

DESCARTES AND CHOMSKY : AN INTERFACE BETWEEN LANGUAGE AND MIND *

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Indebtedness to Descartes

One of the most distinctive features of modern linguistics, namely, Transformational Generative Grammar (henceforth TGG) is that it owes its theoretical origin to the rationalist philosophers of seventeenth and eighteenth century Europe. This is a claim made by Noam Chomsky, the founder of modern linguistics. His book 'Cartesian Linguistics'¹ is not only the work addressed to this theme but it is also the expression - the cover term that describes his own enterprise. His linguistics is a revival of the conception of linguistics upheld by the Cartesian philosophers. In Chomsky's own admission, the major components of his system such as, the creative aspect of language use, the deep versus surface structure of language, universality and nativism can all be shown to have its origin in the rich tradition of Cartesian thought. This shows his deep intellectual involvement with the Cartesian tradition.

Among the Cartesian philosophers, the influence of René Descartes on Chomsky's thought is perhaps the most significant. In most of his major philosophical writings we find Chomsky expressing his indebtedness to Descartes. This indebtedness to Descartes arises mainly due to the two particular views that Descartes upheld. These two views are : first, language is the medium of expressing one's thought and second, the thesis that there are innate ideas. In Chomsky's explanation, both the theses have far reaching significance for the study of language. The first accounts for the creativity of language which Chomsky characterized as *Descartes problem*² in linguistics. As we will see, Chomsky takes this to be a central question in linguistics. The second is an epistemological thesis which Chomsky used to explain the nature of linguistic knowledge as possessed by a native speaker.

These two theses are not unrelated. They are related because they presuppose a philosophy of mind without which both these theses will have no existence. This again is a distinctive feature of modern linguistics -- its mentalistic turn. As Chomsky argues, language has an intimate relationship with mind. Descartes rules out any mechanical explanation of mind and language. Grammar being mentalistic in origin cannot be subjected to mechanical explanation. We need extra mechanical principles to explain it, particularly the linguistic behaviour of man. This is how mind or the thinking substance - *Res Cogitan*, as Descartes calls it, becomes crucially important for Chomsky in the study of language. It may not be untrue to say that Descartes' philosophy of mind constitutes the fundamental presupposition to Chomsky's system of transformational generative grammar.

This paper seeks to argue the Cartesian background of Chomsky's linguistics. To do this, its basic task is to show, in a general term, in what sense transformational generative grammar may be described as Cartesian linguistics. This is a general thesis which involves a specific thesis where our concern will be to show why and how Descartes is important in this respect. The specific thesis is the part of the general thesis and thus I will not discuss it separately.

An important clarification may be sought here. The theme addressed above has been questioned both in philosophy and in linguistics. The objections raised are of two types. The first is historical in nature, whereas the other is purely conceptual. The historical objection challenges Chomsky's characterization of his linguistics as Cartesian. It has been pointed out that Chomsky's claim that his theory is Cartesian is not well founded. His position on many of the vital aspects of Cartesian thought is found to be different. This difference with Cartesian tradition led to the view that there is no historical continuity between Chomsky's theory and the Cartesian thought. The second is a conceptual objection which challenges Chomsky's mentalistic theory of language. The particular view that has been the main target of attack in the recent time is Chomsky's thesis on innate linguistic universals. It may be thus said that the conceptual objection has an important bearing on Chomsky's version of Cartesian linguistics.

In the context of this paper, the historical objection is more relevant than

the conceptual objection since the objective of this paper will be to show primarily the Cartesian origin of Chomsky's theory. This will be done mainly with reference to Descartes. It is thus quite natural to respond to the historical objection in order to show the continuity existing between the two traditions and the two thinkers. In my attempt, I have tried to counter this objection without going into much details. But I have not gone into the conceptual objection because I am afraid that will not be relevant to the present paper. With this clarification, I shall now go into the main body of my paper. In the first section of the paper, I shall try to show why Chomsky felt the necessity of going back to Cartesian linguistics. In the second section, I shall be concerned with the problem of TGG, namely, the creative use of language which Chomsky described it as Descartes's problem. In the third or the final section of the paper, I shall be concerned with Chomsky's theory of linguistic competence -- a theory which has been construed along with the line of Descartes's theory of innate ideas.

I

Back to Cartesian linguistics

The study of language must be necessarily accompanied by a second order question: What is a proper theory of language? This is a question which gives direction to the study of language otherwise the entire study will be chaotic. Depending on the answer, the content of the study will be accordingly determined. In fact, what linguistics should be -- its nature and goal are shaped by this question. The same question is crucial in understanding and reconstructing the history of the discipline.

Chomsky who has placed this question at the centre of his inquiry thus defines the goal of a linguistic theory in the following words:

The central fact to which any linguistic theory must address itself is this: a mature speaker can produce a new sentence of his language on the appropriate occasion, and the other speakers can understand it immediately, though it is equally new to them.³

This passage states a fact of language: a native speaker has an ability to produce and to understand a new sentence of his language. If this is taken as a fact, the

goal of a linguistic theory will be to give an account of this fact. To give an account of this fact implies giving an explanation of the linguistic competence which underlies this ability. In this picture the very objective of linguistics is thus changed. The aim of linguistics is now conceived as the elucidation of man's linguistic competence rather than organizing of linguistic data.

