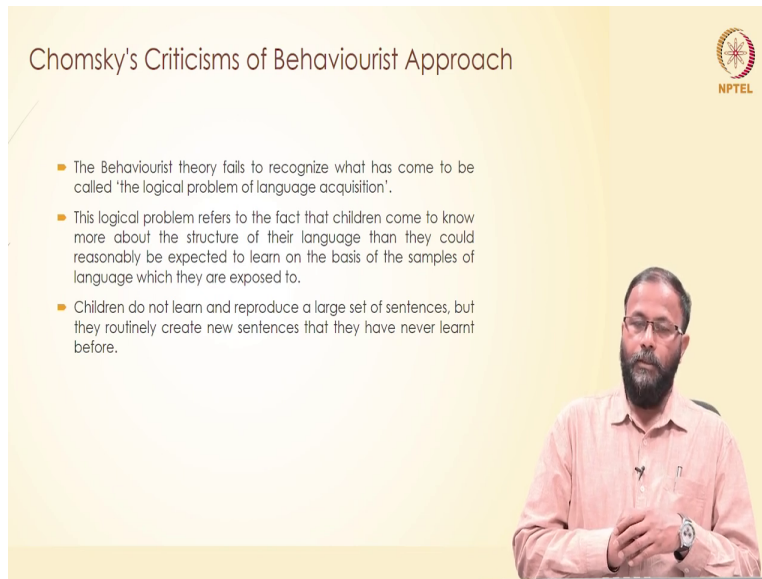**Fundamental Concepts in Sociolinguistics**
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Lecture 08
Innateness Hypothesis (Generative Paradigm) in Language Acquisition

Hello everyone, welcome. Today we are going to talk about a much talked about theoretical position in Language Acquisition known as Innateness Hypothesis, which was proposed by Noam Chomsky in response to the behaviourist paradigm or behaviourist theory of language acquisition. As we know, B. F Skinner's work *Verbal Behaviour* published in 1957 holds the view that language is a verbal behaviour.

And it rests its argument on three vertical pillars of the behaviourists paradigm, which is the idea of tabula rasa, a blank slate. Then the idea of stimulus response chain, Pavlov's classical conditioning and operant conditioning by B. F Skinner himself. He put forward his argument in 1938 that language is a verbal behaviour, a total part of total human behaviour and we learn language the way we learn other behaviours. This work by B.F Skinner published in 1957 was severely criticised by Noam Chomsky.

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And Chomsky criticised this work on multiple arguments. First and foremost was the question of tabula rasa. He argued that a human child is not born with tabula rasa, there is some knowledge

of language that exists at the time of birth. That is the beginning and the basic argument Chomsky puts forward. So in reaction to or in response to behaviourist theory of language acquisition, we have the innateness theory of language acquisition given by Chomsky.

But before we go to the Chomskyan argument, let us see what Chomsky criticised in the behaviourist paradigm or in behaviourist theory put forward by B. F Skinner in his monumental work *Verbal Behaviour*.

So he claims that behaviourist theory fails to recognise what has come to be called the logical problem of language acquisition. Now what is the logical problem of language acquisition? It refers to the fact that children come to know more about the structure of their language, then they could reasonably be expected to learn on the basis of samples of language which they are exposed to.

So the logical problem of language acquisition is that children learn more than they receive from the environment. So how does it happen? What are the factors which play a role in it? Children do not learn and reproduce a large set of sentences, but they routinely create new sentences that they have never learned before. You might have noticed that children produce words and sentences. You cannot guess where they have learnt it from.

So they are not simply imitating what is being given to them from the environment or what they receive from the environment. They are creating, and at times you see, they give you a new word or a new sentence or a new kind of combination of words in a sentence which may be unique. But that is the case and certainly they have not received it from the adult's speech. So how does it happen? So can we attribute all of these things to the input that they get from the environment or is there any internal factor which comes into play, that is what Chomsky argues.

He says that children internalise rules rather than a string of words. So he is talking about a pattern formation: children invent the rules, they create the rules, they do not learn everything that is given to them, but they see a final internal pattern into it, and they create their own words and sentences.

He says, the language a child is exposed to and the environment, is not ideal and complete. It is fuzzy and what does it mean? Means that we all know that children are not subjected to a very ideal situation or a very ideal atmosphere of learning. They stay with us in the normal adult world and they get data from a normal adult speech. And adult speech is marked with multiple degeneracy, slip of tongue, errors, and so many things, and children are exposed to all of these incomplete, unfinished data which is fuzzy in nature, but learning is perfect.

