The Nature of Psychology
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Lecture - 11
Language and Thought

Friends, welcome back to this lecture number 11 on the course on Human Behaviour. Now what we going to do in this particular lecture is we going to see another complex human process which defines a behaviour and that is language thought. So, the basic of this lecture and the upcoming lecture will be on how language and thought make a complete whole in terms of understanding human behavior. Or the part played by these two processes which are advanced cognitive processes in determining human behaviour.

So, before we jump into what is language and what is thought and what is the role of language and thought in understanding human behavior; as we have been doing in the other lectures let us quickly summarize what we have done up till now. This course is a 20 lecture 8 week capsule, where what I will do is, I will take you to the very basics of studying human behaviour. The first two lectures what we are trying to do is a trying to explain the science of psychology which is the basic of all human behaviors. What we did was we looked at how we studying human behavior. And what is the need of study of human behaviour.

We also looked at several techniques of studying human behaviour. So, we started off those lectures the introductory lectures by looking at the history of human behaviour starting of with the philosophical routes and physiological routes and then looking at the history of the science of psychology not limiting to structuralism and functionalism, but also including behaviorism, gestaltism and psychoanalysis.

You also looked at neuro schools of psychology for example, psycholinguistics, cognitive neuroscience. And towards the end of this series we looked at how experimentation is done in psychology. What are the methodologies that psychology has for studying human behavior? We looked at in laboratory experiments, out of the laboratory experiments, we looked at observations correlations we looked at things like literature review all these methods of how to collect data and how to study human behaviour.

Then we moved on to the second process which is sensation which is taking up information from the physical environment and converting it into something that can be encoded in the psychological domain. So, we looked at the properties of systems and processes which acquire information from the physical environment and convert it into the psychological domain.

Two properties of interest sensitivity; so we looked at the details of what is sensitivity and what it comprises of and we will looked at sensory coding the biological process through which this information from the environment is coded into the psychological domain.

Towards the end of this lecture, we looked at the idea of how this functions in terms of model system. So, we took I as the model system and we deciphered how the I make sensation or converts the physical stimulus into the psychological domain. The physical stimulus of interest is the light particles which is photons.

The next section was on perception where we looked at how meaning is acquired from this physical stimulus that has been encoded to the processor sensation. Five far process is what comprises of the perceptual processing. This includes attention which is focusing on what stimulus to read, localization, deciding where an object is in the external environment, recognition the process of matching where we take in an external stimulus which has been encoded by sensation into the psychological domain and match it to pre saved or saved representations mental representations that are already in the brain.

 The process obstruction where we extract useful features from stimulus or organizations mental representations which has been encoded trough sensation. And the last is constancy which is maintaining the constant or which is acquiring a constant acquiring a fixed value or acquiring some fixed positions based on which interpretations are to be done.

We moved on to the idea of learning and conditioning where we looked at how learning and conditioning these two processes go along. And what role does it play in study of human behaviour. So, we started off by looking at what is learning. We looked at two basic kinds of learning which is the non associative and associative form of learning. Within the non associative we had sensitization habituation and within the associative form we looked in detail the classical conditioning the various parameters of classical

conditioning several of the things which are in classical conditioning; factors effecting, classical conditioning, how it progresses, how it can be control and so on and so forth.

We looked at operand conditioning which is another form of associative conditioning, where we looked at the parameters of it, features like extension, features like spontaneous recovery, features like conditioning, factors affecting operand conditioning and so on and so forth. And lastly we looked at something called observation learning which is another form of associative conditioning. And we looked at how it progresses what is the various parameters effect so on and so forth.

The last two lectures were focused on memory; where we looked at how information which has been learned through the process of learning is stored somewhere. So, we defined memory as a three pack process where and encoding is transferred into a some kind of a storage and later on retrieve at some point of time for some verification or some kind of a use. And so initially we define two models of memory the (Refer Time: 07:21) in model which talks of memory as a three part store, connected by a single processor. And the processing happening to active processes like attention or rehearsals. So, that is what we actually doing or that is what you actually talking about in the first part is a lecture on memory.

In the second part of lecture on memory we took on several variables, we looked at the idea of working memory, and we looked at how does acting function the various parameters of working memory. We looked at what is long term memory, how does long term memory function, parameters of long term memory, then types of long term memory, what kind of information is stored in long term memory. And whole other kind of informations an a number of a information which is related to human memory.

So, up till now we have dealt with these sections and these processes of psychology these parts of psychology which help us understand any human behavior because any human behaviour has all these parts integrated together. Any behaviour that you see has sensation has perception has learning has memory. From today onwards we will moving on to the higher processes right and today will be a set of lecture where will be ending our study of higher cognitive processes and moving onto some abstract terms like emotion personality and social influences which are also part of studying human behaviour or part of the study of psychology.

So, today's lecture what we going to do is we are focusing on something on language and thought process. Now before we (Refer Time: 09:06) to what language is and what is the role it has in terms of understanding human behaviour or explaining human behavior. let me start off by how language helps us in understanding human behaviour.

So, during the 1960's people in mostly in the European countries and United States they were found of jogging. And they started jogging a lot and so this whole health gambit came up and people started a lot of people started doing jogging at all points of time. And there in came the idea of something called runners high. Now runners high is a is system or is a state where people who actually job a lot they feel heighten or they there they are body systems they how much state is goes to a high they feel high.

Now it was believed that the question was why were these runners, who are not taking any drug as such, why were they feeling high. Similar to this high which is similar to other drugs which are available in the market. And so a systematic hypothesis was created and this hypothesis was tested on using biological methods; where it was found out that the body releases certain kind of endorphins. these endorphins are very similar to external drugs which actually raises or gives you a certain high.

Now, initially this was what the proof was, this was what the test was. And so people around the world. So, I will believing that the body produces it is own drug own self stimulating or self activating system. Later on lot of study was done it was found out that there is endorphins had no role what so ever to play in the runners high. What our interest is through this experiment is to show how language thought and thought process actually help to solve problems or study human behaviors.

So, initially the runners high which was thought to be way runners high that people feeling that was through a process of thinking it was related to the idea that it was produced by the body itself. Or this was similar to morpheme to the idea of how external drugs actually give you a high and through a through a well structured hypothesis testing or a scientist method of thinking and problem solving.

