**Lecture 1**

Introduction to Language

Hello and welcome to the course on introduction and psychology of language. I am Dr. Ark Verma, I am an assistant professor of psychology and cognitive science in the Department of humanity in social sciences and the inter-disciplinary min cognitive science, at IIT Kanpur. This is a course called introduction to psychology of language wherein we are going to talk about various issues where that are face when you are talking about how people understand language how people use language also how people acquire language, we will talk about various aspects of how language is understood in
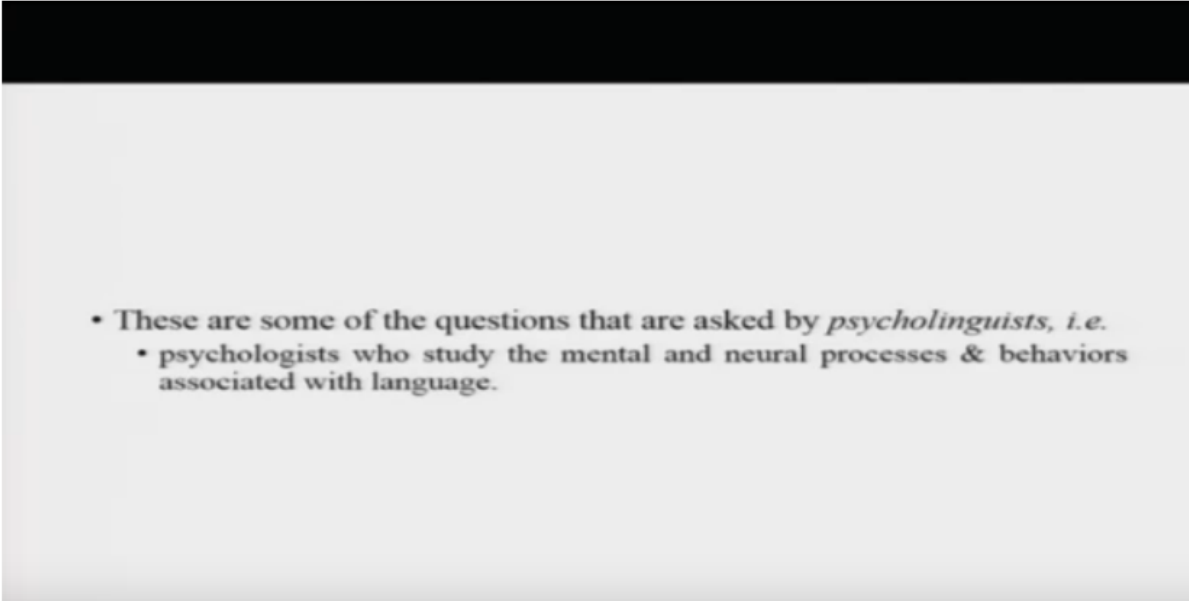
from the point of view of a psychologist, we are going to talk about the fact that how our human language is different from other communication systems like those of the animals what is it that makes human language special? What is it that makes this meaning to our species? also we know that language is very is language that is probably the most important cognitive function that we have using which we can communicate and talk to you know everybody around us man is a social animal and language is that makes this possible language is what makes communication possible languages what makes cooperation and some very interesting cognitive functions cognitive interactions possible with our species. So, in this course I will talk to you about various aspects of language that the course is eight weeks long as I have already told in the introduction video, this is the first week of the course in the first week of this course we will talk mostly about introduction to language the title of this week is introduction to language, we will cover five different aspects of knowing what language is about in this week in the five lectures that are yet to begin, in today's lecture I focus more on the question of what is language we might define language? In a variety of ways we might ask different questions to us and to the you know to linguists to other psychologists and what does it make you know what does it make this particular communication system, that we use and abuse probably to be called as language what is the definition of language? What is one thing about language? That apart from other communication systems. So, let us ask some of the basic questions that we are going to address this week well the first question is

