Basics of Language Science

Professor Rajesh Kumar

Humanities and Social Sciences

Indian Institute of Technology Madras, Chennai

Lecture 37

Principles of Binding Theory

We will look at Binding Theory and the meaning aspects of it. What does the binding theory mean in one sentence? A theory around interpretation of noun phrases interpretation. In other words, could mean a relationship between two of them are two noun phrases in a sentence dependent on one another for their references or interpretations are their relationships between two or not? If there is, what kind of relationship if there is not how independent, are they? Is what we mean by interpretations and this is what we formalize, and this is what gets formalized is called binding theory, which is an important component of the principles and parameters approach of natural language.

(Refer Slide Time: 01:19)

So, yesterday we looked at reflexives and reciprocals which we called together anaphors and pronouns and r-expressions which mean referential expression, in short, we saw examples of these things and then we saw some examples where we find them dependent on one another and in some we saw they are not dependent on one another. So, we need to understand this in a little bit more formal sense and then we will look at it. How to basically formalize? What aspects of its interpretation help us formalize these things? So, let us see, this is what we saw yesterday.

Pronominal elements like himself, herself, itself are anaphors. He, she, it, they, his, are, you, yours these are pronominal elements. And then, independent noun phrases NPs like John, the student, the teacher these are computers, phones, these are referential expressions which, where we have seen that.

Anaphors that are reflexives and reciprocals, they have to depend on something else in the sentence for their interpretations. R-expressions do not have to depend on anything in the sentence for their interpretations and pronouns have absolutely, pronouns are a little bit tricky where, they are sometimes dependent on something else for interpretations and sometimes they are not. It has three parts, each part is called Principle-A, Principle-B and Principle-C.

Principle-A deals with anaphors, Principle-B deals with pronouns, and Principle-C deals with r-expressions. Principle-A, the A in Principle-A has nothing to do with anaphor it is just in alphabetical order. Now, not even in alphabetical order, it is in a particular order, Principle-A for anaphors, Principle-B for pronouns, Principle-C for r-expressions.

(Refer Slide Time: 03:58)

We saw these examples, where we know John is an r-expression, himself is in is a reflexive, him is a pronoun, looking at sentence number two we saw it is ambiguous and it is not good only in one interpretation where, him is dependent on John then it is not, then it is not good if, him is not independent on someone else then is okay and likewise, we saw other examples.

(Refer Slide Time: 04:44)

Then, we stopped with this when we said there are, the problem is that we see some specific configurations, for specific configurations governing occurrence of these elements. It is not fair to simply say some couple of things about these things, it requires some serious attention, and then we see that there the configuration is different for different categories, and when we want to and once we look at that these sentences that is grammaticality or ungrammaticality of these sentences with respect to those configurations then we see that the grammaticality or ungrammaticality of these sentences can be explained with a binding theory.

Because such a look at the configuration these sentences help us understand not only the distribution of these things, these elements rather what are the things that are underlyingly governed and then we put them as what we call binding theory. So, let us look at some more issues related to this.

(Refer Slide Time: 06:29)

Indices and antecedents

- Anaphors and pronouns are referentially dependent; they can (or must) be co-referential with another NP in the sentence.

- The way we indicate that two NPs are co-referential is by means of an index, usually a subscripted letter.

- Two NPs that share the same index (that are co-indexed) share the same referent.

- John$_i$ saw himself$_i$ in the mirror.

Anaphors and pronouns. Let us first look at, anaphors that are reflexives, are called referentially dependent, rather we can also say they are co-referential. What do we mean by that? The way it has something to do with the way we indicate them, which is that the two noun phrases have the same index and the way we do it we put the same index for the two noun phrases and then we say they are co-referential and co-indexed both.

Which is, when we say John saw himself in the mirror, himself and John have same index, do you see that, we have with the subscript I we are putting, we are indicating co-referentiality this is all that we mean when we say co-indexed to describe co-referential, co-referentiality simple we can say the same thing with words that himself in this sentence refers to John. But to show that configurationally we are putting indices on both, same indices on both of them, if we want to show that they are not co-indexed with one another then we put two different indices at two different NP's.

(Refer Slide Time: 08:24)

Indices and antecedents

- John$_i$ saw himself$_i$ in the mirror.

- An index functions as a "pointer" into our mental model of the world.
- *John* here is a name that "points" to our mental representation of some guy, John, which we notate by giving the pointing relation a label ("i").
- *himself* here shares the same pointing relation, it "points" to the same guy John that *John* does.