It was labeled that these toxins or these activating drugs like morphine drugs similar to morphine was produced by the body and natural system the body. And this drugs were named as endorphin. Later on with testing an well thought experiments it was found out that endorphins which are similar to morpheme or the drug which act hyper activates you

this had no rule to play whatsoever and through process of language it was explained how these things are different. So, this is the role of language because language is a very basic property that humans share. Now, there is a difference between language and communication. Communication is a medium of exchange of ideas between two human beings or two beings as per that matter.

Now why I am not using the term human beings is, because we differentiate ourselves from animal saying that we are human beings and they are animals. But that is a very narrow way of looking at it because we also are animals. Now the thing is communication is a medium of exchange of ideas now these ideas could be very primitive ideas.

For example, it could be ideas similar to what honey bees do to show the rest of the honey bee. So, if a honey bee finds a flower a nectar from a flower a patch of flower what it does is return back to it is own nest and then does a particular kind of dance. And this dance tells two or three sends two or three information or communicates two or three informations to other honey bees.

One being that it has found the source of something it could be nectar it could be water and where it is which direction it is and that kind of information is shown by this honey bee dance which is which looks like an infinity dance. Similarly other primary organisms like various bear, bird songs birds these are all communicating medium. And so communication is basically process a medium of exchanging ideas between two groups of people or two groups of organisms.

Language is a little bit different. Language is that property which is acquired only by human beings. Language is something which is not present in other forms of animals. Now animals do have a form of language, but it is very very poor. And so they cannot articulate they cannot speak they cannot actually exchange ideas or exchange many dimensional ideas among themselves.

So, that is one difference between language and communications. Communication is a medium of exchanging ideas and language is more than medium of exchanging ideas you can produce many forms of vocalizations where used thoughts thought processes produce many other things or any other communicate many other a lot of ideas through it.

So, let us then begin our discussions on language and thought. And look at what is language, what are the basics of it, and how does it actually progress. So, as I saying let us start looking back at what is language. And try and introduce to you what is language and how it is different from communication. And what the role does language play in studying human behaviour.

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So, language is known to be a primary means of communicating a particular thought. Any idea that we have as human beings any idea that we have we communicate through the use of certain language. And so these certain language are well form sounds or well form words in sentences which we express. And other people here where other people express and we here and that is how we communicates certain ideas for certain facts.

Now these ideas could be a warning it could be a compliment it could be any kind of things. So, whole lot of things can be communicated through certain languages. Now, the there are two levels of language. As we looked at language has two different aspects. Now every language be it German, be it French, be it English, be it Hindi, any language which is there. So, language is basically asked a structured way of using symbols certain symbols to communicate certain ideas.

And so what you should know is that the symbols used in language has no direct relation to the idea which has being communicated through it. So, there it is are arbitrary relation right. And so the same idea can be communicate by multiple languages and multiple

symbols and so there is no relation between the language the the symbol that we are using to produce a language and communicating the idea.

So, idea same idea or the same speech can be expressed through a sign language it could be expressed through English, Hindi and many different languages. Now most languages have two aspects to look at or two aspects to worry about. One is the production and the other is the comprehension. So, not only do humans produce a language they can also comprehend a language. Now producing a language is equivalent to actually verbalizing a particular thought or verbalizing a particular communication.

So, human beings at one end they start communicating, they start producing using this symbols forming a chain of thought and then not only chain of thought passing this information. So, when we are producing language what we actually doing is we start up from the bottom up processing. We start think of a particular idea, then from that idea we comprehend that idea and then lay. And then try and break it down into a form of communication a form of symbols.

And then we look at how the symbols should be arranged by a particular grammar. And then we produce this symbols and then we communicate this is one way of actually looking at language from the production point of view. From the comprehension point of view the reverse is true.

So, somebody produce a certain language we comprehend at the level of where the symbol is being produced. Then look at how the symbols are arranged look at the grammar of how they are arranged take up the basic ideas. And from that basic idea they come up with the thought that is being communicated to us. And so there the processes are reverse. So, basically the language that most of us for us which is which is valid is the English language.

Now if you look at the English language the English language generally has 40 different phonemes. Now it is believed that the number of phonemes which are present in the world is approximately 200. But the English language is known to have something called 20 different phonemes. And what is phonemes actually do is that these phonemes the basics speech that anybody can produce any human being can produce. Now this can be the basics phonemes can be as simple as. So, the b phoneme which is the b in the boy or the t phonemes which can be the t in the toy.

So, the basic speech sound that human beings produced is what is the phoneme. And in English language these are 40 in number. Now it is amazing that this 40 phonemes when they are combined together in different different combinations and permutations, this can actually lead to 70,000 different words. And when these words when they combined together they can produce billions of sentences which are there.

So, the human language that we know the English language that we know it starts off with 40 phonemes which in this arrangement can produce some a large number of words which produces even large number of sentences the whole English language or the whole written English language is basically dependent on the 40 different phonemes which are out there.

Now production of a language begins with a thought which is translated into a sentence and ends with a sound expressing that sentence as I said the production part of a language when you speak. So, this is your mouth if you are speaking this production starts with a thought process. So, you think of something first and then you translate that into some type of a sentence. Now this sentence is how the arrangement of the symbols will be there. So, sentences are what sentences are certain arrangements of symbols.

For example look at a now is a symbol which is similar to [FL] in the Hindi language. Now both of them are similar, but both of them are am and look at this both of these symbols point towards the fruit mango right. it could also mean common in Hindi, but if we translate that that is what it is. So, this spelling and this spelling corresponds to this fruit.

So, basically how production of language begins it begins with the thought process. And then it is translated to some kind of sentence which is basically the arrangement of these symbols and then ends with producing sounds expressing this sentences. So, first the sentences are there and this sentences are then spelled out you actually go ahead and spelled out this language with us with the combination of certain phoneme

For example the boy is weak is this is what we are thinking if we are thinking of a weak boy. If we see a weak boy and you want to comprehend or if you want to produce the sentence for or want to express the sentence to other people; what we will do is, we will produce a sentence like this. And this sentence then is translated bag by reading it. For

example, the boy is weak and if we look at it will be in term of the phoneme. So, boy is VE curve this is how it is translated so this in terms of the basic speech now.

