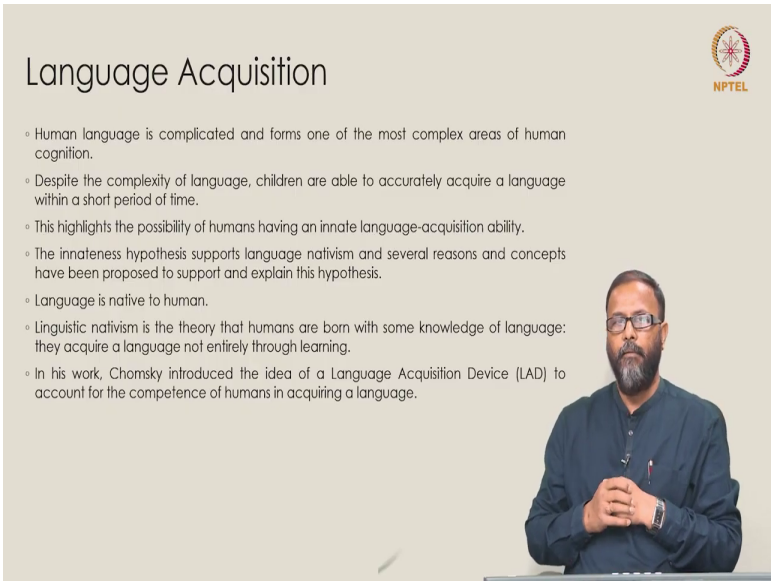
Fundamental Concepts in Sociolinguistics
Professor Om Prakesh
School of Humanities and Social Sciences
Gautam Buddha University, Greater Noida
UP201312
Lecture 09
Key Concepts in Language Acquisition Lad, UG, and Poverty of Stimulus

Welcome to class. Today we are going to talk about some key concepts in language acquisition. And I primarily draw it from the generative paradigm of Chomsky's enterprise theory. Why is it important to understand key concepts? It is important because the whole theory is situated in these frameworks, and these three concepts that we are going to talk about today, LAD, Language Acquisition Device, UG or Universal Grammar and poverty of stimulus, a very significant argument put forward by Chomsky to support his generative framework. So we are going to talk about these three key concepts today, LAD, UG and poverty of stimulus.

(Refer Slide Time: 01:16)



If you recall, in our other classes and videos, we talked about behaviourist paradigm and behaviourist theory of language acquisition. This whole idea of stimulus response, operant conditioning, habit formation, tabula rasa, these concepts are discussed and the entire understanding of behaviourist theory was discussed.

And the monumental work called *Verbal Behaviour* was produced by B. F Skinner in 1957. And we also saw how Chomsky criticised that approach severely, and in 1965 *Aspects of the Theory of Syntax* came and changed the entire understanding and it had a very deeper impact on the understating of language acquisition process.

So if you look at the broad framework of generative paradigm and language acquisition in generative paradigm, it says human language is complicated and forms one of the most complex areas of human cognition. And it is beyond doubt that we all believe that, despite the complexity of language, children are able to accurately acquire a language within a short period of time.

And when we say accurately acquire a language, we have to refer to the Chomskian idea of linguistic competence. That will give you the idea. What do you mean by accurately acquire the language? Because Chomsky imagines, Chomsky argues for under computational properties of language, and he says that grammatical structures are underlying structures available to all speakers without variation. They acquire it in an ideal speech speaker-listener, speaker-hearer in context with a homogeneous speech community.