Refer slide time :(02:36)
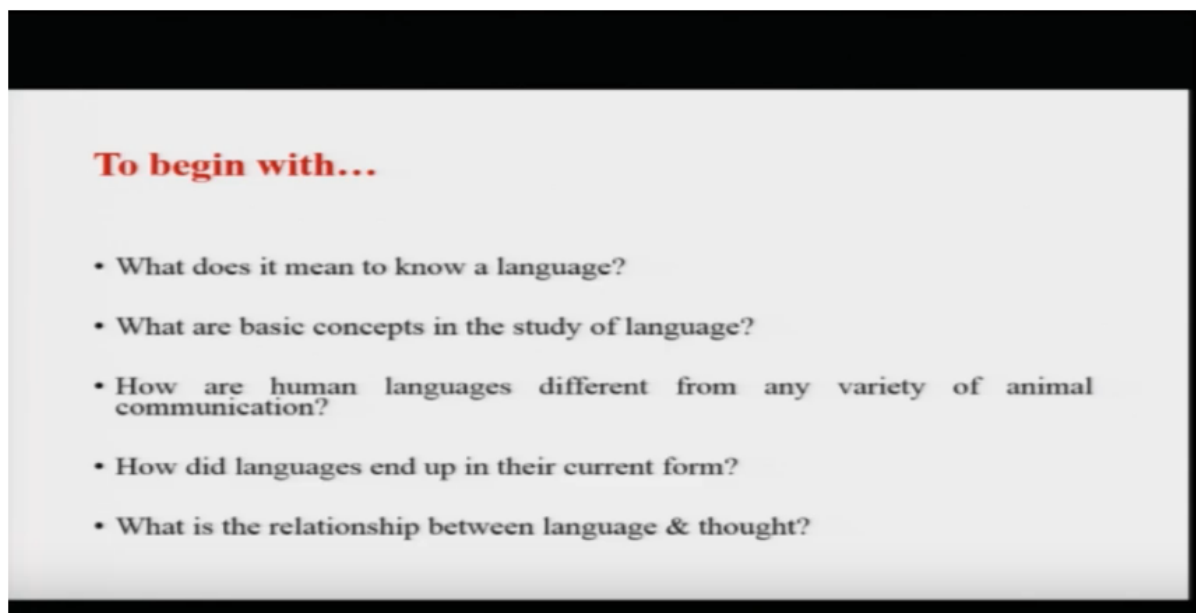
What does it mean to know a language? we know that animals around us and other species like insects and so, many other fishes and other mammals that we know of do have some sort of a rudimentary communication system some of them do have a very sophisticated communication system for example you know for example if you look at vervet monkeys, vervet monkeys make very specific calls of danger when they see say for example the predator on the ground versus a predator on air. So, what is it that makes this cognitive function? You know special what are the basic characteristics of this cognitive function? the second question that we are going to ask is in this week is what are the basic concepts in the study of language suppose you want to study and understand aspects of language as a student. What are the kinds of questions? That you are going to ask also we might kind of distinguish between what is it you know about language? That say for example linguists are interested in or for example psycho linguists are interested are they asking the same questions or are there questions slightly different we're going to ask all of these questions in the coming lectures.

The third thing is we will survey a brief range of animal communication systems we see to what degree you know they are sophisticated and to what degree of richness and gong and complexity they have and we'll try and compare them back to the human communication system and see if there are any differences worth you know caring, for we will also talk about how did languages come in the current form what is the story of the evolution of language? There is the point in history that you can look back and say that this is where language probably started. So, we're going to talk about all of that in some detail as well there are multiple theories of language evolution there are multiple perspectives on language evolution which come across from various you know scientists you know these who are working across these different disciplines. So, we talked about those questions also in one of these lectures. The final lecture of the week will actually be a the distinction or the relationship between language and thought it's almost a chicken and egg problem what comes first your thought about saying something or you're already made that sentence and then you're it this question can be asked in a variety of ways you know it's almost that's why I said it's a chicken and an egg problem and people have wondered about this as much. So, we'll talk about some of these evidences some of the perspectives from psycho linguistics that kind of illuminates this relationship between language and thought. So, these are the five lectures we're going to have in this week let's move ahead this the questions that I was talking to you about or say for example the questions the way these questions have been portrayed are basically the questions that are asked by this particular specific field of researchers refer to as psycholinguists

Refer slide time :(05:33)

- These are some of the questions that are asked by *psycholinguists, i.e.*
  - psychologists who study the mental and neural processes & behaviors associated with language.

psycholinguist are typically psychologists who are interested in understanding aspects about language, psychologists who are interested in understanding the neural and neural processes and the behaviours related to the acquisition use and comprehension of language are referred to as psychologists. This study and this entire course basically is also can also be referred as a course on introduction to psycholinguistics. So, let us move ahead

Refer slide time :(06:02

- Simple definition of language:

  - A system of symbols and rules, that enables us to communicate.

    - Symbols: sounds, words, intonations etc.

    - Rules: syntax or grammar.

    - Communication: of needs, wants, intentions, emotions etc.

Let us start by defining language. Now if you look at language it is a very simple system, it's a very simple system of symbols and rules. So, one of the ways of looking at language and trying to define language is to define it as a system of symbols and rules that enables us to communicate with each other. So, this is some symbols and rules enables us to express whatever we are feeling at any point in time and to get that message across to any listener or groups of listeners there nearby we can also say for example, write something and you know we can shout something and we can say for example using these various modes of communication the idea is to get the message across Now you set symbols and rules. What are these symbols? When you talk about symbols in particular language it begins with the sounds. So, the symbols that we are mostly concerned with are the sounds of the language they are referred to as phonemes we'll talk about them in one of the later lectures but the sounds are combined in some sense using a particular kind of a rule-based method let us say to form words. So, you have all of these symbols you have these basic sounds, these basic sounds, are combined into words and then these words are combined into phrases and then sentences and those sentences into larger paragraphs and speeches and texts that is what the symbols of the language are now any of these symbols cannot be combined in a particular systematic manner in which they can be comprehensible by others, unless there is a particular pattern to combining them unless there is a set of rules that you use to combine these symbols together to put these symbols together to form you know higher-level messages. So, the other and more the other important aspect of language is these rules these rules are referred to variously as syntax, or grammar and we will talk about syntax and grammar in much more detail in the coming lecture. So, I'll just tell you this that grammar or syntax is the rules by which we play this game there are so, many symbols and there are ways which are specified you know let us say in the grammar of each language that you can use to combine these symbols into you know phrases and sentences and using these you know fixed set of rules, and these to accept of symbols, you can have the entire language that you can think about I'll give an example let us say, say for example he English has around 26 alphabets or let us say if you talk about sounds English has around 40 phonemes 40 basic sounds. So, let us say 40 phonemes you can use these 40 you can combine these 40 phonemes to form so, many number of words you can combine those so, many number of words using the rules of syntax or using the rules of grammar to basically get the entire English language. So, you have a fixed set of symbols you have a fixed set of rules and this can combine to lead you to an infinite amount of language that is what is the interesting part of, of what