Now, in terms of comprehension what happens is, comprehension of a language begins by hearing the sound. So, in comprehension in understanding in hearing or in understanding the meaning with somebody else has produced. So, understanding the meaning of a sentence with somebody else is produced you start off by hearing. The first sounds then attaching meaning to the sounds. So, every word for example, the word bank. Now depending on the contexts this bank will have different meaning. And so this attaching of meaning is important and from once you have attach the meaning you attach meaning to the combination of words. And a sentence and then it leads to the final thought process or the idea that is being generated or being thrown at you.

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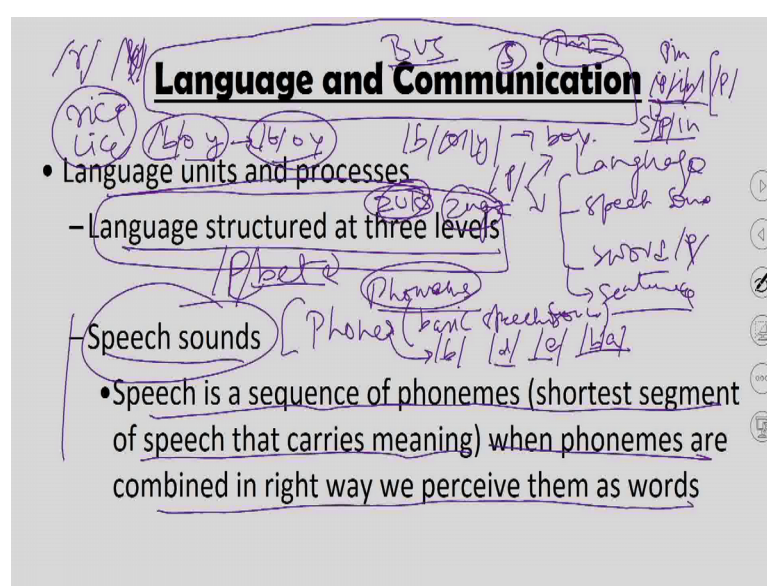
Language and communication; so language units and processes what are the basic units of language or what are the basic parts of language? And how do they help in communication? And what are the process in language? So, language is structured at three different levels most language written language is structured at three different levels we have the level of speech sound. We have the level of word and we have the level of sentence these are the three levels which are there.

So, we will look at the three levels one by one. Let us start with the speech level or the level of speech sounds. Now speech is a sequence of phoneme shortest segment of

speech that carries meaning. So, at the level of speech language can be expressed in terms of phones these are the basic speech sound. For example, b d e these are the basic sound. Now if we ever pick up a dictionary you will see that these are definition that you have a of any word you will see the basic (Refer Time: 24:09).

So, this basic speech sounds are called phones and the combination of these phones together is called the phoneme. So, each language has certain phones certain basic sounds and these sound when they combined together to form larger sound. For example, bar in bat b and a. So, two phones combined together and that is call a phoneme the idea that two speeches on combined together to form a phoneme.

So, shortest segment of speech that carries meaning and when phonemes are combined together right way we perceive them as word. So, when the phonemes are combined together in right way. For example, if we combined these phonemes together we get the idea of a boy or we get the word of a boy. Now speech generally is perceive to be continuous most people when they talk you think that I am talking a continuous manner.

But if I do a spectro graphy of this if I measure the pressure or the way air is flowing out of my mouth, you will see that speech is a non continuous thing. And it is not actually the way I am speaking is non continuous it is broken down into it is part that is what it is believed to be this continuity it comes through the idea that this phonemes are together or they are placed together.

Now the use of phoneme or the usefulness of phoneme can be understood by this particular example. So, in a boy if I replace the phoneme by the phoneme t boy now becomes toy. And so what happens is the concept is changed the idea is changed. And that is the power of a phoneme that is the use of a phonemes. And again I will suggest is if you want to go into details of how language works. You should be referring to my lecture on cognitive psychology where I have done. And extensive lectures on what is language and how it is produced and what is the usefulness of it.

 So, what will do here is we will just look at the basics of what is language. And how does it help in understanding human behaviour. So, basically this phonemes they combined together to form words are they to form something called morphine's which again combined together to form something called words. So, before we go into the word unit they something more that you should be able to understand.

First we are very good at discriminating among different speech sounds corresponding to different phonemes, but poor at discriminating among different sound corresponding to the same phoneme. So, if we look at different phonemes we are very good at disconnecting among different phonemes right, but when we are discriminating speech sounds within the same phoneme. So, phones within the same phoneme we are very poor at doing that.

For example look at the word pin now if we look at pin this is how it is written p i n. If the same phoneme or same word is now written as spin and the phoneme that were interested in is p. Now when you pronounce pin you will look at or you will see that the phoneme p comes out with the puff of air take your hand place it in front of your mouth and try saying pin when you pronounce the word p a puff of air comes in.

But when the same phoneme is included in a different word or different morpheme or word in this case. Then when you produce the p phoneme in spin there is no puff of word. So, we are very good it discriminating within the same phoneme discriminating phones within the same phoneme. But when it comes to discriminating in other words it is a little bit difficult or it is a little bit problematic.

Now different phone is why we cannot understand different foreign languages. Now what happens is when we are learning another language when we are learning different languages different foreign languages each of this foreign language have different different phonemes or different different speech sounds. And that is one reason why it is very difficult for us to learn the other foreign languages or different foreign languages.

Now look at the way bus is spelt now English people would call this as bus, but if you look at German they will say this as buss they do not have the us the strictest from of s and u and so there is a say the as buss. So, the phones are different or they do not have the z word the s word is not pronounced in too much of German.

So, you will have things that is how the pronunciations are right and so since different different languages and different different phonemes. And since we do not know this phonemes those speech founds it is very difficult for us to understand different foreign languages. For example, the word p pronounced in two different ways in the Hindi language the same p. If we pronounce the phoneme p in English language it is pronounced in the same way.

But if we pronounce the phoneme p in Hindi there are two different ways of pronouncing the same speech sound. Also the idea that different languages are different phoneme. And because of that different phonemes make a language learning difficult another example of these is that the r phoneme and the l phoneme is approximately same in Japanese. And that is why rice and lice are pronounced similarly.

