

Principles and Parameters in Natural Language
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Lecture - 16
Grammaticality and Acceptability

We have looked at two types of categories that is one is lexical category and the other is functional category. Lexical categories are words in sentences and you can see those categories, they are they have their physical appearances. And then we looked at functional categories and we saw that some of such categories have their physical appearances and some of them do not have. It is not that all of them that is agreement features like number, person and gender, and tense aspects and some more will never appear and it is also not true that if they appear once they are going to appear all the time.

So, the same thing may appear sometimes and may not appear at other time is this much making sense to everybody leave with me so far alright. And then we have seen examples of all these things like on a; if we have a word let say a proper name right the marker of gender is not visible on that for example, if you have a name like Raju or Sandeep, there is no visibility of gender on that; however, sometimes you may see or you may assign certain markers and gender marker on a word like [FL] or [FL] or [FL]. At the same time you can look at other words like [FL] [FL] if we are talking about Hindi, then such nouns do not categorically show their gender markers. At the same time when we looked at tense in a language like English or for that matter in other languages too.

If you have a simple sentence like I am a doctor or I am a student, you have a tense marker you have a word that you can attest as tense marker at the same time when you say other things like I eat pizza or I live in Chennai, I like movies in such sentences the gender tense is not categorically visible and we have seen examples of these things. The point is there are there are several points to keep in mind, first alone lexical words do not make words.

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Sentence

- How do we make a sentence?
- Are sentences random collection of words?
- If not, what are the required components of a sentence?



So when we make the statements like this that you on the screen like are sentences collection of random words. The answers to such questions are expectedly no right. Then if not then what are the required component of a sentence when we talk about required components? What we mean is we are talking about some visible invisible interplay of functional categories that is the point we are trying to make.

And those are the things which make sentence, this is why sometimes you may have a pretty long sentence and a still could be called just one sentence and you may have just a word go or come or sit could also be a sentence because they fulfill the requirements that we expect functional categories on a in a sentence to fulfill clear alright.

We also saw that there are some sentences which do not have tense at all like when we say a sentence like come this sentence does not have a have tense on it these are called tense less sentences and with the examples of sentences with tense, sentences with visible tenses, sentences with invisible tenses and sentences which do not have tents. We have seen that all such things and by all such things I mean tense and aspects and then when we combine the interplay or the role of agreement features in a sentence when we put everything together we see that all such activities take place around verbs in a sentence. Therefore, verbs are called power house in a sentence that is everything is controlled by verb therefore verbs are the most significant lexical part of a sentence. Remember we have we when we talked about sentences for the first time and even now I

give you an example, we established that if we say just go that constitutes a sentence you may put 200 words together if there is no verb and no agreement taking place they do not make a sentence right this is the reason why it works that way.

So, can I take it at this time that we understand certain we understand role of different types of operations and different types of relationships between lexical categories in a sentence can we take this much right now alright.


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Negation

- Mainly two negative markers: **nahiiN** and **mat:**

5. raajuu skuul **nahiiN**/***mat** jaayegaa
Raju school neg go-FUT-M.S.
'Raju will not go to school.'

6. **mat**/**nahiiN** jaao
neg go-IMP
'Don't go (please).'



We have already looked at the types of 2 types of negation and I wanted you to see this with the I wanted you to look at these examples in 5 and 6 just to refresh your memory that these things help us establish whether a sentence has tense or not. Because a particular type of negation marker can occur only with the tenseness sentences namely [FL] we have looked at some Tamil examples and I am sure you must have thought about examples of some other languages as well right.

There are certain other things where we did not come, but I can tell you while moving ahead, but I need to move to some other point about to sentence today. However, this point is going to be crucial little later and I will establish why I am showing you these sentences but can you please take a look at these sentences carefully.

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Negation

7. aap-ne kahaa aap aais-kriim khariidenge
you-erg said you ice-cream buy-fut
'You said you will buy ice-cream.'

8. maiN-ne kab kahaa
I-erg when said
'When did I say?'
Imp: I did not say so.

9. maiN-ne kahaaN kahaa
I-erg where said
'Where did I say?'
Imp: I did not say so.