You can see that, these are in this sentence they are co-indexed with one another, these things are just not that important. You can just take a look at this and see what we mean by them? Now, let us look at this and this is something which I have just talked to you about. There is another word that I want to introduce to you which I think I referred yesterday antecedent when two NPs are co-indexed with one another they carry same index for a reflexive pronoun the antecedent is the NP that precedes it am I am right when I say antecedent means, something that precedes it antecedence by definition cannot follow.

So, and when we understand antecedent in that context of precedence and not following, we need to bring in the structure of the sentence in our mind too, that is the antecedent is always going to be higher in the structure than the reflexives.

Student: Can we give an example where pronouns are co-indexed with one another? I am coming to that.

Professor: Pronouns are co-indexed with one another.

(Refer Slide Time: 10:30)

Constraints

– John$_i$ saw himself$_i$.
– *Himself$_i$ saw John$_i$.
– *John$_i$'s mother saw himself$_i$.

- What is different between grammatical and ungrammatical sentences?
- How can we explain them?

Let me first introduce referential sorry reflexives to you in a little bit more detail and then I am coming to Principle-B when we talk about pronouns. Do we? sorry.

Student: The same Principles both pronoun and reflexive can be coindexed.

Professor: Both can be co-indexed

Student: (( ))(10:55)

Professor: What you are saying we did not have examples in the same place. That is what I am telling you. I am coming to that; I do not have an example ready from the top of my mind. But I am coming to that example in a couple minutes. So, do these things follow any constraints? Now, in this, in the second sentence also you see they are co-indexed, which is to say we just cannot put one condition that they must be co-indexed John and himself must be co-indexed does not guarantee grammaticality of the sentence, in sentence two they are co-indexed but, the sentence is not grammatical.

Look at, we talk about precedence is not giving us an answer, we can say antecedent must always proceed is not giving us an answer. Because look at the third sentence John's mother saw himself. Is that sentence good, no is what is the?

(Refer Slide Time: 12:11)

Constraints

– John$_i$ saw himself$_i$.
– *Himself$_i$ saw John$_i$.
– *John$_i$'s mother saw himself$_i$.

- What is different between grammatical and ungrammatical sentences?
- How can we explain them?

Why is the sentence not good? It has an antecedent, they are co-indexed. What is wrong with that sentence?

Student: (())(12:19)

Professor: There is antecedent that appears to be John's, John's mother not John that is the problem? In other words, even if the reflexive himself looks like it can have its antecedent only John. Because it is himself it does not have access to that in a configurational sense, when you draw the structure of the sentence then you will realize that it does not, it does not fulfill certain aspects for being antecedent for this reflexive what are those aspects that it does not fulfill? And how do we explain this thing?

(Refer Slide Time: 13:11)

Binding

- What is the difference between 1 and 2. Why is 1 good and 2 ungrammatical.
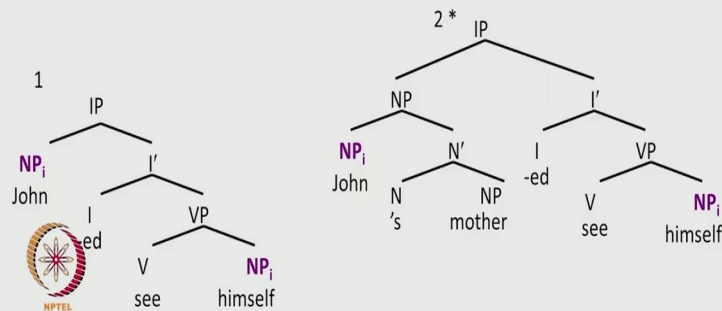
Look at these two structures, and then you will be able to see why? So, what is the difference between 1 and 2, why is 1 good, and 2 not good, that is why is one grammatical? And the 2 ungrammatical? See the difference between the 2 structures, John proceeds in both the cases John is co-indexed in both the cases, the argument is we need to say something else in order to define the domain for reflexives and its antecedents to occur we need to say something else and that something else again, you might have guessed by now, is taking us to hold on there is one more thing which I am presenting to you without saying it that we are talking about the sentence.

So, we are saying they must be co-indexed, the antecedent must proceed, and we are also saying that they must be within the same sentence still we find some sort of ungrammaticality then we need to talk about what is missing here is what we need to add to explain and grammaticality of two, and what we need to say is the antecedent everything else that we have said is still true.