language is? And the last thing that we have to also cover in this definition of language is this aspect of communication what is communication? What do you want to communicate? it begins with very basic things say for example if you want to communicate your needs I am feeling hungry, I'm feeling thirsty, I want to rest, messages simple messages like these however we also know that say for example people communicate their intentions using language as well I want to go to you know Africa I want to eat a pizza I want to do this I want to d that or I am going to do this all of these are your wants and intentions that are also easily communicated using language we also say for example talk about our emotions I'm feeling sad today I'm feeling happy today and sometimes we are talking about say for example almost in a completely unproven probed manner we can say for example on a random day pick up a stranger and just go to them and say you know what a nice weather it is today you know what a nice sight that is or let us say for example if your much watching a cricket match or something you know what a nice parrot this guy is even if the two of you had been sitting silent for hours together. So, language or communication that happens through language is not only very basic it's not only the communication of what you need at that point in time or what you want at that in that point in time it is also very creative, we know that we use say for example language you write fictional accounts of things that have not happened we you know use all our imagination and we use all our imagination to create a very, very interesting very, very beautiful specimens of language say for example people write fantastical stories people like poetry people write say for example interesting articles opinion pieces so, on and so, forth part of the aim of this course and part of what we will try and do in the coming eight weeks is to understand how is that happening. How are people taking this very small set of 40 sounds and say for example this very small set of rules and combining them in such a manner that they create almost an infinite amount of language also language that it that is understood to everyone who's learned to read or who's learned to understand that language. So, let us move ahead let us kind of try and understand what are the other interesting features of language, if you were to describe language and that effort has also been put a variety of times one of the first names that comes to mind is that of Charles Hockett Charles Hockett back in 1960 came up with these
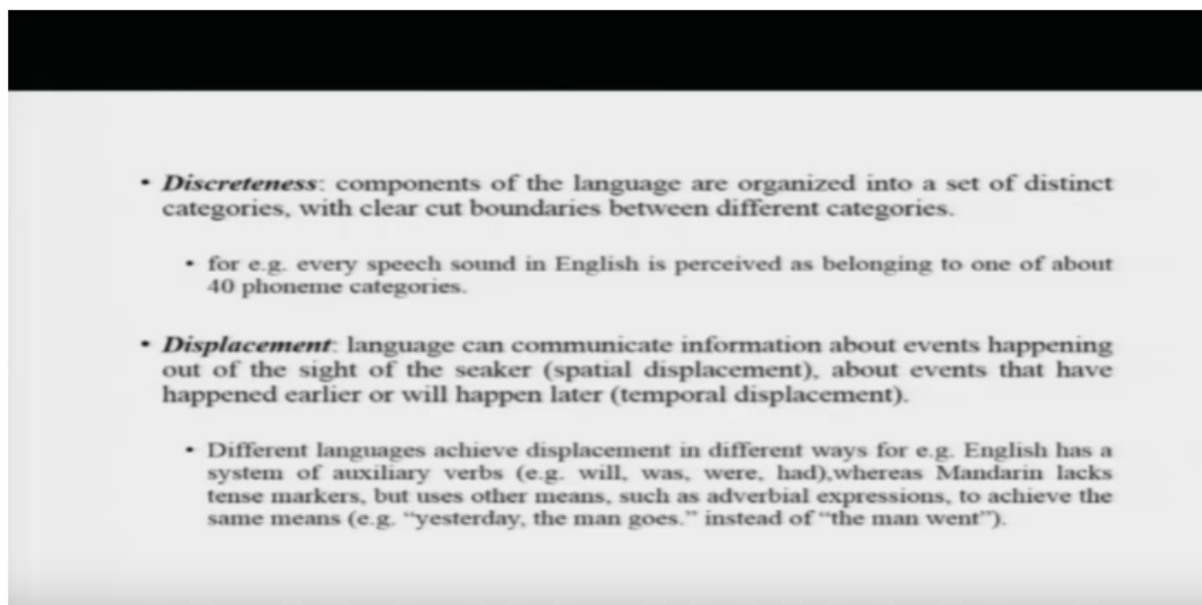
Refer slide time :(11:50)

 So, many design features these 16:17 design features which we're in his use these features to describe what communication systems look like? What are the features? What are the basic necessities in a