Considering this goal as set by Chomsky, our next question is: What does this elucidation of linguistic competence consist in? Chomsky has given a technical answer to this. In fact, his own answer to this is the construction of TGG, 'Competence' refers to a system of rules that constitutes the grammar of a speaker's language. The grammar allows the possibility of generating the infinite set of well-formed sentences to each of which it offers one or more structural descriptions. The grammar in this sense functions as a device and Chomsky calls such a device a generative grammar. A generative grammar thus distinguishes itself from a descriptive conception of the grammar whose main task is to give a taxonomy of elements that appear in the structural descriptions of language. According to Chomsky, the grammar represents the phonetic, the semantic and the syntactic structures of language. The grammar as a whole is responsible for pairing sound with meaning. This means that phonetically interpreted signals are paired by their semantic interpretations. Further, this pairing is done through a medium which according to Chomsky is the system of abstract structures generated by the syntactic component. In view of this, Chomsky conceives the task of the syntactic component to be two fold. First, for each sentence, the syntactic component must provide both a semantically interpretable deep structure and a phonetically interpretable surface structure. Second, since these two are different possibilities, the task of the syntactic component is to show the mutual relation between them.

It is no wonder that this formulation of a linguistic theory brings a radical change in our approach to the study of language. The idea of constructing a generative grammar of language was never conceived in the Bloomfieldian tradition which was existing prior to Chomsky. It was not interested in the substantive issues of language. Rather it was mostly concerned with how to collect and organise data about various languages. Accordingly, the idea of a linguistic theory was identified with a set of procedures to be developed in order to process and describe the data. This data oriented approach finds its support

from the empiricist/positivist methodology of science.

Chomsky finds serious flaws in this approach to language. His major difficulty is that as a methodology it has a very limited significance. It cannot provide a basis for a proper theory of grammar nor can it adequately explain the fact of language acquisition. The fallacy of the empiricist theory of learning will be evident from a simple fact that the knowledge a speaker has about his language cannot be acquired entirely from what he has learned. The reason is that there are crucial aspects of language about which he knows without being taught. Such difficulties lead Chomsky to think of a different paradigm in linguistics. It is not the compilation of data but rather the capacities of human mind responsible for the speaker's knowledge of his language should be the main concern of linguistics. Acceptance of innate ideas thus comes naturally as a part of Chomsky's linguistic enterprise. It speaks for his mentalism which according to him constitutes the scientific study of language. One of the important methodological insights of Chomsky is that mentalism in linguistics must be accepted on a scientific ground. Unless we accept mentalism we cannot adequately explain language acquisition i.e., how does a child learn his language? Chomsky's charge is that much of linguistic theory has been the victim of an ill-conceived notion of science propagated by dogmatic empiricism. As a result, linguistics or, more specifically, grammar has been confined into certain superficial aspects of language. Chomsky, therefore, urges that a grammar in order to be scientific must go beyond its descriptive task i.e., organizing linguistic data. To be scientific means to be explanatory and for a grammar to be explanatory means explicating speaker's knowledge of language i.e., linguistic competence. This, indeed, is going back to Cartesian linguistics - a tradition which was largely forgotten in the interest of the so called scientific study of language.

Chomsky identifies the four Cartesian theses which form the common core of the two traditions of linguistics. Among these four the three are substantive theses whereas the fourth one is methodological. The three substantive theses are :

First : The creative use of language.

Second : The distinction between the surface structure and the deep structure of language.

Third : The acquisition and the use of language as based on the innate capacities of the human mind.

In addition to the above three, the methodological thesis says :

Four : Explanation is more important than mere description of language.

The above three theses together constitute Chomsky's notion of linguistic competence. However, the third thesis also works as a presupposition since without it the creative use of language which is unique ability of man cannot be explained. The creative use of language is, according to Chomsky, the central fact to which a linguistic theory must address and it thus presupposes the rationalist philosophy of mind. This shows that the central question in linguistics is inseparably related to a certain conception of mind. Chomsky submits that both the objective and the presupposition of his linguistics have been essentially derived from the Cartesian tradition of thought and particularly from Descartes. Going back to Cartesian linguistics, for Chomsky, is thus a necessity -- an inevitable move that will make linguistics a truly explanatory science. With this remark, I shall now go into the second section to substantiate my argument that the creative use of language which forms the goal of Chomsky's linguistic theory has its origin in Descartes.