But we need to add that the antecedent must c-command the reflexive. The antecedent must c-command the reflexive, is antecedent John c-commanding the reflexive in 2? Do we remember the definition of c-command try what is the definition of c-command?

Student: (())(15:23)

Professor: What are the two requirements for c-command?

Student: (())(15:29) A does not dominate B…

Professor: A does not dominate B and B does not dominate A, and first branch, hold on, one part A does not dominate B and B does not dominate A, does A dominate B in 2? A that is NP John does not dominate NP himself they are co-indexed, there is an antecedent. And even if we look at c-command John does not dominate himself and himself does not dominate John, clear? What is the second condition for c-command?

Student: The first node dominating John should also dominate…

Professor: This is where it does not. So, the first branching node dominating A must also dominate B that condition of c-command is not being fulfilled here, in 2 the first branching node dominating A is NP which is not dominating the, which is not dominating B. Therefore, John does not c-command himself therefore despite being within the same sentence despite being co-indexed with one another and despite John being the antecedent of himself the sentence is ungrammatical.

Therefore, configurationally speaking what becomes the most significant constraint on the presence that is occurrence of anaphor within the same domain is being in c-commanding domain that an anaphor must be in the c-commanding domain of its antecedent, a reflective must be in the c-commanding domain of its antecedent then the sentence is grammatical. Can I ask you a question at this point when we have a, when we have a sentence like? Let me come back to that question a little later.

(Refer Slide Time: 17:56)

Binding

- In 1, the NP *John* c-commands the NP *himself*. But not in 2.
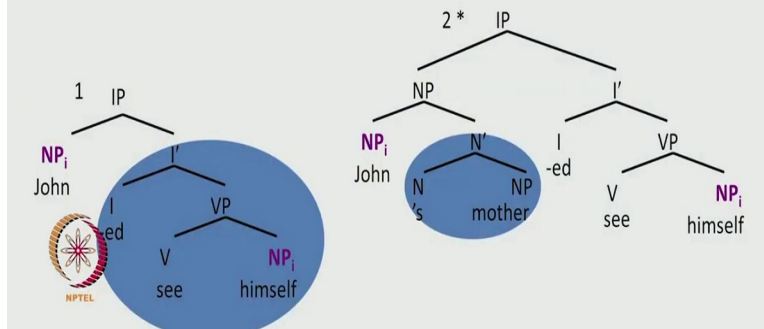
So, this is what we talked about in one the NP John c-commands NP himself, clear? Do you agree that NP John c-commanding NP himself? John is not dominating himself, and himself is not dominating John. That was the reason why I wanted you to understand for the first time in the first place the relationship called dominance and precedence.

So, NP John does not dominate NP himself and himself does not, definitely does not dominate NP John that is quite obvious. However, the first branching node dominating NP which is IP also dominates himself therefore, they are in the c-commanding domain therefore, it is good and you have seen why that is not grammatical? However, somebody answered this question and somebody said that the antecedent looks like the entire NP in the spec position that is John's mother. If, we are talking about the entire NP then that NP c-commands the reflexive the NP downstairs. But John's mother saw himself, if we say the whole NP is the antecedent for it then what is the violation?

Student: Agreement.

Professor: Agreement not the agreement, indexes, index is the problem John's mother and himself two cannot carry the same index. As long as they are carrying the same index then it is going to run into difficulty.

Student: Sir, what happens if John's father saw himself?

Professor: John's father saw himself then, the sentence would be grammatical?

Student: Then using the structure using c-command?

Professor: John does not c-command, John's father whole NP c-commands that is to say, you see here is what we are talking about? You are saying, John's father saw himself. Is that sentence right? First John's father saw himself, what we are saying is? This NP becomes the antecedent, and then their co-index this NP c-commands this.

If we allow this NP to c-command this thing, this NP himself then it is like number one, then there is no problem. The whole, no matter how big that NP is? John's father is definitely potentially big as you can see. If we allow it to be the antecedent of this then there is no problem that NP is in the c-commanding relationship with the reflexive therefore, that sentence is allowed.

Student: Sir, (())(21:14)

Professor: What is the reason why you are saying? Why have we put it under shade?

Student: How has branching worked?

Professor: How has branching worked? Let us see, I have tried to simplify it. I know I understand your objection that how is that NP? First, I just wanted to keep the whole thing as an NP. But then I will not be able to get them. Then I want to be able to separate John from John's mother.

