

**Principles and Parameters in Natural Language**  
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**Lecture - 23**  
**VP Complements**

Today we will look at complements and adjuncts distinction. I think we have developed a fairly good sense of what a complement is, and what an adjunct is, right. I am carefully saying that we have developed a fairly good sense of what a complement is and what an adjunct could be. We do not know much about their structures so far. We do not know much of their function so far, and at the same time we do not know much about what is called an adjunct? And how does something become an adjunct a phrase becomes an adjunct. So, first of all let us let us begin with some of the features of adjunct and some of it is names. We are going to try to answer both these questions today. So, like you have seen a complement is a required element by the verb.

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Questions

- What are differences between compliment and adjunct?
- How do we know what is a compliment and what is an adjunct?



In a verb phrase, when we talk about a transitive verb and its object. When we say the object of the verb object of a transitive verb is a required element we also mean, the object of a transitive verb is actually the complement of the verb.

In terms of configuration; that is, in terms of a structure of a phrase, we can say a complement belongs to head. And the head requires a complement. In the entire phrase,

the whole status of a complement is its ancestor relationship with the with the head; which gives us space, that any head could potentially have a complement. Verbs are going to have.

Student: Objects.

Objects are their complements.

Or whatever comes in the complement position becomes the complement of that verb. Likewise, a noun phrase in a noun phrase, what is going to be the head of a noun phrase? A noun. That noun could also have a complement in a PP. What is the head of a PP?

Student: A preposition.

A preposition could have a complement which is usually going to be an NP, right. It is easy for us to say here, that most of the prepositions are almost all the most prepositions in languages like English, French and others are going to take NP as a complement. In our languages most of the post positions are going to take NP as a complement.

Remember it comes from the descriptive aspect of language that we have seen so far, that prepositions are only going to proceed a noun. Remember this? So, if it is going to proceed a noun which in technical terms simply means, a preposition is going to have an NP as its object all right. So, we see the head of N head of an NP; N could have an have a complement. A head of a PP a preposition could have a complement. Head of a VP, V lot of times have complements. And we know the situations when they can and when they cannot. And also, now we know head of the IP which is.

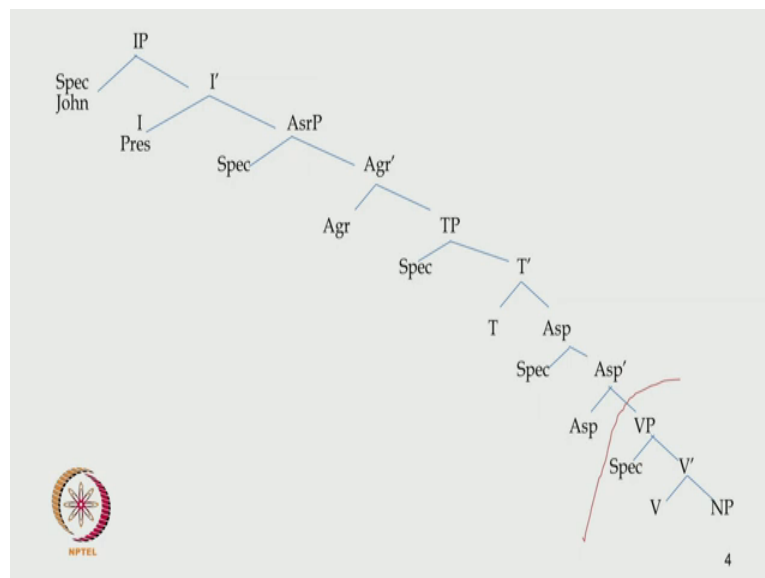
Student: Inflectional phrase

Inflectional phrase and what is the head? I can also have a complement which is going to be the entire VP, all right. So, that is the notion of complement; which is the in the in the structure of a phrase, the position of a whatever comes in the position of a complement in the sister relationship with the head is going to be the complement of it. That is that is more or less to say that required elements are called complements. Now things that are not required structurally for the purpose of a sentence are called adjuncts.