So children learn perfectly fine. How it happens can be attributed to external factors only. Then he says that children are not systematically corrected. So what you call in behaviourist theory, reinforcement for that matter. So this schedule of reinforcement in terms of language and linguistic input is not systematic, occasional or intermittent, but the learning is systematic and perfect.
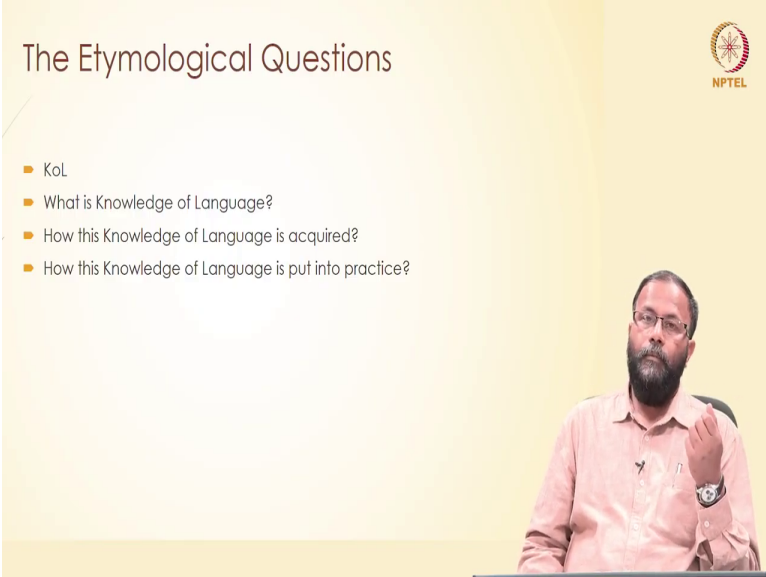
So again the same question that can be attributed to only external factors, and we say that parental correction or adults around the child who try to correct or intervene or reinforce, they

focus more on the content of the input, and not the format nor the rules of grammar nor the rules of the language or structure. They focus more on content, meaning part of it.

So again this is not systematic and this is not consistent. So several other points he raised in criticism of B. F Skinner's work, which was published in 1957 as *Verbal Behaviour*. And Chomsky's criticism came into publication in 1959, and that generated a lot of debate. A few people supported the behaviourist idea, but the majority of them argued in favour of the Chomskyan idea of some internal factors which determine language learning or the acquisition of language.

So it is interesting and also significant to understand the Chomskyan perspective of language acquisition, which is now known as generative theory. He gave two hypotheses, one is called linguistic nativism and the other is known as the innateness hypothesis. Chomsky himself did not coin these terms. For example, the innateness hypothesis was coined by Hilary Putnam and nativism was supported by many good scholars like Steven Pinker for that matter. So these two hypotheses summarise the Chomskyan perspective. One is the innateness hypothesis, the other is linguistic nativism.
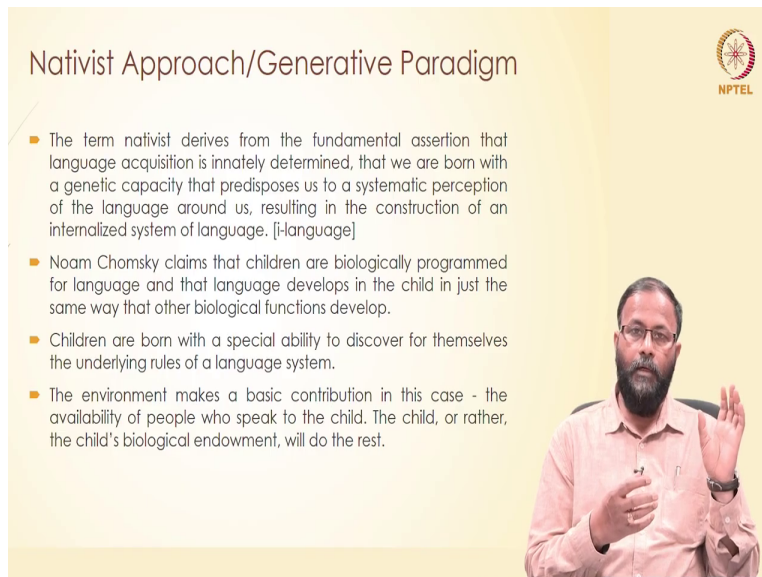
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Chomsky started his investigation into the understanding process of language acquisition by a human child with three etymological questions. He asked three questions; number one, so he

focuses on knowledge of language and he asked three questions, etymological questions. Number one, what is knowledge of language?