particular communication system? I'm going to discuss a subset of those design features that Hockett has specified specifically those who apply which apply completely too human language also slightly uniquely to human language. Let's start with the first of them the first feature of language that is of utmost importance is the feature of semanticity language is used always to communicate meaning any aspect any entity which is member of your language in some sense or the other has to have a meaning or a function. So, semanticity the idea that language is there to communicate meaning the specific signals or let us say symbols as we are talking about in the language we nee we need to convey meaning of some kind or the other suppose say for example there is this word called Apple or this word called mango or this word called cricket or this word called going and sleeping and moving around each of these words depict one particular kind of meaning say for example Apple, banana, and mango depict they denote a particular object that particular fruit, going, sleeping, playing, are words that indicate those particular actions those particular things and similarly, say for example there are abstract nouns like anger happiness sadness these are words that denote particular abstract feelings. So, any aspect in language basically is meant to communicate particular kind of meaning. So, that is one of the most important aspect of language and this is referred to as the property of semanticity the other property that we can talk about is this property of arbitrariness, now you saw that there are these different words which denote or symbolize or refer to these different things in the world, say for example again you know Apple refers to a fruit, mango refers to a other fruit, cricket it refers to a game. So, on and so forth now is there a relationship between this word and the actual object or idea or event or you know action that this word is referring are these two related in any sense the answer is no this property of arbitrariness tells us that there is no necessary relationship between these words and the actual objects or events that they are referring to Okay? So, for example you can have a word like ship and ship denotes a very you know large object which is by the way a very small word and you can have a very long word say for example like platypus or crocodile which basically refer to very small objects ask them if you compare them with a ship. So, say for example if somebody were to look for a relationship between say for example language that you know long words should denote longer objects or small words should denote smaller objects that's not really the case these relationships are completely arbitrary and are there solely because, of a sort of a consensus or sort of an agreement that exists between the users of this language such that this particular sound will be used to refer to this particular object or action or event, suppose say for example tomorrow some of your friends you know get together and say that we're not going to call this particular red fruit as Apple we're going to call it say for example purple or something like that if there is enough consensus and you start using purple again and again you might basically eventually be you know using this same word to refer to this fruit and that relation becomes permanent. So, that is how this concept of you know mapping between these words and the objects really works, now another interesting point you know aspect of language is this aspect of discreteness as I said like say for example English has 40 phonemes and it has 26 alphabets and say for example that might that is true for most or you know almost every language that we know of that it has a fixed number of symbols. Now they will be obviously you know a problem can come up say for example if you're not being able to you know discretely differentiate between these different symbols if you have to use them if you have to combine them in so, many ways you have to know that each you have to at least be able to tell each Sigma each symbol apart from each other that is the property of discreteness all of these components of language, are organized into a set of distinct categories and these distinct categories have clear-cut boundaries using which you can differentiate between each of these components, say for example if you are not able to distinguish between pat and bat or say for example the boundaries of paren bur you'll not be able to distinguish between the words pat and bad and that will obviously be a problem. So, discreteness is this property of language which tells us that each of these component sounds of the language should be clearly distinguishable from each other and their various ways we do it. So, we'll

talk about this as well another property of language you know something that you say for example we almost take for granted is this property of being able to communicate about things that are not right there that are not exactly. Right? In front of you suppose for example I have this pen in front of me and I can talk about this pen as much as I want to but I can also talk about say for example an umbrella which is not there right in front of me I can talk about today and what I am doing right away but I can also talk about what I was doing yesterday and whatever what are my plans for tomorrow I can talk about this place and I can talk about that place where you're sitting and watching this lecture. So, this is something which is very interesting in many very unique about our language is that it allows us to talk about not only things present in this time it talk it you know allows us to talk about things present yesterday, that is in the past and tomorrow that is in the future this properties refer to as the of temporal displacement which allows us to talk about things that are not you know in the present time, also as I said I can talk about things here and things there which is typically the property, which is typically referred to as a property of spatial displacement I can talk about using my language of thing that not exactly present in this spatial you know area that I am currently there I can talk about something that is there or something that is say for example in Delhi or in Moscow or in any other place in the world. So, this is also a very important property that is referred to as displacement it has two varieties spatial displacement and temporal displacement different languages achieve this concept of you know talking about things displace in time or things relates in place using different varieties say for example English has auxiliary verbs such as say for example I will do it to talk about future I was doing it talk about the past they were playing say talk about you know a group of people that were playing at some point in time whereas for example Mandarin which is you know the language that is spoken in China mostly uses typically different means

Refer slide time :(19:12)

- **Discreteness**: components of the language are organized into a set of distinct categories, with clear cut boundaries between different categories.

  - for e.g. every speech sound in English is perceived as belonging to one of about 40 phoneme categories.

- **Displacement**: language can communicate information about events happening out of the sight of the seaker (spatial displacement), about events that have happened earlier or will happen later (temporal displacement).