Even know those who do not speak Hindi could understand these sentences please take a look at them carefully. What is the first sentence Sandeep? You speak loudly with the first sentence.

Student: [FL]

[FL] What does this mean?

Student: You said you buy an ice cream.

You said you will buy an ice cream right. What is the reply in sentence 8?

Student: [FL].

[FL] What does the sentence literally mean when did I say right, but what is the what am I supposed to understand out of this.

Student: (Refer Time: 09:09).

What is the implication of this?

Student: (Refer Time: 09:12).

I did not say so.

Student: (Refer Time: 09:17).

Or I do not remember saying that the point is when you see the reply right and the reply is [FL]. Do you see any in negative element in this sentence? If at all this sentence is a question sentence right when did I say so and remember this is not about Hindi alone same thing applies in English when you say when did I say so means I did not say so.

A question sentence gives you negative reading; not necessarily a question sentences going to give you negative reading all the time, but in a context a question sentence gives a clear negative reading where there is no negation word, there is no negation word in the sentence right. When someone says come, does it mean do not come right if you want to tell someone do not come, then you have to say do not come that is you have to use the negative word.

Now look at the sentence there is no negative word and it means no I and again again and again I will remind you like I have promised you I will keep reminding you about these things, it is not something new that I am telling. I mean I may be saying something that you are looking at in a context for the first time, but it is not that you do not know these, you say these things many a times do not we say such things.


And if you look at a sentence in 9, it is not just about one question word when. You can use several types of question words and a still the meaning is negative. Even when we say use the question word where, where did I say or where did I say so means I did not say that right. Now it just I just want you to look at the implications of replies and what such question sentences are capable of, what is the implication involved in such answers clear.

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Syntax

- Syntax is the study of the rules governing the way words are combined to form sentences.

- *garden the in
- *table on
- *Children are

 playing

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Now, I will talk about a little bit more about these implications little later. Now there is there is one more thing which I wanted to discuss before I come to the definition of syntax. So, there are two things in a sentence right, two things that are important; one is the verb right and the other is what agrees with the verb? Subject then we can call that roughly subject. We have seen in the last couple of classes that sometimes subjects may be something which we do not usually think it could be a subject right that is we have a different notion of a subject in our mind.

However, when we take a look at a sentence take a careful look at a sentence we realize that the actual subject is something else, and this actual or non actual business begins only when we keep in mind that subjects are the elements that agree with the verb right. I am trying my best to talk about these complicated issues in simple terms, I am trying my best not to used too technical terminology for these things, am I may still making sense to you.

So, looking at the same phenomena we derived that nouns that end up agreeing with verbs are subjects in one form of their definition right. So we talked about subject and verb, have you heard the word predicate? What does this mean to you when someone says predicate.

Student: Rest part of the sentence.

Rest part of the sentence rest part what which rest part? I mean leaving what

Student: Sentence minus subject (Refer Time: 13:59).

Sentence minus.

Student: Subject.

That is you want to say subject minus sentence.

Student: (Refer Time: 14:05).

Or sentence minus subject everything is else wow nice and everybody understand this thing, have you heard this thing or you have read this somewhere.

Student: (Refer Time: 14:17) thought like that.

You thought like that right good and that is true subject minus everything else is predicate. Now this is a nice definition but we need to understand the implication of this definition, which is subject is not part of predicate please keep that thing in mind, we will come back to this thing and it this particular assumption or description has a huge role to play in many things that we are going to discuss.

So, you can see now at least at this point why agreement has to take place between subject and the verb. That is one element from within the predicate and one element outside the predicate and you have just established that because subject is not part of the predicate therefore, it has to agree with agree only with subject see that.

So, we now we know terms like subjects, verbs, predicate right at the same point before I move out of curiosity, I want to check about one more term which is objects have we heard about that. Subject, objects and verbs right we have been talking about them. We have just introduced a new term predicate and I am so happy that you understand the notion of predicates.

How about objects? Anybody?

Student: What is a sentence referring to?

What is a sentence referring to little bit of way type.

Student: (Refer Time: 16:18).

