ON THE METAPHYSICAL ASPECT OF CHOMSKY'S ACCOUNT OF LANGUAGE AND THE MIND

By

RICHARD O. ODIWA

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Approved by Walter M. Nabakwe

Dr. Walter M. Nabakwe

Supervisor

Degree Program *M.A. in Philosophy*

Date 8/2/1999

DECLARATION

I declare that this is my original work and has not been submitted anywhere else.

Signed _____

Richard O. Odiwa

Date 6/4/2000

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ABSTRACT

ON THE METAPHYSICAL ASPECT OF CHOMSKY'S ACCOUNT OF LANGUAGE AND THE MIND

Because of their capacity to deal with problems essential to reality, metaphysical conceptions are not only basic to all forms of entity, compelling and defining the elixir of human understanding, but are also effective in specifying and clarifying the constitution of reality by symbolic methods. This thesis uncovers the metaphysical underpinning of Noam Chomsky's linguistic theory. This theory is viewed as grounded in an implicitly conceived and explicitly formulated metaphysical idea. It identifies the metaphysical framework that we should employ in the attempt to come to grips with the intellectual product of Chomsky's conception of the nature of language and the mind as the doctrine of *materialist ontology*. It argues that the metaphysical relevance of Chomsky's linguistic theory stems from his commitment to a rational application and interpretation of the materialist framework. The delimitation of the metaphysical province of Chomsky's linguistic theory is conducted under the assumption that it may help provide a fresh scheme for addressing the perennial mind-body problem, and other fundamental issues in philosophy and science which this problem betokens. The study's basic instrument is conceptual analysis. It spans three conceptual realms: the concept of person, the relation between language and thought, and the connection of language to reality. Its contribution is underlined by the fact that the place of metaphysical conception in the analysis of language spells fresh targets for further philosophical and scientific analysis of human intelligent faculties.

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I wish to acknowledge all those who helped in the production of this work. Special thanks to my supervisor, Dr. Walter Nabakwe of the Department of Philosophy, University of Nairobi. I am in no way oblivious of his guidance and wish to express my deep respect for his philosophical and intellectual activity. I am grateful to all members of the Department of Philosophy at Egerton for their enthusiasm in this work and their incessant encouragement. I am indebted to the professional philosophers whom I consulted and who generously volunteered information that has become vital to this thesis. I am especially grateful to the following scholars: Ochieng-Odhiambo of the Consolata Institute of Philosophy, Nairobi; Solomon Monyenye of the Department of Philosophy, University of Nairobi; G. A. Bennaars and K. Wambari of Kenyatta University, Nairobi; and Wilson Lang'at of Egerton University. Others are Justus Mbayi of the American Cultural and Information Center, Nairobi; Okoth-Okombo of the Kenyan Sign Language Project, University of Nairobi, and Gerald Wanjohi, a philosophy consultant. I am glad to the following gentlemen for their moral and material support: Messrs. Jerim Otieno of the Jubilee Insurance Company, Nairobi and Richard Kilonzo of the Twenty-first Century Management Center, Nairobi; Oscar Odhiambo of Hyundai Corporation, Nairobi and James Odhiambo of the Ministry of Education, Nairobi. Thanks to Jacqueline Mwanzia and Annie Lewa of Kabete Veterinary Laboratories, Nairobi, Nelson Mwalwala and Castor Kweyu of the International Livestock Research Institute, Nairobi.

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DEDICATION

To the memory of

Henry Olela (1935-1995) and Henry Odera-Oruka (1943-1995),

pioneers of philosophy in Kenya.

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GENERAL INTRODUCTION

> For sometimes what science tells will, if true, involve a conceptual revolution and force philosophical reflection upon the preconceptions which deeply underlie our conceptual schemes- the most general concepts we employ for the ordering of experience.
> **Arthur Danto and Sidney Morgenbesser** [1]

This thesis is the outcome of a conceptual research on Chomsky's account of the nature of language and its relationship to the mind. It is the attempt to show the relevance of the metaphysical framework underlying his linguistic theory to an understanding of the perennial mind-body problem.