So, lice is what they say for rice as well as lice right lice or rice most Japanese people will pronounce it in the same way because they do not have a different phoneme for the r and the l. Also what is the usefulness of phoneme what is the need of phoneme? Now another usefulness of phoneme is phonemes actually tell you what words cannot be possible. For example, the word bet now bet is possible in English language.

But then the English language says that you cannot add a b after a p phoneme that is are in correct way of speaking English or that is not allowed. Now if I put a p before a b an English language does not support it I will get a word like which is actually not a word. And so this kind of non words are also a path of how phonemes decide language. Or phonemes basically help you in understanding language.

with the help of phonemes it can also be explain that words like zu which are a non word. If I want to make a plural of this we will say zuks that is the plural because this is the non word. And so the idea is that phonemes also help us decide. So, what words can exist what plurals can exist and what cannot. But if we have a word like z u g and this word now we know that the plural will turn out to be zuks. So, we will have a z kind of a plural.

But in terms of a zuk which is a non word the plural will be h s. Now zuk is actually a train in German and so that is possible. So, phonemes also help us decide what kind of plurals or what kind of words can exist and what kind of words cannot exist. So, this is the level of at the level of the speech sound at the level of the phoneme. How this phonemes actually help us in understanding language or making language.
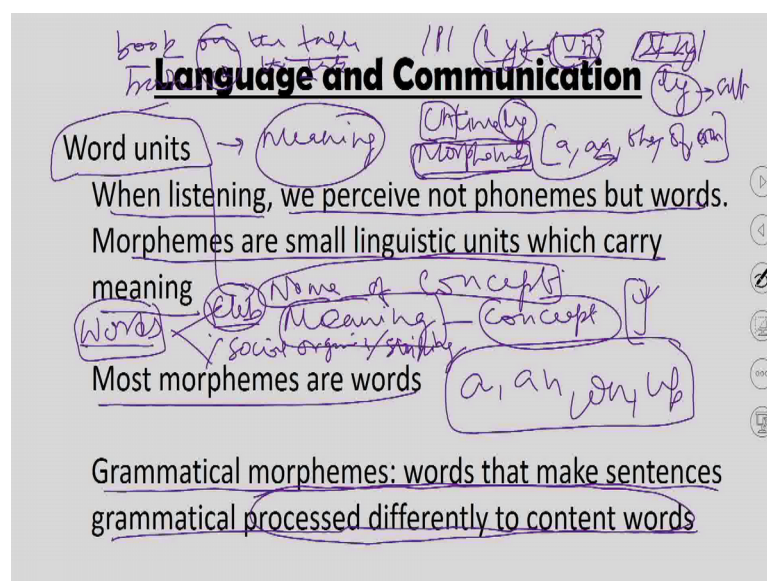
The second unit at which the language works a second unit of production of language or comprehension of language is at the level of word unit. So, we have just seen that different phonemes basic speech sounds or phones for that matter combined to produce something call words. Now even before we produce words there are also some kind of words which are called suffixes and prefixes.

For example, the word l,y or u,n now these are also words although they do not convey full meaning, but then when put in front of a word it actually changes the meaning of it. And this is what is the level which we called morpheme. So, what we are doing here is that two different phonemes l and y they combined together to form a word which is call l y. Now on itself l y does not has any meaning, but this is a suffix.

Because the moment we add l y to the word time it says timely; which basically means that time is a word and timely means that an action which is being done on time a reputation action. Similarly a prefix such as un if you use this un before time it will become untimely which is the negative of time or negative or not being on time. And so these basic word sounds or these basic words which actually a combination of certain phonemes is which are not true words also help us in producing languages. And these are what are called morphemes.

 So, these small words combination of phonemes which are exactly not full words are called the morphemes. So, morphemes generally are words like morphemes are

combination of phonemes which are not true words, but actually help a true word help in the formation of true word. For example, a and the prepositions like of, and, on, all of these are morphemes. Now these kinds of morphemes that is used in the English language are called grammatical morphemes because they help in deciding a grammar or they help in forming a particular kind of a grammar.

Now, these words so when listing we perceive not only phonemes, but different words and this words actually come from the idea of morphemes or different morphemes or different morphemes combined together to produce a word. So, when we are listening we perceive not only phonemes and morphemes, but we also perceive word. Now what is word? The perception of word is not enough because from the word we have to extract the meaning of it.

And so the language the use of language is not restricted to the understanding of a word or what is word by the way? Word is actually a represented by a certain kind of meaning. So, word represents meaning and meaning is what we extract from these words. The words are composed a certain symbols which are phonemes and this phonemes combined to form certain kind of morpheme. So, phonemes are the basic speech sound. Now these basic speech sound they combined together to form morpheme which is the simplest word. And these simplest words then combined together that form something called word which has certain kind of a meaning.

Now, words are the name of a concept, words generally are what are words? Words are names of concepts and meaning is the concept itself right. So, the name of a concept is called the word and the meaning is generally the concept itself or the name of the word or the word name right. So, this is what the difference is so at the level of the word unit. When listening we perceive not only phonemes, but words morphemes are the smallest linguistic unit which carry the meaning. So, this is ly or un or an on this kind of words which are grammatical morpheme is they also process certain meanings.

 Now most morphemes are generally word grammatical morphemes. For example, words that make sentences grammatically process differently to consonant words for example; a, and, on, up, all of these are morphemes which are simple words which are certain meaning. And they are grammatical in nature; why they are grammatical phonemes? Because they help is processing differently from content words.

For example book on the table book, in the table. Now look at it the word on and in decides where it is. So, when the book is on the table it is on top of the table, but when it says the book is in the table the book is inside the table. And so these grammatical phonemes or these grammatical morphemes actually help us decide what meaning is being content with it. Now content word like table and book they will not change, but the use of on or other words an book a book the book kind of a thing. So, the book is that particular book an book is any book. So, that that this particular words actually it help you decide meaning or extract meaning from different words.

Also sometimes what happens is certain words may have multiple meaning or ambiguous meaning. For example, look at the word club now this club can have two meanings. It can be in terms of a social organization a social organization or it can also be a striking object. So, club is like a rod a object from through which you strike.