What loudly.

Student: Yeah the think on which the (Refer Time: 16:26).

Something that the action is being done on right will be object. These are these sound like very textbook type of definition, I want you to expand them in such a way that people could understand without books I know all that but you are you are too close we just need to say a little bit more so hold on with this with these definitions where is predicate, where is a object located.

Student: (Refer Time: 17:02).

Is it part of the predicate or outside the predicate?

Student: Part of the predicate.

Part of the predicate now it follows from what you just say; if predicate is everything except subject, then object has to be part of predicate right no surprises here and if it is part of the predicate, then we come to this action and all these things little later if is part of the predicate it is around verb and in still simpler terms we can say objects are more closely related to verbs. That is the existence of an object depends on the nature of the verb whether an object will be allowed in a sentence or not by allowed I mean whether is subject whether an object will be required in a sentence or not depends on nature of a verb right and again with this we will need to talk about what do we mean by nature of verbs alright.

So, hang on to that little bit more on the relationship between subjects and predicates, relationship between verbs and their objects and nature of verb we discussed little later. Let me talk about something that I want to introduce to you and then bring in those notions and move forward together. As you know we started to understand principles and parameters of natural language right.

So, far things that we have been discussing, they are part of principles and parameters in the sense that a nice background on of such helps us understand how principles and parameters play in language, how principles and parameters really work in language

understand. We have been able to understand in a better way notions of things like knowledge of language and principles of economy ok.

We can understand notion of knowledge of language only when we understand how we acquire language right and before we understand how we acquire language, it is imperative for us to know what is it that we acquire how does it really work; beginning from how we begin speaking sounds and then how they work together in a sentence in a word understand this.

So, this is why we have a spent little bit time on such things, what I want to say is this is this is not an apology to why we have spent so much time on that. This is just to bring you at this point to appreciate more of what we are going to be discussing. Point number 2 we can appreciate and understanding of principles and parameters more way more at the level of sentences right.

So, now we are at the level of sentence, now we understand what we know about sentences so far the things that we have established about sentences I do not mean to repeat them again. Such an understanding in short is called syntax, which is again it is a set of rules operating at the level of sentences. So, principles and parameters are visible more apparently at the level of sentences and this is what we are going to be looking at from now onwards.

And again for understanding such principles and how they operate, it is important to understand the relationship between subjects and objects and the moment we want to understand relationships between subjects and objects, we first need to know what subjects and objects are right the more the more clarity you have about these things the better appreciation of these things develop now onwards alright.

So, look at these things these are fragments are not they? And even if the star marks before these fragments indicate that they are not good combination of fragments, this star represents an grammaticality or unacceptability in this study of language.

So, every way are now onwards you are going to see star either before a word or before a small fragment or before entire sentence, which means it is not an acceptable sentence. So, see these fragments are not acceptable not good. If I ask you the question why it is pretty simple to answer this is they are not in right order right. This is what we want to

discuss, what is right order and how do we know about right order? How elements must be put in a particular order is part of principles and parameters determine that which is the first one must be how are we going to remove the stars from there?

Student: (Refer Time: 23:38).

In the garden; why? That is the parametric adjustment of English that in a language like English and I am saying English because I do not want to say more things about it in a language like English an element which we call preposition must proceed the noun, so we must say in garden. Then the question is if we say in garden the, still not a good string can we say the in garden still not a good string, so not good a strings tell us what?

Student: Wrong syntax.

Wrong syntax, but more than that what does this tell us that is the conclusion of that, but what it tells us that there is in the proximity between the and garden right is a required fact is a required proximity for this string to be grammatical right. Anything or nothing can interrupt that proximity. The moment you interrupt that proximity you are going to result in to and grammaticality right.

So, what governs this proximity that is why such proximity are so required such rules is what we call syntax any question any difficulty? And the same applies in rest of the examples too right. This is this is one sentence right a fragments of one sentence and if we put it, it is not a complicated sentence all of us know this sentence if you put it how do we put it so that the sentence will be grammatical?

Student: (Refer Time: 26:00) children playing on the table in the garden.

Children are playing on the table in the garden right now.

