Indian Institute of Technology Madras
Presents
NPTEL
NATIONAL PROGRAMME ON TECHNOLOGY ENHANCED LEARNING
Introduction to Modern Linguistics
Lecture-33
Syntax: Structure of an IP and
Thematic Relations

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Let us, let me begin anybody got a chance to look at total number, number of aspects in language in natural language no I mean all the languages that we speak is natural language answer my question have you looked at that yes ,yes so Tintin. I just the Wikipedia page in English they have identified like four , four aspects for two tenses what are they simple present progressive present perfect and present perfect progressive four present tense and the same sure see aspect is the reason why.

I want you to look at that part the primary thing for you to understand is aspect is something different from tense that is number one in the sense that aspects adds aspects add something else to sentence tense tells us about time of the action aspect talks about more particular manner in which was done at a particular point in time that is the reason why these two things are different now when we say simple or continuous or perfect or what was the fourth one you said perfect progressive.

So all we need to know there are there are terminological differences in there what we say progressive is exactly what is continuous we just need to understand this the differences between these two terms however we also need to look at examples of what we mean when we say perfect continuous okay, I am planning for a little bit more discussion on that at some other time so I give you some more time to look to look at that particular aspect of aspects.

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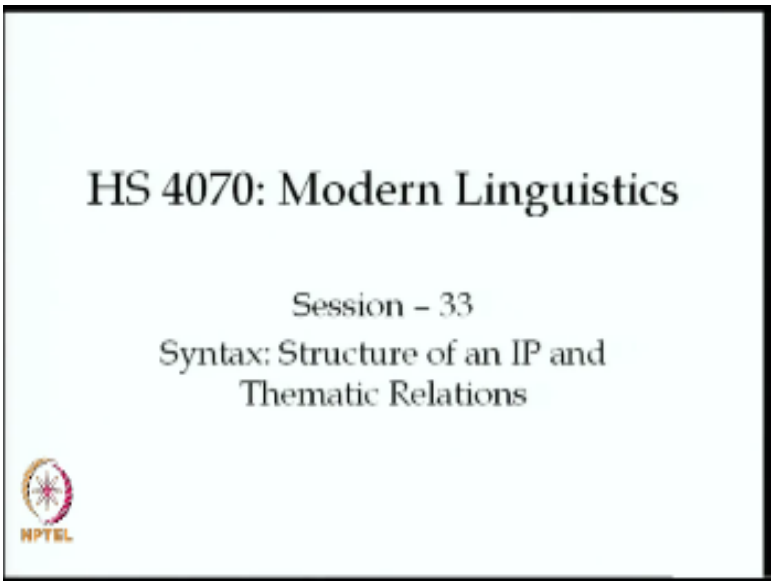

Let us move ahead with what we have to discuss.

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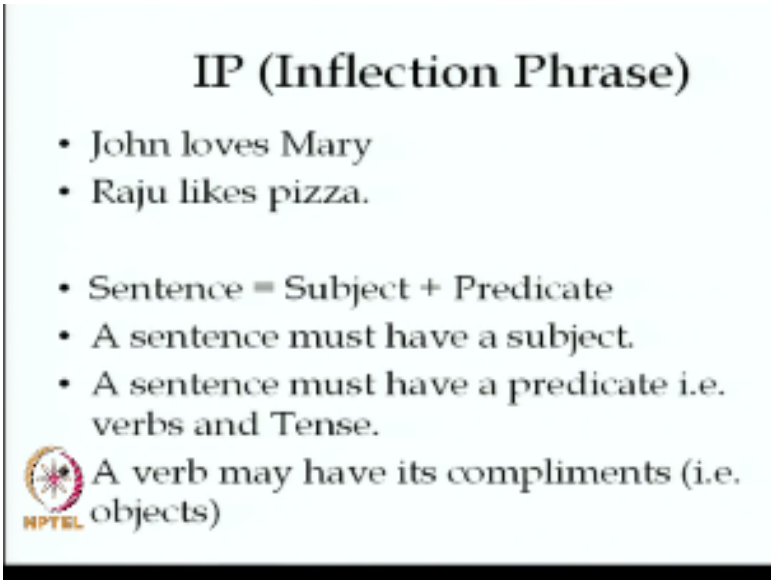

So we were looking at this is a structure of sentence yesterday and we now know that we now we now understand about end or centricity of a phrase that is if we are talking about an NP then only nouns are going to be head of that phrase when we look at smaller sentences straightforward nice-looking sentences this is what ,I have mentioned probably several times nice-looking sentences this is what I mean by well-behaved nice-looking sentences where you have a clear verb Claire subject and a clear predicate and two parts of predicate that is a war

and its complement that that is what we mean by nice-looking service sentences are called inflectional phrases.