So when we say knowledge of language, a child has knowledge of language at the time of birth, as the innateness hypothesis claims. What is knowledge of language? What do you mean by that? It was the first question he asked. Second, how is this knowledge of language acquired? Knowledge of Language in abbreviated form is also called KoL in literature.

So he asked three questions, what is knowledge of language, then he asked how this knowledge of language is acquired and then he asked how this knowledge of language is put into practice. So he is talking about performance in the third question. In the first two questions he is talking about competence. So the second question is about competence and the third question is about performance. First question is about the nature and characteristics of language, universality of it.

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So two hypotheses. His approach is called the nativist approach or innateness hypothesis, or overall as a paradigm, we name it as generative paradigm. So the term nativist derives from the fundamental assertion that language acquisition is innately determined that we are born with a genetic capability that predisposes us to systematic perception of language around us resulting in the construction of an internalised system of language. Chomsky calls it i-language, 'i' refers to the internalised system language.

Now you can see the departure. Departure from the behaviourist position and almost like 180 degree opposite. So they were relying on external factors. Chomsky talks about internal factors, which are innate and we are built like that. We are designed to learn a language. Human child is designed to learn a language.

Chomsky claims that children are biologically programmed for language and that language develops in the child, just the same way other biological functions develop. So he is talking about the internal factors in language acquisition and this is also referred to as a biological foundation of language in the Chomskyan perspective.

He says that human children are born with a special ability to discover for themselves the underlying rules of the language system. The environment makes a basic contribution in this case. The availability of people who speak to the child or the child's biological endowment will do the rest.

So there is no role of the external environment, and external factors are limited. We need to understand the contrast, it is a very contrastive position compared to the behaviourists position, where environment is the prime factor for tabula rasa to become a source of data and processing Here Chomsky talks about an internal factor, the biological endowment or programming of the child for acquiring a language, and it says that the role of external environment is limited to the extent that it needs to activate this biological endowment. We will know what he refers to as biological endowment very soon.

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Innateness Hypothesis

- The **innateness hypothesis** is an expression coined by Hilary Putnam to refer to a linguistic theory of language acquisition. This idea holds that at least some knowledge about language exists in humans at birth.
- Putnam used the expression "the innateness hypothesis" to target linguistic nativism and specifically the views of Noam Chomsky.
  - Facts about the complexity of human language systems,
  - the universality of language acquisition,
  - the facility that children demonstrate in acquiring these systems, and
  - the comparative performance of adults in attempting the same task are all commonly invoked in support.

So he puts forward two ideas or his ideas can be summarised in two terms: innateness hypothesis and linguistic nativism. So the innateness hypothesis is an expression coined by Hilary Putnam to refer to a linguistic theory of language acquisition. This idea holds that at least some knowledge about language exists in a human child at the time of birth, innate, so language is innate to human beings. We are innately designed. We have some innate apparatus to acquire a language and this is species specific.

Putnam use the expression innate hypothesis to target linguistic nativism and specifically the views of Noam Chomsky in terms of facts about complexity of human language system, the universality of language acquisition, the facility that children demonstrate in acquiring the system and the comparative performance of adults in attempting the same task are all commonly invoked in support.

And you might have noticed as a child, learning language is child's play. As we say, the children learn language remarkably effortlessly. Language learning for a child is child's play, it is effortless. They do not require specific instructions and interventions for acquiring a language and the speed and the rate of acquisition is very high.

But if you contrast it with adult learning, what happens? As an adult, if I start learning, let us say German at this age, I have to put in a lot of effort. It is visible effort, lots of effort and my learning will not be as fast and accelerated as we see in the child, in the early childhood. So what makes this difference? Why does a child acquire language so effortlessly and easily at such a

high speed, at the high rate of acquisition and what happens to adults? Why are we so down and why do we have to make so much of effort? And the answer lies in the Chomskyan perspective.