II

Descartes's Problem: The Chomskian Formulation

'Descartes's problem' symbolizes a general problem whose main concern is how to explain the normal creative use of language. But what does this creative use of language mean? In what sense does it mean creative? Chomsky has given an answer to this. The creative use of language does not imply any special use. The normal use of language is itself creative. The reason is that it allows novelty and freedom. This means that the normal use of language is necessarily accompanied by some unique characteristics. These characteristics are: Freedom from control by external stimuli, appropriateness to situations and the capacity

to evoke appropriate thought in the listener.⁴ All these characteristics are possible only when we assume that the speaker has the ability to form new sentences which are characterised by these unique features. Thus, the features which characterise the creative use of language is speaker's ability to form new sentences. In view of its importance, Chomsky accordingly sets the goal of a linguistic theory which says that the task of a linguistic theory to give an account of this ability which is possessed by all human beings. This is, in short, what constitutes Descartes's problem in linguistics.⁵ Our next task to find out: first, how does Descartes approach this problem? and second, what implication does he draw from the fact of creative use of language?

There are two sources from which Descartes draws his support while he approaches the creativity problem.⁶ The first is his view that language is an expression of thought and the second is that language is not amenable to any mechanistic explanation. Regarding the first, the main emphasis of Descartes's argument is on thought. If language is taken to be an expression of thought the characteristics which are peculiar to thought must be also shared by language. The general nature of the argument assumes the following structure. Since language is the expression of thought and since thought is essentially creative, from these two it may be thus concluded that there is a creative aspect of language use. Our next question is: what does this creativity of thought mean? and, how is it reflected in language? The creativity of thought implies the two following features. First, thought is unbounded because there is no limit on what can be thought. If thought is unbounded so is also language, since through the use of language an infinite number of different things can be said. Second, thought is autonomous because it is neither the function of the environment nor of internal physical states. The same notion of autonomy also holds true with respect to the use of language. Given these characteristics the creative aspect of language use may be said to have the property of being "both unbounded in scope and stimulus-free".⁷ This establishes how creativity in thought is reflected in creative use of language. The latter is possible because of the former since it is accepted that language is the expression of thought. This is the first part of Descartes's argument justifying the claim that the normal use of language is essentially creative in nature.

There is a second part of the argument concerning the creative aspect of

language use. As I have said, there is the second source from which Descartes seeks to justify this unique fact of language. The main force of the argument rests on showing that language or more appropriately linguistic behaviour of man is not amenable to mechanical explanation. This implies that our use of language cannot be predetermined. If this is so, man is free in his use of language. An important consequence of this argument is that language has a mentalistic basis and it further shows that in order to give a proper account of language it is necessary to accept mind-body distinction. Let me now go into a few details of the argument.

In the history of ideas, Descartes is well known for his work on the mechanical theory of the universe. The objective of his theory is that everything which falls under our experience can be explained in mechanical terms of bodies interacting with each other through the means of direct contact. Chomsky calls it 'contact mechanics.'⁸ By this mechanics, Descartes tried to explain things which are as diverse as, to quote Chomsky, the motion of heavenly bodies, the behaviour of animals and the behaviour and perception of human.

True that Descartes developed a mechanical conception of the universe. But at the same time he accepts that there are areas of experience which cannot be accounted for by this conception of mechanics. In his finding, the most striking amongst all of them is the creative aspect of language use. It falls under a different domain and, therefore, the explanation of it has to be given in other than mechanical terms. It is a domain which is beyond the reach of contact mechanics. Descartes's claim that the creative aspect of language use demands, non mechanical explanation is a specific issue coming under a wider theme showing that language essentially has a mentalistic basis. Descartes thus uses a strategy which combines both the objectives, namely, creativity and mentalism. It assumes the following pattern of reasoning.⁹

Descartes argues that mind has properties which are different from that of bodies that constitute the physical world. Since the bodies constitute the physical world there are external methods available through which we can know them. But the same is not true of mind. I can know that I have a mind only through introspection. However, introspection will not help me to determine whether another creature also has a mind. This is essentially the problem concerned with how to prove the existence of other mind. The Cartesian solution

of the problem of other mind was offered in the form of a thought experiment. The supposed experiment is designed in such a way that it can determine whether the organism exhibits distinctive feature of human behaviour. Through this way one will be able to determine whether someone has a mind like him because the distinctiveness expressed in human behaviour is the result of the thinking mind. Descartes and the other Cartesian thinkers find that the creative aspect of language use is the most striking example of this distinctive feature of human behaviour. To establish the point that the creative use of language is the result of certain mental activities the Cartesians proposed a test. It is a test where a parrot is so conditioned that it can speak under a given stimulus. But the result will show, as they argue, that whatever parrot will say will be strictly determined by the conditions which were already set before. The same determinism, of course, will not hold in the context of an organism having a mind like our own. We can make this assertion because an organism having a mind has the freedom to express its thought by using the language appropriate to it. The creative use of language is thus intrinsically related to mind. In fact, without the latter the former will not be possible. It will not be unreasonable here to make an inference that the organism which exhibits the creative aspect of language use must have a mind like ours. This is a key to the difference between a human being and a machine. The entire organisation of a machine is arranged in a way that it is compelled to act in a particular fashion under a fixed environmental condition. Whereas a human being even if he is situated under the same circumstances will behave according to the way he wants to behave. The notion of choice is crucially important while we talk about human behaviour. Chomsky¹⁰ makes a distinction between 'compelled to act' and 'inclined to act' in order to bring out the difference between a human being and a machine. The difference between the two is vital to the description of human behaviour, particularly, if it claims to be an accurate description.