That is because what hence is what helps us what hosts the sentence and the head of the sentence is not a lexical world either subject or the verb the head of the sentence or what plays the most significant role in a sentence is inflection right now we are considering inflection as the bundle of features which is both tense and aspect together and then we know that sentences must have a subject which is outside of the predicate it naturally follows from that that the sentences must have predicates to in the absence of either one of the two we do not have a sentence worse.

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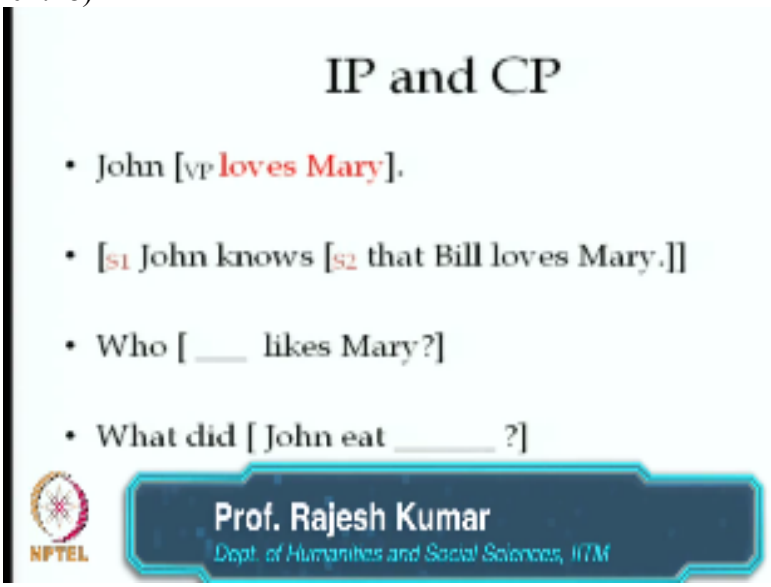

However may have or may not have their complements any sentence yes like yesterday we saw our sentence within our sentence right so it is the smaller set yes the only thing we need to know is how do how do they get represented in x-bar scheme should not be very difficult it is a logical thing to look at - 2 X bar itself is a is logically designed mechanism where you remember about the categorical rules the world no subcategorize is for the whole sentence so where is the where is the second sentence going to going to be should not be difficult for us to understand right that is if the second sentence like in the sentence number two on the screen.

If this if the s2 is sub categorized by the word know then we know it is the complement of that work and then this sentence is going to be exactly in the same place where complements occur

and then we go ahead with the another sentence so here is how it works any question about sentence number one no questions about sentence number one here that is the first sentence okay let us look at two.

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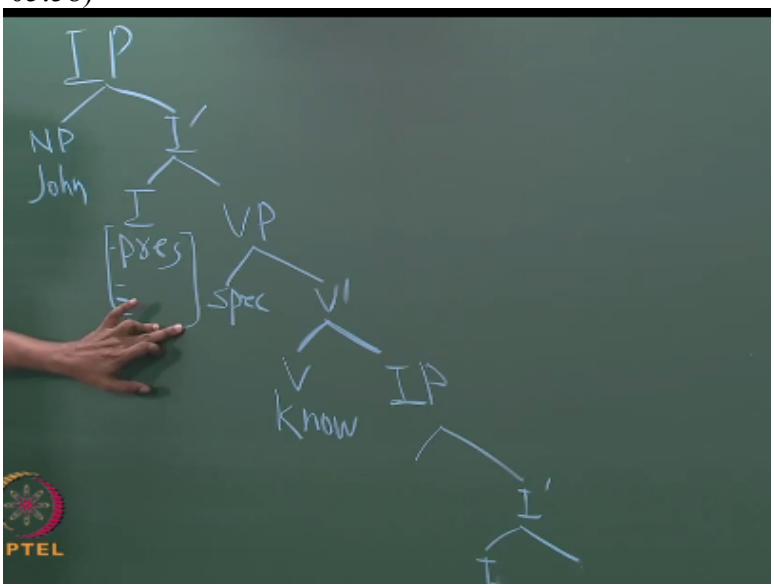

It is a sentence which is in IP it follows all it is under centricity and other components of a phrase and then we have here I as its head and then we have a VP as the compliment of this head where we have a subject NP here we will put the subject here John and then this destruction of the VP is again this is where we have no this is the main sentence do we do we understand that this sentence John knows that Bill loves Mary it is one sentence or two separate sentences this one sentence or two separate sentences connected by that will be incomplete very true it cannot be two sentences there is a sentence in it which by itself is an in could be an independent sentence like bill loves Mary by itself that could be an independent sentence but when we are talking about this whole sentence.