All kinds of things like adverbs or the entire PP, sometimes an NP; sometimes a whole clause or a sentence could be an adjunct. It depends on which sentence we are looking at. So, when we come to that we will we will talk about that. How do we represent it in a how do we represent a an adjunct in a structure? We adjoin it to the phrase it belongs to. How do we adjoin it? We create another space with the help of the intermediate category, and then we just adjoin it. That that whole process of creating another space through intermediate category is called adjunction.

Then the question is; how do we distinguish between them further? I am going to talk about that distinction shortly. Before that we are we are we were looking at this sentence, right and this structure.

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So, the reason why are you still have this structure for you, it just for you to take a look at. Is there any question about this structure?

Student: The order in which agreement tense and aspect comes

Well, let us not worry about the order right now. See in the order, I do not have much to say about the order right now. So however, what the all I can say this is given in the, right. Order the way it should be. And therefore, I have not put aspect first and tense first or something else. Since you have asked this I can say one more thing which I have already said yesterday and one something new.

One thing is; once we break this I into various components, then there is no need of I. Once each component of I is going to project itself in terms of a phrase, then there is no need of a something which combines them together, all right. So, we need an I or IP we call a sentence an IP only when we are putting the whole thing agreement tense aspect everything as the bundle of features in the head position of I. Only then we need IP, for the for the purpose of simplification, or you can say for the purpose of combining everything together all right. So, when we remove that we start with agr AgrP.

Student: Sir why we write I there when all the features are on this side of the branch?

Student: Why we need I on that side?

Which side?

Student: A g (Refer Time: 08:34) of I dash I l.

So, all the features on which side? This side.

Student: No, no right side. AgrP and TT Asp aspect (Refer Time: 08:44) these are all we list in under I.

That is an right now it is listed under I, right now it is listed under I because, it has expanded from I. Now the more important point that I am trying to make is there is no need of entire IP. So, leave it, right now this way, but there is no need of entire IP once you start seeing it in terms of agreement phrase and then tense, and then aspect.

I have kept it so that you can see that that agreement tense and aspects have branched out of I. That is all is the purpose so far. So, I want you to look at this structure as removing something from, removing I from here. That is removing complete IP from here, all right. Now the other thing which I which I want to tell you is; in many cases people just talk about TP.

TP, that is the agreement is also not that significant for those people who is start with just TP. And they say look what is what is important in in a sentence is basically T tense. And tense takes care of agreement also, but let us again not go into those complications the for the purpose of our point, I just want to tell you that when we come we there is a way to combine all of them together and put them as bundle it in I. That therefore, we call the

sentence as IP. If we want to expand them, then there is no need of IP. And we can start with these phrases, agreement phrase tense phrase or aspect phrase, second point.

Third point all that higher up V VP is called functional layer. These are the 3 important points from this structure that I want you to see, and then starts.

Student: Lexical layer.

Lexical layer from the from the VP. There is a there is another process which I am going to talk to you very soon, which is called displacement, in other words movement. Elements from lexical layer move into functional layer to combine with them. And then they give us a surface structure. That comes little later. I am just mentioning at this moment for you to be prepared for that, the a VP moves to TP. I am sorry, what moves is not a VP, from the VP V that is head moves to T. And then verb gets tense combined all right. And then we get tense on the verb in the surface structure that that comes little later. I will show you those things with evidence, right now if I just mention these things they are not going to much sense. So, let us let us just look at only in terms of functional layer and lexical layer for the time being, and then as you know this is potentially, not potentially this is the structure for the sentence that I we have been looking at.

Students of physics, like pizza in the evening. And we have seen how VP works, how the subject NP works, and then what is the functional layer and what is the lexical layer so far that. Can I move any other question, anyone before I move to complement and adjunct and talk more about this? It is a it these are; so, with that I am moving to complement and adjunct distinction. We have not been not really being delaying the discussion on that. We wanted to take care of other things first. That there are couple a couple of more stuff about a structure that we need to take care of, but we can that can come little later. And every relationship and everything that we are going to see now onwards is going to be in terms of a structural relations. So, we are going to be looking at a structures more anyway. So, let us look at this thing.