Now, the thing is when this kind of ambiguous words are there then the meaning is generated or there are multiple meanings are which are available at that point of time. Now the thing was since this word club has multiple meaning linguist worried about the fact that how do people decide which meaning will be relevant and which meaning will not be relevant. Or a which meaning will be process and which meaning will not be process or whether both the meanings are available to us. So, if I say I want to join the club. Now when I say I want to join the club or he wanted to join the club what meaning is available and what meaning is not available and that was what question was.

And to decide that what meaning was perceived or how meaning was generated from words and experiment was done. In which a word a simple word like he wanted to join the club was told to people. Later on they were tested with particular word, they were tested with particular word a word was given to them. And they were supposed to announce or they were suppose to repeat allowed the test word after this word was written.

Now it was found out when the test word match the meaning of the word club then people were able to respond faster or the club the idea of club or the test word.

But when the test word had a meaning of word had no similarity to both definitions of club then they were slower in repeating this word; which basically means that when we are reading the word and is this word is the ambiguous both the meanings are available

to us. The context of the word for example, I want to join a club at the moment I say this. At the point when I end the sentence which is I want to join the club both the meanings of club the striking object as well as social organization is available to me.

But the context that I want to joined a club where the only the social organization is the most meaningful word here or the most meaningful meaning of the word club which is available here that will be available at the second meaning of club will be thrown out or that will not be used. And so this experiment actually proves that both the meanings are available while perceiving sentences or extracting meaning from certain sentences.

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Now, the third unit of language and comprehension at which language can be processed is that the language units and processes and that is at the level of the sentence. Now corresponding to parts of thought prepositions and allow listeners to extract prepositions from different sentences. Now at the level of sentence so I have a basic level which is the phoneme.

Now this phoneme them combines with many other phonemes to produce thus the word boy which is the level of word. And then I have at the level of sentence. Now at the level of sentence this word is now arrange with certain other words in following certain grammatical rules following certain rules of produce in language to produce a sentence.

Now, this sentence is what we are talking about here. So, corresponding to the parts of thought and so this particular sentence it relates two thoughts. The boy ate the pie, now if I look at it the sentence can be divided into two different part. It has two thoughts here first the boy and then the pie and the third thought is ate. So, then there is an object or there is a sorry the subject here not an object. So, this is the subject.

So, then the subject in this sentence how do we process language in terms of words then we make from words we make sentences. And if we look at the simple sentences the boy at the pie the subject of this there are two thoughts actually here or there are two prepositions which are here. First the boy which is the subject in this case and ate the pie which is the object ate is the verb which says that the boy ate the pie.

So, the pie was eaten by the boy which are we look into it. So, who ate the pie? The boy. What did the boy ate? The pie and so this is call the predicate. And this is how more sentences are actually defined to. So, in order to express meaning or in order to express a certain thoughts we use sentences. And the sentences can be broken down into this two part the subject in the predicate. The subject is the one who is doing the actions the predicate is where the action is being held or it can also be said as subject and objects and this is the verb. So, if we look into it this is the word which signifies action it is called the action verb and this is called the verb. And so that defines what is being happening.

So, then there are two thoughts which have been expressed here. First is there is somebody call the boy who is a boy and he is doing something which is eating the pie. So, the question is the boy did what he ate pie. Similarly who ate the pie the boy ate the pie. And so thoughts are being sent here or are being translated here. The prepositions can be further divided into subjects and predicate that is the description as I said. if I take another sentence Audrey has curly hair. Now if I take the sentence the subject is Audrey which is the on which the action is happening. And Audrey has what this is called the predicate this is Audrey had curly hairs.

Also another way of dividing the sentence for example, let us take the sentence the Taylor is asleep. Now if we look at this, this is the subject that Taylor who is doing what he is asleep. Now if we look at this sentence or if we look at this sentence Audrey has curly hairs. This can also be divided into it is part not only the subject is predicate, but

also in terms of phrases [noise. For example, the Audrey part is the noun phrase and has curly hair is part of the verb phrase. Why it is called verb phrase. Now what is phrase? Phrase is a part of a sentence which makes meaning, but not complete meaning.

So, if I say Audrey it is a phrase it is a noun phrase, why it is a noun phrase because it makes meaning Audrey is the name of someone. Or in this case has curly hairs now has curly hairs if I say as curly as it is a part of a sentence which makes complete meaning. since it is beginning with a verb it is called the verb phrase and it although does not tell you somebody has a curly hair by it says has a curly hair which basically means that if we add something into it, it has some meaning it is given meaning to it.

And so sentences that can also be divided not only in terms of subject and predicate it can also be divided in terms of noun phrase and verb phrase. And within the noun phrase and within the verb phrase we can actually move sentences or move parts of the sentences together. And that is called move or changing the syntactic structure of a sentence, but we will not going to that detail here.

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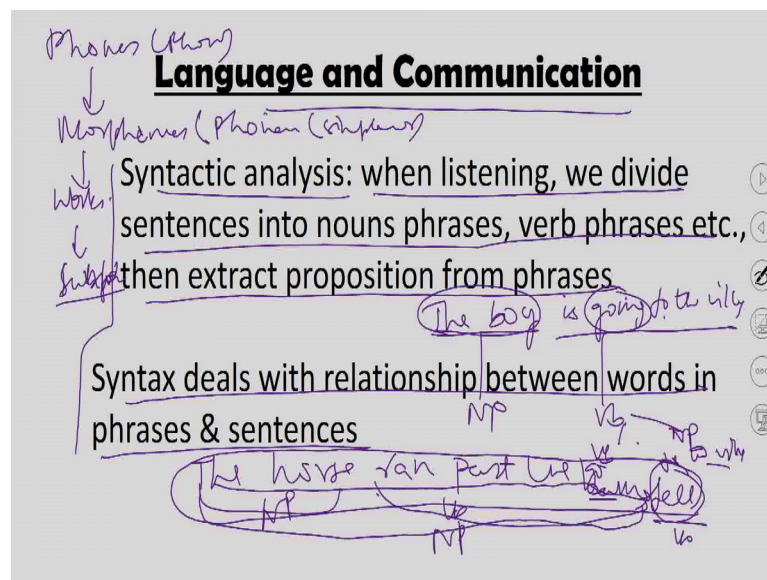
So, basically then how do we understand language. Language starts with something called phonemes or phones. The next level is morphemes which are phonemes combined together phonemes combines together to gives simple words. Then from the level of the morpheme we had the level of word. Now words are concepts which have meaning and

these words are then formed into sentences. Sentences are prepositions which have ideas into them and which when we communicate between people.