This whole thing is one sentence and the second sentence that you see is part of the first one in the sense that that is the part of the that's the part of the verb which is that's part of the predicate no in the sense that this s2 is complement of the word no get it the by nature this predicate can take an NP as its complement or it can take more than an NP which could be an IP please now I am going to change this thing in a few moments but right now I'm going to put another IP here why I will change this to anything else.

I will discuss that with you too so now you know that we have John knows and then s2 comes here you can draw the structure of this IP again and I leave it for you to draw this okay so again the subject of this IP is going to be what we will have a subject here and the subject of the second sentence what you see on this screen is going to come here and then it has its own tense and then it has its own VP and that VP has its own work and the complement of that work this is why I said I am going to change that in a moment coming to that know.

Which means it is a good thing that you are asking it simply means that we cannot ignore in single component in the sentence because every part of a sentence has consequence for its presence and that refers to something so I am coming to that but for that for the time being what I want you to know is how the complete how the predicate know takes a whole IP whole sentence gets complement and then it stays in such a place that it is non recursive structure it stays here and then it works as an independent sentence clear ok since we are working on this what comes here in the head of this main sentence.

What is the tense of the main sentence so we will settle down with this much for the time being and we are not working on the role of aspect in this sentence right now if there is any we put this as bundle here bundle of features this is really truly a part of advanced in texting we're splitting these things in their consequences have been worked out but, I am not saying that you are it is difficult for you to understand that so all I am saying is the discussion on this does not have to serious a consequence on trying to understand what we are doing right now.

This is how this structure works the question is what is that doing in this sentence moving it connects is it really it is only connecting or is it doing something else what is the meaning of this that in this sentence they or is it is it little bit different from conjunction see the reason why I am raising this question really is when we have when we use actual conjunct words that that is why I ask you are there two separate sentences they are not right like when we say John and Mary we cannot drop the tangent word-for-word from there however it is likely - it is possible to drop this word from here.

We can say John knows well not in this sentence but in some sentences we can drop this that I understand that so therefore it not really conjuncts conjunct word alone and then conjunct word weighs two parts equally these are not two equal parts of the same sentence what is it before we

answer that answer this question there is one more one more thing which I want to ask you this is not the first time here you hear this word that do you know that there are at least two types of that in English tell me des what is the literal meaning of this that so it does not have a meaning that's just a pointer.

But if I say give me that give me that book do we have a meaning of that that is a demonstrative pronoun okay one of the one of that is a demonstrative pronoun which has a meaning this one does not have a meaning of its own there are two types of that in English at least okay if we look at this part s - it is clearly more than IP right it is more than IP an IP is a simple sentence like the first one john loves Mary or bill loves failure for something they're very pretty simple sentence that john loves Mary is not just an IP it is something more than an IP what.

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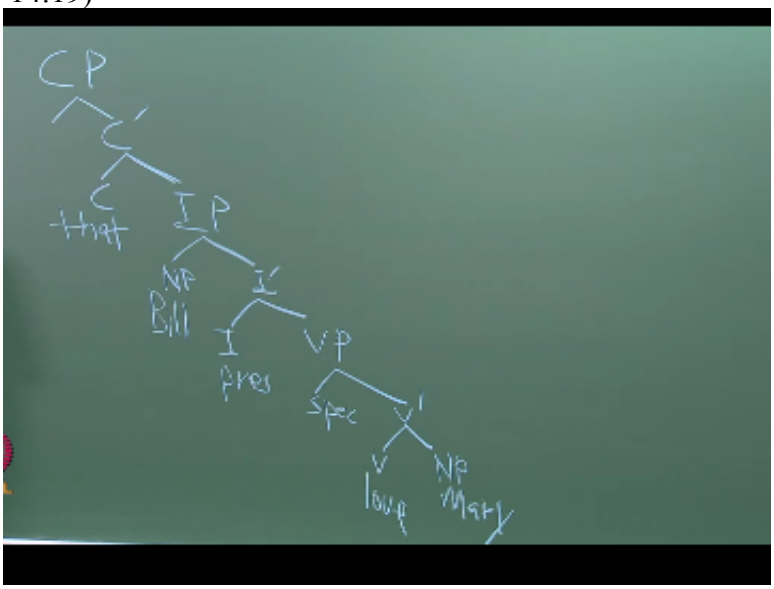