Student: (Refer Time: 26:09).

Children are playing on the table in the garden this sentence may not be a great sentence, still you can ask your questions about certain meaning that is semantic aspect of this sentence. How could several children play on a table in the garden? But it could be possible they could be playing something which is possible for 5 children to play on a table right that is the possibility.

However, making them in grammatical in different in a smaller fragments, help us understand the requirement of proximity of their elements. So it is not a coincidence that we arrange words in a particular order in a particular language. And when we are looking at order of words in a sentence, only the order of verb is not important. Of course that is important in the sense that verbs in a language like English must be in the middle of the sentence that is English is not above final language and it must be in the middle of the sentence. Actually now we can say it in a better way we can say the verbs must precede the object or objects must follow the verbs in English, therefore they become verb medial language. Other language is verb final the moment we say verb final it means objects must.

Student: Precede


Precede the verb it is just the mirror image a relationship between or mirror image difference between English and Hindi. Verbs follow in English so sorry verbs follow objects in English in our languages, verbs precede their objects in English same thing applies to prepositions.

Prepositions proceed nouns in English prepositions follow nouns in our languages right and many such languages; such are parametric variations and they are not the only parametric variations they are the parametric variation at the level of arrangement of words. We will talk about more of them but it is much clear that besides verbs other elements also require proximity. Some of the elements can allow disruption in their proximity and some are not going to allow, but again we will look at all these things little later so that is about syntax.

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Syntax

- Syntactic knowledge:
 - *Humans can understand & produce an infinite number of sentences they never heard before*
 - “Some orange ants are starting to dance on microwave”
 - *Our grammar can understand and produce long sentences*
 - “John said that he thought that the esteemed leader of the house had it in mind to tell the unfortunate vice president that the calls that he made from the office in the White House that he thought was private.....”
 - *Determine the grammatical relations in a sentence*
 - Mary taught Bill.
 - Bill taught Mary.



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What does syntactic knowledge mean? Syntactic knowledge very closely refers to what we have been talking about knowledge of language or at least syntactic knowledge is also part of knowledge of language. But what does this mean in particular look at it. The first thing that this it guarantees us that we can understand and produce an infinite number of sentences that we have never heard before, we have this capacity alright. What is the most fundamental property of a sentence we have just seen most fundamental property of a sentence of course, their elements and everything.

Student: Agreement.

Agreement right. Just one simple feature guarantees infinite sentences as long as your agreements are taken care of right so you can keep producing sentences and there is no limit on that we can produce or we can understand and infinitely long sentence not only we can produce we can understand an infinitely long sentence.

Full stops define a sentence and it is possible that you may have to leave that open, you have seen a smallest sentence, smaller sentence possible and a smallest sentence possible, but we do not know a long sentence, it could be literally infinitely long. The fact that we call it infinitely long assures you that you are never going to get an example of that right. You can try and you have you see the example you can I mean this is just an example, you can make a sentence of your own at that is the point.

Also such rules such that is syntactic knowledge determines relationship between sentences and just now we talked about this and I told you that we will talk about subjects and objects and there involves little more with reference to nature of verbs later, but look at this these are the verb is the same in the two sentences, the last two sentences are not they right and nouns are also almost similar right. What is the difference in these two sentences is that? Meaning wise these two sentences are completely different right they are same set of people and same verb. What causes the difference in the meaning then?

Student: (Refer Time: 32:00).

Arrangement; we refer to that as arrangement of words because that is visible right what is not visible to us is the relationship between verb and the subject and verb and it is object which is mary in number one is a subject mary in number two is the object. Therefore, the difference in the meaning and whatever the meaning these two sentences give us that is lexical items are going to be grammatically related with the verbs and grammatical relations are called subjects and objects, a word by itself is not inherently a subject or an object.


A word or a noun becomes a subject or object in a sentence, a word maybe a subject in one sentence could be or could not be an object in the other one. So, these 2 terms like I asked you in the beginning have you heard these terms you have heard these terms, but additionally I want you to know the these two terms mean grammatical relationship in a sentence right. Like it is like human beings, one person could be brother right uncle, father or if we are talking about women mother, sisters all kinds of relationship could be attested, but depends on with reference to what right clear alright. So, these are part of what we say syntactic knowledge.