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## Compliment and Adjunct

[S/IP/TP/AgRP [NP Students [PP of physics]]  
[VP likes [NP pizza] [PP in [NP the evening]]]]

Compliment = NP = Pizza

Adjunct = PP = in the evening

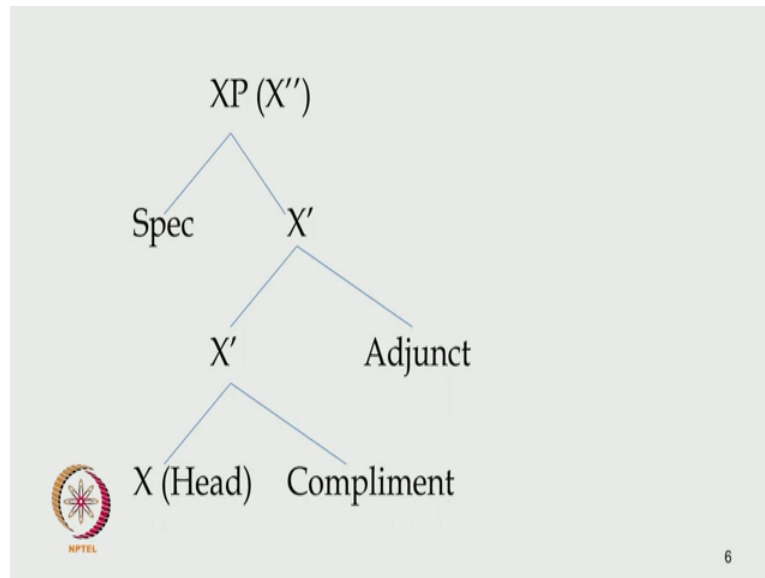


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In this sentence the same one that we have been looking at, we know that NP pizza is the complement and PP in the evening is an adjunct. The question is this is what I am telling you, right. And this is what I have tried to show you in some sense, that pizza is an object therefore, a complement, but that description does not necessarily make in the evening in an adjunct.

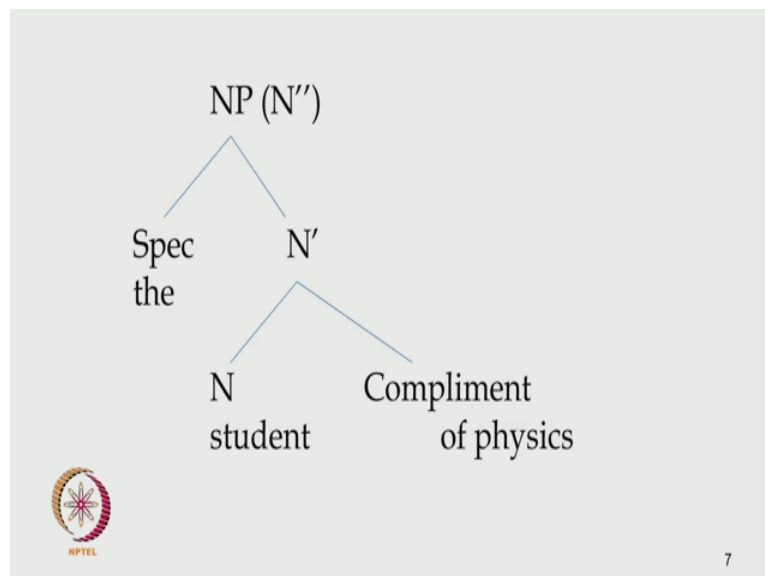
At the best what we are saying is pizza is the complement of the verb of the V in this sentence, right. What how do we test these things? There are 2 3 tests that I can show you for this and you will you will be able to see.

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That these tests really work and they make sense in the following way. So, this is the structure of an adjunct. This is how adjunct is represented in the x bar scheme. In the blueprint of this structure, in the original structure of a phrase, there is no space for adjunct. In the original structure of a space of a phrase, there is no a space for adjunct. By definition they get adjunct. In fact, that is also one of the reason they are called adjuncts. Because they are adjoint, additionally adjoint, all right.