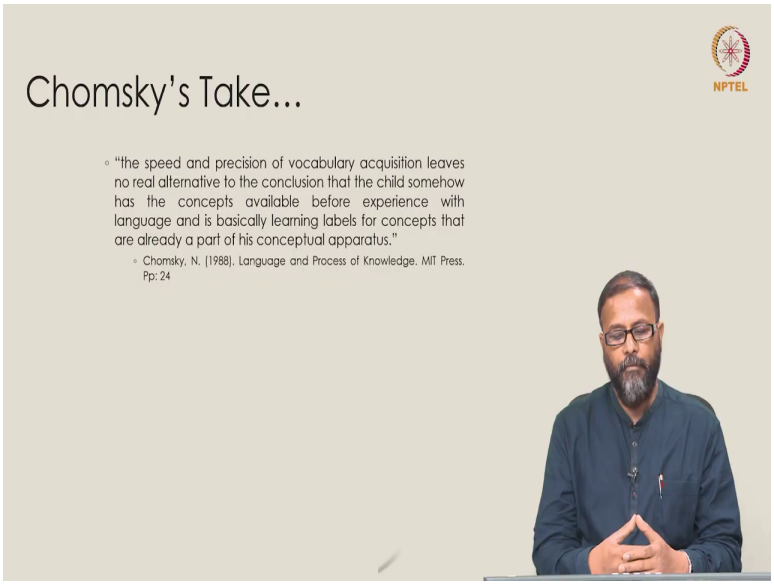
So that is what he talks about in linguistic competence. So he says, children acquire accurate language or the first language or the native language, and this highlights the possibility of humans having an innate language acquisition ability. And why he said so, we have to draw from the understanding of poverty of stimulus, that is, despite the fuzzy and degenerate data available to a child, a child acquires language perfectly fine.

And that means, there must be some inbuilt mechanism, some innate apparatus available to the child to learn a language perfectly fine. So the innate hypothesis supports language nativism and several regions and concepts have been proposed to support and explain this hypothesis. And in that, these three key concepts are very crucial; language acquisition device or LAD, universal grammar, and poverty of stimulus. We have to understand these three concepts in a continuum and it will give us a total idea of genetic paradigm and language acquisition.

Linguistic nativism believes language is native to humans and they are born with some knowledge of language. They acquire a language not entirely through learning, but it is an autonomous effortless process. So learning language is a child's play for a child. And in his

work, Chomsky introduced the idea of a language acquisition device about which we are going to talk shortly.

(Refer Slide Time: 05:14)



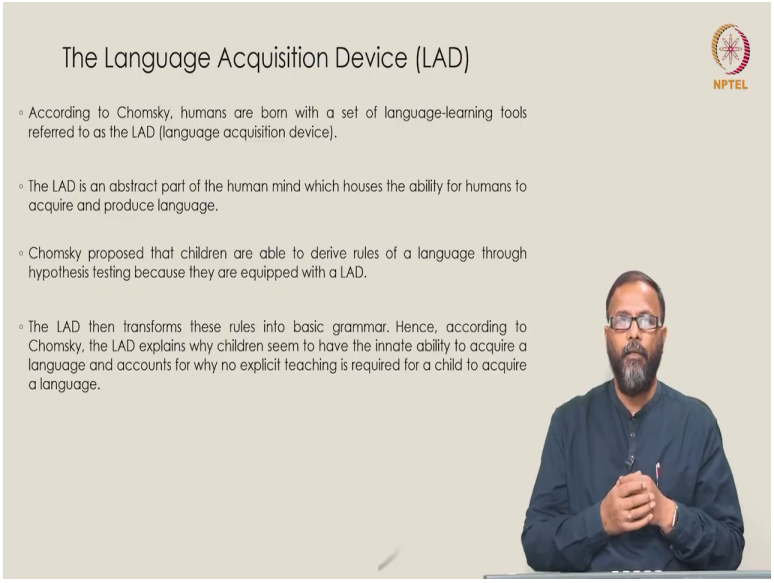
If you look at the Chomskyan take on this, I refer to Chomsky, 1988, *Language and Process of Knowledge*, MIT Press page number 24. I quote from here, "the speed and precision of vocabulary acquisition leaves no real alternative to the conclusion that a child somehow has a concept available before experienced with language and is basically learning labels for the concepts that are already part of his conceptual apparatus".

So he imagines and argues for an innate conceptual apparatus and underlying set of rules available to the child. So the child simply does not learn from input, but the child actually conforms to these labels. So for example, if the child has Hindi input, the labels will be conformed with Hindi terms. If the child is in a French speaking environment, the child will conform these labels with French as a language.

If the child is in, let us say, a Tamil speaking environment, the child will conform the label with Tamil language. So this is what he means by the child conforming to the labels because the speed of learning of vocabulary is amazing by the child. And you might have seen times parents are amused to see how a child brings up new expressions, new utterances, new sentences, that we cannot guess from where a child has learned it. But the child articulates and we are amused. We

are surprised at the speed at which a child learns. There must be some innate capability that indoors the child to learn at such a high speed he does not happen with adult learning. So this is what the Chomskian take.