When he talks about linguistic nativism, and also ideas like universal grammar, ideas like LAD, we will talk about them later on. Now what is linguistic nativism? This says that language is native to humans. So we are designed and programmed to learn a language and this nativism idea was supported and argued by Steven Pinker, also one of the renowned psychologists. And Steven Pinker reaffirms Chomsky's views that human faculty of language is innate, inbuilt, it is there. Pinker argues that language in humans is a biological adaptation. Language is hardwired in human minds by evolution.

So we find a lot of biological foundation arguments in it. So linguistic nativism is a theory that humans are born with some knowledge of language. If you remember, we talked about knowledge of language, how it is acquired, how it is put into practice. So human language is complicated and forms one of the most complex areas of human cognition.

So he separates language from other faculty of cognition. So the Chomskyan argument is that language is not part of total human behaviour. Language learning is different from learning any other behaviour, we cannot equate both the faculties of cognition as one or parallel to each other.
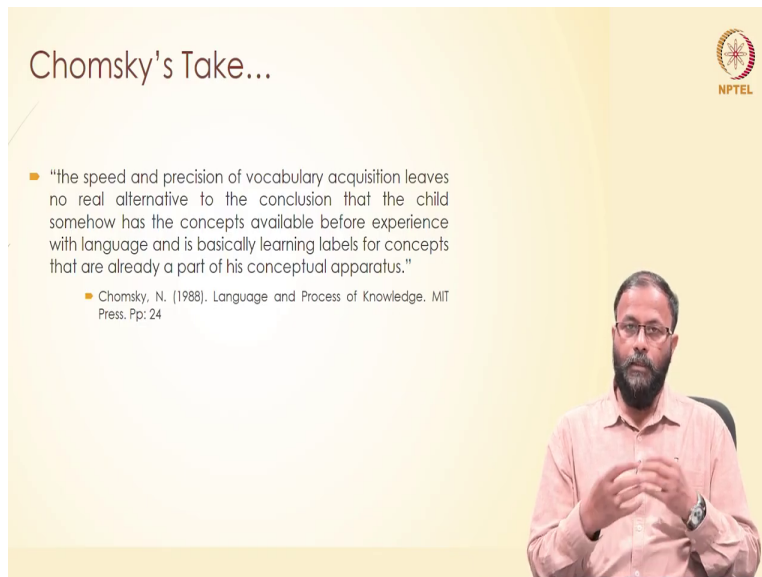
And the innateness hypothesis supports language nativism and several regions and concepts have been proposed to support and explain this hypothesis. In his work, Chomsky introduces the idea of LAD and which is in contrast to tabula rasa, the idea of John Locke's idea of tabula rasa, blank slate. Here we see a contrast between these two theories, where a behaviourist believes that a

human child is born with no knowledge and no source of data and processing capabilities, it is a blank slate for them.

But from the Chomskyan perspective, we see that human children are born with some amount of knowledge of language. We will get to know what is knowledge of language. So he introduces that term called LAD. The full form of LAD is Language Acquisition Device. But let's not be confused by this word device, because device does not refer to any physiological physical apparatus or system like we have other organs.

It is a hypothetical mechanism that refers to the efficacy of a child to learn a language. It is a mechanism, it is not an apparatus, and in physical terms, it is not a device physically located in our brain. It is a hypothetical mechanism. It refers to the ability of the child to learn a language to acquire language.

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So if you look at the argument that Chomsky puts forward, he says "the speed and precision of vocabulary acquisition leaves no real alternative to the conclusion that a child somehow has the concepts available before experience with language and is basically learning levels for concepts that are already a part of his conceptual apparatus".
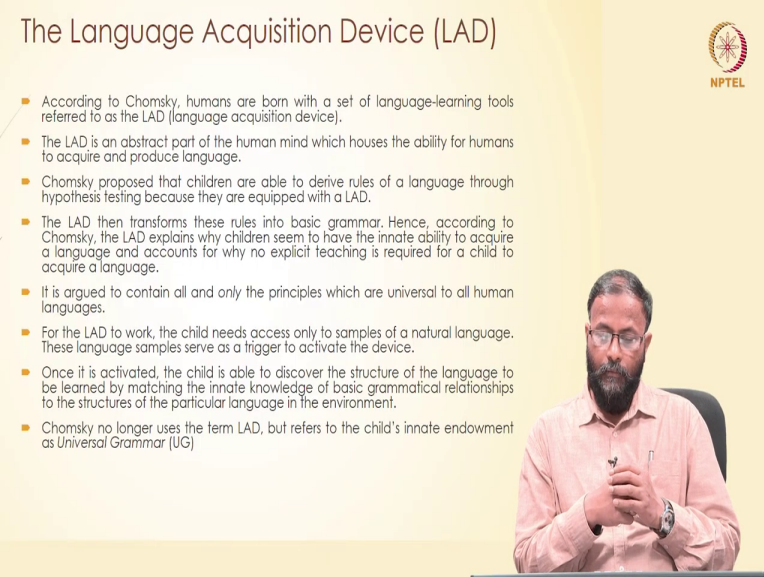
Conceptual apparatus. So a LAD, language acquisition device is not a physiological thing. It is the conceptual apparatus. The ability of the child to learn, and he strengthens his argument, he substantiates his argument by looking at the rate and the amount of vocabulary that a child learns