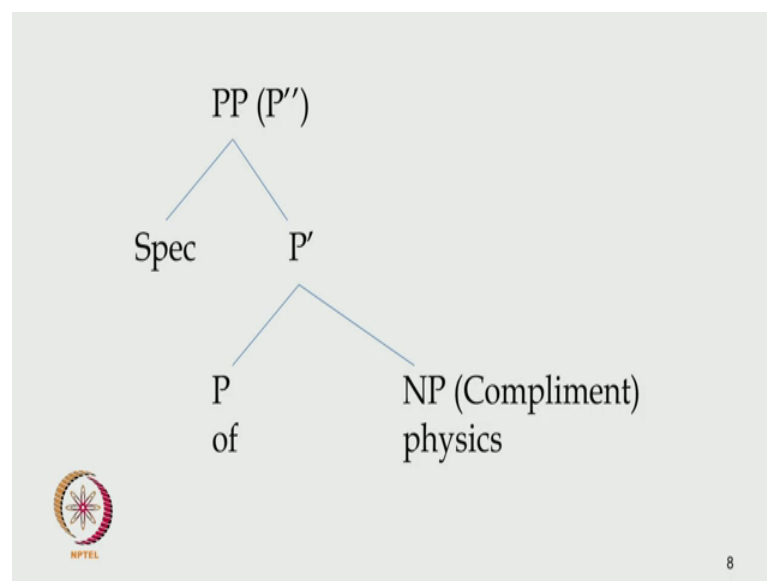
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If when we were looking at this this NP, we say of physics is the complement as a as a PP of physics is the complement of N. What makes it a complement? And how do we test it? Because just now in the sentence we have seen, in the evening as a PP is not a complement. So, complements are or adjuncts are not, let me put it this way.

A PP is not going to be either a complement or an adjunct all the time. Depending upon it is its nature, depending upon its internal features, it could be a complement, it could be an adjunct at times.

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In this PP we have already discussed NP is the complement of this P.



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## NP (Noun Phrase)

- The king **of England**
- A student **of physics**
- A student **with long hair**
- A student **of physics with long hair**




Now, I want you to look at few more phrases. These are all noun phrases, right. They are all noun phrases. King of England, student of physics, student with long hair. A student of physics with long hair are they all NP's? You see that, some of them have complements. What you see in red they are all supposedly complements of the head N, and what you see in blue are is that blue that blue is they are adjuncts in the phrase, right.

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## Verb Phrase

- John [<sub>VP</sub> **loves Mary**].
- Marry [<sub>VP</sub> **will meet with her doctor** **at 5 pm**].
- [<sub>VP</sub> **will meet** [<sub>with her doctor</sub>] [<sub>at 5 pm</sub>]].

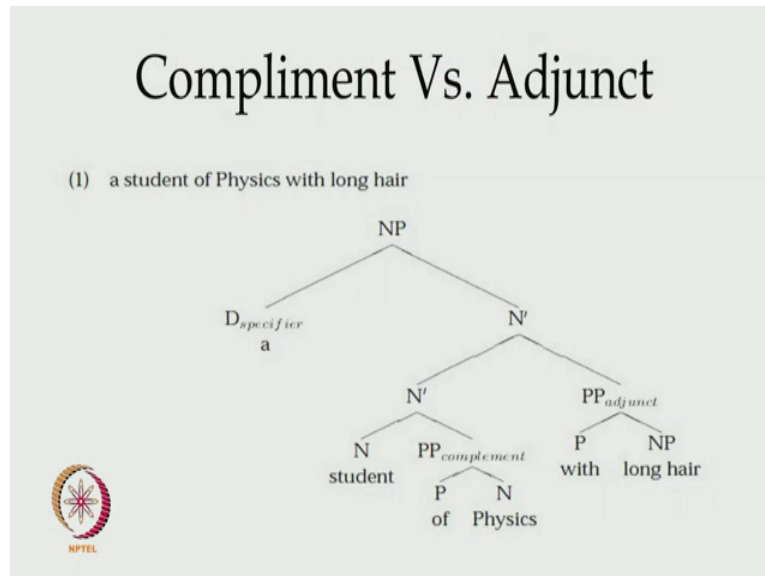


When we look at this VP, we have already seen the VP we know that in the in the sentence Mary will meet with her doctor at 5 pm with her doctor becomes complement

and at 5 pm is an adjunct. In this phrase we have both within NP we are looking at a complement and an adjunct right?

Where do you see this adjunct? Adjoin in the PP in the do you see?