So, syntactic analysis another aspect of language is syntactic analysis. When listening we divide sentences into it is noun phrase verb phrase etcetera then extract prepositions from the word. The example that we took in the last class or in the last slide; the boy is going to the village if you look into it this sentence can be divided into two parts, this is the noun phrase and this is the verb phrase. If you look into it the boy so that is what is who is going to the village the boy what is the boy doing is going to the village.

Now within the verb phrase this is since go is the word and going is the verb phrase. So, again we can decide this. So, within the verb phrase I will have the verb which is going and then I will have another noun phrase which is to the market to the village or market. So, then I can change between so within the synthetic structure, I can change the idea that who is going? So, he is going. He is a connector here and so that kind of thing is that.

And so there are two if you look into this kind of synthetic structure this sentence. There are two propositions which are here or there are two ideas which are being floated here. One is that there is the boy and second is he is going somewhere. Where is he going? To the village and so that kind of a thing or a language can do that kind of a thing where can express ideas, ideas using certain kind of symbols.

Now syntax deals with relationship between words in phrases and sentences. Syntax is basically the rule how it should be combined now if I say the boy going to village it is not correct or boy going is also not correct. So, certain grammatical rules are use certain syntactic rules are use certain rules of usage are used for making proposition certain ideas float.

Now for example, if I look at the sentence like the green bird ate the red snake. Now what I am doing here is when I am saying that green bird ate the red snake; what I am trying to tell you is that there is a green bird and he is the person. Or he is the thing which is acting which is eating. Now what did he eat the red snake. Now it is not the red snake which is eat in the green bird or neither it is the green bird which is being eaten by the red snake. The proposition here the meaning that, I am trying to express here. So, this sentence is that there is a bird which is green in color and there is a snake which is red in

color. So, neither the bird is red in color neither the snake is green color not the snake is eating the bird not the bird is eaten by the snake. What is happening here is that there is a green color bird which is actually eating the snake. Hence are that is called syntactic analysis.

Now the problems arise when we have sentences in which this syntactic analysis or this kind of a grammar is not ambiguous. For example, look at this sentence the horse ran past the barn fell. Now if you look at the sentences the horse ran past the barn fell. Now this is called the garden part sentence if you look into it what is the problem the problem is we do not know how to process the sentence.

As soon as you read the sentence it is says the horse ran past the barn fell. Now there is no meaning so as you are progressing down the sentence it makes meaning to you. But then you are quickly understand that fell is out of place. And so what happens is the meaning is not generated. And so in this kind of ambiguous sentences syntax plays a lot of role because this is not having the right syntax.

 So, if you use the right syntax then this word which is called the garden part sentence which is called an ambiguous sentence. Actually starts meaning make meaning. So, what we do is initially I would have said the horse is what is the noun phrase and ran past the barn is the verb phrase. But that is not correct because if I do that if I put run past the barn as the verb phrase and the horse as a noun phrase. Then the sentence will not be complete because I have a word which is fail again a noun again a verb which is at the end of it.

So, what I do is, then I put the horse ran past the barn as the noun phrase and fell as a verb phrase. And now it is correct it is the short form of the sentences the horse ran past the barn and fell right. And so this is what sentences are all about or syntax are all about and the how they make possible understanding of meaning.
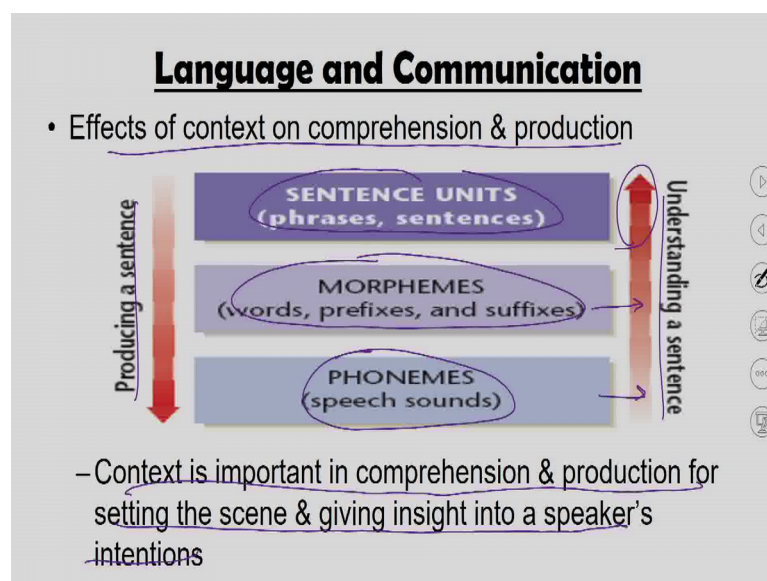
Now, effects of context now the context in which a particular speech is processed has also a lot to do with perception of idea the perception of prepositions which are passed on through a language. If you look into the way understanding a sentence and producing a sentence goes now when you are producing a sentence you start at the level of a sentence unit then you come to the morpheme unit which is word.

And then you come to the phoneme unit when you are producing a sentence, but when you are understanding a sentence you started the level of the v phoneme level you start understanding you start understanding or hearing what the words are saying. And then make meaning out of it and then find is arrived at the proposition that is being passed onto.

So, basically context has a lot of verb or a lot of role to play into how language is process context is important in comprehension production for setting the scene of giving insights into a speaker intention. For example, background knowledge of a particular sentence or background knowledge of where the sentence is coming from has a lot of role to play in terms of what ideas being processed or what idea is being put forward.