  - Different languages achieve displacement in different ways for e.g. English has a system of auxiliary verbs (e.g. will, was, were, had),whereas Mandarin lacks tense markers, but uses other means, such as adverbial expressions, to achieve the same means (e.g. "yesterday, the man goes." instead of "the man went").
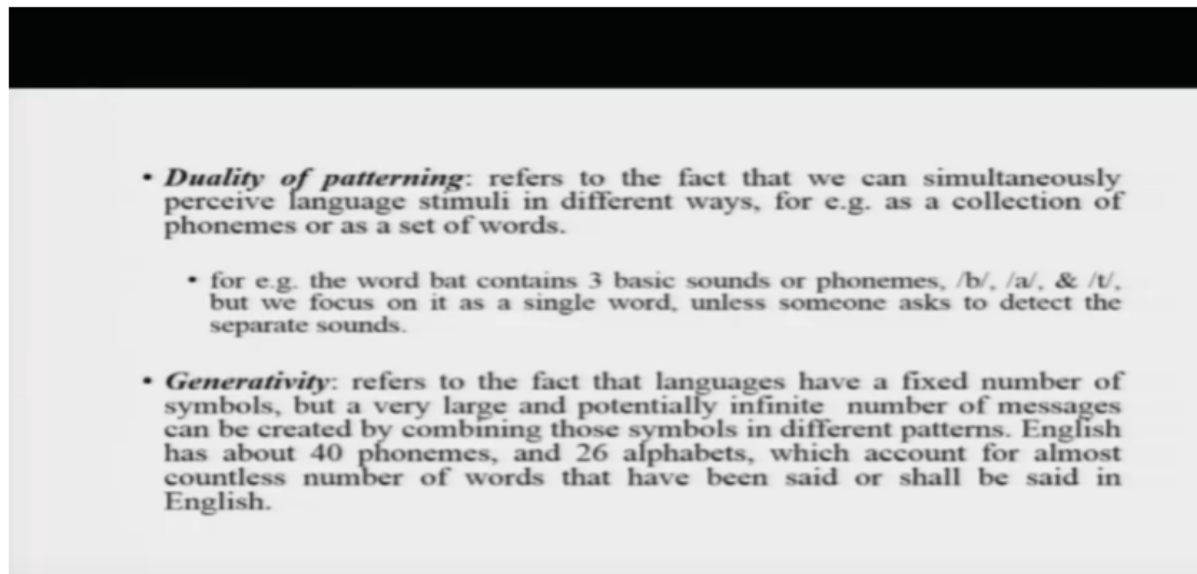
Say for example they will have adverbial expressions such as say for example if you have to talk about yesterday the man goes basically English would just say the man went. Okay? So, you have to kind of specify everything in Chinese so, it is not really using the auxiliary verbs in the same fashion

as in English. So, this is also something that this very interesting property of displacement is manifested in different ways across different languages of the world. Another important property of human language is this property of duality of patterning.
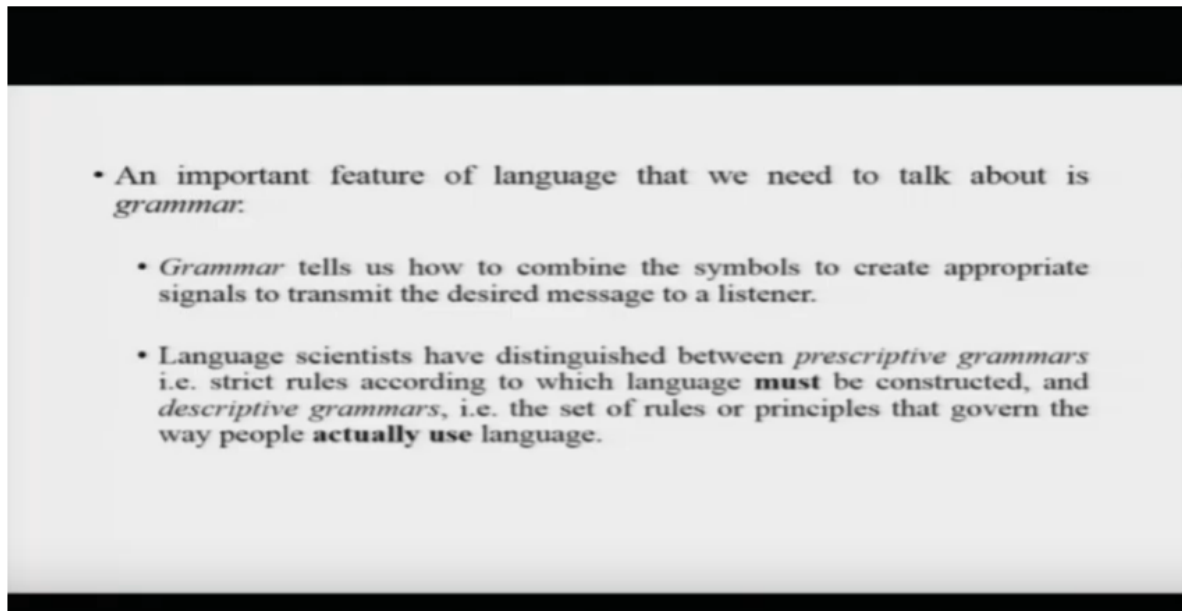
- **Duality of patterning**: refers to the fact that we can simultaneously perceive language stimuli in different ways, for e.g. as a collection of phonemes or as a set of words.
  - for e.g. the word bat contains 3 basic sounds or phonemes, /b/, /a/, & /t/, but we focus on it as a single word, unless someone asks to detect the separate sounds.
- **Generativity**: refers to the fact that languages have a fixed number of symbols, but a very large and potentially infinite number of messages can be created by combining those symbols in different patterns. English has about 40 phonemes, and 26 alphabets, which account for almost countless number of words that have been said or shall be said in English.

