

**Indian Institute of Technology Madras  
Presents**

**NPTEL  
NATIONAL PROGRAMME ON TECHNOLOGY ENHANCED LEARNING**

**Introduction to Modern Linguistics**

**Lecture – 29**

**Syntax: X- bar Theory**

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So far we have looked at linguistic theory and its components and we have established how study of a structure plays a significant role in answering several theoretical questions in linguistics we looked at very briefly how we learn in language the role of knowledge of language and what it consists of and universal grammar how that makes a difference how that plays a role in similarities and differences of languages then we looked at components of sentences we also looked at types of verbs types of objects how words and objects are related to one another.

And then if we draw a super structure then subjects are outside the predicate and then we have looked at both subjects and predicates as a component of the sentence now we are going to look at x bar theory in linguistics structure how x bar theory captures sentential structure and how a phrase is built around and what is the role of a phrase in a sentence how x bar theory helps us understand differences and similarities between several components that we have looked at this is very easy and interesting .

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# HS 4070: Modern Linguistics

## Session - 29 Syntax: X-bar Theory



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## Features and Syntax

- **Categorial features:** N, V, A, P
- **On verbs:**
  - Tense: past, (future, present etc.)
  - Aspect: perfect, imperfective, progressive ....
  - Mood: realis, subjunctive, ...
  - Form: infinitive, participle
- **On nouns and verbs:**
  - Number: singular, plural
  - Person: 1, 2, 3
  - Gender: Masculine, Feminine, ...
  - Case: Nominative, Accusative, Genitive, etc.



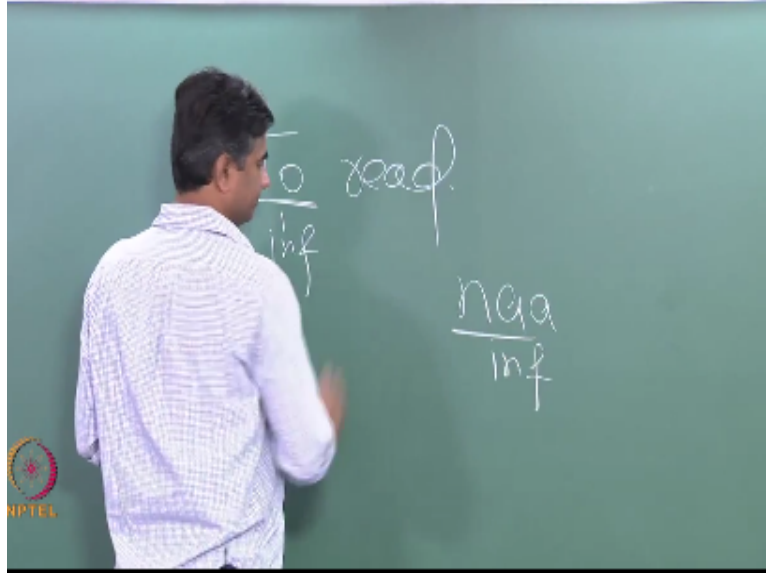
I want your total attention for this thing so please take a look at that there are several categories in language we are going to be talking about four of them and some of them are nouns verbs adjectives and prepositions or post purchases okay we come to this structure and row rules underlying this structure in a minute in order to connect with what we discussed yesterday I want to take you through one more put one more aspect of it which is called we looked at words and we looked at nouns now we are going to look at how and what they carry with themselves okay.

So we are going to be talking about features on these elements nouns and verbs certain features like tense aspect modality and formal distinctions were scary such features I am going to elaborate on these things in a minute but let me first make sure if we have heard these words at least tense aspects modality yes no okay what are the tenses that you have heard present past future I am glad there are only three of them and then we talk about aspects have you heard these names before perfect imperfect continuous yes okay.

Please give me very quickly an example of an example of a present tense sentence somebody from Sun rises in the East very nice sir next fastest any simple sentence keeping day he went there all right so went shows past tense if I can assume it future tense I will go there very nice I am I am assuming that we understand why these sentences are present past and future we need to focus on more complicated stuff if we talk about aspects and then say perfect aspect or imperfect aspect you think you can give me some examples of perfect aspect and imperfect aspect any idea okay.