So, it is like a genitive phrase and since I have not talked about genitive case and genitive phrase, I did not want to get into that and then make my point. So, what I have done is this is a complex NP is a big NP where I see your main objection is in the head position of that NP why is not an NP and why is something else. So, but take it as an NP as a big NP where one NP John is in spec position of the whole phrase that is John that is the main point I am trying to show because the NP John is in non c-commanding domain with the reflexive the sentence is ungrammatical.

However, I agree with you that I am not answering the complexity of this NP in details right now Because, it is definitely not it is not called you see there is another term which is called DP and it is called Determiner Phrase and in that Determiner Phrase in their spec position and NP is allowed and in the head position a case marker like off or apostrophe will be allowed. But I did not want to use the term DP either therefore, I changed the term DP to NP just to make my point.

(Refer Slide Time: 23:30)
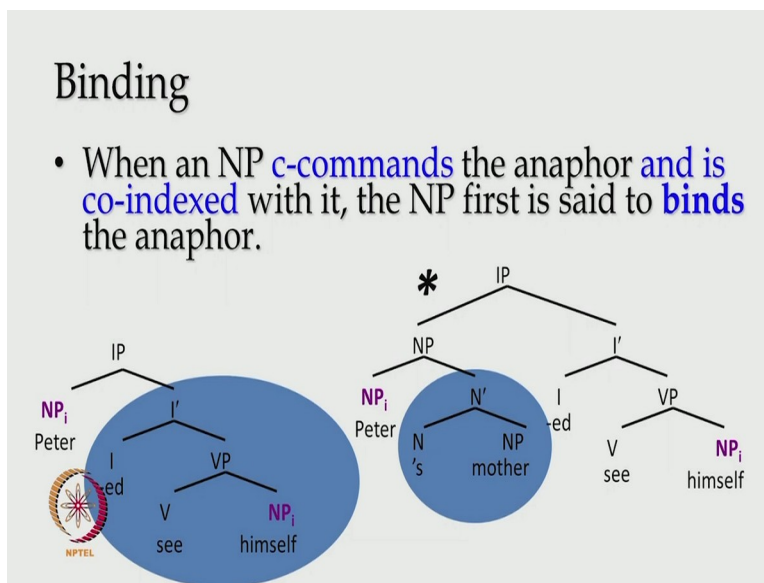
And then you know that when NP c-commands the anaphor and it co-indexed with it and the NP first is said. So, this is the configuration in which we say. Now, we can. I want to introduce one more term of you we can say the antecedent John in one that is Peter here binds the anaphor. NP if it is, if the antecedent and the anaphor that is the reflexive are in c-commanding domain then we can say NP, antecedent NP binds the anaphor.

(Refer Slide Time: 24:17)
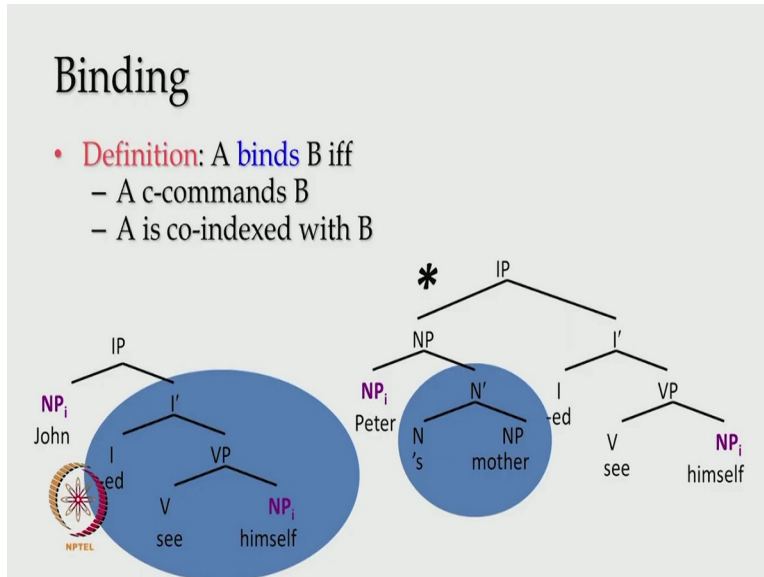
And, with that we can say this is what, where the term binding comes from that if I want to say antecedent binds reflexives what do I mean? The word binding, should itself not be a difficult thing for you. But when we say binding in a technical sense, we say they must be under c-commanding domain then the antecedent binds the NP with the two conditions.

Where, the antecedent must c-command and antecedent must be co-indexed with the anaphor, that is the condition of condition called binding.

Student: Sir, (())(24:59) John's mother saw herself. Is the sentence grammatical?