The above account makes it clear that the creative aspect of language use must be seen within the context of the mind-body distinction that Descartes makes. Without this distinction we cannot give a proper account of the essential features of human behaviour since they cannot be described in mechanical terms. Further, without this distinction we cannot understand the sources of these unique features of human behaviour. If the creative aspect of language use cannot be explained in mechanical and deterministic terms the only way to do so will be

to appeal to something that goes beyond the scope of mechanics. This is how postulation of mind becomes necessary for the true characterization of human linguistic behaviour. As Chomsky argues, Descartes's proposal for the mental may be construed as a scientific approach to language and thus accepting his proposal does not lead to the acceptance of the Cartesian metaphysics.

Chomsky used the Cartesian resources to develop his own system of grammar to explain the creative aspect of language use. Chomsky takes the clue from Descartes and starts from the premise that language is free from stimulus control. The fact that language is free from stimulus control leads Chomsky to argue for his second thesis that generation of new sentences cannot be predictable on the basis of external stimuli. These two constitute Chomsky's poverty of stimulus argument on the basis of which he arrives at the same conclusion as that of Descartes which says that language is the expression of new thoughts. This is the philosophical basis that Descartes provides while giving his account for the creative aspect of language use. At the background of this philosophical/Cartesian argument, Chomsky's constructive task in linguistics is to study the mechanism that is responsible for the generation of new and grammatically correct sentences. In this respect there are two important ideas involved. First is Chomsky's idea of generative principles and second is his idea of deep structure in language. For both these ideas, Chomsky has been influenced by the Cartesian thinkers especially by Humboldt and the Port Royal grammarians.

As we have noticed, the task that Chomsky has set before him is to study the mechanism that is responsible for the generation of grammatically correct sentences. But what does this mechanism mean? What does it consist of? And, finally, how is it related to the generation of infinite number of sentences? Chomsky finds that the nature of this mechanism may be conceived as that of a formal structure consisting of a set of rules called generative principles responsible for the generation of infinite number of sentences. Chomsky with the help of recursive function theory offers a technical exposition to the operation associated with this mechanism. As we can see, this way the creative aspect of language use assumes a rigorous and systematic explanation in the hands of Chomsky. Creativity is intrinsic to language and it is possible solely due to the nature of grammatical rules.

Chomsky points out that this idea of creativity conceived as the result of the operation of grammatical rules was originally proposed by Humboldt. The general thrust of Humboldt's theory of language¹¹ is that language is an active process (*energeia*) and it is not something which is complete (*ergon*). This realization led Humboldt to argue that language use is a creative act and it therefore cannot be interpreted as the mechanical reception of an inert product. In this connection he proposed the notion of a language universal or what he called *form der Sprache* (form of language). As Humboldt claims, this notion is basic to man's linguistic ability since by virtue of it human beings are able to articulate their thoughts in diverse ways. This obviously refers to the notion of a generative grammar. Humboldt's notion of 'form of language', as Chomsky argues, can be interpreted as implying a notion of a generative grammar. There is evidence in Humboldt's writing which supports this interpretation. Humboldt makes it explicit that language is a generative process being governed by a finite system of rules and because of this it is infinite both in terms of its scope and product. These generative rules or principles constitute his 'form of language'. They are the underlying system of rules which are commonly possessed both by the speaker and the hearer. The claim that there is a generative identity among human beings, ascertained on the basis of the fact that there is uniformity of human nature.

There is a second important idea involved in Chomsky's notion of mechanism that is responsible for the generation of sentences. This is the idea of deep and surface structure of language¹² which is important for understanding the actual processes involved in the production of sentences. This thesis is also closely connected to the idea of creativity of language. Of course, it does not address to the problem of creativity directly. But the ultimate import of this thesis has a definite bearing. Without assuming the particular conceptual organisation (i.e., deep and surface structure) that grammar represents no satisfactory account can be given regarding the production of sentences. This is a claim made by Chomsky and the same claim, as he argues, was made by the Post-Royal grammarians long back.

To the Cartesian thinkers, the distinction between the deep and the surface structure of language comes because they view language as having two aspects --- sound and meaning. Let me explain this view by following Chomsky's