(Refer Slide Time: 07:31)



And he proposes, so he brings in two ideas to support this innate conceptual apparatus. And he talks about the language acquisition device. Now device is a misnomer term. So we should not be confused with some physical organ on some physical thing. Device refers to acquisition device, language acquisition device refers to innate capability and this conceptual apparatus or mechanism available to the human child. So it is not physiologically located in our brain, but it is a conceptual, hypothetical mechanism that he is referring to.

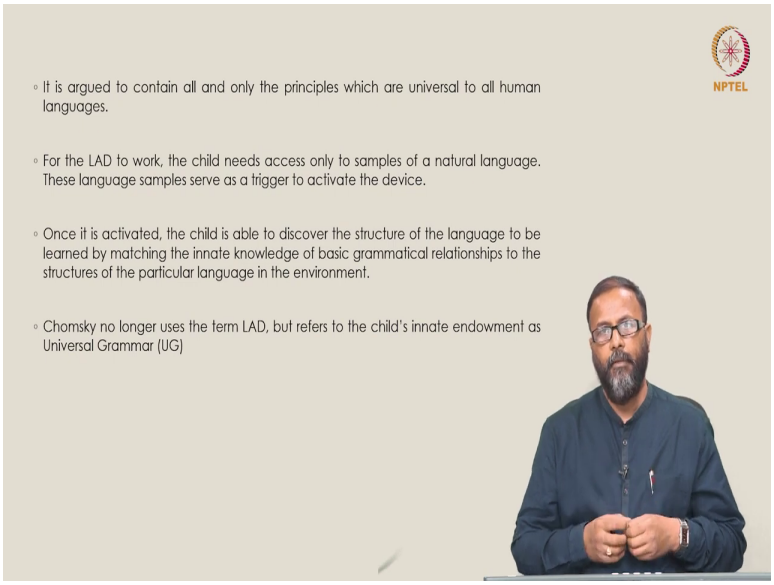
So according to Chomsky, human children are born with a set of language learning tools, referred to as LAD, Language Acquisition Device. He is talking about the innate capability at the time of birth available to a child to learn a language, that is what he refers to as LAD. And LAD is an abstract part of the human mind which houses the ability for humans to acquire and produce languages. So he is the first to use that conceptual mechanism. He proposed that children are able to derive rules of a language through hypothesis testing, because they are equipped with LAD. And the LAD then transforms rules into basic grammar and this is how our child develops grammar.

Hence according to Chomsky, the LAD explains why children seem to have the innate ability to acquire a language and accounts for why no explicit teaching is required for a child to acquire language. So the basic idea which is argued here is the native or innate capacity of a human child to acquire a language. And unlike behaviourist paradigm, in which all responses have corresponding stimuli.

He says that, you know, this apparatus, this mechanism is already there at the time of birth. So there is a departure from the idea of tabula rasa. If you recall tabula rasa, a blank slate where the child does not have anything, no predisposition. So the child does not have any knowledge of language, but Chomsky talks about knowledge of language and underlying principles a child is born with.

So he situates this tabula rasa thing out of the ambit of the discussion and he says that, language acquisition device, that is a counter argument he gets about this conceptual apparatus and available innate capability to watch human child. So a child is not at the mercy of the environment, but the child is innately equipped and endured with this mechanism to learn and the environment does play a role. But this environment does not control the entire process of learning. That is the beauty of (())(10:56) LAD or language acquisition device in this entire generative enterprise.

(Refer Slide Time: 11:03)