So I will need to talk about that and then how about infinitive and non infinitive things No okay I will talk about it see any work.

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Something like this marker 2 is an infinitive marker so to go to read to sleep to eat all the Wolves come with this infinitive marker it is not language a specific thing it is not only about English it happens in all the languages anybody in Hindi example how do we say the same thing in Hindi I Padana okay so the na at the end of it is infinitive marker okay na in the word padana is exactly like two in the verb to read and the important thing about this is it works like a wrapper it is wrapped in a like words are wrapped in this infinitive marker and the moment we want to use it we have to remove it and then use the verb in a sentence.

So when we say I want to read a book we do not say I want to read a book there are some cases where we use infinite evil works in sentences but most of the time when we use them and when worse have to carry their features that is when these features of the work gets activated in the sentence then we have to remove these infinitive markers is this is this making sense to you when we say works have to activate their features for example see a verb always carries these features if ever has to activate its feature.

Let us say past tense it cannot activate that feature without removing this marker so we cannot say to went we have in order to say I went there we have to remove this infinitive marker and then work transforms into a past tense transforms into something which looks like a past tense marker this is this making sense to you so these are the features of works I will talk about modality and modality some other time to you.

Let me talk about the features on nouns and the reason why I call it features and nouns and verbs is because these features of nouns get into agreement with the words so features like number we have heard these words singular number plural number right features like person first person second person third person I am not asking you to give me examples of these things at this moment but I just want to make sure that you have heard these words first person second person third person and then gender like masculine and feminine right these are the these are simple things which are all encoded in nouns.

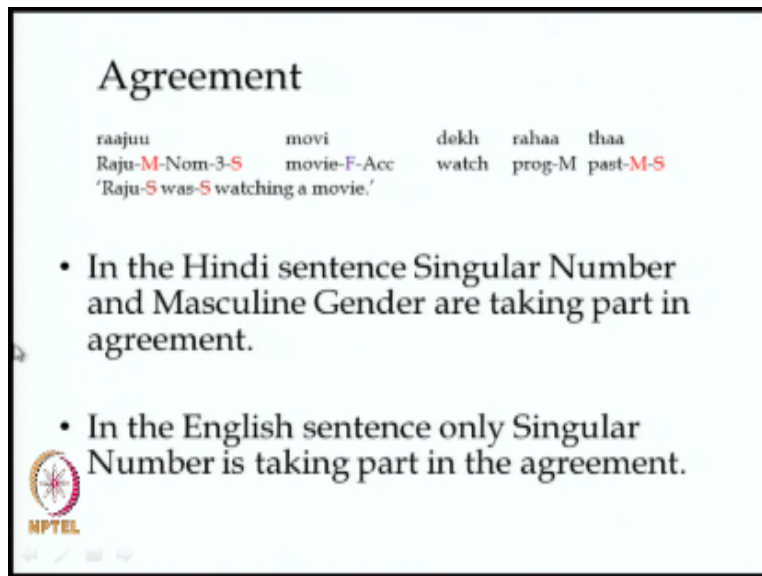
And therefore these are called nominal features how about case have you heard this word case now nominative case accusative case okay so we will talk about them as well remember how what we were talking about sentences yesterday in a sentence in a sentence a noun becomes a subject or an object depending upon its position remember that those positions are relevant to cases okay so a noun it is either infinitive case or accusative case or genitive case or something else depending upon its occurrence.

In a sentence however the assumption is all nouns carry all features depending upon the position of occurrence of a noun in a sentence a particular case gets activated so if we are saying John likes Pizza John being in the subject position activates its nominative case therefore we say subjects always have nominative case pizza being in an object position activates its accusative case if we change these nominal in different with their different positions then they will have different cases yeah I understand this point and the reason.

