

**Indian Institute of Technology Madras
Presents
NPTEL
National Programme on Technology Enhanced Learning**

Introduction to modern linguistics

Lecture32

Syntax: argument selection


**Prof. Rajesh Kumar
Dept. of humanities and social sciences
IIT madras**

So moving ahead with us with those components when we are talking when we refer to the compliments of a word that is object of a word that is called an argument.

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Compliments of Verbs (Arguments)

- Arguments refers to the number of compliments a verb can take.
 - Intransitive Verbs = 0
 - Transitive Verbs = 1
 - Di-transitive Verbs = 2
- Arguments could be an NP or an IP or sometimes a PP.



Thematic Relations

So I just wanted to introduce this term to you argument refers to the complement of it word and when we look at the distribution intransitive verbs do not have any argument transitive verbs have one and di transitive verbs have two arguments which means intransitive verbs will have no noun phrase in the in the predicate no NP in the PP inside the PP transitive verbs will have one NP inside the PP die transitive verbs will have two NPS inside PP.


That is what is the meaning of verb that is what the meaning of verb and its arguments of a verb can only be an NP or an IP and sometimes a PP it is this making sense when we say argument of a verb can be an NP that that should be pretty simple that is I John likes pizza the NP pizza is an argument of the verb which is like how an entire sentence can be an argument of a argument of a verb or a post positional phrase can be an argument of the verb is what I am which is I will something that I will work with you if we have a sentence.

John met with his doctor what is the what is the element that is an argument of the verb what is the what is the element that is an argument of the verb meet what is the phrase that is the argument of the verb meet John met with his doctor with his doctor is the entire phrase which happens to be the argument of the verb meet therefore in that case the argument of the verb is the entire PP that is prepositional phrase how the whole sentence works as an argument is something that I'll show you.

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Categorial Selection

- C-selection (categorial selection): certain heads impose particular demands on the category of the XP they combine with. These demands are referred to as **c-selection**.
- This is also referred to as Subcategorization.



The relationship again the relationship between arguments and their verbs and their arguments is called categorial selection verbs select a particular category of element for its argument this is called categorial selection rules and this is also called a lot of times sub categorization for example the verb meet some categorizes for a PP if I if I say this sentence the verb like meet sub categorizes for a PP it simply meet that anytime we say we use the word meet in a sentence we are going to have to use a PP as its complement the PP has its argument.

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(1) *know* can take NPs, indicatives *S*'s, and interrogative *S*'s.


- a. John knows [NP the time].
- b. John knows [S that the world is full of noises].
- c. John knows [S what the time is].

(2) *ask* can take NPs and interrogative *S*'s, but not indicative *S*'s.

- a. John asked me [NP the time].
- b. *John asked me [S that the world was full of noises].
- c. John asked me [S what the time was].

(3) *wonder* can only take interrogative *S*'s, not NPs or indicative *S*'s.

- a. *Paul wonders [NP the time].
- b. *Paul wonders [S that the world is full of noises].
- c. Paul wonders [S what the time is].



Some verb select for an NP and some other times select for more than an NP. I want to demonstrate that to you. In a moment let us look at this example of the world you know it takes an NP as its argument. What is the first sentence here and somebody read the first sentence for me please. Is it visible? Clip: John knows the time. What is the argument of this world know the time as an NP? OK, same word can also take the full sentence.

As its complement as its argument when we say John knows that the world is full of noises, the world is full that the world is full of noise is a complete sentence. In fact it's more than a sentence which becomes the complement of the verb. No, it is a good sentence so in this case the verb know can also take an entire sentence as its complement. Okay, which means we can say a verb like *know* subcategorizes for an NP or for *n* for a complete sentence.

Sometimes the same word can also have an interrogative sentence as its complement. I have not talked to you about the difference between a declarative sentence and an interrogative sentence in terms of their *x*-bar and their structural representation. Hopefully I will get this time to do that today. If you look at another verb like *ask* we see us just like the verb *know* takes as an NP as its complement it can also take but it does not take the whole sentence.

As its complement in number 2 to be if you see a sentence like John asked me that the world was full of noises this is not a grammatical sentence in English. John asked me that the world was full of noises is not a grammatical sentence of English which simply means that a word like

ask does not subcategorize for a full sentence however John asked me what the time was is a good sentence that that refers to a categorial selection rule in the sense.

That a word like ask can take an interrogative sentence as a complement but not as the declarative sentence as a complement so a word like ask can take an NP as its complement.