commentary on this. The view that language has two aspects -- sound and meaning, is same as to say that it has an inner and an outer aspect. Given this perspective a sentence can be studied from a point of view which is either inner or outer. In concrete terms, it can be thus studied either "from the point of view of how it expresses thought or from the point of its physical shape." These correspond to semantic and phonetic interpretations of the sentence. These two systems of interpretations may be respectively characterized as the deep structure and the surface structure of a sentence. But what does this deep structure and the surface structure mean?, what is their nature?, and, what role do they play? The deep structure is an "underlying abstract structure that determines its semantic interpretation." The surface structure, on the other hand, is the manifestation of the observable organization of language that determines the phonetic interpretation. Through the phonetic interpretation the physical form of the actual utterance is related to its intended form. However, one must note that these two structures may not be necessarily identical. As Chomsky points out, "the deep structure may not have point by point correlation to phonetic realization." The actual arrangement of a sentence as found in its surface structure may not reveal the underlying organization of the sentence at the deep structure. In view of this disparity the immediate task of a grammar is to relate deep to surface structure. Without doing this we will not be able to understand how a sentence is actually produced from the deep structure that "conveys the thought" expressed by the sentence. With a view to explain this, Chomsky developed his system of transformational rules that do the job of converting sentences from the deep structure to the surface structure. In actual term, converting implies "to rearrange, replace, or delete items of the sentence" in the deep structure with a purpose to arrive at the surface structure. The observable form of the sentence in the surface structure is the result of all these hidden linguistic activities performed by the speaker in his mind with the help of transformational rules. It will be unfair to say that the Cartesians were unaware of this aspect of grammar. However, the distinctive contribution of Chomsky in this connection is that he formulized speakers' knowledge of language and elucidated the nature of grammatical rules, namely, generative principles and rules of transformation that constitute the grammar which is mentally represented by the speakers.

The above discussion on creativity which incorporates the discussion of generative principles and deep structure strongly suggest that language cannot

be thought of without its relation to mind. The study of language or linguistics cannot therefore, ignore the mentalistic origin of language. Knowledge of language, as possessed by the speakers, is not acquired through external means. It is, on the other hand, the part of the innate structure of their mind. Descartes's theory of innate ideas thus has a special relevance in Chomskian linguistics. In fact, as mentioned earlier, rationalist theory of mind serves as the background theory to Chomsky's system of linguistics. The issues that we have discussed will not have any foot hold unless we accept this particular design of mind that Descartes conceived. Considering this we now come to the final section where the main thrust of our argument will be to show that Chomsky developed his theory of language by assuming Descartes's theory of mind at the background.

III

Descartes's Theory of Mind: A Presupposition of Chomskian Linguistics

The claim that Descartes's theory of mind is a presupposition to Chomskian linguistics must be seen in relation to Chomsky's theory of language acquisition. It provides the basis for such a claim. As pointed out earlier, for Chomsky, the question: How does a child learn his language? has an enormous significance in linguistics. In fact, it changes the entire direction of the inquiry since while answering it, Chomsky moves away from the empiricist theory to the rationalist theory of language. In this connection, he finds that Descartes' theory of innate ideas is of great help. The following discussion will elucidate this by showing how the theory of innate ideas radically changes our conception of language learning and thereby provides a new foundation to linguistics.

Chomsky's question: How does a child learn language?, assumes a context in which it has been raised. The context is the failure of empiricist conception of language learning. A child cannot acquire his knowledge of language entirely from what is given -- the data. The data is often found to be inadequate and scattered and yet what is learned exhibits uniform pattern -- an order. This uniformity - the knowledge of language which is achieved as the result of learning is not determined solely "by the data itself." How does this uniformity achieved in spite of the degenerating nature of the data? Chomsky's answer is that the only viable option left here is to accept that mind is equipped

with the knowledge of certain principles and ideas which are innate in nature. They are characterized as linguistic universals both by Cartesians and Chomsky. They are the preconditions of language acquisition and, as preconditions, they are not taught. Finally, our knowledge of these universals is unconscious.

As we can see, innateness thesis in the context of language has a methodological justification. Chomsky posed it as an explanatory hypothesis. Unless we postulate that a child has an unconscious knowledge of the rules of grammar, we will not be able to explain how a child on the basis of inadequate data could come to know the highly complex grammatical rules of his language. A learning theory based on the simple mechanism of association and reinforcement cannot explain such a startling fact like the creative aspect of language use. The child's acquisition of language and the subsequent use of it including that of recursive rules can be explained only by postulating that there is an innate knowledge of language with which the child is born.

The innateness thesis has a wider implication. Using the Cartesian argument Chomsky claims that the innateness thesis unites the three theories, namely, the theory of learning, the theory of perception and the theory of comprehension.¹³ The unity of the three lies over the mechanism that they follow. All these theories essentially assume the same source according to which -- "a store of latent principles is brought to the interpretation of the data of sense."

It has been mentioned that the principles and categories of language which are innate to the mind constitute the universal grammar - a description used both by the Cartesians and Chomsky. The notion of universal grammar is one of the foremost contributions of Chomsky. In this connection, Chomsky finds that this idea too has its origin in the Cartesian thought which attempts to discover, to put it in Chomsky's language, "the universal conditions that prescribe the form of any human language." This search for the universal conditions constitute the subject matter of *grammaire generale* of the Cartesians.¹⁴ As Chomsky points out, one of the fundamental claims of Cartesian linguistics is that there are features which are common to the syntax of all languages. These features are so intrinsically connected to mind that they reflect "the fundamental properties of the mind." In Chomsky's reading, this feature of language turned the attention of the grammarians to the stand point of *Grammaire Generale* rather than *Grammaire Particuliere*. There are language universals which fix the "limits to

the variety of human language." But fixing of these limits will be possible only by discovering the conditions -- the universal conditions that "prescribe the form of any human language". *Grammaire Generale* thus becomes the basis of Chomsky's universal grammar. The Universal grammar forms the core which gives rise to the grammar of particular languages. But can there be any language which does not have these universal categories? Chomsky and the Cartesians will rule out this possibility. They approach this problem from the point of view of language learning which clearly shows that learning of a language is possible due to the application of certain linguistic universals by the mind. The argument used in this context has a following structure. If the universal grammar is viewed as a fundamental property of the human mind then language learning including the use of it involves mental operation since the latter will not be possible without the former. The intrinsic connection between the two as established by the mind shows that there cannot be any language which does not reflect these universal categories. To use Chomsky's words:

....such universal conditions are not learned, rather, they provide the organizing principles that make language learning possible, that must exist if data is to lead to knowledge.

The other side of universality is the notion of necessity -- a thesis which is well known in the Cartesian tradition. For Descartes, that which is universal is also necessary. While talking about the universal features of language we have already pointed out their necessary character. As our discussion shows, the universal principles and categories are necessary in two ways. First, the innate knowledge of the universal principles are the pre-conditions for language learning. Without them a child cannot learn his/her language. Secondly, universal grammatical conditions are necessary because without them there cannot be any particular language. The present discussion shows that there is an inseparable connection existing between language and mind. Descartes's theory of mind conceived as a thinking substance thus becomes a presupposition to Chomskian linguistics.

I have said in my introductory remarks that objections can be raised against Chomsky's use of the innateness hypothesis to explain the intricacies of language. This is a conceptual objection which challenges the view that the knowledge of language as possessed by man is innate. But there is a historical

objection which says that Chomsky's claim that he is using the same innateness hypothesis of Descartes's is not true. His theory is not in continuity with Descartes and thus the historical claim made by him is unfounded. In this respect, David Cooper's work¹⁵ is well known which raises a serious historical objection to Chomsky's claim.

To put it briefly, Cooper is concerned with the three constitutive notions of Chomsky's linguistics, namely, innateness, universality and necessity. Since these three notions also characterize the very nature of Cartesian thought, Chomsky's claim is that his theory of language is on the same ground which is Cartesian in nature. But this claim will be valid if Chomsky's use of these notions are same as that of the Cartesians'. In Cooper's finding Chomsky's use of these notions is substantially different from the Cartesians. As he analyzes, the term 'innateness', for Chomsky, is meant to be a kind of disposition, whereas for the rationalists and particularly, for Descartes, the term means that human beings know certain truths and ideas prior to experience. Regarding the universality of innate knowledge, Cooper's point is that both Chomsky and the rationalists understood it in two different ways. For the rationalists the term is meant to be the knowledge of universals -- the non- particular truths. This is totally different from Chomsky who, on the other hand, takes universality of human knowledge as that which is universally and generally possessed. A similar kind of difference is found when we come to the notion of necessity. For the rationalists, the notion implies that which is non- contingent, whereas for Chomsky the same notion is meant as presupposition -- a pre-requisite for language learning. In view of these differences, Cooper concludes that Chomsky's notion of innateness is not in accord with the Cartesian notion of innateness. It is a new sense in which the notion is used and thus a distinction should be made between, what Cooper calls, "*Innateness -- Old and New.*"

The question before us is to find out whether the objections levelled against Chomsky are valid and is he proposing a new concept of innateness? The answer is obviously: No. Cooper has failed to see that Chomsky is using the same traditional notion but is expressing it in a language which is suitable to his enterprise. As a result, many of the notions have been reformulated. But it will be wrong to think that this reformulation has changed their essential content which subsequently leads to the formulation of a new concept of

innateness. The content of these notions were not changed. What was changed was their outward expressions. Let me come back to the three notions that Cooper examined in order to explain his contention.

I wonder in what sense Chomsky's notion of innateness can be called a dispositional concept, so that it may be regarded as conceptually far away from that of Descartes. For Cooper, the term 'disposition' has a behaviouristic meaning and accordingly it is thought that dispositions and capacities have no mental reality. Cooper's failure is that he did not see that 'disposition' has a meaning which is other than behaviouristic. This is exactly the case with the older rationalists who interpret disposition in a non-behaviouristic way. This requires elaboration from Descartes's discussion on innateness as found in the various places of his work. In this respect one cannot rule out Descartes' interpretation of this term as disposition. In his analysis, innate ideas exist within us in the form of capacities or powers. These capacities exist in the mind potentially and they are brought to consciousness only in a situation that is appropriate to it. Innateness, for Descartes, is thus meant to be a potentiality or a kind of disposition. This establishes the first point that Descartes has a notion of disposition while he formulates his theory of innate ideas. But the most crucial aspect of his notion of disposition is that Descartes interprets innate ideas in the sense of real power. This may be characterized as the realist interpretation of disposition which distinguishes Descartes's position from the behaviourists. In this interpretation there are three things to be noted. First, the universal truths and ideas which are characterized as dispositional in nature and conceived as psychologically real though they may not be psychologically actual. Second, the notion of potentiality or disposition is construed by Descartes as a real power and has a dynamic nature of its own. It thus plays the role of an active power where potentiality or disposition is understood in terms of its growth. Here the principle is : the thing which exists potentially will ultimately grow into an actual thing. To cite the example, the tree which exists in the seed potentially will in turn grow into a fullfledged tree - the actual tree. Third, the universal ideas or truths which exist as potentialities are though unconscious can be brought to consciousness. In this connection, one of the principal argumetns of Descartes is that a cognitive act which is necessarily a conscious act is the outcome of certain innate ideas. To sum up, innate ideas exist as potentialities and thus it is formulated by Descartes within the broader theory of disposition where the