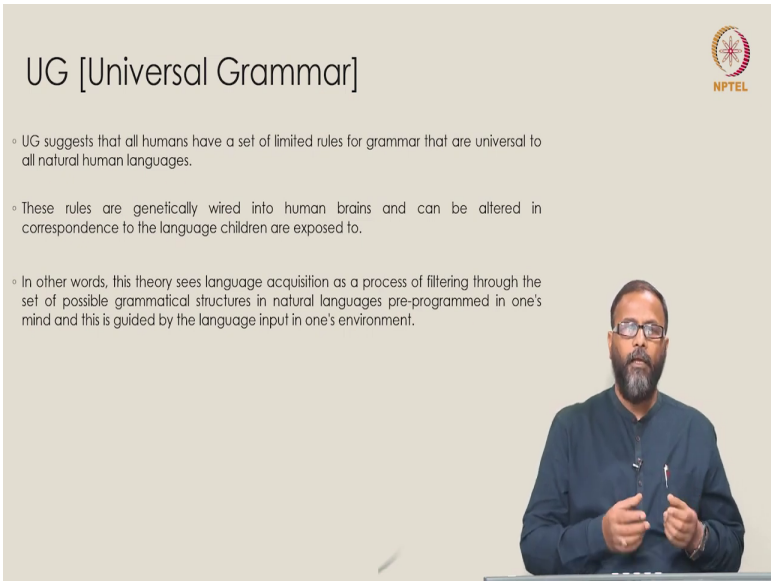


So it argues to contain only principles, which are universal to all human language. And this LAD needs to be triggered. So the role of a stimulus is important to an extent where it triggers the learning process. So the primary linguistic data available in the environment triggers or activates this LAD (())(11:35).

And once it is activated, the child is able to discover the structure of language to be learned by matching the innate knowledge of the basic grammatical relationship to the structure of a particular language in the environment. And when we say the basic grammatical relationship to the structure of the particular language, that means there is some innate universal structure or set of principles available to the child, and the child sets the parameter according to the input available in the environment.

And that leads to another important concept called universal grammar. So what is that set of principles that is universal grammar? Once this LAD is activated, universal grammar starts working. A child has a universal grammar, set of principles at the time of birth contained in that LAD. Later on Chomsky does away with LAD. He talks about a universal grammar, a set of universal principles.

(Refer Slide Time: 12:50)



So what is universal grammar? Another important concept in the generative paradigm, the universal grammar, suggests that all human languages operate on certain basic principles and all

human beings have a set of limited rules for grammar that are universal in all human languages, universal in nature and available in all human languages.

So this whole idea that all human languages operate on certain sets of fundamental principles. And these fundamental principles are available to the human child. These rules are genetically wired and this is an exaggerated expression used by Steven Pinker. So do not perceive or conceive or imagine a wiring system that carries the linguistic structures, thus genetically wired means, it is endowed.

So the human child is endowed with this capability of innate, conceptual apparatus, and capability to learn. So it is not actually physical wiring that he is referring to. So these rules are the universal set of principles. For example, let us say, subject, verb and object. So all languages will have subject, verb and object arranged in a particular sequence. A verb must agree with the subject.

So this is a universal principle. But where is the variation? Why English is different from Hindi for that matter, or why Tamil is different from Hindi for that matter, or Telugu is different from Chinese for that matter. Subject as a category is available to all human languages. Object as a category available to all human languages. Verbs as a category are available to all human languages and there is a relationship. So the subject must agree with the verb, and the verb must agree with the subject. There is a subject-verb agreement, that is a universal principle. But how it happens is language specific. The arrangement of the components in a sentence.

For example, English has S-V-O word order where you have the subject, verb and object. So the object is part of the predicate, the subject agrees with the verb. As opposed to English, Hindi has a sequence of arrangements called word order, such as subject, object and verb. So in English you say *John eats an apple* so John is the subject, eats is the verb, and an apple is the object. So look at the word order, *John eats an apple*.

But in Hindi we say, *Ram aam khata hai*. Ram is the subject, aam is mango, Ram is the name. Aam is mango. Khata hai is eat, which is the verb. So look at the order; subject, object and verb. So in English you have S-V-O word order, but in Hindi you have S-O-V order, the verb comes at the end of the sentence.

This difference is parametric in nature. These differences is language specific, but when we come to the categories and their forms, we have subjects in both sentences. We have verbs in both sentences. We have objects in both the sentences. And why do I have an object? We have an object because both the verbs, khata hai or eat in both languages, are transitive in nature.