An interrogative sentence as its complement but not a declarative I have just one more example of a verb wonder this sentence does not take NP as its complement such as a sentence like Paul wonders the time is not a good sentence therefore we can say it does not categorize for an NP it does not subcategorize for a full sentence either in the sense that we cannot say Paul wonders that the world is full of noises that's also an ungrammatical sentence.

So if the word like wonder does not allow us to have a full sentence as its complement however a word like wonder allows for an interrogative sentence as its complement and we can say Paul wonders what the time is now look at these three words know ask and wonder and then we see according to the categorial selection rules this verb these three verbs have different elements as their complements as their arguments here with me likewise.

Every verb will have to select one or the other categories as its complement the underlying assumptions of the things that we are discussing right now is arguments when we talk about the arguments of the world we are still talking about things within predicates subject as a noun or a noun phrase is not part of the argument of the world therefore we are not talking about how subjects work subjects is outside the predicate and with that there.

Samson is a subject is a required element in all the sentences of all the languages of the world we there we cannot have a sentence without a subject therefore subject is not part of the argument structure of a world the words have freedom to select its argument depending upon its nature in the following way that you have seen but they do not have liberty to select their subjects these are the underlying assumptions of what we are discussing a little bit more on categorial selection rules if we are talking about an adjective.

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(4) a. A: adjectives require PP complements.

– PP: *fond of the tall student*, NP: **fond the tall student*, N': **fond tall student*, AP: **fond tall*

• b. N: nouns require PP complements.

– PP: *queen of the blue isle*, NP: **queen the blue isle*, N': **queen blue isle*, AP: **queen blue*

• c. P: prepositions typically require NP complements.

– NP: *on the brown table*, N': **on brown table*, AP: **on brown*, PP: **on below the brown table*



Then adjectives will take a prepositional phrase in a language like English as its complement. Adjectives will not take NP as its complement or adjectives cannot take another objective as its complement. If you look at the examples that you see on the screen, we can say *fond of the tall student*. This is a good sequence. *fond of the tall student* but we cannot say *fond the taller student*. What is the difference between these two phrases?

fond of the tallest student and *off the tallest student*. The tall student is so tall a student. The taller student is a noun that is an NP and *off the tallest student* is PP. People according to categorical selection rule imposed on the categorical selection rule that restricts and that restricts adjectives. The rule says you can only take PP as your complement. Therefore, if it selects *fond of the tallest student of the taller student*, that's a good sequence.

Just the taller student is not a good sequence. That is why it clashes and results in ungrammaticality. It cannot take that. An adjective cannot take an intermediate category and it is complement either. That is, we cannot say *fond tall student* and it cannot take an objective. An objective cannot take itself as its complement. That is, we cannot say *fond tall*. Therefore, these sequences are not warranted and the only sequence that is warranted in these cases is when an adjective takes.

A computer takes another. It takes a PP as its complement. Get it talking about nouns. What do you see about now? What are the restrictions on nouns? When we see *queen of the blue isle*, that is a good sequence. But *Queen the blue isle* is not a good sequence. What does this tell us? Come on.

loudly please do sir noun require PP comparable they sound very encouraging I think III think this is visible quite clearly visible yes No preposition phrase as a as a complement.

Of the of a noun is good but down phrase as a complement of now does not seem to be good is not is this not visible I think that's all you have to say similarly an objective.


Does not a noun does not take an adjective as its complement we cannot say Queen blue okay all right prepetition stick Willie typically require MP complements where we can say on the brown table we cannot say on Brown table in English therefore on brown table in ruled out whereas on the brown table is a grammatical sequence it does not prepare positions do not take even bear nouns as its complement we cannot say on brown prepositions.

Do not take another prepositions another prepositional phrase and its complement in the sense that we cannot say things like on below the brown table so if you're if you are given an assignment like some of these and grammatical sequences and asked to explain its these are not big complicated problems on the on below the brown table is not a good sequence because a preposition does not take a prepositional phrase at your complement.

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Semantic Selection

- Semantic selection (S-Selections) attempts to derive certain aspects of c-selection from semantic properties of the relevant head.
For example, for the verbs in (1-3), we could have something like the following:
 - a. *know*: complement must be a question or a proposition
 - b. *ask, wonder*: complement must be a question




There is something called semantic selection if we were to talk about the same word no in terms of its semantics the same restriction will be described in different terms such as we can say a verb like no forever like no a complement must be a question or a proposition or for a verb like

ask and Wonder a complement must be a question only miss making sense what is the then what is the difference between categorical selection rule and a select and a semantic selection if this is making sense then please tell me the difference between categorical selection and semantic selection I let you think about this for a moment I think it's pretty simple to deduct and I have no doubt about your capability to do that you can see this.