within no time and with no visible effort, and also no visible intervention by adults around the child at the same time, no structured instructions.

So how it happens, what are the factors? There must be some internal predisposed factors which allows a child to acquire a language so systematically, so easily and so ritually. So it is completely a rich acquisition. A child learns all the rules of grammar. I mean, you go and talk to a child of four and a half years old or a four year old child. Let us say, in Hindi we have grammatical gender for that matter, and you go and ask 'Papa office jati hai', the child may not be, you know, exposed to, say structure and gender agreement in Hindi.

Child has not been exposed to the explanation of gender agreement in Hindi, but the child understands it. How does the child arrive at these rules? How do they understand the impossible sentences or ungrammatical sentences in a language? This is the basis of the Chomskyan argument, that how a child is able to figure out what is possible and what is not possible in language grammatical rules. How does it happen? Nobody teaches a child grammatical rules. There is only some amount of data, which is again fuzzy, incomplete, full of degeneracy, and other negative things. But a child's learning is perfectly fine.

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So he talks about a language acquisition device, in short abbreviation, we call it LAD. So the LAD is an abstract part of the human mind, which houses the ability for humans to acquire and

produce language. Chomsky proposed that children are able to derive rules of a language through hypothesis testing because they are equipped with LAD.

The LAD then transforms these rules into basic grammar. Hence, according to Chomsky, the LAD explains why children seem to have the innate ability to acquire a language and account for why no explicit teaching is required for a child to acquire a language. So children are endowed with this apparatus, let us call it conceptual apparatus, and knowledge of language is innately there at the time of birth. And the child is designed or programmed through this evolutionary process, to learn a human language around it, spoken around it.
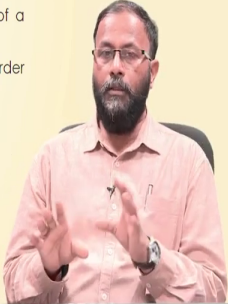
But how does it work? How did this LAD work? So LAD requires to be activated and how is it activated? It is activated with primary linguistic data, and a very small chunk of data is required to activate this LAD. So Chomsky does not outrightly opposes the role of environment external environment, but he limits the role of external environment unlike behaviourists to the extent that this primary data, small sample size of data, linguistic data is required to trigger and activate LAD. And once this LAD is activated, the child becomes an autonomous learner.

So the child does not require specific instructions or structured training to learn a language or to acquire a language. And once it is activated, the child is able to discover the structure of the language to be learned by matching the innate knowledge of basic grammatical relationships to the structures of the particular language in the environment. And later on, this idea was referred to as universal grammar looking at the universality of the linguistic rules of a language or language rules at underlying level.

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So universal grammar is a set of language principles. That means all human languages have the same principles at the underlying level, but they all look different. Hindi looks different from let us say English, English looks different from let us say Telugu, Telugu looks different from let us say Tamil, Tamil looks different from Mexican. Take any language, all these languages look so different.