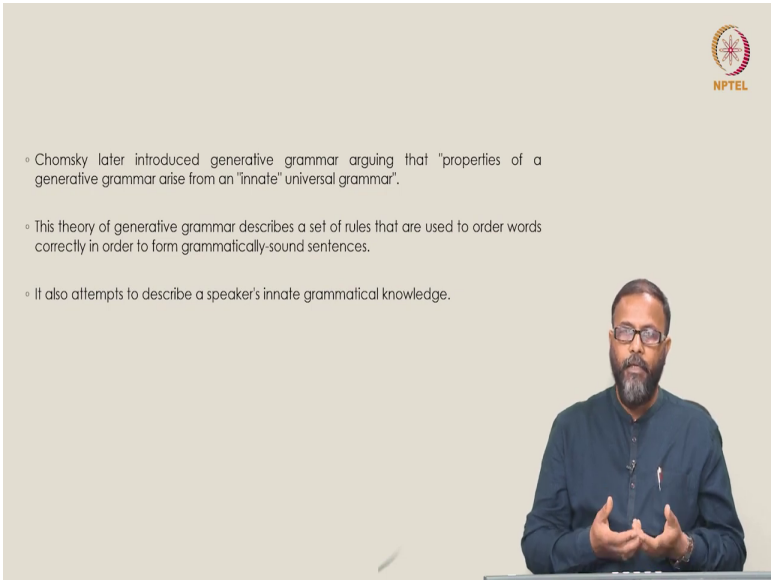
So it will essentially take one noun as an object. Or recall a direct object as a category. So variations are there. Differences are there, but for a child, this universal principle of subject verb agreement for that matter, is available. The child learns how to achieve this agreement in a language specific parameter environment, this is what he is referring to.

So in other words, this theory sees language acquisition as a process of filtering through a set of possible grammatical structures in natural language, pre-programmed in one's mind, and that is guided by the language input in one's environment. So universal grammar is a set of universal principles available to all languages and the differences are parametric in nature.

So the grammar operates on these universal principles, but the child develops a language centric grammar depending on the environment and exposure in that particular linguistic environment. So if the child is in a Hindi speaking environment, Hindi rules will be set as parameters. So Hindi rules become parameters and they will be set by the child.

And it also gives us this understanding of why a child is able to develop native like competence in multiple languages. So if the child is exposed to, let us say two languages or three languages at the same time. We had talked about it in early bilingualism. If the three languages are available, the child will set parameters for three languages, because the universal principles of language are available to the child. So child sets parameter for three languages, and child labour three parallel grammars with one semantic system. That is the beauty of universal grammar.

(Refer Slide Time: 18:54)



Chomsky later introduces generative grammar arguing that properties of a generative grammar arise from innate universal grammar. And this theory of generative grammar describes a set of rules that are used to order words correctly in order to form grammatically sound sentences. So word order is just one of the parameters, and it also attempts to describe a speaker's innate grammatical knowledge.

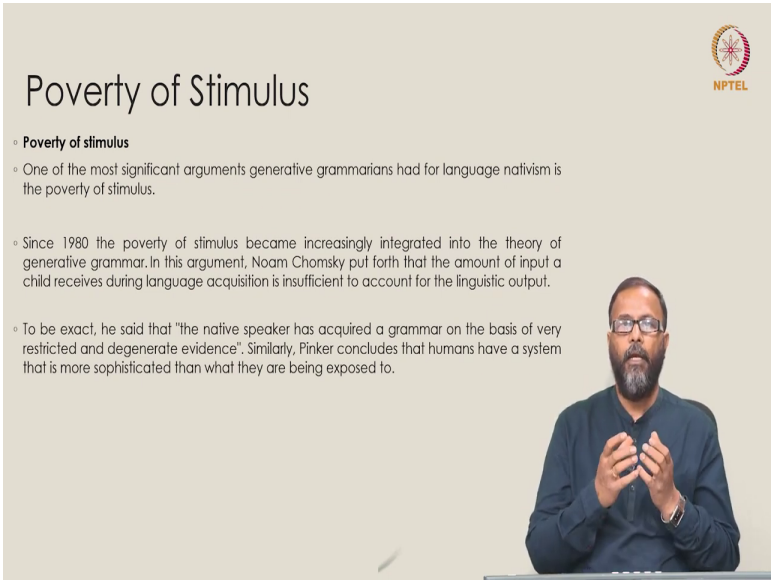
So if you combine these two concepts, LAD and universal grammar, they become the pillars of the framework of generative grammar, where a child is argued to have this innate conceptual apparatus contained within the universal set of rules of grammar. And the primary linguistic data available to the child triggers LAD to function and triggers UG to function (())(20:08), and the child learns labels not the rules.