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Lexical Selection

- Sometimes particular heads select for particular lexical items, not just particular categories. This is called **L(exical)-selection**.
- Verbs:
 - i. *depend, rely - on*
 - ii. *hope - for*
 - iii. *toy - with*




There is another aspect of elements in a sentence which is called lexical selection some of the some of the elements terminal elements like a word or a noun will always select a particular type of type of other element such as when we look at the words like depend or rely the only preposition that these two words will take is on we can only say depend on or rely on these two words do not take any other properties such type of restriction is called lexical.

Selection restriction on the elements you can look at the list a word like hope will only select for any word like toy will toy when it is used as a verb it can only select a preposition with by the way let us go back go back to the sentence sorry let us go back to the last slide can you can you give me a sentence with toy no it is perfectly fine you are right it may have some semantic restrictions on this but we cannot say you have to say don't toy with me you cannot say don't do I on me do not toy for me do not toy at me other prepositions are not allowed can I get your sentence with hope we hear this sentence all the time hope for the best for me we cannot say we cannot use any other preposition with this verb hope.

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- Nouns:
 - i. *love* - *for, of*
 - ii. *desire* - *for, *of*

- Adjectives:
 - i. *proud, ashamed* - *of*
 - ii. *similar* - *to*
 - iii. *different* - *from*
 - iv. *consistent* - *with*



Just look at some of you some examples of nouns and adjectives a noun like desire can only take for it will never take off or any other preposition at the same time and now like love can take prepositions for and off I assume that you can use these things in sentences and see these restrictions for yourself I am moving ahead with the other things that I have to do similarly some adjectives.

And I am only giving you examples of some of these categories there is a huge bunch of nouns verbs adjectives with these kinds of evectional restrictions on them you can see an adjective like proud or ashamed can only take the repetition off none nothing other than that adjectives like similar takes the preposition to and you can go to the list and see that I was talking to you about selection restrictions on verbs on different elements of sentences so far sometimes lexical items like words have their own selection restriction sighs well.

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- Two Types of Elements in a Sentence
 - Lexical Categories (Words)
 - Functional Categories (Invisible Elements such as Tense, Aspect, Case, Number and Gender)
- A Sentence is called an Inflectional Phrase (IP).
- Elements of IP
 - Specifier (NP) = Subject
 - Head (I) = Tense
 - Complements = VP (Predicate)

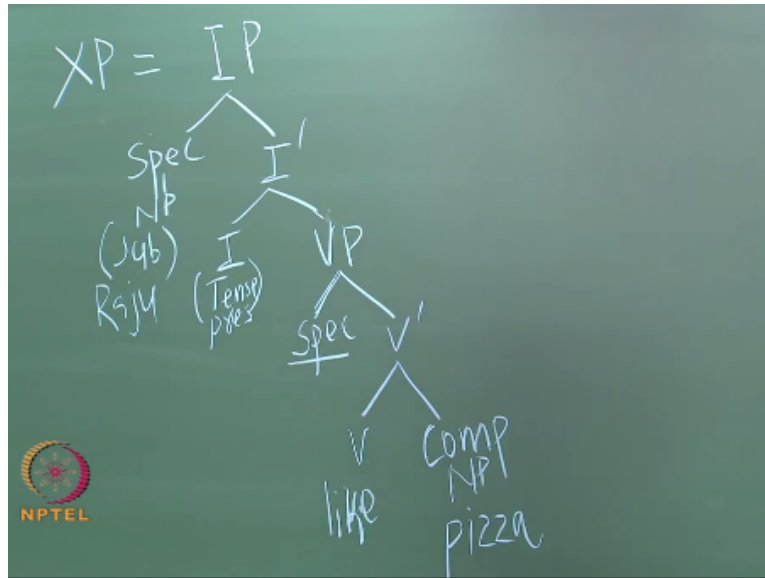


Sometimes whole categories have their selectional restrictions like verbs can only take certain types of complements and some of these such restrictions can be explained in semantic terms as well which are referred to as selects or semantic selections so now I combine a couple of things that we have discussed earlier with current discussions we have talked we have talked about lexical categories which means words and I am not sure if I have mentioned this before.