I want to introduce to you with the help of this is something called a phrase complementizer phrase which is CP and this is you understand the structure of the phrase the head of this CP is going to be C which stands for complimentizer and then you get an IP ,IP has its own subject so the way it works is this is where we have that pill present and then we say bill loves me now what I wanted to change here is going to depend on your answer in the main sentence where we have the predicate known does this predicate no subcategorize for an IP or for a CP that is the s2 that you see in this sentence is it an IP or a CP ,CP.

So this work when we say it is sub categorizes for another sentence or it could sub categorized for another sentence as its complement what we actually mean is this is a CP okay this is a see this is how in simple example a complex sentence works now you need to combine the two structures together and that will be 1 X bar representation of the sentence - John knows that Bill loves me yet this in order to understand x-bar you need to look at just not just but couple of things very carefully first endow centricity of traces second components of a phrase in terms of the fact that every sentence every phase will have similar structure.

That is any specified it will have a head and it will have a compliment the intermediate category that is not the terminal one in or V and not the phrasal one NP or V P but the intermediate ones n bar or V bar is going to work as a recursive name is going to provide reclusiveness in this structure once you know these things and then what you need to keep in mind is categorical selection rules once you figure out what is the complement of the predicate and once and when you know that the subject is outside the predicate.

Which becomes the specifier of the sentence then the structure of the sentence structure of the predicate and the complements trust the complement placement all of them become clear to you and you can come up either with a structure we are doing it we are doing it the other way around the main idea the main reason why these things were proposed and studied was the claim is this is how generative mechanism of sentence production works in human mind when we learn a language when we acquire a language for the first time when we say we can speak infinitely long sentences how does agenda.

How does generative mechanism allow an infinitely long sentence how do we know that a sentence is ungrammatical where does where do things go wrong in sentence this is the way to capture such predictions in sentences clear.

I have to talk about one more type of sentence and then, I move on but do we have any question about the two types of sentences we have seen simple sentence and this type of a complex sentence where we have a complex predicate in terms that the predicate takes a heavier compliment which is CP not just an NP clear now if that is so you need to make some more space or leave it for some more time.

We have a sentence the third one who likes Mary this is a question sentence right in this okay let me put it this way in this sentence the word who is not really part of an IP ok it is not really part of an IP because it is not the subject of the sentence it is a question word which questions the subject not a question not its subject itself these do you see this part this word is not a question not a subject by itself which will become little bit clearer.

When you look at the second sentence what did John eat what does this question word question in this sentence what is what is this world question what is the word what questions in the last sentence that is a difficult question eat it what is something that is part of predicates technically speaking is an object and this sentence last sentence already had its own subject which is John right it is a language internal restriction.

That is it is part of the parameters of universal grammar that English questions always get fronted unlike other languages the weight question works in other languages is not in all the languages question words are fronted that is they occur in the beginning of the sentence it is a language internal restriction in English that all the question words are going to occur in the beginning of a sentence that is all the questions irrespective of which component.

It is being questioned gets fronted right how does it work in our languages do they really get fronted or not how do we say the sentence what did John eat in let us say many of you know Hindi how do we say the sentence in Hindi what did John eat john neh kya kaaya right is this word cow which is a question word I am assuming that you know is this occurring in the beginning of the sentence.

Please know that question formation is part of universal principles that is all the languages of the world will have a mechanism to form questions how is parametric in some languages question words will come in the beginning of the sentence in others they will not okay and both a set of principles and set of parameters form universal grammar.

So coming back to this sentence the last one you see that what is not really a subject with the help of these two sentences we can conclude that question words are really not part of IP they are not within inflectional phrase there are somewhere else if they are what we need to know they where do they really go where do they really go to that is that is where it they go to the complementizer phrase so the purpose of positing.