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Do you see at least the adjunct comes the same way you have seen an adjunct in VP? Now at this point I want you to keep in mind that all the structural notations that we have discussed so far, none of the phrases you have seen violating such invitations. That is, these are not these are not arbitrarily decided. It is never going to happen that an adjunct is going to be arbitrarily adjoint to something else. This adjunct us to in in the whole phrase a student of physics with long hair, if the PP with long hair is an adjunct this adjunct is not going to be adjoint anywhere else such as VP or something else. Can you can you make a sentence bigger sentence with this noun phrase. Student of physics with long hair is not a sentence, right. Can you make a sentence with this; I want a VP with V with VN complement

Student: Student of physics with long hair walks down the corridor.

Walks down the corridor is great. But walks down the corridor is the VP, but it does not have complement.

Do you see? Do you understand this? Nice.

Student: With a book in her hand

Still does not have a complement.

Student: (Refer Time: 19:39).

Still does not have a complement.

Student: (Refer Time: 19:43)

As long as you keep the verb walk, you keep adding everything, right. Do you know from the very beginning that a sentence can be infinitely long, right? The moment we say infinitely long, we are not going to have a physical example of that, that this is infinitely long sentence. We can only understand that a sentence is infinitely long. Why does this NP not have a, why does a sentence that your friend Sandeep said not have a?

Student: (Refer Time: 20:16).

Not have a complement, because the verb walk by nature cannot have a complement. And everything else you keep adding to the end of finiteness, they are all going to be adjuncts. And you can keep the way you have seen this structure developing, this structure allows you to have infinitely long sentence. Because the process of adjunction is simply recursive. There is there is no end to which you can keep adding an adjunct, but the space of the complement is still going to be open.

The moment you have a transitive verb there, you put anything else or not that is going to come the NP is going to come in a transitive verb in the complement slot right. So, can you try it again?

Student: Is eating pizza? Is eating pizza?

A student of physics with long hair is eating pizza all right that is fine, but we get the point? When once we have a VP, what I was trying to tell you here with this example is; the PP adjunct PP with long hair cannot be adjoint within VP. The adjunct PP with long hair cannot be adjoint within VP, why?

Student: It is not part of

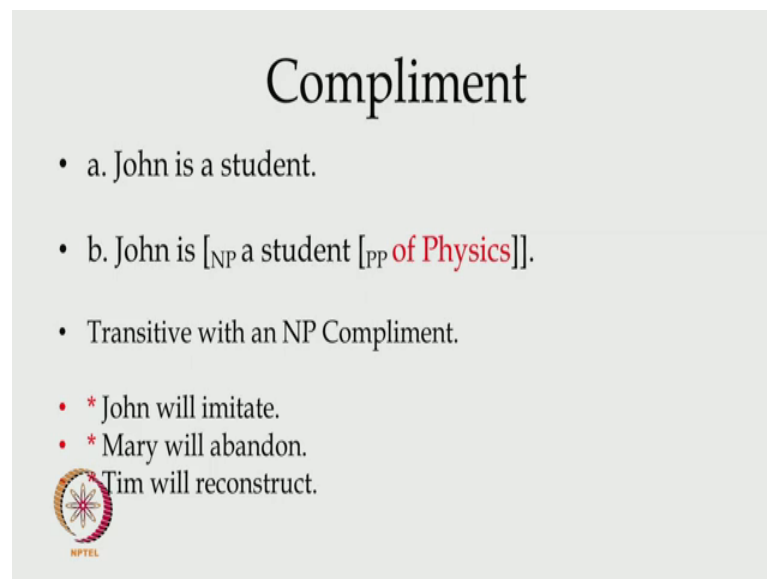
It is not part of?

Student: VP.

VP, this one, even though it is an additional stuff this additional stuff provides us additional information about the NP, not about the PP. I am sorry not about the VP. Therefore, it belongs in NP. So, keep that in mind, keep the following things in mind, x bar structure. Each phrase that you have seen so far longer or individual phrases; are not violating it is integrity. That is each one of them are guaranteed to have specifier head and complement.


They are keeping a specifier head and complement. Sometimes, that phrase may not have any specifier. It is leaving that position empty. Sometimes, the phrase may not have a complement; it is leaving that place empty. If something is adjunct that comes in an adjoined position. Things are going in in the in proper places. So, we are not violating any phrasal integrity. You have seen this much so far? All right. Now why is what are the features of a complement and features of adjunct? Let us look at that.