term 'disposition' acquires a non-behaviouristic interpretation.

Let me now come back to Chomsky and ask that in what sense Chomsky's position is different from Descartes particularly with respect to the dispositional construal of innate ideas. -- the point that Cooper raised to differentiate Chomsky's position from that of Descartes. The present discussion shows that there is no substantial difference between the two since both of them formulate their respective theories in a similar manner. It may be pointed out that Cooper's objection against Chomsky is no objection because the issue which he is attacking is not an issue. In the beginning I have made a remark that Cooper has failed to see that Chomsky's use of the term 'disposition' has a non-behaviouristic meaning. This is evident from Chomsky's acceptance of Descartes's interpretation of disposition as real power existing in mind. Further, like Descartes, Chomsky also accepts the active role of power, where power is meant as growth. In his later writings Chomsky makes this idea explicit while discussing language learning. To explain, the process of language learning, as Chomsky maintains, involves a few distinct cognitive states. Thus, for example, knowing English is a cognitive state which starts from the initial state and it finally reaches at the steady state. Note that the initial state which exists as prior to experience starts interacting with experience during this process of succession. The initial state is common to all members of human species and, by definition, it is innate. It consists of rules and principles which are specific to language faculty. These rules and principles together form what is characterized as universal grammar. To use the Cartesian terminology, the initial state (the universal grammar), which exists in the form of potentiality in the speaker's mind moves towards the steady state which is the attained state (i.e., the actual state) where the speaker attains the grammar of his language. As is evident, Chomsky is using the same Cartesian methodology to explain the role of innate ideas in language.

While talking about the non-behaviouristic understanding of disposition it is important to note that the notion which occupies the central place in Chomsky's theory of innate ideas is linguistic competence. He made it absolutely clear that this notion cannot be understood in any behaviouristic term, such as, a system of habits or dispositions to verbal behaviour. On the other hand, he defines the notion of competence as a system of knowledge -- "a mental structure

consisting of a system of rules and principles that generate and relate mental representaion of various type". I think this is sufficient to establish that Chomsky's notion of innateness cannot be taken as dispositional in the same sense in which the behaviourists understand by this term. His use of the term is no way a departure from Descartes.

The second objection of Cooper concerns with the notion of universality -- a notion over which Cooper finds that there is a difference between Descartes and Chomsky. For Descartes there are truths which are universal in the sense of being non- particular and thus universality of innate knowledge implies knowledge of those universal truths. Whereas, Chomsky, according to Cooper, approaches the problem, namely, universality of innate knowledge from the other side. That is, for Chomsky, universality of knowledge implies knowledge that is universally possessed. To put the same idea in a different way: knowledge is universal because it is universally possessed. This makes it evident that the notion of innate ideas conceived as universal knowledge differs in the context of the two thinkers. In fact, it is further pointed out, that since Chomsky's universals are not universals in the traditional rationalist sense they are not innate by the rationalist criterion. One of the important marks of the rationalist concept of universal is that, to put it in Cooper's words, "no one could fail to recognise them (universally known truths) as true". According to Cooper, Chomsky, on the other hand, used the term 'universal' in a "different and unusual way". As he pointed out, from Chomsky's talk about grammatical and phonetic universals one expects that these universals will be present in each and every language. This will be perfectly in line with the Cartesian stand on universals. However, Chomsky's claim, on the other hand, is found to be contrary to this Cartesian assumption since he maintains that these universals, to quote Cooper, "need not be found in each and every language". In view of this the problem that may be posed here is: either we should give up that there are innate ideas since there are no universals in the rationalist sense of the term or we should accept that Chomsky is offering a new definition of innateness based on his new theory of universal.

Cooper has wrongly conceived the problem. The problem arises because of Cooper's failure to see that Chomsky is not offering a new conception of universal. In fact, his notion of universal is no way essentially different from

the rationalists' notion of universal. However, the difference that we find arises due to the context in which they are applied. This is particularly true in the context of Chomsky whose main concern is with languages. The differences among particular language is a fact and, therefore, keeping this in mind one of the most challenging problems before Chomsky is how to explain the presence of universals in spite of the differences found among languages. In this respect, the argument used by Chomsky is well known. As he argues, the principles and categories of universal grammar exist in all human beings as the part of their common genetic endowment. From this common possession it follows that the knowledge of it must be universally possessed by all human beings. However, though these truths are universal they may not all have application with respect to different languages. Unless this is accepted, we cannot account for the differences among languages. In his recent writings, Chomsky takes a special care to explain the most important fact of language acquisition, namely, how does one arrive from universal grammar to a particular language to which he is exposed? In fact, the uniqueness of his theory is that it seeks to relate the two, namely, the universal grammar, on the one hand, and the linguistic differences on the other. As I have pointed out earlier, learning of a language is a process which passes through different mental/cognitive stages of a child. It starts from the initial stage - the universal grammar and finally reaches at a stage which is called the attained stage where the child acquires his/her own language - the language of the community. The very structure of universal grammar is such that it allows certain open positions which account for the differences.