For example, if I ask the question can you pass the potato and if I am sitting with you in a dinner table or other people on the dinner table and the question is can you pass the potato. It is not the question of whether I have the ability to pass the potato or do I have the strength the physical strength to pass the potato. The question being asked here is that
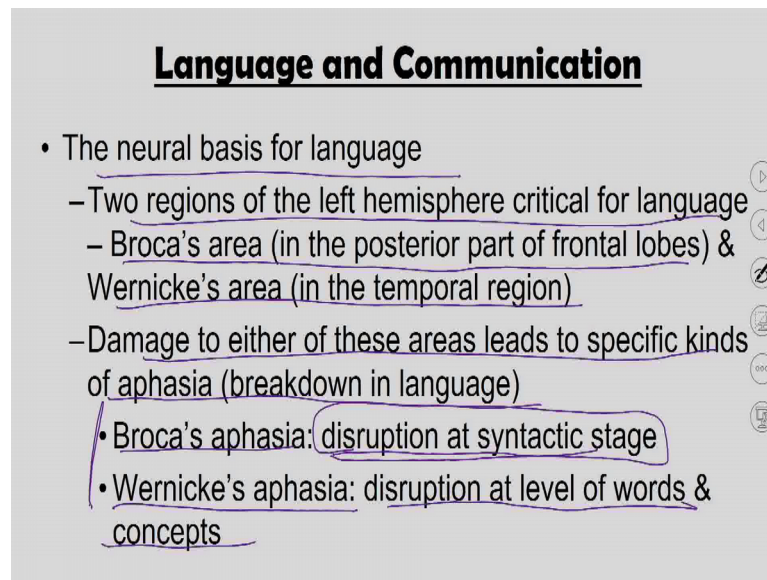
please can you pass the potato the question is whether he can pass the potato not in terms of the strength physical strength.

But please pass the potato is what the meaning of the sentences, but if somebody has a sling on it or somebody has a fracture in his hand and the same question is being ask can you pass the potato. Now in this case the person whose putting the word is actually questioning the strength of the person can you pass the potato actually means whether you have the ability to pass the potato from one place to another.

Similarly, in the production of language also the context has a lot of part two play. So, it in terms of comprehension I just showed to you how meaning differs and in terms of what the context is or in what background the language is being produced. Similarly if I ask the question where is empire state building now the answer to that will depend upon where I am now? If I am in seattle I will say it is in New York or if I am in Europe I will say it is in the US, but when I am in the United States I will seattle I will say it is in New York.

But if I am in New York and if you have same question to me when is where is empire state building particularly I will say 33 and 66 west that is the I do not know. If that the address of empire state building, but that is the number that I will give you I will give you the exact number. So, depending on where I am in which context I am that will decide what type of speech I make and what type of a comprehension can be generated or what kind of information is being transferred.

So, context has a lot of role to play. Now language and communication what is the neural basis of languages. Now there are two regions of the brain one is called the Broca area and the other is called the Wernicke's area which is responsible for producing languages or which is responsible for comprehensive language. Now any damage to this area both are in the left hemisphere of the brain. And so any damage to these areas will actually be in a biting language.

So, two regions in the left hemisphere are critical for language production or comprehension Broca's area which is the posterior part of frontal lobe and Wernicke's area which is the temporal region. Now damage to either of these areas leads to specific kinds of aphasia breakdown in the language for example, in brokers aphasia so if the Broca's area is damage what will happen is a description of the synthetic stage will happen. So, you will be able to produce language, but then you will not be able to understand the syntax of it you will be able to flawlessly produce words, but then extracting meaning is difficult.

But if you have Wernicke's aphasia destruction at the word level and concept level will happen. So, you will not be able to understand what is the concept. So, I will produce speech perfectly, but what is the meaning of the speech I will not be able to generate. In this case, what will happen is disruption in the synthetic levels. So, I will at the level of

grammar there will be a problem. So, I will be able to speak, but there will be several grammatical flaws.

So, I understand the meaning, but I do not know how to put it together. And so this type two types of aphasias are there this is not only these two aphasia are there are many at other aphasias or damage to main reasons which can lead to problems in language formation.

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Now, another question is in terms of development of language. Whether it is required? Now phonemes and combination of phonemes. Now childrens it is weather phonemes are acquired or how it is acquired? What is acquired and what is not. So, phonemes are it is believed that phonemes are required. And so most children actually when they start small children when they are born they can speak any language that they want right or they can learn any language that they want.

And so by the age of 3 to 6 months they produce speech sound, which are similar to most languages in the world. But then what happens is as you grow older as you become 6 months of age what happens if you start producing certain phonemes in your language and forgetting certain other phonemes. And this is what is actually happens.

So, children's able to discriminate among different sounds that corresponds to different phonemes. During the first year children learn which phonemes are relevant for their

particular language. Over the next few years learn how to combine this phonemes together. So, initially when they are born they can produce any kind of phonemes which is which is there any kind of speech's on which is there. For example, ba da and that kind of a thing but they as they grow in age they start learning only the phonemes from their language and later on they start understanding and mixing these phonemes together to produce language.

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Words and concepts; now right from the 1 and a half years to 2 and half years of age children start combining this phonemes together to produce words. So, initially they produce simple words and then they start understanding that the simple words are not true. So, they start doing and over extension for example, let us say doggy, they have learn the word doggy. So, what they start doing is this they start doing something called over justification. So, they take this doggy and try applying it to cats and so and so forth.

And later on they are realize that, this is not possible this kind of thing is not possible and they start narrowing down or understanding the grammars of it. Now later on at some at 2 and half years of age or around 3 years of age, they start making simple sentences not with grammar. For example, dad hat where kind of a sentence and then as you progress early by 4 years of age you understand the grammar as well as the sentence as well as the phoneme at morphemes.

So, when children start speaking around 1 year of age; first use word that relate to family concept example family name animal name and so on and so forth. Around 1 and a half years of age children use around 25 words and by 6 years children use around 1500 different words.

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From primitive to complex sentences between the age of 1 and a half to 2 and half years children acquire sentences units starts with combining single words into two word utterances and rapidly progressing to more complex sentences to express the prepositions and more clearly. So, as I said initially what happens is children develop single sentences and they start extending the concept of single sentences to other sentence as well.

And so by process of learning and conditioning they start understanding that this extension is not working. So, using doggy for a cat or a cow is not really working and so this what they do is, they start learning names of these different animals. And then initially they start combining these name together to form very simple sentences. Very simple sentences as j, eat, dad, go, kind of a thing. Later on they start understanding the grammar of it of how to combine it all together to form simple sentences that is how the progression really works.