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**Compliment**

- a. John is a student.
- b. John is [<sub>NP</sub> a student [<sub>PP</sub> of Physics]].
- Transitive with an NP Compliment.
- \* John will imitate.
- \* Mary will abandon.
- Tim will reconstruct.

 NPTEL

When we say the this whole notion of complement and adjunct helps us solve one more thing. When you say, john is a student of physics, all right. What is the meaning of this? What does it mean? Student of physics, student who is studies physics, is that is that right. When we say john a student with long hair, does it mean that the student is studies long hair?

No, this distinction is not making much of much of essence until now, hold on. I am coming to that. Before that I have already talked to you about this with a pizza example of where we where I wanted a VP, but can you guess why these sentences are ungrammatical. John will imitate, Mary will abandon, and tim will reconstruct. These sentences are not good sentences for speakers of English. Why are these sentences not good sentences?

Student: (Refer Time: 24:44) they all the mentions sir they are transitive verbs (Refer Time: 24:47)


Each one of them is a transitive verb, transitive predicate, and they are missing their complements. A transitive predicate missing its complement is going to result in ungrammaticality. That is, there is one more aspect which I which I will discuss with you probably tomorrow is called a thematic grid of a sentence. Remember, I think I have mentioned something about selectional restriction to you, did I briefly mentioned selectional restriction?

I am going to again talk to you about thematic grid in which I am going to show you how do complements or what are required by the verb gets other roles and assign, and how such roles are assigned. But look these 3 sentences are ungrammatical because they are missing it is missing their complements all right. Now how does it, how does this dichotomy? Or phrase structure or x bar theory helps us resolve the ambiguity between a complement and adjunct. Let us let us look at that now.

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## Compliment or Adjunct?

- Phrase Structure/X' theory helps resolve ambiguity.
- Noun Phrase
- [NP a student [PP of high moral principles]]
- Compliment
  - a. a person who studies high moral principles
- Adjunct
  - b. a student who has high moral principles



Enough of we can make the distinction between a student of physics and a student with long hair. Let us look at this sentence this this phrase. Student of high moral principles, Do you if I tell you that this sentence this phrase could be ambiguous? That is, this phrase could have 2 different meanings. Does it even come to you that? Do not do not look at the screen for a moment. Do you believe that this phrase could be ambiguous? Yes, no? When I looked at this phrase for the first time it didn't come to me all right.

I believe it because you are telling me so, but I do not get that how this phrase could be ambiguous. That also is an example of knowledge of language that because I am not the speaker of English, this ambiguity does not automatically popup. We as a nonnative speaker of a language I need to look at it carefully. In the cases when of high moral principle is a complement. It means something else.


The same phrase could be an adjunct and then this sentence then this phrase could mean something else. So, when we say a student of high moral principle with a complement the whole PP as a complement, this phrase means a person who studies high moral principles. And when it is not a complement, it means a person who has high moral principles. Now this kind of ambiguity is not available with the students of physics, in that we have only one reedy the person who is studies physics. We cannot say the phrase also means a student who has physics. Are you with me?

I can say I am talking about something subtle, but it is not really that subtle, right. It should be and if it is not so obvious, but it should be obvious now, that we in order to see the ambiguity and the distinction between complement and adjunct and what it does, and how they how their distinction contribute to different meanings. We need to see a phrase like this. Student of high moral principle, it could be ambiguous in 2 ways; one that a student who is studies high moral principle. Imagine it is a major it is a discipline, right. Someone doing an well MTech is not possible, in high moral principles, but you can relate say some diploma in high moral principles, right. Like people do diploma in judiciary and all kinds of things. At the same time someone who has high moral principle in the sense that who practices high moral principle, these are 2 different things. We have some very obvious phrases student of English student of physics ambiguities are not available there, because they are those things are categorically complements, simply means one thing all right. So, this distinction between complement and adjunct helps us reduce helps reduce this ambiguity, all right.