Why we are talking about this is because it is very significant for us to understand that in a particular position or any particular now activates its case it is not that it is not that those verbs those nouns receive those cases they are they already have their cases and they get activated there is a big debate in linguistic theory about this particular aspect whether works assign cases to nouns like subjects and objects when that is whether nouns received cases from the verb or they carry all the cases and then verbs help them activate their features.

The this is a big debate in linguistic theory I will try to make it as simple as I can but these the important point is to look at and to know about these features as in nominal features are you with me so far all right let us look at one more point before the structure.


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**Agreement**

raajuu                      movi                      dekh    rahaa    thaa  
Raju-M-Nom-3-S      movie-F-Acc      watch    prog-M    past-M-S  
'Raju-S was-S watching a movie.'

- In the Hindi sentence Singular Number and Masculine Gender are taking part in agreement.
- In the English sentence only Singular Number is taking part in the agreement.

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And see how they work how they are at play now I am going to talk about agreement in order to show you these features can everybody read the sentences you can lodge you movie the hot tub it is a Hindi sentence Raju movie the hot tub now I want you to pay attention to the glasses in the second line also at this point I want you to look at it this is how examples are written in a linguistics paper or a book and this is the convention of writing an example of examples from languages other than English.

So if we are coding examples from any language this is how we rewrite their examples we write the sentence with the help of phonetic transcription as accurately as we can there are standardized ways of doing this thing and then we give word by word meaning of it which is called gloss and then we elaborate relevant features of that particular constituent and then finally we give it give its English meaning the advantage of this thing is people working with these things do not need to know a particular language.

When we put things this way we know we only need to know what we are talking about for example if you if you know Hindi it is good if you do not have to know this thing what you have to see is Raju is first noun in this sentence movie Dekha movie Dekha, Dekha is work and movie is its object the order of this is predictable because we know Hindi is a verb final language we see technically the whole verbal component were part at the end of this sentence.

Movie is the object in this sentence it is near the verb see that in it is in a sequence of occurrence it is close to the work now we see some of the features activated on these components Raju mask it has got masculine gender nominative case and its third person singular it is this aspect making sense masculine now should be difficult singular number should not be difficult it is third person and because it's in a subject position its nominative use movie as a Hindi word it has feminine gender and accusative case now look at the verb.

Dekhtha means to see or to watch right now I look at look at this part of the verb rahaa thaa this is the part which shows a special marker in this particular case it is progressive aspect or continuous aspect and the last component taa is a tense marker in the sentence that is tense marker on the verb now what is the verb also carries masculine gender and singular number if you look at these three components of this Hindi sentence.

Is it possible for you to figure out which noun in this sentence agrees with the word and when we say agree with agrees with the word we mean the features of the noun agrees with the features on work Raju why not movie is feminine but the things masculine very nice so it is very simple a simple idea the and this is why I am spending a couple of minutes on this and want you to understand that when we talk about all these words singular noun plural masculine feminine nominative accusative these names may sound like we are listening to these things for the first time with the idea that they depict.

And the way they work is pretty simple agreement simply means its features are going to be matched on words and subjects okay that is a nominal position nominal element in that position so the fact that this nominal position nominal element in the subject position is masculine and it

has it is singular and the verb shows masculine and singular work shows masculine and singular feature then we know that this noun Raju agrees with the verb Dekhna.

I want you to know at this point that you are going to see this agreement only at the last element last part of the verb okay this whole thing Dekhthatha is verbal component the verb will come it is called it is also called verbal complex and Hindi Telugu Tamil Malayalam most of the salvation languages almost all South Asian languages show the features of agreements and the last element there else this is why they are called peripheral features they will show it on the last element.

Now one more point about this aspect to the hatha this indicates continuous aspect marker what did you what do what do we mean by continuous so look at this when we say tense is different from aspect tense talks about take tense only talks about time and whether present past or future that is about time but the manner we know in which something is done and also sentences give us more information about a particular action then the time alone.