Is CP is not just to discuss complex structure alone and again I want you to know this in very clear terms that when we are talking about something like innate principle something like Universal grammar which is part of innate principle of natural language if one component of grammar explains just one thing then that is too heavy a process for human mind mechanism should be explaining rules.

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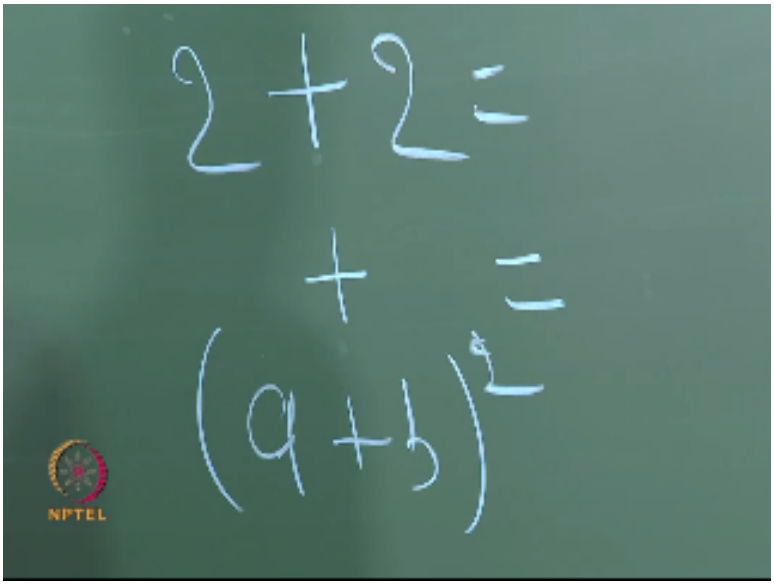

For example I will delete it right you know this mechanism in mathematics does it explain just one thing that is what I am saying is if I just put these two things here this simplest possible mechanism of mathematics does not work only for adding 2 and 2 what this really works for is anything that you put on the two sides of this you are going to get some of that here this is called underline this is one single instance.

Of this underline what I what I am trying to say is if they roll like this gives you just one explains you just one phenomena then that is too heavy an operation for something like human mind to operate what human mind likes is something like generative mechanism which should be able to explain anything as long as we are talking about sentences so the structure of an IP is going to take care of any sentence.

Whatever you come up with any type of sentence and once you know how to split these things then you can fit now not just fit on purpose then you know how the sentence works so it is X bar system inside generative mechanism.

Is something like this rule you can make this rule as complex as you and I do not know mathematics that well therefore I am not giving you many rules the problem of learning system I need to come back to something the problem of learning system is we learn this but we do not know that we do not learn the underlying rules I can give you my example I still do not understand the application of this thing okay.

Because I was never explained this thing I know how to compose and decompose and all those things but I do not know how and why should I learn it what do I do it is at least this much was easy to figure out that when you go to the market you need to do some of the things this I did not clear that that is my limitation all I am what I am trying to say here for our purpose is this mechanism.

Is like the underlying rules it is not just one explaining just one single instance cliff therefore if we budget something like CP and if it just helps us explain a subordinate clause then that is not a very economical process I think I have mentioned some times to you in the first few weeks that language is like to follow principle of economy and this is one example of principle of economy that same structure should be able to explain other phenomena as well now CP helps us explain question sentences in the following sense and it helps us understand one more aspect of it which I just want you to know.

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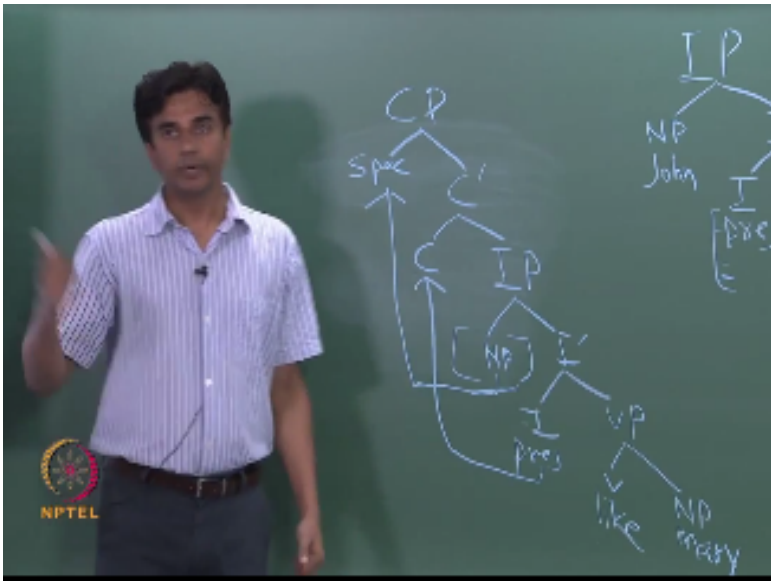