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Independence of Syntax

- A sentence with clear syntax but no meaning:
 - Colorless green ideas sleep furiously.
 - A dog was reading a newspaper in the library.
 - I gave the question to dancing flies.
- *Furiously sleep ideas green colorless.
- *Reading dog newspaper was library in.
- *flies dancing questions I gave to.

• Sentences are composed of units that are combined by rules. These rules explain how speakers store infinite knowledge in brain.



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There is one more point which I want you to know in order to understand syntax which is called Independence of Syntax, it is called independence of syntax. If you just look at these examples you can understand what we mean by independence of syntax right do you see these examples right. Look at the first example have you heard this sentence before first sentence colorless, green, ideas, sleep, furiously. This is one sentence which is completely meaningless and probably this is the only meaningless sentence which has been discussed in the study of language more than the meaningful sentences.

Every time you talk about independence of syntax this sentence comes up. We can do the same thing with the other two sentences as well the rest of the two sentences tell you almost similarly stuff. What it means is you can have a clear syntax, but still no meaning alright a sentence and that is a good looking sentence. What do you mean by good looking sentence?

Student: (Refer Time: 35:39).

A grammatical sentence.

Student: Acceptable.

Acceptable sentence may not have any meaning right, do these sentences have any meaning? They are completely grammatical are not they? Colorless, green, ideas, sleep, furiously there is nothing wrong grammatically with this sentence. A dog was reading a

newspaper in the library a completely grammatical sentence have you seen this ever? You may have seen such things in films, but have you seen this thing ever no have you said this sentence before until now no but is this not a good sentence no refer back to just what we have seen on the slides.

Then we have the ability to understand sentences that we have never said before or we have never heard before that is the capability which is making you understand these sentences. I gave the question to dancing flies, I mean is it is not difficult to come up with these sentences the all you want to do is what the you are trying to retain the sentence grammaticality of the sentence what you trying to remove the meaning from there. In normal speech when we speak when we interact in societies that is called E language remember.

So, if you are talking about the difference between I language and E language, then the role of independence of syntax is important. In E language independence of syntax does not have much meaning you made the point right. E language will tell you fine established that the syntax is independent which is independent of what? Independent of it is semantics that is independent of it is meaning.

In other words not necessarily a sentence which is grammatical must be meaningful also therefore, if someone tells you meaning is arbitrarily assigned to sentences, this is what is the proof of that. The meaning is not something which makes a sentence grammatical you can say this is meaningless this does not mean anything you must have heard this thing several times this does not mean anything right, but nobody says that thing ungrammatically right.

So independence of syntax simply means the meaning is not a required component of a sentence to be grammatical right however, these things keep the word of caution in your mind that these things, these sentences may not be good in E language that is we can make our point with these things, but people do not speak these sentences right. Suppose you meet with your friends in the evening, and you tell him even in the context you know what I saw a dog reading a newspaper in the library.

What is going to happen? If you say this thing to 5 different people, they will make different kinds of conclusions about you right he has this person gone really mad or is he trying to spread some rumors, you see all kinds of people will make all kinds of

conclusions right. So, these things have a different meaning in E language so we right now we are not talking about E language.

And at this point I should also bring in the syntax and its properties that is syntactic knowledge and the other aspect of it which is independence of syntax, all these things and whatever you are going to see more they are grammatical relations, their principles they are all part of I language and therefore, in generative grammar which follows from Chomsky syntax he only talks about I language. He makes it abundantly clear that look the language that I am discussing has nothing to do with the language in the real world that is E language get my point alright.

Now, these things in blue it just distorted strings therefore ungrammatical, not that they have nothing about they are not ungrammatical because they are not meaningful right. So, again this establishes that we must have sentences combined by rules, that is the proximity of elements are outcome of certain rules of the position of a post position, the position of a determiner, whether an element is going to allow a determiner or not all these things are going to be rule governed and such rules are going to tell you that how we well store may not be the right word.