So the this distant this particular aspect talks about the continuity of this action at that point in time which means whenever we are where we are talking about in that present moment the whole act of watching was in progress was in continuity that is what that aspect of meaning becomes clearer through this word this element therefore this is called aspect what was he watching what was Raja watching movie that it should not be difficult for us to figure out that this is the object.

And what type of evolve is this they can why it answers the question what was watching what watching movie it answers the question what therefore it is a transitive or are you with me now do we understand agreement and do we understand how the components and the types of works that we discussed yesterday work in a sentence what are the what are the features on now that is the subject Raju that takes part in agreement of the noun Raju that is in the subject addition in this sentence is playing a role in their agreement.

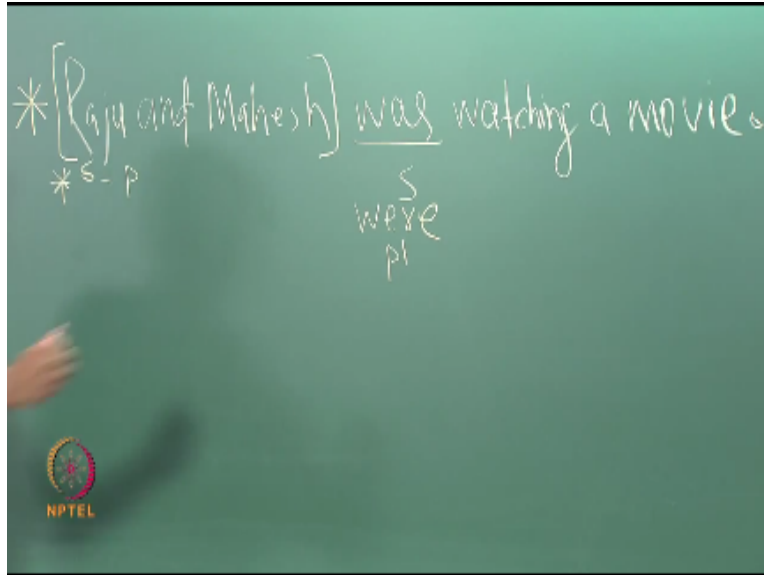


You see there are so many things masculine noun nominative case third person singular mark singular number so which one of these are playing a role in the agreement on the verb it is not about Hindi or English singular number and masculine gender so this sentence agrees with the verb in this sentence the subject Raju agrees with the verb in terms of singular number and masculine gender the features that take place in agreement the let us go back to the old slide the last one.

Look at the nominal features on their look at the nominal features there may be a lot of them but not all the features are always taking part in agreement only some of them will be taking part in agreement that is not all the features are always active in the sentence so going back to the second the same slide again in the same in the English sentence if you look at look at the meaning of this Hindi one Raju was watching movie if I ask you about this English sentence what are the features that are active in agreement.

Do we understand this question in English sentence Raju was watching a movie what are the features that are active in the agreement between work and the subject only singular right Raju has masculine gender that is it still has masculine gender but is that masculine gender playing any role in the agreement in English sentence no this is just to show you that the that in Hindi there are more features that are plain playing a role in agreement in English one less right now let us make this sentence Raju was watching a movie let us make this work plural if we say Raju and Mahesh what do we have to do watch watching a movie is that a good sentence

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Raju and Mahesh watching a movie this is a good sentence no this is an grammatical sentence why is this and grammatical sentence one person one person at a time please was worth carrying the singular feature okay so this element which is subject of the sentence is carrying noun plural number and the verb is still depicting singular number this shows that there is a mismatch in the agreement in other words the subject does not agree with the verb therefore the sentence crashes and therefore it is called ungrammatical.

We are talking about a very simple very simple thing but every time emailing in a discussion like this when someone says the sentence is ungrammatical i want you to know what it means for a sentence to be an grammatical at the same time I want you to know that what does it mean when we say the agreement between the subject and the verb is good getting this point so this sentence becomes grammatical when we have a verb showing plural agreement market plural agreement mark then the sentence becomes grammatic good alright yeah good.