Professor: John's mother saw herself that looks grammatical to me.

Student: (())25:11) but there is no concept of binding in the sentence, because, c-command (())(25:15).

Professor: Mother doesn't c-command, John's mother the entire NP c-commands.

Student: So, there we consider John' mother as one NP.

Professor: Definitely that is an NP. Look at this, this node. So, all I need to do is to just put the whole thing together what we are saying? The problem is, when this NP is co-indexed or this NP is co-indexed then there is a problem of c-commanding, c-commanding. But if this NP is co-indexed then there is no problem of c-commanding, I think it is not, should not be complicated for you then there is no problem and definitely that is the reason why John's mother saw herself is. Because, in that case we are neither talking about John, not talking about mother of course, mother is John's mother.

But, when we say we are not talking about mother, we are talking about just the NP mother is not in our case and the reason why it is a question for you. Because you are looking at probably just mother and John's mother is mother. So, this NP mother is not in the c-commanding relationship with the anaphor. So, how does the configuration work? Probably that is your question. But that is not the case, the NP whole thing John's NP or Peter's NP the NP in the spec position of the NP is in c-commanding domain it is c-commanding the NFR then there is absolutely no problem.

(Refer Slide Time: 26:59)
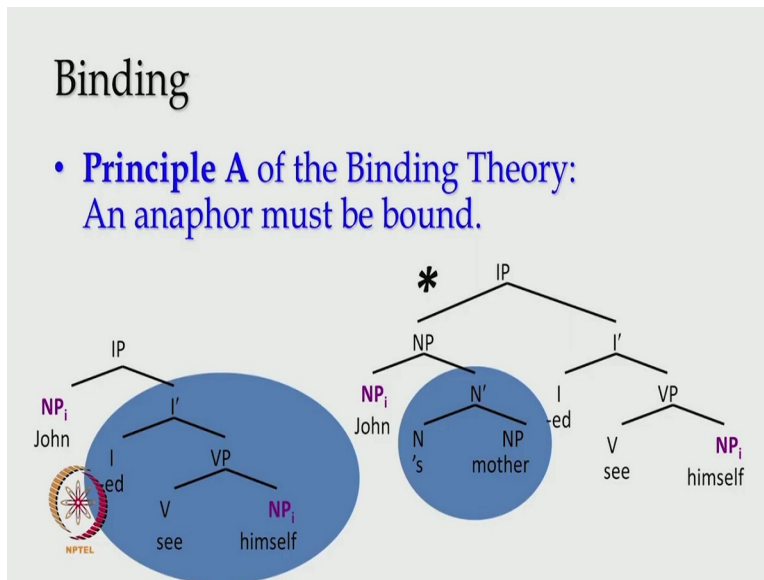
So, this is what the Principle-A says. I could have said this first and then gone into the details of that I have shown you everything and then I am saying, stating the principle an anaphor must be bound. In other words, reflexives and an antecedent bind an anaphor, an anaphor must be bound. So, if you see an anaphor in a, if a sentence with an anaphor is ungrammatical high probability is the probably the anaphor is not bound and that is the case in number 2 that the anaphor is not bound with the right antecedent that is the antecedent that could pass probably bind anaphor is not in the c-commanding domain and we know that there are two conditions that an antecedent must fulfill before it can bind the anaphor and those two conditions are going same having same in this indexes and then, being in the c-command domain.

There is one more condition, on which I was thinking I will tell you and I should tell you at this time we have a sentence like Peter knows that himself saw John. Can you write the sentence Peter knows that himself saw John, Peter knows that himself saw John in this sentence? If you draw the structure of the sentence Peter and himself are co-indexed Peter and John are co-indexed. I do not have that on the screen. So, I can draw that for you as well.