See a simple structure simple sentences like this is the structure of CP is such that the complimentizer the IP the main sentence becomes the complement of C and then we have IP where we have a subject we have an inflection and then VP has its own I am trying to make it put it in short because there is no specified of VP here there is a huge debate about these things which is not really relevant right now let us come back to this so we have a sentence like what the sentence that we have who likes Mary.

So here is the word like we have a present tense and then we have like you now the question is this I this subject NP has been questioned right so this is an empty place in this sentence and there is a roll of empty places as well in the sense that we cannot say this sentence does not have a subject it is just empty it is been questioned ok so this what happens actually is this NP moves out of this and then it needs to land somewhere it needs to stay in the entire structure and then what happens is it moves to the specifier position of the CP.

Then we say who likes me now there is one more in one more language internal rule in English which says when we make a question what moves is not just the question word not the element which has been questioned what moves is also tense ok so this I this tense moves to another one ok now this may not be making much sense to you right now but it will make more sense when I am talking about the second sentence that you see on this screen.

Which is in simple term more than an IP what we are saying is question sentences are more than an IP is a normal sentence we do not want to say these are abnormal sentences but these are more than an IP all interrogative sentences are CDs yes who is not a complemented it goes in a specifier position it just requires a place to land now remember who is an MP right it is a phrasal category it's in this specifier position of the sentence.

The place where it can land can only be in a specifier position of another place again what we see a system in place and NP which is not which is a phrasal category cannot move to a complimentizer position it has to move to another position which can host an NP when this thing moves out of its own original place what is this the category of this is M is ahead this is in the tense is in the head position of this IP so a head needs to move.

To another head position C happens to be one such available head position in this structure it moves there and then it explains the whole sentence how integrative sentences work we are we have to do the arrows the arrows yes to explain in interrogative sentences and this is called this phenomena when we are doing the arrow this is called movement or displacement these are examples of actual displacements of elements from one position to the other position.

In earlier terms in earlier grammars this was called transformation rules how we transform a declarative sentences into an interrogative sentence okay which is the two sentences one is declarative the other is interrogative we know that this centragative sentence has been formed out of a declarative sentence the later development of x-bar theory and developments in generative linguistics which we know as generative mechanism help us understand that actually there is no transformation.

We do not have a new sentence what we have is elements within the sentence have been displaced and this is an actual physical demonstration of displacement of elements in a sentence now please look at sentence number four that is last sentence on the screen and then you will see what I mean by the displacement of tens when we when the tense moves out.

Of this thing when a question when subjects are questioned we do not visibly see the displacement of tense but when objects are questioned we see the displacement of tense as well can we say what John eat is that a good sentence of English what John eat know what is a good sentence of English is what you see here the sentence is what did John eat right what did John eat now the okay let me use this space.

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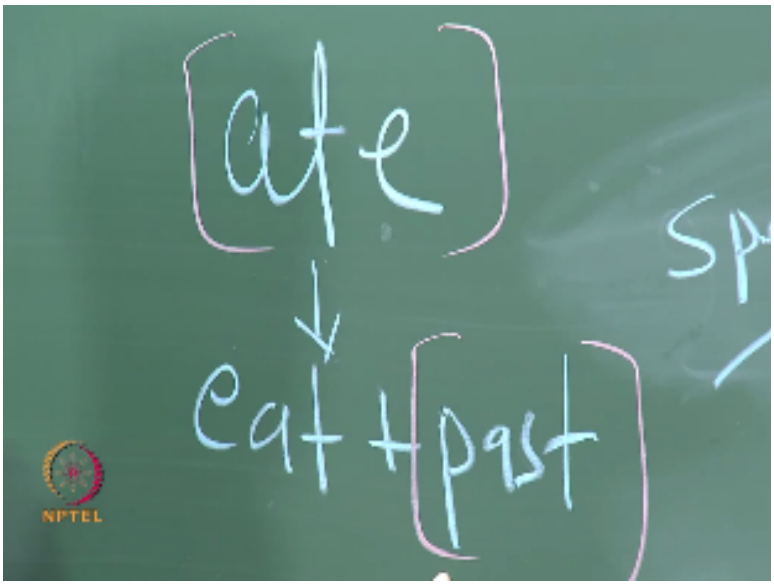

The word it is actually eat plus past right which we get to see the way this exists it sounds little bit too much to separate them into two but sometimes actually human mental computation works on this and separates this element out of this therefore you see the sentence like this you have a sentence John ate an apple and then you then you get when you have a question what did John eat.