Chomsky does not refer to the differences that we see at superficial level in all these languages. He is referring to a set of principles which he calls as parameters. So languages are parametrically different, but principally they follow the same set of principles. Universal grammar is nothing but the set of universal principles on which human language operates.
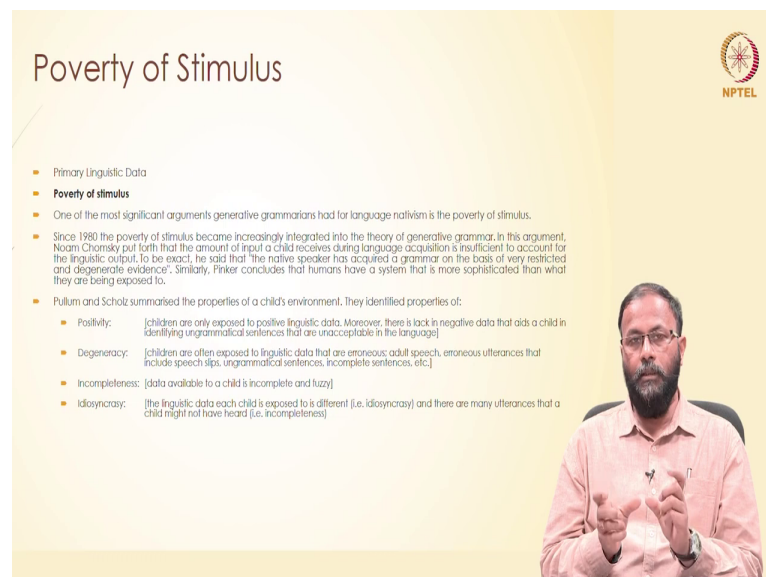
So child (())(26:51) with this UG which needs to be triggered and then child sets the parameters. So the child has the principles, grammatical principles available at the time of birth, and the child sets the parameters depending on the input the child gets from the external environment. So if a child is born in a Hindi speaking environment, the UG available to Hindi speaking children in that environment will be set according to the Hindi rules. Similarly English or Mexican or Tamil or Telugu or Spanish whatever.

So universal principles are available to the child in terms of UG and LAD. But the parameters are set according to the input that the child received from the environment, and that is why language is not genetic. By the way, even if, you know Hindi speaking parents adopt a French a

child from a French speaking parent, child will learn in the environment or Telugu in the environment or Tamil in the environment.

So parameters will be local depending on the external input a child gets to activate the UG. So parameters will be set accordingly, but principles of learning remain the same. Principles of language remain the same. Chomsky later introduced generative grammar arguing that properties of a generative grammar arise from an innate universal grammar, and this generative grammar describes a set of rules that are used to order words correctly in order to form grammatically sound sentences. It also attempts to describe a speaker's innate grammatical knowledge. So this is what Chomsky refers to as KoL.

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But again, another strong evidence comes from the fact that the child was exposed to linguistic input, linguistic data around it. The data is not appropriate, is not positive all the time, and it has many characteristics, which amounts to the term Chomsky refers to as poverty of stimulus. Stimulus, the same behaviourists idea that he borrows here, stimulus is poor.

So when he says his stimulus is poor in his argument, what does it mean? What do you mean by poverty or stimulus? So he said that primary linguistics that a child receives from the environment is not appropriate if you look at the learning pattern of the child. Learning is perfectly fine, the child acquires grammatical rules, and the child forms his own grammar of the language.

However, the quality of input that the child gets is fuzzy and problematic, poor in nature in terms of richness. It is very poor in nature. So how it happens that with such a poor stimulus, with such a degenerate stimulus, with such an incomplete stimulus, or such a fuzzy stimulus, learning is so systematic and fine.

This is the basic argument and he refers to internal factors in codes. General source of biologically endowed conceptual apparatus. So he talks about LAD and UG, innateness and nativism. So these are the basic arguments for these concepts that he puts forward and gives in his support of a claim.

Pullum and Scholz summarise the properties of a child's environment and that is appropriately apt and self-explanatory. We all can see around us. So the characteristics of stimulus that the child has around it like positivity. So children are always exposed to positive data. What do you mean by that adult speech? So you do not have separate design data for a child to learn what is possible and what is not possible in language. Child is not exposed to the data of what is not possible, the structure of what is not possible, and the ordering of words what is not possible.

Child acquires normal adult's speech. Child witnesses normal adult speech, which is positive data. But how come a child is able to make a distinction between ungrammatical sentences and grammatical sentences? That is another argument. So children are only exposed to positive linguistic data.

Moreover, there is a lack of negative data that aids a child in identifying ungrammatical sentences that are unacceptable in the language. So how come a child is able to filter ungrammatical sentences or impossible sentences? So this is one. Then the second characteristic they talk about is degeneracy.