(Refer Slide Time: 29:34)
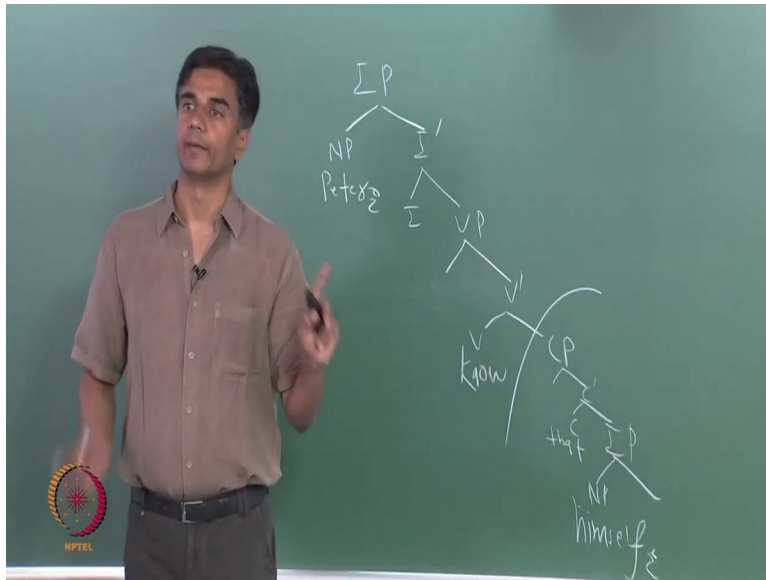
So, let us look at this. We have an IP and the problem in that IP is I am sorry here is our NP Peter and then we have I and VP here is our. Let us do it properly now and here is our CP and then where is the anaphor himself here, I am right here is the anaphor and then it has further things Peter knows that himself saw John here after it is, it should be simple for you.

Now, look at this if this is co-indexed, could be co-indexed with this, this is co-indexed and is this NP c-commanding, c-commanding himself, c-commanding himself. So, they are co-indexed and they are under the c-commanding domain also. Why is the sentence ungrammatical then?

Student: From the IP.

Professor: That is because, you are right, beginning from here it is a different domain. So, the two conditions that we are talking about for binding are good. But we need to say one more thing that is the binding domain; these are the two conditions for binding. But the binding domain is within the IP. So, being co-indexed, being in the c-commanding domain in the same IP is the actual condition for anaphors to occur being here in the spec position of another IP even though it is co-indexed, in the c-commanding domain of its antecedent the problem is actually it is not in co not in c-commanding domain you have seen c-command and you have if you remember their constraint on c-command was…

Student: (())(32:25)

Professor: What was the constraint on that kind of c-command? There was a there was one more one constraint on the c-command the constraint was a finite IP we have we talked about this constraint when we were talking about assignment of cases a finite IP becomes the barrier for a finite IP this IP is finite IP, because, we are saying knows that himself saw John that is tensed IP, finite IP.

So, this finite IP becomes a barrier for c-command therefore, anything from outside this domain from outside this IP intervening to c-command another element is not going to be possible. So, actually we are saying, actually when I said that c-commands himself is not completely right, if we ignore this constraint then it appears to be

c-commanding. But there is a constraint that it will not be c-command. So, one, one can defend it on the basis of c-command also. But please know that the binding domain for anaphor is the same IP within the IP and I think I have something here to say.

(Refer Slide Time: 34:02)

An anaphor must be bound. So, these are the sentences you can take a look at and then meditate and think about this. Himself saw John in the mirror. The three sentences that we had just seen before are ungrammatical. Because of the co-index, co-index system. And antecedent and reflexive issues and the issue of c-command all of that will be able to explain it here is the sentence what we were talking about? Mary's father likes himself. Something like, that in third Mary's father likes himself will be fine. But himself likes Mary's father is not good because of the obvious reasons that I have just explained to you.

(Refer Slide Time: 35:07)

Binding Domains

– *John$_i$ said that himself$_i$ likes pizza.
– *John$_i$ said that Mary called himself$_i$.

• The NP *John* c-commands and is co-indexed with (=binds) *himself*, satisfying Principle A.

So, this is the point that I raised that John that Mary called himself likes pizza. It is not good because it is not in the c-commanding domain. John said that Mary called himself is not good again because, the reflexive and the antecedent does not c-command the reflexive they are not in the same domain.

I wrote this thing; I hope you understand what it means? That the NP John's appears to be c-commanding the reflexive himself if we do not look at this constraint. But since we know about that constraint it is not possible for us to ignore. So, in order to dismiss this, we do not have to touch the nose through a different route we can directly say that it does not appear to be c-commanding because the second IP is a finite IP.

(Refer Slide Time: 36:05)

The NP *John* binds *himself* in every case.

What is the difference between 1 and 2 on one side and 3 and 4 on the other?

1. John$_i$ saw himself$_i$ in the mirror.
2. John$_i$ gave a book to himself$_i$.

3. *John$_i$ said that himself$_i$ is a genius.
4. *John$_i$ said that Mary dislikes himself$_i$.

– In the ungrammatical cases, *himself* is in an embedded clause.