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### Syntax of Compliments and Adjuncts

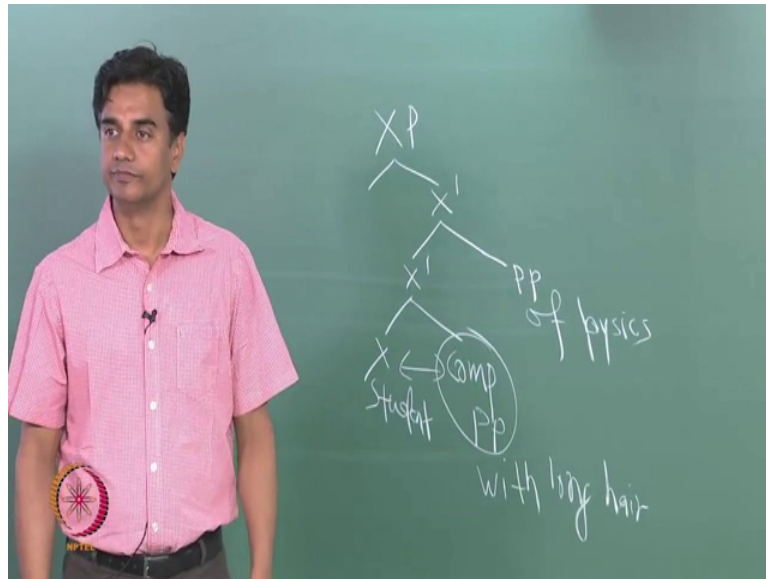
- Role of an intermediate category  $X'$
- a. a student [Compliments of Physics] [Adjuncts with long hair]
- b. \* a student [with long hair] [of Physics]



Next, how does the syntax work for these things? Syntactically speaking, these are the things that you can say. When we have both, a complement and an adjunct a complement is always going to receive the adjunct. We have we have just seen the phrase student of physics with long hair of physics is a complement, because if you reverse the order of the 2 the sentence is going to be the whole phrase is going to be ungrammatical. We cannot say a student with long hair of physics, can we? Now without understanding the

distinction between complement and adjunct. If I asked you this question in fact, I should have asked this question before what is wrong with this phrase the students with long hair of physics. Trust me; it is not possible to answer this question without understanding the proximity requirement between phrases. You understand what I mean by proximity requirement? Here is the point that I am talking about.

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See we are talking about an XP, right. This is the proximity, we have the head student and I right here on this phrase? Right, and the complement is a PP, right. And I am just going to leave it here. That this PP is of physics, right. And we have another PP as an adjunct with long hair. Now if I put of physics here, and then with long hair here. This is going to yield ungrammatically. Because this slot is for complement and if there is a complement, it should be in close proximity with the head. This is the only reason why this phrase in b is ungrammatical. If we do not understand this distinction, then we can only say look this does not make sense you are still, right. A speaker is still, right. If you ask any English speaker why does this phrase, why is this phrase not good? The person can only tell you this does not make sense. You have to say it this way, right. That that is an intuitive judgment, does not have an explanation.

The with all its advantages that you have seen so far over phrase structure rules these are the things and these are the subtle nuances which can be explained through x bar theory, all right. And this also helps us understand the role of an intermediate category in




a better way. That if we didn't have this intermediate category, then there is no way to project adjuncts. So, in the now, bring it in your mind this structure of a phrase with multiple branching, right. In that we are going to have an N, we are going to have 2 PP's, right. We can also have a determiner, because multiple branching by definitions says we can have as many branches as possible, but then we can only say one PP is the complement and the other PP is adjunct. And one has to believe you. That really does not make a structural distinction between a complement and adjunct. The introduction of intermediate category helps us capture this thing configurationally. No ambiguity left behind all right. Let us look at one more thing.

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- Note that the adjunct rule is *recursive* i.e. in principle, it could apply an arbitrarily large number of times.

– a student [with long hair] [with short arms]  
[in green coat]



The adjuncts could come in a recursive fashion, right. How many complements slots do you see here? In the whole phrase, how many complement slots do we have? Just one, right.

Therefore, the head could have just one complement. This structure does not give us a space for more than one complement in a phrase. Whether we are talking about a VP or we are talking about an NP or we are talking about a PP, by structure we have only one slot for a complement. How many slots do we have for an adjunct?