What we are actually doing is while questioning the object the because of the language internal requirements of English we also need to displace tense not the world not the predicate not the predicate we need to displace tense alone only tense war with stays in it is original position we only separate out word separate tens out of the work and then that moves this is a physical real example of displacement and separation of tens from the predicate in English question words can I can I use the same structure to discuss the fourth the last sentence here you see I will need to delete some of the things from here.

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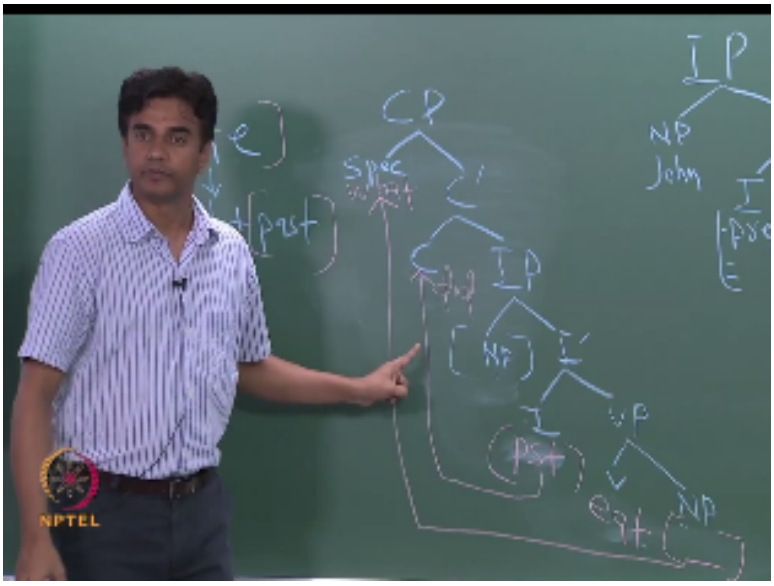

See this is how it works we have the tens here past right and we have an NP which is an object is questioned ok so what happens is in this case this NP moves to respect position and we get ok what also happens is water stays here and it is tense moves to this position and then we get because this is past tense what comes here now tense is an invisible category it does not have it is own manifestation.

Which you can see with the example of this word ate if I just give you the word ate and ask you to show me past tense you would not be it is not possible to see the tense when it is associated with the world we really get to see that when we dissociate it from them as an invisible category as an inflection category the tense cannot stand on its own therefore it needs the help of a fictitious element like do which does not mean anything of its own.

In this case ok and then do becomes an example of a present tense and did becomes an example of past tense do hosts present tense and did hosts past tense and then they come here ok when this is separated out of the work then what we are left with is a bare verb therefore even in the past tense we say what did John eat get it now I want you to understand one more underlying fact out of this CP out of this structure.

Which is the following I am assuming that it is clear it is clear to you that question sentences are more than IP question sentences require in or involve actual physical displacement of elements from their original places to some other place at least in English now the reason why I mentioned

this at least in English is this has been predicted or this has been the structure for all the languages in a language like Hindi.

When you do not see things moving there are more things to be just to be discussed which is people logic that at a logical form level at a deep structure level they move but at surface a structure level they show up in the right places those involve complicated computation we do not want to go there in order to understand the phenomenon of X bar what we need to know is there is an involvement of actual displacement of elements which the theory of X bar clearly demonstrates the different categories different phrases of phrases.

Which is part of X bar X bar Theory help us understand several types of sentences and finally I want to draw your attention here but when we said the head is the head is the inflection is the head of the sentence what we mean is there is an association between this tense and word this association is not inherent they get together which is which becomes evident that they at times they can be separated from one another too.