Because the set of universal rules available to the child already. So what child is doing? Chomsky says hypothesis testing and learning. So the underlying abstract rules are already there with the child in that conceptual innate abilities and the child is exposed to a particular language environment. And the PLD, primary linguistic data, available to the child activates this mechanism to work, and the child confirms the labels, and learns, and develops a grammar in that particular language.

So he is referring to understanding of principles and parameters. So all human languages operate on universal principles that he refers to as a set of principles of universal grammar. But the

parameters are language specific and the child is able to set parameters because principles are available to a child. So these are two important concepts.

(Refer Slide Time: 21:22)



Another important contribution Chomsky makes in his arguments for generative grammar is that, the environment for a child for learning language is not ideal and child does not receive structured instructions, and both kinds of data positive and negative data So a child does not have the opportunity to have clear generative data. Data is degenerate, fuzzy, incomplete, and full of idiosyncrasies.

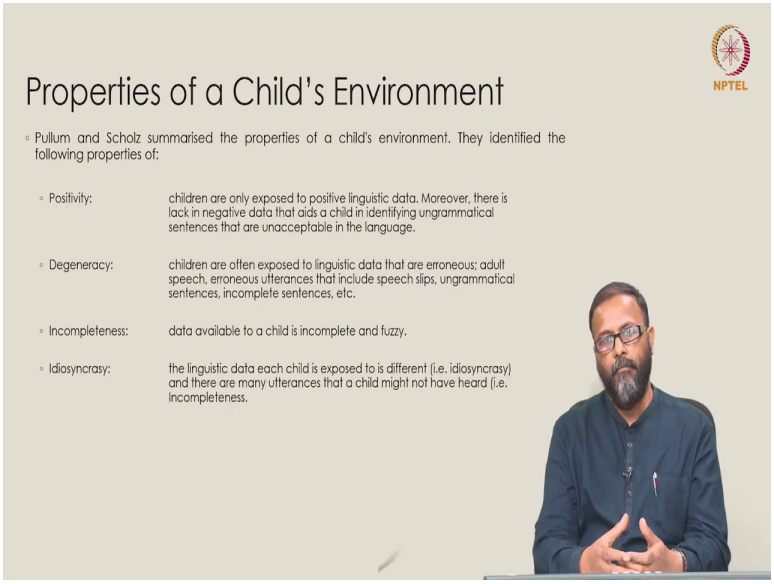
So look at the poor data available to the child. If we relate it to a stimulus and response, input and output, then look at the poor input a child has in the environment. The adult speech is full of idiosyncrasies and degenerate elements. It is never complete. Nobody or no child has an ideal input for activating these universal principles and in need of conceptual apparatus.

Chomsky refers to this data as or this stimulus available to the child as poor. And why poor? Because this is not rich, this is not clear. It is fuzzy, it is degenerate. And he calls the situation as poverty of stimulus. It is one of the most significant arguments that he makes to assert the two principles LAD and UG. And in the post-80s, the poverty of stimulus became increasingly integrated into the theory of generative grammar. And in his argument, Chomsky says that the amount of input a child receives during language acquisition is insufficient to account for linguistic output.

Because we do not have a systematic, organised, and structured input for a child. The child receives unorganised, unstructured, incomplete, and degenerate input. But look at the output, the output is perfectly fine and grammatical. How does it happen? And he refers to the same mechanism of innate conceptual apparatus that allows a child to filter through this data available to the child.

And to be exact, he said that an innate speaker has acquired a grammar on the basis of a very restricted and degenerate evidence. Steven Pinker (())(24:34) renowned psychologist and also expert on cognitive sciences says that humans have a system that is more sophisticated than what they are being exposed to. So he again refers to the same innate capability that human beings are endowed with.

(Refer Slide Time: 24:55)



And this idea, that insufficient data, degenerate data, unstructured data, and incomplete data. They do not restrict the child to learn the grammar of a particular language perfectly fine. Learning of a child is fine despite the fact that the input is problematic, input is insufficient. And if you equate the amount of output, it goes far beyond the amount of input a child gets.