Now duality of patterning typically refers to the fact that at any point in our language, we can simultaneously perceive language, or we can simultaneously produce language at multiple levels you can be talking about say for example language being produced in terms of sounds you know you just somebody might just focus at what the sounds are coming out from my mouth especially if you don't know the language that I am speaking and so for this listener who does not know this language I'm just making random sounds. But, pa, pa, all of these kind of things somebody who understands my language can actually make that connection and say that this guy's speaking in words he's saying you know this that here there etc. So, at the same time you see that the signal is present at, at least two levels I can produce I'm producing the signal at two levels and somebody, who can is attending to the signal at two levels obviously if you know the language you don't really need to focus on the sounds but suppose if I ask you that if I give you a sentence that you know a round win to play you know or say for example the cat chased the mouse, and I say that piece replaced the first sound, of the second word you can say, say for example the bat chase the mouse. So, in case you want to and there is an itch to attend to this second level of signal you can obviously y do so Okay? So, this is this property of language which is referred to as duality of patterning the signal is present at multiple levels and it's available for analysis at multiple levels by the listener. Another very interesting property of language is this property of generativity I was giving you again and again this example of a fixed number of symbol and a fixed number of rules and this infinite amount of language that comes about how is this possible? This is possible through this property of generativity, generativity is the property that kind of specifies that using a fixed number of symbols, we can create a potentially infinite amount of language. |This is the property say for example which is specified in various ways but it is a unique

property of all the languages say for example of all the human languages that are known to man obviously there is one or two exceptions we'll discuss those exceptions in a bit.
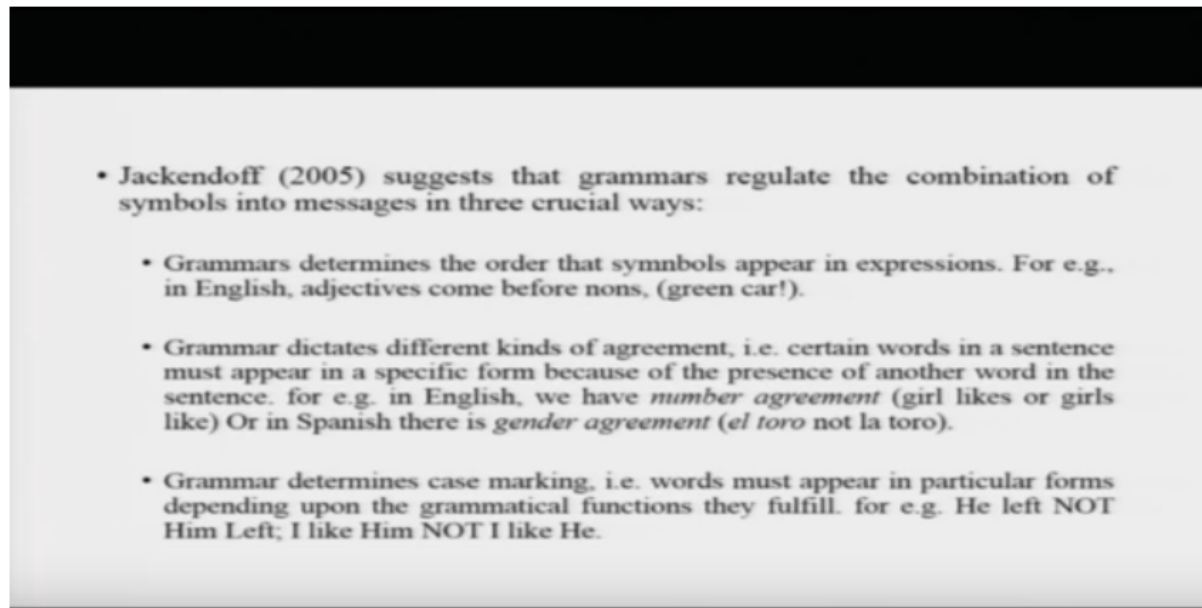
- An important feature of language that we need to talk about is *grammar*.

    - *Grammar* tells us how to combine the symbols to create appropriate signals to transmit the desired message to a listener.

    - Language scientists have distinguished between *prescriptive grammars* i.e. strict rules according to which language **must** be constructed, and *descriptive grammars*, i.e. the set of rules or principles that govern the way people **actually use** language.

 Now how is this really happening? How is generativity actually manifested? So, we have to say for example to understand generativity in some detail also attend to this feature of language called grammar I've talked about grammar in the beginning grammar is what grammar tells us how to combine the symbols to create appropriate suggests to create appropriate signals and be able to transmit them or communicate them to the listeners language scientists psycho linguists and linguist basically so, linguists are basically people who are you know concerned about the structure of language they are concerned about language per se not really concerned about the user of the language so, much a psycho linguist or say for example a psychologists like myself is more concerned with how the user of the language is acquiring and later using this language, a linguist is more concerned with the nature of the language that is being acquired and what are the changes in the language that are coming in so, this is one very interesting distinction that you have to keep in mind however we are coming back to the point we are talking about linguists, linguists have basically distinguish between two sorts of grammars, they have distinguished between descriptive grammars now prescriptive grammars are typically grammars that specify the rules of how the language is going to be you know used how are how are you going to combine the words to form perfectly acceptable grammatically correct sentences you know there is a lot of fixation when you are young in New York you know learning in school to create grammatically correct sentences you know say for example if you are in class eight nine tenth and that there is this English language class the teacher expect you to create perfectly grammatical sentences, you know we're always trying to look for those things. So, a particular grammar that prescribes how languages you know should be structured how words should be combined to create valid you know sequences of sentences etcetera is prescriptive grammar. A more interesting variety of grammar however is referred to as descriptive grammar the descriptive