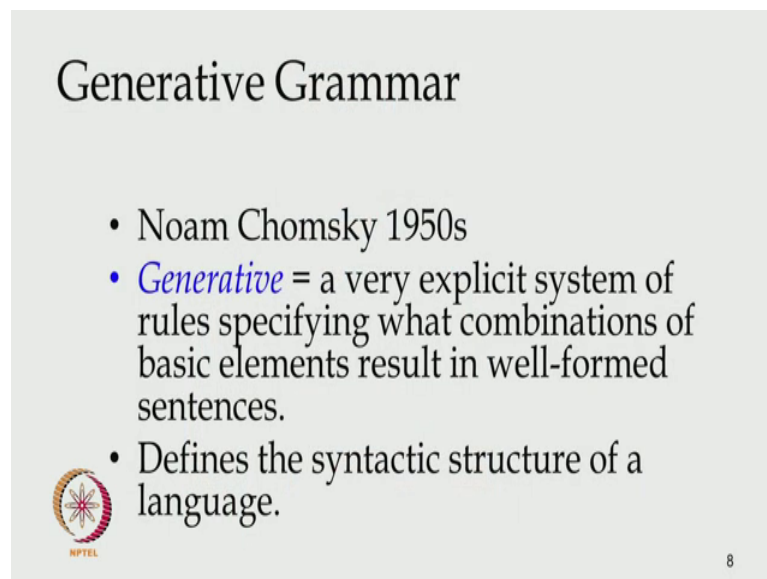
How we have language in our mind that is the language in our mind is not in form of either fragments or sentences, this also have if this also establishes that language is not stored as sentences. Language is an outcome of rules and that rule is called generative rules which is an outcome of generative capacity. We do not have words and we do not have sentences made readymade sentences to be used. Remember I have asked you these questions we do we plan every day that we are going to speak 200 sentences today remember imagine how difficult life could be right. How many assignments do you have to submit every day?

Student: (Refer Time: 42:22).

Sometimes nothing you may have just a quiz right imagine how our life is going to be if we have to make a list of 200 sentences every night before we go to sleep, that we are going to speak tomorrow. Imagine a life, but probably we cannot imagine such a life right then if we have to study how do we speak or how do we say so many things? This is an example of that also I have shown you or at least we have discussed that human brain is empty, nobody has found any evidence in it, there has been hues attempt to a

study human mind from variety of perspectives, not that they are not significant or anything. Rules of language or the study of language throws serious light on how human mind works that is at least these things retrospectively tells you that human mind comes up with language with the application of rules, and those rules are finite in nature remember I am not saying finite in number, those rules are finite in nature but they have infinite capacity right.

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The slide is titled "Generative Grammar" in a large, black, serif font. Below the title, there are three bullet points. The first bullet point is "• Noam Chomsky 1950s". The second bullet point is "• *Generative* = a very explicit system of rules specifying what combinations of basic elements result in well-formed sentences." The third bullet point is "• Defines the syntactic structure of a language." To the left of the third bullet point is the NPTEL logo, which consists of a circular emblem with a star-like pattern inside, and the letters "NPTEL" below it. In the bottom right corner of the slide, there is a small number "8".

Finally this is how generative grammar is defined. 1950 onwards this came into existence and it simply means a very explicit system of rules as specifying what combinations of basic elements results in a well formed sentences, defines the syntactic structure of a language. So the structure underlying sentences is called syntactic structure, we are going to see more of it from now onwards that is when we say more of it now we are not going to be we are not going to be looking at structure of sentences per say.

We are going to see structure of these underlying rules can you keep this thing mind? Not this structure of sentences per say that is we are not we will be looking at sentences but not really the relationship between words or choice of lexical items or for example choice of a particular rule we are going to be looking at with the help of examples underlying a structure of syntactic rules, which in turn become fundamental principles of language and we are going to begin with several components of it, I think the first not I

think I know the first is X-Bar Theory with which is how do we guarantee that lexical items require proximity and how they are related with one another and how it is captured with the application of rules in human mind. We are going to be looking at that alright that we begin from Thursday ok.

Thank you.