So that is an important point to make and notice. Pullum and Scholz try to define the characteristics of the environment and the properties of data available to a child. So reinforcing this idea of poverty of stimulus by Chomsky, Pullam and Scholz comes up with four important characteristics of such data available for a child in the environment.

And there are four important characteristics they mention: number one positivity, number two degeneracy, number three incompleteness, and number four idiosyncrasy. So the input for a child or the primary linguistic data for a child or the environment a child is brought up in, and the child acquires a language marked by these four characteristics. Positivity, what does it mean?

Children are only exposed to positive linguistic data. So we do not teach and we do not speak because you have to understand that we do not speak differently in front of a child. We have a normal speech around the child. Adults speak with normal phrases with normal expressions. It is not specific to children.

So the input the child gets is a normal, authentic, regular input available in the speech acts of the adults around. And what is it that is systematic and positive? Because you do not use negative

data or deliver ungrammatical data. So a child is not exposed to what is ungrammatical and the child is not exposed to negative data.

But how come a child is able to filter out and point out and notice ungrammaticality? I mean, take an example. If you go and tell a three and a half year old child or four years old child, Papa office jati hai, Papa goes to office. Hindi has grammatical gender. Office jati hai, if you use feminine agreement marker with the verb in this sentence, in front of a four year old child, the child is able to tell you, “no, no, papa, the masculine marker suffix is jata and jati is feminine marker”.

How does it happen? The child has not been exposed to the formal rules of grammar. But a child is able to understand with a native speaker's intuition. This intuition is developed and this intuition is tacit. The knowledge of this grammar is tacit, implicitly there, underlinely available. So a child is exposed to positive data only. But still there is a lack of negative data that aids a child in identifying ungrammatical sentences that are unacceptable to language.

So we do not speak that way. But where does the child learn it from and what makes a child distinguish between grammatical and ungrammatical to make judgments about the grammaticality of a sentence or acceptability of a sentence? So this is an important point to notice. Then number two, degeneracy. What does it mean? Children are, as Itold you, children are not exposed to structured instructions about learning a language.

They have mixed data where you might have degeneracy and things like slip of tongue for that matter, erroneous, full of errors, slip of tongue, ungrammatical sentences, and incomplete sentences. I mean look at your casual speech, look at how we talk to each other in this speech event around the child. We do not make full sentences, we talk normally.

And in normal talk, we have such degenerate data, like errors, like slip of tongues, like incomplete sentences, like referential information. But the child's learning is perfectly fine despite this degenerate data. And that also supports the Chomskian argument. Another characteristic is incompleteness.

So data is incomplete because we do not have a full range of data around the child. The child is exposed to normal adult conversation as an input available to him or her, and which is fuzzy and

incomplete. The fourth and most important point and the characteristics of the environment and the data is idiosyncrasy.

So there are many utterances the child might not have heard ever. The linguistic data each child is exposed to is different and idiosyncratic in nature. But the learning of the child is not affected by it. If you go by these properties, these properties together support the claim of Chomsky, about the poverty of stimulus.

So the data, which is available to the child for language learning, is poor, degenerate, and incomplete. But the learning of a child is perfectly fine and complete. This outcome also underlines the Chomskian position that every human child is born with an innate apparatus or mechanism to acquire a language that Steven Pinker's calls genetic wiring.

And if you look at the language acquisition, first language acquisition by the human child closely, we find a lot of support for Chomskian claims and Chomskian framework in this generative thing. So we have to keep in mind these three most important points and key concepts like LAD Language Acquisition Device, UG Universal Grammar, and his idea of input that is poor and he calls it the poverty of stimulus.

So these three verticals together create an overall understanding and framework for understanding language acquisition in the generative paradigm. I hope these three concepts are clear to you. And we expect questions. You post it in the forum and we will try to explain it and understand it further.

These three concepts have very far-fetching consequences, and perhaps in the next video when we talk about critical period hypothesis, what is the period when we say early childhood is the best formative years for learning a language. Then, when does this age end and the new phase begins, what is that a window period? So that is called the critical period of learning critical period hypothesis in language.

We will talk about it and when we talk about the critical period hypothesis, we will build upon these three major key points, LAD, UG, and poverty of stimulus to understand that concept. So this is it for now and we will answer your questions in the forum. So do put your questions in the forum, and I hope this is clear to you. So thank you very much.