So, what is the difference between 1 and 2 on one side? And three and four on the other John saw himself in the mirror, John gave a book to himself c-commanding, co-indexes and everything is fine. John, said that himself is a genius, is out. You remember the sentence from yesterday John said that himself is a genius. John said that Mary dislikes himself are out for c-commanding reasons and not being in the same domain. So, that explains.

(Refer Slide Time: 36:37)

More precise cons. So, this is how we can put the constraints in a precise way that it is the constraint is put in terms of locality which is the same IP with locality the all we mean is the same IP and anaphor must be bound in its binding domain and the binding domain is the IP the smallest clause containing it that is both anaphor and that is both antecedent and reflexive must be within the same smallest clause that is the same IP.

(Refer Slide Time: 37:14)

Look at this, pronouns now I am coming to probably what you are looking for John saw him in the mirror is not good, John saw him in the mirror is not good as it is marked here in this sentence. Because, if we try to put the same index for both then it is not right. But with the same index the second sentence is alright you see that John said that he is a genius is alright. John said that Mary dislikes him is also alright, they are co. So, co-index being co-indexed is not just a problem for the pronoun.

Please raise your hands if you see that question is still not answered.

John saw him in the mirror is okay if the indices are not the same. So, what is going on here in these 4 sentences? If I just give you these 4 sentences and ask you to tell me something about pronouns, what can you say? Particularly knowing that. Now, knowing the fact that you know the backgrounds of domains, IP, structure, c-command what can you say about these 4 sentences?

Trust me, I do not have enough time for quizzes otherwise these are the questions for quizzes asking you to provide generalization giving you few sentences that is the kind of problem one would want to struggle with, these are not the actual problem to make you a struggle once you figure one thing you can write the answer in 5 minutes. But these are the problems to think about. So, what can we say about pronouns?

Student: It should be different (())(39:21)

Professor: They cannot be co-indexed within the same domain if they are in the c-commanding configuration, in the same IP they cannot be co-indexed, if they and they are allowed to be co-indexed if they are in the different IPs.

Student: (())(39.44).

Professor: That time I did not talk about the same domain and this is the fishy thing about pronouns that pronouns can be, we cannot say pronouns must be free like r-expressions. We can only say pronouns must be free within the same domain that is Principle-B and the Principle I am coming to that after this slide an anaphor must be bound in its binding domain and enough, and a pronoun must be free that is Principle-B. So, they can be co-indexed. Definitely they can be co-indexed outside the domain within the same domain if you try to co-index them the sentence results in ungrammaticality.

Student: John's mother saw himself (())(40:44).

Professor: So, then John is not. So, it is not true. But then it is not in the c-commanding configuration as long as it is not in c-commanding configuration that is fine.

Student: John would be c-commanding.

Professor: No, John's mother c-commands, John's mother saw him, try to write that and see the structure. We have just seen the structure John will be under the NP which is in the spec position. So, the IP of the I sorry specifier of the IP has an NP and within that NP again if we bifurcate then we get John. So, the first branching node for John is going to be NP not the IP therefore, it will not be able to c-command him.

Student: Sir, John's mother (())41:42

Professor: Then there is no problem. We have said that is not even a problem for anaphor John's mother saw himself, sorry John's mother saw herself is not a problem and when we say John's mother saw him is not a problem. Because they are not co-indexed. Co-indexed.

Student: But not in the same domain.

Professor: No, they are in the same domain. Think about it slowly, John's mother saw him in this case John's mother as an NP and him as another NP; they are in the same domain. But they are not co-indexed John's if John's mother is I him is j then there is no problem. Therefore, we say that the distribution of pronouns in the distribution of pronouns and anaphor appear different and this is the difference which says.

(Refer Slide Time: 42:43)

Principle B

A pronoun must be free in its binding domain.

Free means not bound

1 *John$_i$ saw him$_i$.
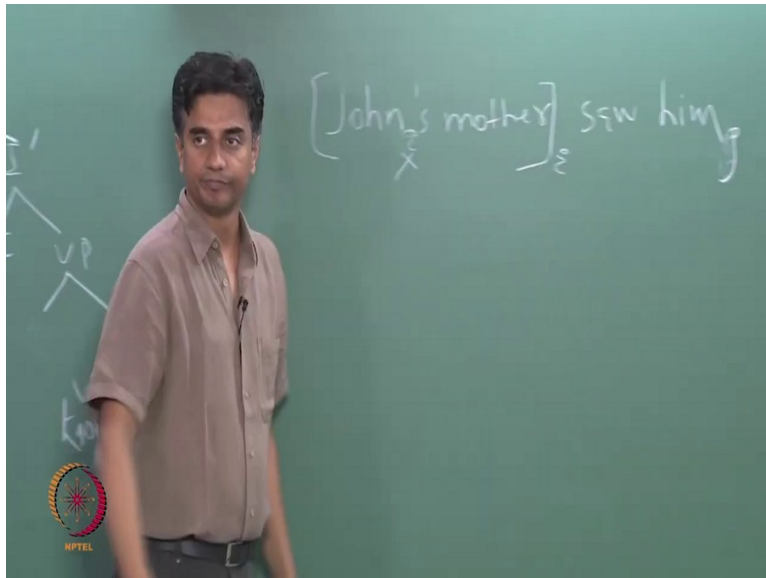2 John$_i$'s mother saw him$_i$.