But we have if we if I haven't then we are going to talk it better we are going to be talking about functional categories which are invisible elements in sentences such as chains aspects case number and gender we when I say we will be talking about case number gender we are not going to be talking about singular and plural or present past and future we are going to be talking about their representation in generative mechanism.

Of sentences how does the sentence how do we grow a sentence how does it work and how are different aspect different elements of a sentence projected in x-bar theory is what we are going to look at a sentence I felt like spending a little bit time on this thing but the structure didn't allow for that so I can just go ahead and tell you that a sentence is called in x-bar theory and inflectional phrase which with inflection refers to these invisible categories like tense aspect tense and aspect in particular so when you draw a structure of a sentence you are going to see I'm going to use the whole board today.

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So you are going to see here the X P is equivalent to an IP and then we have following the same restrictions x-bar we are going to have this following in the centrality head of an IP is going to be an I and the head of it ah and the complement of this I is going to be a VP this may it is making sense so far now what it what it means very simple in simple terms is this is this is an ideal structure of a sentence where the specifier of a sentence.


Which is usually an NP and could be more than that is the subject this is where the subject occurs and the rest of the sentence which is part of the predicate occurs here so complements so the entire predicate is going to be the complement of the head of the sentence which is in I now what is this I is a little bit complex in the sense that it has several elements in it let me let me show you the use of these things in a couple of sentences.

Some of some very simple sentences like these I like pizza Raju likes pizza how do you how do you think these categories will protect themselves on this structure the subject of the sentence will come here and when we when we draw an actual tree we do not write all of these things I'm doing it just for you to see that a subject is an NP which is also known as the specifier of the whole sentence and in this case is in one of these examples it is Raju when we look at the word face we see the structure developing like this now there is nothing Noah specify unavailable here for this world but what's the world in the sentence.

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IP (Inflection Phrase)

- John loves Mary
 - Raju likes pizza.

 - Sentence = Subject + Predicate
 - A sentence must have a subject.
 - A sentence must have a predicate i.e. verbs and Tense.
-  A verb may have its compliments (i.e. objects)

This is this second one we have the world like and then compliment as a as a complement of this work we have an NP, I am just going to I am just not going to expand that so the verb is like know what comes here as an I is tense and what is the tense of the sentence present so this is where the tense is going to show up and then we get I like pizza now so let me give you let me give you 30 seconds and one more sentence before I come and talk about this thing okay.

Hold on hold on so is this are these things clear now that sentence is a combination of a subject and a predicate and because subject is outside the verbal structure of the sentence so there must be a subject otherwise the sentence is not completed in all the languages of the world which also means the sentence must have a predicate because without the two comes to coming together we don't have a sentence and verse me or war may have its complement.

That is sometimes some works may not have their complements before I come to these sentences I want to give you a sentence I am eating a pizza can you like this sentence you know I am eating a pizza I am eating a pizza can you very quickly draw this thing in your notebook before I do it on the board should not take more than 30 seconds then but I am interested in finding out is as far as the VP of that sentence is concerned.

We still have eat and pizza right as far as the subject of that sentence is concerned that is still that is I so which goes which is in a specifier of the sentence and we have a VP we are interested in this domain of I and what's the tense of that sentence present is there something

called present continuous as tense or how many tenses have you heard about present how many tenses are you heard about if we talk about tense three many of them three.


Which are they present past now, I like I said I keep admiring this all the time you guys are very bright so what is continuous in that continuous is not it a aspect which makes us. And these are very elementary very simple things it just requires our attention not really not really a matter of great discovery when we say aspect we simply mean the tense is something which is different from aspects and if that is so then we need to know two things about them about that particular thing first what does it do in a sentence and second how where does it get represented these are the only two questions that we need to answer.

So can you tell me what the first thing first question should be simple what did it do any sentence what is an aspect do in a sentence so for example, in this sentence I am eating a pizza what refers to this aspect is eating and not the whole part of eating the inflection on the word eat which is ing it refers to something which is what you said is continuous so that continuous aspect tells us that this whole process of process of eating is still in progress it is still continuing this is why we call it a continuous aspect.

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IP - TP - AspP - AgrP

- John likes pizza.
- John knows that Bill likes Mary.
- John **is eating** a pizza.



So when it comes to representation of these aspects where do we represent that aspect in this structure if we are happy with this structure that you see on the board right now then we know that we have no place for the representation of aspects in this structure it is true do you see any

place where we can represent you well where aspect can be represented in this structure there is no place for that as far as this much was in practice.