Student: As many as you want.


As many as you want, infinite slot, we can keep adding adjoining things, and it will give us the whole infinitely recursive, infinitely long sentence in a recursive fashion. But we can have only one complement, I have just asked you this question before the with a sentence that Sandeep was saying, the student of physics was walking in the corridor. Walking is a verb does not have a complement where we can keep saying walking in the corridor with books with friends in the evening for nothing, right. You can keep saying everything that you want, but does not have a complement. And if a if a verb has one, it is it can have just one which is taken care of by the structure that you have seen so far, and the structure helps us understand that a phrase could have just one complement. This is clear? Is it is hat what we are talking about here? With in principle it apply an arbitrary large number of times, but complements recursion is not possible, all right.

Therefore, you see this kind of sentence is possible, but what is not possible is this, right.

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- On the other hand, the complement rule is not recursive i.e. it can apply only once.

– \* a student [of Physics] [of Chemistry]



We cannot say student of physics of chemistry, right. What we if we at all end up saying with grammaticality what we mean is; students of physics and students of chemistry, right. This this is string at once is not grammatical and again, this structure helps you understand that is the syntax of complement and adjunct becomes clearer with the help of this structure. That this, this string is not possible just because we have just one slot for complement, right yeah.

Student: What a phrase something like this; a student of physics of high moral principles

Student: Then of high moral principles is bound to become a adjunct, right?

Yes, if we have if a phrase has already had a complement, the second one will be the complement, will be the adjunct, and in that case at I think what is in your mind is we do not have any ambiguity left. That phrase only means the student who is studies physics has high moral principles. That is all. It does not mean the student who is studies physics studies high moral principle. Just one meaning no ambiguity left. So, only the second phrase could only be a complement. Could only be an adjunct, and that we know very categorically once we have phrase structure (Refer Time: 38:23) clear? Anybody anything else, yeah.

Student: since you told that only one complement space. So, for die transitive verbs do both the objects come in that one complement space?

A very, very good question what is a what are you going to do with the die transitive verbs then, right. No, both of them will not come in the.

Student: (Refer Time: 38:55)

Hold on for that, I will show you that, right. You understand the question? Very, very significant question. We have said, we have established that there are some verbs which take 2 complements. Again, when I talk to you about thematic relations, I am going to show you tomorrow; that when we say one complement, we mean total number of and these things are called arguments, right. Complement these things are semantically speaking they are called arguments.

There is an much in the name whatever we call it they do not change. So, if we have one complement, then the whole sentence has 2 arguments. Namely one complement and the other subject, right. 2 argument if a sentence does not have any argument any complement, it has got one just one argument. And if a sentence has 2 complements, then it has 3 arguments, all right. Each one of them are assigned different roles. I am going to show you that again. So now, going back from that, then the question is how do they get represented in this structure, when we have just one slot for complement. Then we have to at least you can guess, right. That we have to do something. That may look ad hoc, by ad hoc I mean it is going to be a modification on this right, but they have to be here. And there has to be a difference between the adjunction of a adjunct, and some modification

for a complement. This much you can see, but let us hold on to that before I show you that very significant anything else? No?

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- Further, unlike complements which have to precede adjuncts, adjuncts can be freely reordered with respect to each other.

– a. a student [with long hair] [with short arms]

– b. a student [with short arms] [with long hair]



It just follows from that you can look at it that; since there is since we cannot have 2 complements in a phrase. So, there is no question of reordering by definition period we just cannot have 2. If 2 of them are allowed, that is; if 2 adjuncts are allowed, then it is possible to freely reorder them whichever way we want to reorder now we can apply these things as test also, right. If 2 of them are allowed, and by allowed what do we mean by allowed? If I still if we have 2 phrases, and still the phrase is grammatical, then we know both of them are adjuncts. There is no complement here. If we are going to have a complement and an adjunct, then interchange of position is not possible. Why not possible? We mean it is going to result in ungrammaticality. Like, we cannot say student with long hair of physics, right. This kind of thing is going to be allowed all right. So, these are just simple tests keeping 2 things in mind. Phrase and the phrase structure, all these things that we could say about complement and adjuncts are only possible when we understand this structure. That is all for today.