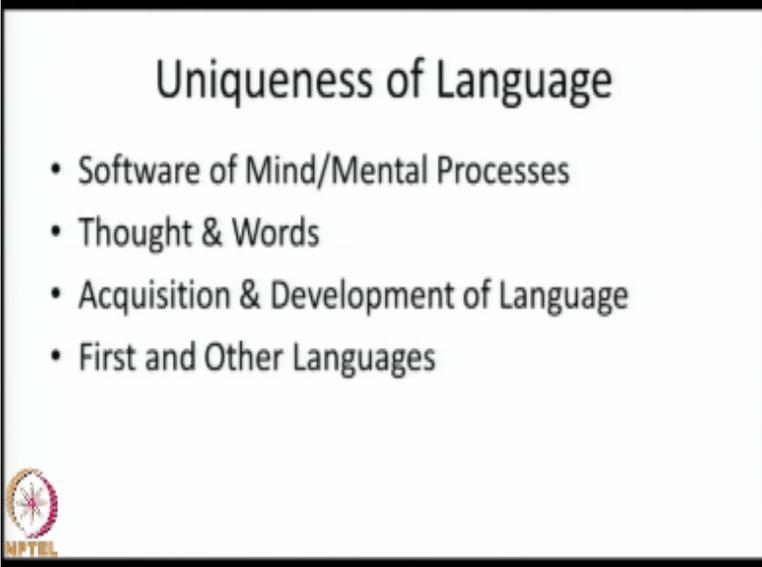
We produced 500 thousand million different kinds of sounds no two songs on no sound is spoken alike on two occasions what you speak at 9 o'clock is not the same thing you speak at 10 o'clock it is so dynamic into those who do engineering in speech talk to them go to computer science talk to they go to their speech laboratory and you will find that isolating this page characteristics of sound is extremely difficult challenge okay it is so dynamic because of these multiple features so

there are many phonic features they combine to produce a sound similarly there are features at each level at the level of word at the level of phrase at the level of sentence at the level of paragraph or discourse.

Okay and we understand them and then we describe rules come back to it you know why is you sound human you know natural language so unique so complex and yet so easy so complex and yet so is no mother sat down no grandmother or grandfather sat down with a grandson and told the grandson now open your jaws now beverage your vocal cords did your grandfather say that to you okay we do not but human beings imbibe it that is the word imbibe they acquire it they are programmed they are designed just as you know fish are designed to swim birds are designed to fly we may also fly some 2 meters 3 meters but not like birds we may also swim for maybe 4 or 5 minutes underwater without oxygen.

But we are not designed like fish so similarly you know we are designed such that we imbibe these features of language as we are born or even before you are we are born today there is overwhelming evidence a large body of evidence from medical sciences from neurosciences from child language that language learning begins inside mother's womb by the time the child is about six months in mother's womb you know the brain formation is complete and language learning has already begun okay.

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**Uniqueness of Language**

- Software of Mind/Mental Processes
- Thought & Words
- Acquisition & Development of Language
- First and Other Languages

 NPTEL

What is it in our in us that learns language is it mind which portion of body do you think has language is language in our finger which part of our body keeps language can you tell me and where is brain then what is mind please come on which has been mapped to specific areas in the brain sir I mean if you damage it something you cannot speak again but people relearn it in a different way sir then do they create another brain but usually it is very specific areas in the brain that is what we believe and that is where we are wrong okay.

It is all over our body you can listen through your fingers okay you can read through your fingers can not you sorry can you read through your fingers you can yes it is all over us that is why in the in our classical literature we do not use mind brain we use the word chaitana consciousness it is all over because you know even today we do not know where mind ends and body begins do you know that can you say up to here is mind you know our bald people have no mind or bald people have only mind can we say that we cannot say.

That we do not know where mind ends and body begins we do not know what is the difference between mind and brain we do not you know lot of there are lot of you know clever definitions some people say brain is the hardware mind is the software wonderful good to hear you know it makes a good essay but that is not truth lot of people believe that language as anuraag right said lies in the front left part of the forehead people call it Broca's area but there is enough evidence to prove that even that is not correct it can be damaged in an accident.