grammar is something that kind of derives backwards it looks at how people are using language and then it kind of derives its tools from how people have been using language. So, it does not set out the rules first and then the use of language happens it kind of does it the other way around it still looks at how people are using language and then derives its rules from them So, this is a small distinction between descriptive grammar and prescriptive grammar. Now different people think you know differently about how important grammar is and what role does grammar play but one of the very important persons to talk about grammar ever was enraged
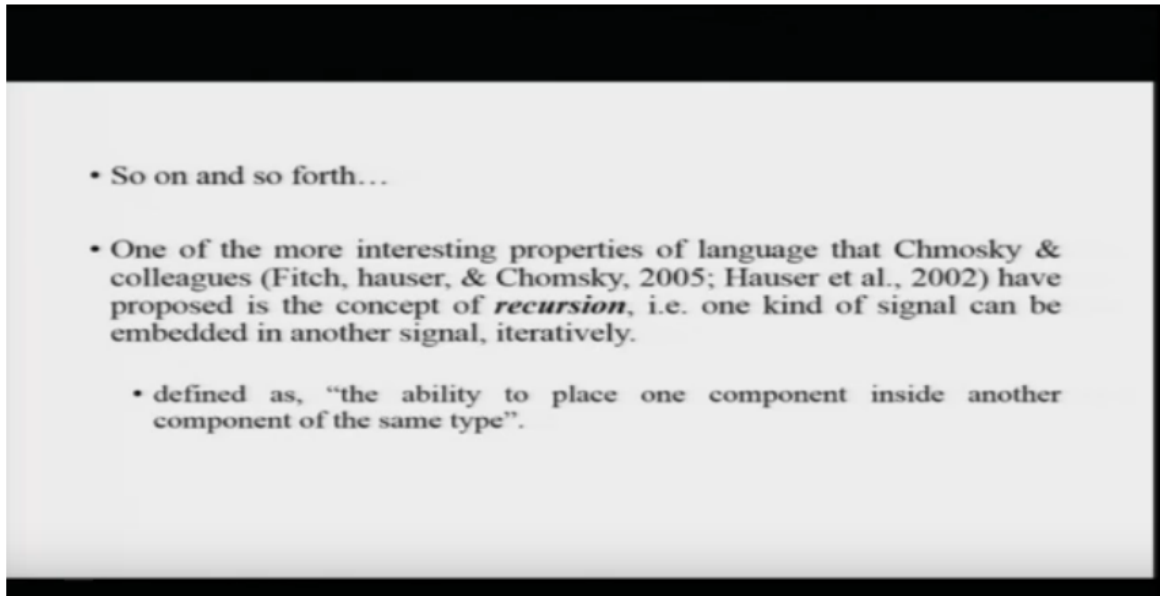
Refer slide time :(24:34)

- Jackendoff (2005) suggests that grammars regulate the combination of symbols into messages in three crucial ways:

  - Grammars determines the order that symbols appear in expressions. For e.g., in English, adjectives come before nons, (green car!).

  - Grammar dictates different kinds of agreement, i.e. certain words in a sentence must appear in a specific form because of the presence of another word in the sentence. for e.g. in English, we have *number agreement* (girl likes or girls like) Or in Spanish there is *gender agreement* (*el toro* not la toro).

  - Grammar determines case marking, i.e. words must appear in particular forms depending upon the grammatical functions they fulfill. for e.g. He left NOT Him Left; I like Him NOT I like He.

Jackendoff has been talking about the importance of grammar and what role does grammar play in our understand of language. So, some of the things that he says are very interesting he says the grammars determine the order that symbols appear in expression so, that is one of the first ways there are kind of regulates our use of language it will tell us the order in which the symbols are going to be present it say for example adjectives are usually supposed to come before the nouns you're not going to talk about car green, you're going to always talk about green car or a red apple or a yellow banana so you will see always these adjectives are coming before the noun. So, that you know what is it, it is being talked about. Okay? So, for example I'm talking about a car that is green Okay? the other thing is also that say for example grammar dictates the rules about say for example gender agreement and number agreement how many people are you talking about if you if you have to say a sentence like girl this girl likes this you know play, or say for example if you're talking about many girls you'll probably say these girls like this you know this play so depending upon the number of girls that are in question the The, the verb kind of you know changes form so you say like or likes depending upon is it a girl or is it many girls. so, this is also one of the ways that grammar kind of you know regulates our production of language the other important thing there language also does is it does case marking it kind, of tells us that how particular words should appear in a way that they fulfill the particular grammatical functions that is expected of them say for example he left the class and not him left the class. So, you have to change the pronoun in such a way that it kind of fulfills the grammatical function it is supposed to in this particular sentence. So, this is this is also something that you know

Jackendoff I said and we took we come back to Jackendoff in one of the later lectures. Now we talked about this important aspect of generativity

Refer slide time :(26:37)

- So on and so forth…

- One of the more interesting properties of language that Chmosky & colleagues (Fitch, hauser, & Chomsky, 2005; Hauser et al., 2002) have proposed is the concept of *recursion*, i.e. one kind of signal can be embedded in another signal, iteratively.
  - defined as, "the ability to place one component inside another component of the same type".

And we talked about what grammar kind of does to manifest generativity. The other way to look at generativity is this property which is referred to as recursion. The concept of recursion is defined as the ability to place one component inside another component of the same type in other words it is the concept of embedding how do you embed? Simple you know particular kinds of components in the same kind of formulates again and again let us take an example let's say the example is the sentence.