So they say that children are exposed to erroneous data. Because as an adult we have slip of tongue, we have half-finished sentences, we have incomplete referential information sentences and children are exposed to such things. Because in no environment all the adults around the child expose the child with complete sentences or ideal data.

So the exposure of the child is not ideal. So we have degeneracy in the data, but the learning of a child is perfectly fine and systematic. Then they talk about incompleteness, and we all understand the sentences are incomplete and fuzzy. In an adult's speech, we are casual, we speak

language normally, casually, and sometimes you have stylistic variations, different pronunciations, idiosyncrasies.

But with all these properties, learning is not marked. Learning becomes perfectly fine for a child. If they talk about idiosyncrasy in the data available to a child. So the linguistic data the children are exposed to are different and idiosyncratic, and there are many utterances that a child might not have heard before, but the child is able to produce.

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So when you look at the Chomskyan explanation and the language acquisition process in human children, we see a complete departure from the behaviourist paradigm. If you recall, the behaviourist paradigm rests on three verticals: stimulus response chain, operant conditioning, the concept of theory of tabula rasa, and the role of reinforcement. And this leads to habit formation and this is how they argue that language is a verbal behaviour, part of total human behaviour.

But if you look at the Chomskyan argument, he puts forward what we know today, in generative theory, it is also known as the nativist theory or the innateness theory. He refers to internal factors, the role of the environment is limited to the extent that some small chunk of data is required to trigger the process of learning.

So he talks about the creativity, imagination and the ability of a child to acquire language systematically despite the fact that the data available to a child in the environment is incomplete, degenerate and fuzzy. He refers to the ability, innate ability of a child to determine what is

possible sentence or a structure in a language and what is not possible sentence or a structural language.

How does it happen? So there must be some internal factors, and it is supported by many other scholars in subsequent works. We get a biological foundation of language. So compared to the psychological tradition, and behaviourist psychology, and cognitive theories, here we have a biological foundation where a child is an autonomous learner and child is endowed with a conceptual apparatus to learn a language. Child is predisposed to being designed or programmed. A human child is programmed to learn language.

What Steven Pinker says is that we are hardwired. A human brain is hardwired to learn the language. So we see a complete departure from the behaviourist position in the Chomskyan theory, and Chomskyan theory was also criticised. But one thing for sure is that the infinite creativity, imagination, autonomy of learning and biological foundation of language, separate it from other learner behaviour and cognition faculties.

Chomsky drew attention to the fact that children seem to be developing language in a similar way on a similar schedule. So he talks about universality. Universal process of language learning across all languages. He does not talk about a particular language or a particular environment. So as a human child, we have universal patterns of learning, and there must be some shared mechanism that a child learns. And environmental differences, the environment in which a child is exposed to language or linguistic data may be associated with some variation in the rate of acquisition.

However the pattern of learning, the pattern of acquisition remains the same. So this is Chomskyan contribution, we know it as the innateness hypothesis, a (())(39:00) theory of language learning. We also call it the nativist theory of language learning or we put it in a generative paradigm.

So we have a very distinct paradigm called behaviourist paradigm and its opposite position, and we call it generative paradigm. So this is Chomskyan perspective in language acquisition, and if you count the verticals of this theory, we have linguistic nativism, we have innateness hypothesis, we have language acquisition device, and later on referred to as universal grammar.

We have the limitations of data available to children, but the perfect learning process is called poverty stimulus.

And one more reference can be taken in this perspective, which is the critical period hypothesis, though not proposed by Chomsky. But that comes into play understanding the Chomskyan perspective, that this LAD, here universal grammar or the rules, universal rules for language are not available to you for your entire life, it has some threshold.

So that critical period refers to the threshold when this universal grammar, once the parameters are set, the principles cease to be, and perhaps this is the reason why adults find it so difficult to learn a second language or third language as an adult. Because this critical period ends at the age of (())(40:48).

So this whole apparatus, conceptual apparatus, is available to you for a certain period of time in early childhood, and once this period is over, which is known as the critical period, it is the universal grammar or the universal set of principles that cease to be. These principles are set as parameters and then adults find it so difficult to learn a language, because they have to make visible efforts and a lot of effort. They have to learn a language. However, learning a language for a child is child's play, and why it is child play, we just explained that you can get the answer from a Chomskyan perspective. Thank you.