But through therapy you relearn it now do you by relearning mean it another part of the brain is built there is it do you acquire a new for it you do not it is all over mans we know hardly enough about mind brain and how language works when I come to phonetics and phonology I will tell you I will draw your attention to more problems in this area there are these problems we do not know enough all I will say is we do not know enough yet maybe in your generation your researchers you guys will acquire that knowledge and disseminate it to the world thought and words which came first can you think of anything without words.

Can you think of anything without words can you have words without thought can you have a word which has nothing which is just like a you know a bag a plastic bag carrying nothing thought has words have thoughts they go together what came first we do not know whether meaning or word whether word or meaning okay they are all together all we know is human

beings learn this acquire this language acquire natural language almost effortlessly there may be some instructions from family and friends about more about social aspects.

Okay uncle Capernaum below say good morning good morning to uncle poor you know 18 month old kid why do not you leave it free let it go around rather than teacher stupid you know good morning Goodman you know Namesake Monday chap indeed why are you travelling that little kid what do you know nobody tells that little kid now say passive voice have you have you heard any parent saying that but we all learn passive voice all of us in our languages also you know my favorite joke is whenever the milk was spilt my daughter said that her mother said you spilt the milk but when it happened.

Because of my wife says the Ray the milk got spilled due to Volga due to Georgia no hito to Nigel Adia okay we all have active and passive wise but did we did our mothers sit down and tell us today my dear son my dear daughter I am going to teach you how to use passive voice in Hindi or in Telugu or in Tamil they told us about social manners Thatha patty nana grandfather or grandmother you he gives you no credit to your father be kind to him these things were you know we are told but not about language we acquire it automatically and it develops with exposure.

The only thing that is required is exposure if you are exposed to language you learn language that is the only precondition otherwise human beings are designed to and yet there is difference all of us learn our first languages equally well but do why don't we learn subsequent languages equally well there are some people whose English and Telugu are equally good there are some people whose English is better than they are Telugu right when they speak Telugu it seems as if they were speaking English I know our people in Hindi.

When they speak Hindi it looks like they are speaking English you know Hindi English intonation English pronunciation as on aircrafts air hostesses they use an affected accent there are people lots of them whose Telugu is better but English is not as good right now why does this happen these are the questions for which we do not have answers okay so it is a very you know it is a challenging area of knowledge it is a vast body of knowledge.

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## Test

1. Express the following sentence in any other medium than language:  
*A brown fox jumped over a lazy dog.*
2. Divide the sentence given above in units going from large to small.
3. Write some rules that fix the joining of units above.



I will give this mail to Mahesh has will pass this on to you I have at the end put a test it self-tests give this test to yourself today and try and see if you are able to do it and then you will realize that this is language okay then you will realize that language is unique we may not know all of it we may not have a grip on it but here is the goal a challenge we have to learn okay you know the test is very simple take a sentence like a brown fox jumped over the lazy dog we can say this in any language we can say that in Telugu how would you say that in Telugu I can say that in Hindi hey Boora kuitha a kales lowber kudkaiya.

Okay ake katha whoa a gorilla Mary a kales kudkaie okay but can I say that in painting in music maybe some excellent people can but common and ordinary people cannot so do these tests okay I will circulate it to my I will give it to my hair cell my hands will circulate it to you okay thank you.

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Have a good day.

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K.R.Mahendra Babu

Soju Francis  
S. Pradeepa

S. Subash  
**Camera**

Selvam  
Robert Joseph  
Karthikeyan  
Ramkumar  
Ramganes  
Sathiaraj

### **Studio Assistants**

Krishnakumar  
Linuselvan

Saranraj

### **Animations**

Anushree Santhosh  
Pradeep Valan .S.L

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Salomi  
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Janakiraman .K.S

### **Video Producers**

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