Raju I mean take Sita or something sure oh it is feminine singular so it is similar you sir it is feminine and singular so in the last chance in the last so it should be T right it is a permanent and singular so both nouns are similar in the carrying a similar so which noun is in agreement I mean which of them you understand this question very significant question is asking in this case we know that the subject has a masculine gender and therefore it is okay.

For us to figure out the about the agreement feature on the verb what about sentences we are subject an object or both feminine and the verb shows feminine agreement marker in those cases how do we know that which noun agrees with the work do you understand this question that that is this question unanswered is very simple first of all therefore I gave you this kind of a sentence to clear to show you clearly that only one noun, only one noun let us see Raju agrees with the work that is selectivity not you agrees with the only one now Raju agrees with the verb which is masculine and therefore it shows masculine features on the verb.

When they are both feminine the computation in human mind knows about this thing which now is in agreement with the features on the verb okay it may not be obvious in the in the sentence so suppose if I put both the feminine nouns here then it is difficult for me to convince you but it still our mind knows which noun is in agreement with the verb to bring that thing out we do this combination under no circumstances both the nouns will be in agreement with the with the verb.

Only one noun has to agree with the verb and there are there are cases we are going to come to those cases that is those examples to show you that in some cases nouns in the subject position nouns that may look like in subject position subject positions do not agree with the words okay the and there are additional constraints on that I will show you that that as well but this is this is a wonderful question.

And even in the cases where both the nouns are feminine only the noun in the subject position will agree with the verb okay now we go back to categories of elements in a sentence and we will talk about four of them that is a noun a verb adjective and prepositions have we heard about these names these words nouns verbs nouns and verbs we have discussed please give me an example of an adjective.

Somebody say example of an adjective beautiful strong Tall doll are all those are adjectives how about preposition in on add right these are the elements that are prepositions in my language like English these elements occur in the they occur before a noun therefore they are

called prepositions in languages like Hindi Tamil Telugu Malayalam these elements occur after a noun that is they follow a noun therefore they are called postpositions so we will be using these two terms prepositions and postpositions interchangeably referring to the same.


Element the only difference is in a language like English because they occur before it now they are called prepositions in a language like Hindi because they occur after a noun therefore they are called postpositions another significant aspect from this distinction of preposition and post position that comes out naturally is prepositions and postpositions always follow only nouns or always proceed only nouns and that is also that is also helpful in defining it now if we have a question how do we identify an element.

In a sentence as now you put a prepositions or post position after that or before that depending upon the language and then you can see that's a noun or not like take example if I say on the table right because it is a good sequence table is a noun because of the presence of on table cannot be anything else because we cannot say on beautiful in strong can we can we say these sequences we cannot so prepositions and postpositions define nouns in a in a structural way.

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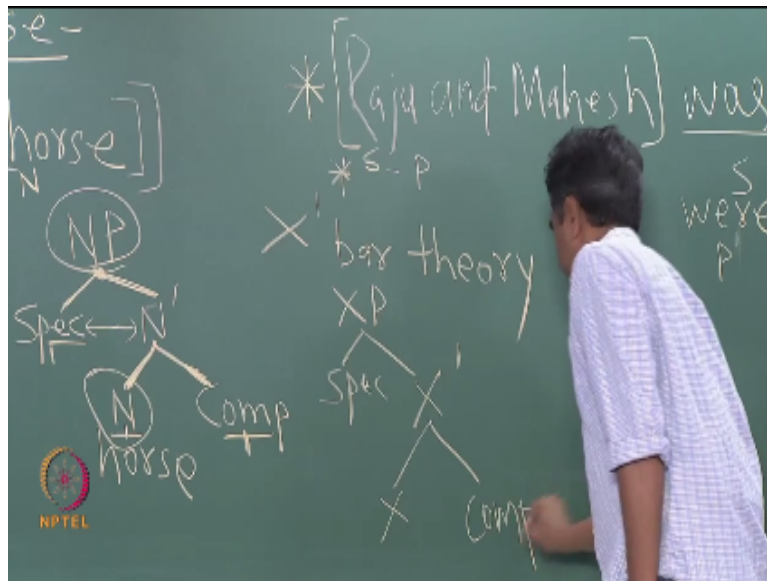
### Structure of Phrase

- N, V, A, P (X)
- NP, VP, AP, PP (XP)
- Relationship between elements and nodes.
  