Learning processes. So, how is learning then taking place in children? it is through the process of imitation and conditioning. Now possibilities the children learn by imitating adult's imitation or by being rewarded. For producing sentences correctly and punished for mistakes which is conditioning. So, children's are known to learn sentences or language through two process; one is imitation. Now in imitation what happens is a parent actually shows a particular object to a child saying that this is telephone.

So, telephone and the child imitates that. So, one way of learning for children is imitating parents when they talk or when they show something to children and that is how they develop. But that may not be the only way in which children actually learn language. The other way in which they learn languages through conditioning; now in conditioning what happens is a parent actually gives you a reward or the children are reward when they produce the correct sentences.

And so another word of learning is for example, they show the small child or dog. And he says it is a dog he is rewarded and that makes him learn that this is a dog. Or say simple sentences for example, watch they show the watch and when the child says it is a watch then he is rewarded otherwise he is actually corrected.

And so there are two ways of learning one is through imitation the other is through conditioning. Problem with these possibility is that they focus on specific utterances. The problem is that, although these two possibilities of copying or imitating or conditioning

can be one of the reasons of how children learn language. But the problem is that these possibilities are they focus on specific utterances. How do children over extend concepts or how do children produces complex sentences that sometimes even adults do not say.

So, some sentences which adult do not express how do children learn those kind of sentences. So, if it is imitation or conditioning they should dependent on the parent or learning new words for that matter. How do the children produce these matter? So, it is not only simple imitation or conditioning which make children learn, they also do something call hypothesis testing.

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They also learn through some other methods through hypothesis testing. So, what is hypothesis testing? In which children appear to form hypothesis about a rule of language test it and retain it if it works. So, what children then tend to do is that they make certain hypothesis. About where a sentence would go or where a part of a sentence would go and then they keep on adding this.

So, cow move dog move so move is the word or dog bark, cat bark that kind of a thing. And they test this hypothesis for everything man goes, dog goes, or he work, they work, they ated, that kind of a sentence they started using. And then they realized slowly realized that ed is not something which has to be added with every kind of a noun or every kind of a verb and later on they start correcting. So, one of the ways that they learn is through hypothesis testing

Now, hypothesis are generated according to a few operating principles example playing attention to word endings looking for prefixes and suffixes that indicate change in meaning and avoid exceptions. So, what they do is they start playing around with word ending they start playing around with certain suffixes and prefixes. For example, animate so inanimate unanimate so untimely. So, they will use the un in some other word for example, unanimate kind of a thing. And so they extend this way this particular thing this particular thought this particular word ending and start making sentences.

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So, the one for which they rewarded they learn the ones they are not rewarded they will leave it or they will let it go. So, innate factors the richness of innate knowledge. One indicator for this richness is children in all cultures seem to go through similar process in acquiring certain languages. So, basically there are certain innate factors which have also been proposed. And it comes from the idea that people or children in all cultures they go through certain similar process of acquiring language.

 Also the idea that are certain critical period so, for example, first months of life are critical period for learning phonemes for the native language. And it is harder to learn sound systems for a second language later in life. Now it is found that when an adult start learning a later language or a second language in a later life, it becomes very difficult for them. But his children learn them way it is very easy because phoneme learning is very easy for them. Now this system says that language learning is actually innate in children.
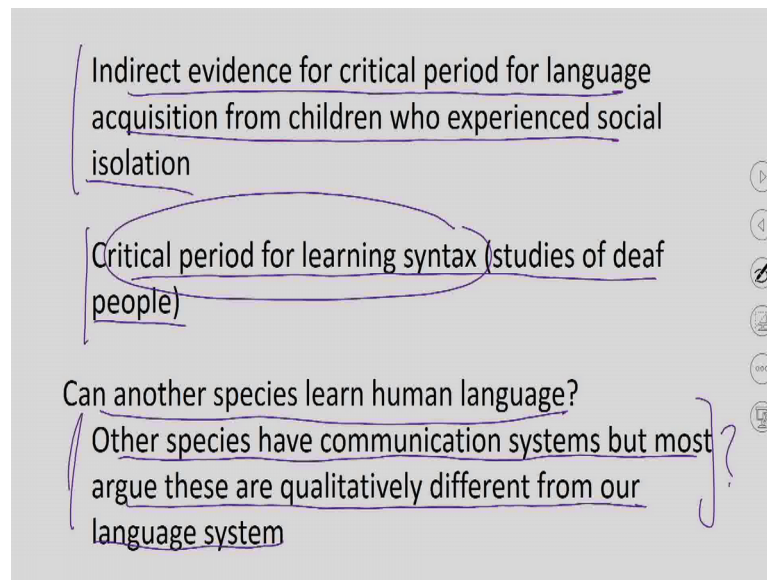
Indirect evidence for critical periods of language acquisition is from children who experience social isolation. So, you put a child into a social isolation this child will actually never produce a phoneme and never produce higher phonemes or higher sentences. Critical period for learning syntax studies of deaf people have said or suggested that, there are certain critical period for learning syntax. Can another species learn human language?

Now that is another interesting question other species have communication systems, but most argued that these are qualitatively different from our own language system. Now, a lot other species for example, gorillas or monkeys or apes have been trained and there are several experiments which have been done with ape. And it has been found that these apes actually learn language, but they cannot learn the sophistication.

So, at the best there was another monkey study which was done where this monkey actually learned certain 1500 to 2000 words. I think 2000 or 6000 words able to express sign language. But they were not able to express ideas like a small children. And also it too many year it took many years for this monkey to learn this. Whereas, small children or children by the age of 1 or 2 years or 3 years they develop this particular language. So, the idea that other species can also learn language is also questionable.

 Now let us take a recap of what we did today. So, what we did today we is I introduced to you the idea what is language. And what is the different forms of or different sections

of language or different status of language. And how does language actually help us in studying human behavior.

So, what language does is it helps us in communicating and transferring ideas from or transferring proposition from one person to another or one system to another. And that is how it actually helps us in understanding or in studying human behavior. So, up till we meet next time and continue with language and thinking processes it is good bye from here.