Which leads us to Principle-B, which says a pronoun must be free in the binding domain, free means not bound, that is the conditions that apply for binding c-command and co-indexation must not work for them is the meaning of being free. So, the moment you say John saw him and try to put the co-indexation if the indices are not the same then the sentence is alright and then that is what explains ambiguity?

If we say it has two meanings A and B with different indices Principle-B explains both of them. John's here is the sentence that you were talking about John's mother saw him is fine. I am sorry, the index is wrong, the index is wrongly given. I should have put John's mother in a square bracket and then given it the index and then the sentence will be okay. Understand the difference between Principle-A and Principle-B?

Student: (())(44:02)

(Refer Slide Time: 44:11)

Professor: Sorry, definitely you are talking about sentence number 2 no, the problem is sentence number 2 is here, this is how it should have been done? John's mother saw him.

Student: (())(44:21)

Professor: What I have done is I have put it here this is wrong what I should have done is I should have put it here.

Student: (())(44:34)

Professor: That is also correct because the… these two do not have the same indices. If this is I then this will be j, I am sorry you are right that is John, that will j right now, that is correct I am sorry right now that is correct. they can be co-indexed as long as they are not in the c-commanding domain they can be co-indexed and then there is no problem you are right. We understand, Principle-A, Principle-B the difference between the two, meaning of binding, meaning of not being bound, and then bringing in c-command and the structural configuration to explain interpretations of noun phrases. Do we understand this?

Student: Can a pronoun and anaphor co-indexed one another?

Professor: Can a pronoun and anaphor can be co-indexed one another? Something like, he saw himself, yes true, this can be done as long as they are still following the same constraints, they are in the same binding domain, they are co-indexed, they are c-commanding one another and within the same IP absolutely, no problem. So, that is Principle-B.

(Refer Slide Time: 46:09)

Principle C

R-expressions need to be free everywhere.

Let's look at the following sentences.

- *He$_i$ likes John$_i$.
- *She$_i$ said that Mary$_i$ fears clowns.
- His$_i$ mother likes John$_i$.

Pronouns are free in the binding domains.

The key is – R-expressions need to be free everywhere. They can't be assigned their reference from somewhere in the sentence.

And then finally, Principle-C, in short give us another 2 minutes says r-expression needs to be free everywhere, that is for its reference and interpretation it does not depend on anything within the sentence when we say must be free everywhere we mean within the sentence, must be free when it is not free in the world that is in the larger context it depends on something for interpretation. But, in the sentence it is free.

When we look at the sentences, he likes John. If we try to put the index together then the sentence is wrong why? Because we are trying to get the reference for r-expression John from he where it is violating Principle-C, John cannot take and take reference from anything within the sentence he saw John, he likes John it is a perfectly alright sentence by itself as long as he is i and John is j perfectly fine. She said that Mary fears clowns. Sentence could be good as long as she and Mary have different indices. His mother likes John, same problem no hold on what is going on?

There is a problem here, let us just forget that sentence. I am done with my point with the first 2 sentences. So, r-expressions must be free everywhere, anaphor must be bound, and pronouns must be free in the binding domain, could be bound, that it could be co-indexed with something outside the binding domain. But, within the binding domain it must be free.

(Refer Slide Time: 48:28)

Binding Theory

- **Principle A** -- An anaphor must be bound in its binding domain.
- **Principle B** -- A pronoun must be free in its binding domain.
- **Principle C** -- An r-expression must be free.

- The **binding domain** for an anaphor is the smallest of (i) An IP that dominates it.
- **Bound**: co-indexed with a c-commanding antecedent

These are the three principles of binding theory. In which, we need to understand the binding domain and what we mean by being bound? With the notion of IP, x-bar, and c-command that is all.