If they were inseparable then we will not be able to do this and probably in those if they are not separable probably to say something like John what john ate would have been perfectly all right a sentence in English the fact that we John what did John what John ate is not a good sentence of English tells us that it is possible to separate tens out of word therefore sentence tenses must be out of the world to begin within.

The logical representation of sentences if tenses need to be out of the verb then there are more things that have gone into this what was this what was posited there is actually the head of the sentence is this inflectional complex and then everything else is built around this making sense there is one more type of question which I have not put here some of the yes no type questions like which is let us say if we have a question.

Like is this a pencil I am assuming that you should be able to do it that in a yes no type questions in English in a in a language like English we do not have content word who what when in that case what happens is nothing goes to a specifier position of CB what only moves is tense from the head to another head which remains the in which hits the integrity of question sentences that all the questions and tenses are CPs.

We still need a place for tends to land with and that places the head position of a CP yet it so in yes no questions the only thing that moves is temp now think about one more situation when it comes to the movement of elements what is more fundamental which element is more fundamental to move that is which element must move tense therefore inflectional categories are of prime importance in the construction of the sentence.

They determine the nature and structure of a sentence get it and thus both the types of sentences structure wise both the types of questions WH questions which are also called content questions and yes no questions in which we do not have a WH word both are CPs and both require physical displacement of inflectional elements and lexical elements electrical elements are the categories like subjects like NPs.

In subject position or object position or it there could be more positions and we can question any NP or any PP all of them will move to respect position of CP the reason why we are calling a questions CP no not the reason one of the reasons why we call them CP is this helps us predict that we cannot question two elements in the same sentence we cannot say who what ate there because there are not to expect positions.

In the CP okay so these are not just to conclude these are not just artificial designs these are not just fancy stuff to see how principally we work around different elements of sentences they have serious theoretical predictions of how language really gets projected.

In human mind now for someone to believe this thing or not believe it is like religion what we do with this whether this has any application or not I post we believe the application stuff of linguistics to machine learning and computer applications is too far away from this displace we are still working with sounds we are still trying to understand sounds and how machines should be able to understand sounds.

Sentences and then displacement of elements in sentences and their semantic correlations too far away which is not to say that things are not working in computer science we have we have moved to move we have made a landmark progress and we see the products around us with such things but come back to what ,I am discussing we may not be able to see the direct application of these things on.

How to design an intelligent machine but once these things get modeled prop properly with proper algorithm in whichever way they are done I do not know how to model these things with algorithms but then you see the application of these things in other the other domains at least so far these things help us understand in categorical terms but several new things about functioning of human mind how human mind follows simplicity principle of economy and projection of sentences it is pretty clear through generative and through understanding of generative mechanism of sentence production we I had a couple of other things to discuss with you.

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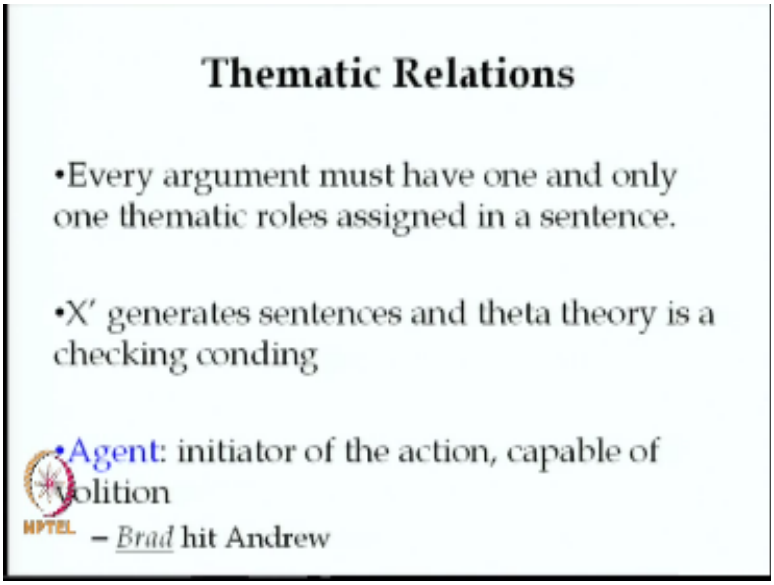

Which is thematic relations I know we have two by I mean professor Choudary needs to come in for his classes but I need to two to three more pluses here to wind up it in a thinks in a particular way so that we can say we have a fairly good to understanding of two three components of syntax how do they work so tomorrow I work with thematic relations and a C command okay thank you.

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