Refer slide time :(27:07)

- *Tom likes beans.*
- *Susan thinks (x).*
- *Susan thinks Tom likes beans.*

- **Recursion can go essentially in an infinite loop and is limited only by the speaker's ability and willingness to continue:**

- *John knows Dave believes Jenny hopes Carol recognizes Bob realizes ... Susan thinks Tom likes beans.*

- **Recursion is one of the characteristics that gives language the property of discrete infinity, i.e. the ability to generate infinite messages from finite means.**

 Dom likes beans, and then you have another sentence Susan thinks and then at the end of fifth is X now Susan thinks X Susan thinks you can put Tom like beings. So, Susan thinks Tom likes beings this is an example of how you can put a sentence in another sentence? recursion can go essentially in almost an infinite loop suppose say for example I were to make this example that John knows Dave believes Jenny hopes Carol recognizes Bob realizes Susan thinks Tom likes means it's what I am doing is I'm just borrowing this example from Matthew Traxxas book introduction to psycholinguistics what I'm doing is I'm just embedding one sentence in another sentence in another sentence in Una's this is what is recursion you can kind of combine all of these components one, one in the other one in the other and move on. Now recursion is one of the things that linguists and cyclist have said that gives this language the property of discrete infinity, this discrete infinity is typically the ability to generate infinite messages from finite set of symbols in rules. So, this is one of the most important properties of language.

Refer slide time :(28:19)

- While most documented langauges have demonstrated the property of recursion, Piraha, the language of the Piraha people (a small tribe of hunter gatherers in the Amazon forests.) does not show recursion.

- *Hand me the nails that Dan bought.*
- *Give me the nails. Dan bought those nails. They are the same.*

- *Dan and ted went to Brazil.*
- *Dan went to Brazil. Ted went to Brazil.*

- If recursion does not occur in Piraha, is it then, a necessary feature of language?

Now as I was saying while most documented languages design we know something about and they have been documented in scientists have described, them demonstrate this property of recursion however with one exception piraha the language of the piraha tribe in the Brazilian Amazon forests does not really have this property of recursion. Now recursion is such a basic property of language that it is considered by most language scientists or linguists say, for example most notably Noam Chomsky and others has to be the basic most unique the most necessary property of human languages, in case there is a language that does not show this property it kind of might have interesting consequences for our understanding of what languages are but we'll come to that in a bit, suppose say for example there is this hand me the names that Dan bought in piraha which does not have recursion you will have to say the sentence in this way give me the nails Dan bought those nails they are the same. Okay? Say this is the way you kind of you know this is how you'll have to speak about if your language does not allow recursion to happen. Okay? say for example let's take another example Dan and Ted went to Brazil if you were to say this in piraha you'll probably be saying something equivalent to Dan been to Gracie Ted went to Brazil some kind of combination is not being permitted in this language. So, if recursion does not occur in piraha then you can wonder is it a necessary feature of language. With this question

Refer slide time :(29:53)

- Why does Piraha lack recursion?

  - Everett's (2008) answer is that because recursion introduces statements into a language that do not make direct assertions about the world.

  - Everett describes the Piraha as being a very literal - minded people. They have no creation myths. They do not tell fictional stories. They do not believe assertions made by others about past events unless the speaker has direct knowledge of the events or knows someone who does. As a result, they are very resistant to conversion to Christianity, or any other faith that requires belief in unseen things..

  - Everett argues that these cultural principles determine the form of Piraha grammar. Nested statements, like relative clauses, require presuppositions (rather than assertions) and are therefore ruled out.

  - This makes a case for Piraha grammar to be shaped by Piraha culture.

 I move to a different kind of a thing why does piraha does not have recursion. So, Daniel Everett was worked with the piraha try for over 30 years and is written an amazing book called don't sleep there are snakes you might find it and read it but every kind of wanders about voice recursion not there why is recursion not found in the language of the piraha people, he says that recursion introduces statements which are assertive and piraha people's traditions and their cultures and the way they are they do not make direct assertions about the state of the world and because, they do not make direct assertions about the state of the world. That is one of the reasons why recursion is so, difficult to find in their language ever it explains the piraha people has a very literal-minded people having no creation means they do not tell fictional stories they do not believe in assertions made by others unless they have experienced those things that they are talking about firsthand. So, this is interesting that because, their culture and because, they thought processes because their traditions are in such a way that is typically being reflected in their language as well Everett argues that these cultural principles are the ones that are determining the form of the piraha grammar nested statements like relative causes require some sorts of presupposition so, you already assume that Okay? This is what has happened and therefore because, the piraha people are not being able to accept those suppositions they're not being able to have read in their language. So, this is against some of the things that Everett has talked about on by piraha might not have recursion in the first place this makes a case however for the piraha grammar to be sourced out of you know their culture. So, piraha grammar per se is probably shaped by the piraha culture, with this statement I leave you with the two take-home messages for this lecture

Refer slide time :(31:49)

- Take – home messages:
  - Definition of Language
  - Important Characteristics of Language

We've talked a little bit about definition of language. what is language system of symbols ?and rules which helps us communicate three things also we've talked a little bit about various characteristics of language, we've talked about some of the design features that Hockett talked about you also talked a little bit in detail about what is recursion? And how is it unique? To what languages, however we've also noted that at least one of the known languages called piraha does not show recursion and it's almost an interesting debate that is all that is going on about whether to accept piraha hires a exception or we can come back and change the definition of how we understand language I'll stop here we'll meet in the next lecture.   Thank you