Finally is the notion of necessity. Cooper's argument is that along with universality, necessity is also one of the defining features of innate ideas. For the rationalists, 'necessity' is a logical notion and thus necessary truths are conceived as those which are true in all contexts of application. In Cooper's assessment, Chomsky's notion of necessity radically differs from the rationalist concept since, for Chomsky, 'necessity' is an empirical concept used by him in the sense of a prerequisite or a requirement to be fulfilled. True, Chomsky has not used the notion in a strictly formal sense but that does not make his position radically different from the rationalists. On the same consideration the rationalist too can have the notion of something being empirically necessary. The strangest evidence to this is that, even for the rationalists, innate ideas are used in the sense of empirical requirement because without them, as they argue, there will

not be any cognition. This is a general methodological standpoint that follows from rationalism and I wonder in what sense it is different from that of Chomsky's position.

I think I have given answer to the historical objection. The historical continuity between Descartes and Chomsky should not be seen entirely through the texts. Rather the focus should be on interpretation and it is only through such effort that we can see their closeness. Chomsky's deviation from Descartes is not a substantial deviation. This deviation should be seen in relation to the primary concern of his inquiry. Since Linguistics is the context of inquiry, Chomsky's attempt is to contextualize Descartes's theory of innate ideas in such a way that it can be shown to be significant for the study of language without distorting the linguistic realities. This deviation may be thus understood more of a methodological nature than as a deviation in terms of its content.

This paper is not concerned with the conceptual objections against Chomsky's use of the theory of innate ideas to language. This is a different field which perhaps does not come under the scope of this paper. However, as a passing reference it may be mentioned that Chomsky's work in linguistics made it evident that a learning theory based on the simple mechanism of association and reinforcement cannot explain such a central fact as creative aspect of language use. After Chomsky's work on the formal properties of grammar, it has been particularly evident that the acquisition of computationally complex rules of universal grammar can be explained only by accepting the presence of an innate language-learning device. This gives rise to a new trend in philosophy, in psychology and in linguistics where the necessity of going beyond the empiricist and the behaviourist foundations of language have been felt. Mentalism in linguistics thus comes as a natural consequence.

Towards Human Freedom

The main assumption of this paper is that Descartes and Chomsky express a deep seated unity. The unity expressed is a thematic unity showing the relationship between language and mind. What we see as observable linguistic

behaviour has its source in mind. Similarly 'mind' cannot be a simple concept. In order to explain the complexities of language mind has to be rich enough in terms of its content. This speaks for the powers of mind which are largely responsible for the rich structure that language exhibits. I think this is one of the fundamental insights that Descartes offered to modern linguistics. Throughout this paper, I have tried to argue that Descartes's theory of mind, call it a Cartesian conception of mind, works as a presupposition to Chomskian linguistics. Many of the principal thrusts of Chomskian linguistics will be unintelligible without accepting this theory of mind at the background. Chomsky could give a new direction to linguistics because he saw that language and mind forms a unity. His rehabilitation of the notion of innate ideas is thus celebrated as a new dimension not only to the study of language but, more importantly, to the study of man in general. Through the revival of innate ideas, Chomsky restored the freedom of man -- a cognitive freedom that defines the very essence of human nature. There are two insights involved here. First is the idea of infinite possibilities and second is the idea of self-fulfillment. Revival of the notion of ideas led to the view of a man being endowed with infinite possibilities. The idea suggested here is that man has the ability to make free use of his endowments. Here lies his capacity to fulfill himself. Freedom thus implies individual's possibility of self-fulfillment. But the idea of self-fulfillment will have no significance unless we accept that there are innate capacities. The reason is that these are the capacities to be fulfilled in order to achieve self-fulfillment. In this connection, one cannot overlook the presuppositions implicit in this suggestion. The presupposition is the denial of the empiricist conception of mind where mind is thought of as nothing more than the aggregate of random perceptions. Further to this idea of freedom as self-fulfillment there is also the idea of rule-governedness. This follows from Chomsky's definition of innate ideas. As is well known, the concept of an innate idea is defined by Chomsky as a generative device which conceives the idea of infinite possibilities as the expression of freedom within the bounds of finite rules. Freedom is not an anarchic concept nor does it lead to lawlessness. The Chomskian linguistics ensures this freedom. This is a consequence which follows from Chomsky's reconstruction of the Cartesian theory of mind and language.

NOTES

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