This structure was in practice what was assumed these tenses and aspects both are going to be here now 1:1 projection that is I cannot take both of them or we can say they are the same thing if we say that only I is going only the projection I is going to contain both tense and aspect then we are making a wrong prediction through this structure that there is no difference between tense and aspect however they happen to be two different things now the only reason.

Why I am mentioning this to you is because this IP this head I this is one example of inflection in a sentence this is why the whole thing is called inflectional phrase number one number two when people worked on these things further they came up with this idea that no this IP has two things in it at least tense and aspect so this must be divided into a tense phrase and an aspect phrase that was another development a consequence of that development was which one projects the sentence that is which one is more important in a sentence tense or aspect that is do we call an IP at TP or something else .

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IP - TP - AspP - AgrP

- John likes pizza.
- John knows that Bill likes Mary.
- John **is eating** a pizza.



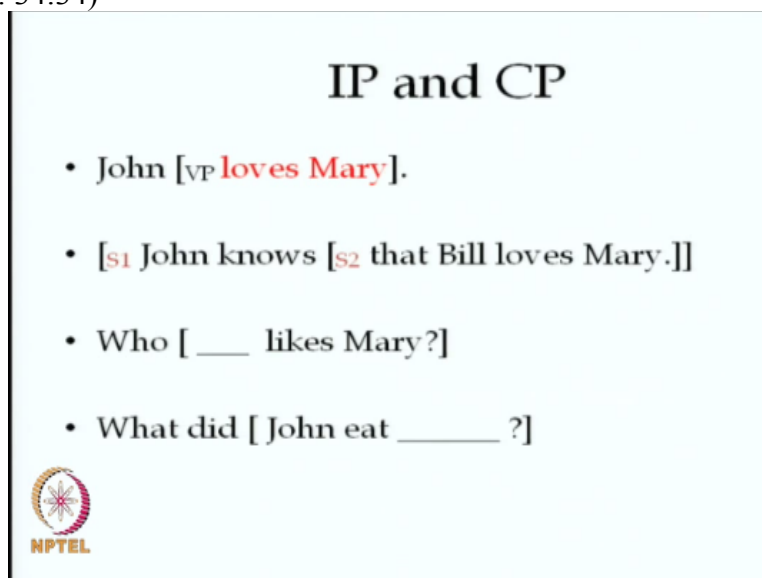
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Are you with me I am I it is not really very significant for us to go into each one of these details but I want you to know and be familiar with these complications in going further and complications in retaining the simplicity of IP both that is the point that I want you to

understand making sense okay, so I when we say inflection or I it simply means a bundle of features which could contain tense aspect and few more at one point.


IP was divided into two tense phrase and aspect phrase and then when the sequencing people were done the sequencing of both they started calling the whole thing as agreement phase these are these are not important things for us to discuss at this elementary level but I just wanted you to know why this disk why this kind of why these things came into existence why these things were discussed at all in the whole debate of projection and phrase structure rules I want you to take a note of two three sentences from here.

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IP and CP

- John [VP loves Mary].
- [S₁ John knows [S₂ that Bill loves Mary.]]
- Who [___ likes Mary?]
- What did [John eat _____ ?]



Sentences like the first one John loves Mary is a simple sentence that you have seen this structure is in front of you we have talked about works like no and then we know that sometimes such a war may have the entire sentence as it completes at its complement so when we have a sentence like I John a knows that bill loves Mary how do we project these sentences in X model that is number one and number two we have sometimes interrogative sentences.

Like who likes Mary where does this where do these elements like who and what go in the phrase structure if you can help me finding that book looking at the phrase structure and not me going through each one of these sentences one by one on the board probably we can move little faster okay so please look at this book please get me these the structure of these things and

would not be a matter of surprise maybe ,I will ask some of you to draw these things on the board all right thank you.

Online Video Editing /Post Production

K.R.Mahendra Babu

Soju Francis
S. Pradeepa

S. Subash
Camera

Selvam
Robert Joseph
Karthikeyan
Ramkumar
Ramganes
Sathiaraj

Studio Assistants

Krishnakumar
Linuselvan

Saranraj

Animations

Anushree Santhosh
Pradeep Valan .S.L

NPTEL Web & Faculty Assistance Team

Allen Jacob Dinesh
Bharathi Balaji
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Palani
Salomi
Senthil
Sridharan
Suriyakumari

Administrative Assistant

Janakiraman .K.S

Video Producers

K.R Ravindranath

Kannan Krishnamurthy

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