- Specifiers vs. Complements
- C-Command
- Arguments vs. Adjuncts

 Lexical and Sentential Structures

We will talk about that we are going to be also looking at the relationship between elements and nodes I will talk to you about nodes okay so that much we will be able to discuss today so let me let me talk about them so going to introduce you to what we mean okay.

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Give me give me an example of a noun we have talked about a lot of them nouns and verbs give me an example of a now anybody a good looking noun good looking noun I do not mean anything else I am only saying which qualifies to be a noun in a nice big horse okay I take that horse what can we put an art article before that can we say the horse yes what is this now what is this now horse by itself was a now what do we call this sequence now the horse have it have you thought about this thing know is it more than a noun it has something else right therefore it is more than enough now this will be called a noun phrase.

So in a phrase we have something more than what the something more than what the phrase has in its center ok which means if we are talking about a noun phrase in the center of the noun phrase we are going to find and now ok and then it may have little bit more elements around them do we I am trying to talk to you about the difference between a noun and an ounce race ok this may sound very trivial but it is a very critical distinction in the formation of a sentence

okay so horse is a noun a horse or the horse becomes a noun phrase because it is a bigger chunk than the verb alone so the way we way syntax captures this distinction.

Is the following let me tell you now structure of a noun phrase it is this is how it is going to look like and I am going to I am going to describe this to you it is a very simple thing now let us see how it works this is called a tree a linguistic tree which captures one particular phrase called noun phrase linguistic trees are usually binary oh no the reason why I am saying usually binary because in all the versions of syntactic explanations we used to have multiple branching trees over number of years with lot of research that has gone into it.

The trees are only binary this node tells us that we are talking about an outrage so everything that comes under this node is part of now trees okay this is a place for an specifies this place is called a specifies which talks about which creates a space for other elements in the center in the in this phrase that is noun phrase this phrase is headed by an element which is called now so the in the head of head position of this phrase we are going to help now and then this element is part is called complement.

Which creates another space for some another space for something to come in as an essential part of this displace I will tell you about specifies and complement more in a moment but for the time being let us look at its branches it is binary everything under this is a noun phrase it is part everything under this is part of this phrase and the two sites are called branches two branches industry and two branches indicate relationship between two components as equal and the way we refer to it is C.

The element now and if there is a compliment related to that that element both are sisters to each other that is both are equal now NS specified in this phrase do not have sister relationships one is higher than the other therefore this relationship becomes higher and further for the easiness of this description we call this node as the mother node so this is mother then everything else everything else to this mother if everything else of this phrase is related to this node and then these two have sister relationships among each other.

These two also will have the same relationship but the relationship between this and this that is these two nodes is hierarchical and therefore it has been designed this way because we want to capture the hierarchical relationship between these elements are you with me so far I will show you the relevance of why we why we capture such relationships and why we need to capture such relationships as well but right.

Now I want you to pay attention to the tree alone how this is drawn if we are talking about a noun phrase the head of the noun phrases and now the head of a verb phrase will be a word head of a prepositional phrase with me will be a preposition you understand this thing because the head of a noun phrase is a noun head of a word phrase is a word head of a prepositional phrase is going to be preposition and head of an adjective phrase is going to be an adjective therefore this whole thing is called X bar.

So what we do is we call XP spec X bar and the head here and the complement here okay that is the reason why this whole idea and whole theory is called X bar theory they are please keep only a couple of points in the mind this the trees are linguistic structure structural trees are binary and one of the objective is to capture hierarchical relationship among the elements within that frigate okay.

So we will stop here at this point and then we will elaborate on what we what else we do with this X bar theory and how we capture structural relationships between the elements next time we meet okay.

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