Influential philosophical schools of the twentieth century emphasize the study of language. The Cambridge philosopher, Ludwig Wittgenstein, who in the early 1920's, conjectured that is was impossible to deal with reality beyond the bounds of language, formally initiated this emphasis. From that time, studies in several fields have been pointed towards knowledge that is founded on the understanding of the nature of language. In anthropology, for example, it is said that the development of a symbolic system in which arbitrary symbols stand for objects or concepts greatly enhances the human learning process and provides the organism with a capacity for learning higher order behavioral code or culture (Alland Jr., 1973, p. 223).

There is also the contention that philosophical understanding should be tied to insights about the nature of language. Chomsky's theory of language- the **linguistic theory-** is considered as a revolutionary paradigm of the present time. It is viewed as contributing to an effective understanding of language and subsequently to our insight in the nature of the human person. The concept of the person is central to the understanding of reality. Our grasp of it may provide substantial insights into various intractable issues facing humanity that are presently thought to be beyond the scope of science. These include freedom of the

[1] Danto and Morgenbesser, 1960, p.16.

will, the nature of the self, the status of morality, immortality of the soul, the existence of God, the purpose of life, etc. (Hodgson, 1991, p.223).

Chomsky contends that when we study the origin and use of language, we discover that its properties are those that are 'given to it by mental processes of the organism that has invented it and which invents it anew with each succeeding generation' (D'Agostino, 1986, p.5). The central task, therefore, is to explain the psychological problem of how children, despite wide heterogeneity in their language input and their general learning skills, all, except in pathological cases, display a marvelous ability in the acquisition of language and internalization of grammar. As he argues this process occurs within the same short span of time, usually before puberty. The aptitude he terms the **creative aspect of language** and claims that it should be the proper domain of a serious linguistic analysis. This is the notion upon which his metaphysical framework can be identified.

Because the crucial task entails an explanation of the principles that underlie the creative aspect of language, the discrete and underlying psychological structures of language are important aspects that should also be the basis of current approaches to the mind-body problem. This is because the question seems to be a delusion if adopted in its traditional formulation. It is a misconception because it is instituted on a gross misconception of its very nature. Our understanding of mental phenomenon, as it is today, is apparently incompatible with that of our grasp of the physical body. Our grip of the body, Chomsky argues, has been elusive because the notion of body itself is subject to constant revision by the sciences. For instance, Cartesian mechanistic view of the world, on the basis of which he contrived the mind-body problem, was soon superseded by Newton's concept of motion according to which bodies are subject to gravity. The gravitational theory was subsequently revised by findings in particle physics. These showed that there are also other forces acting upon bodies which are not the product of gravitation laws nor of the space and time or

mechanistic picture, but which originate from bodies themselves, such as, the attractive force of magnetism. These expositions are evidence that we presently do not possess any fixed notion of what the body comprises. Chomsky concludes that our understanding of the body will eventually be shaped by, among other things, our theories of the mind since, throughout intellectual history, the conception of mind has remained relatively constant, static and universal (Beakley and Ludlow, 1992, p. 47).

The solution to the mind-body puzzle needs to be searched in the light of such findings. As Chomsky argues, the proper and fruitful way forward is, first of all, to explore and to discover some explanatory theory or theories which will eventually form the foundation for addressing the matter. Such theories, he claims, can be found within the analysis of the distinctive principles of language, in particular, what he termed the **universal grammar**. The universal grammar consists of the properties that underlie linguistic expressions. They are what enable people produce and understand sentences of his native language that he had never before encountered. They also enable them express themselves in their language with such an ingenuity that requires very slight instruction except the appropriate linguistic environment. In essence, these are indistinguishable from the general principles of thought. It is because of the universal grammar that language is seen as a 'mirror of the mind' (Chomsky, 1975, p. 1).[1]

[1] A *mirror of the mind* is the conventional, or traditional, philosophical phrase that was coined by the eighteenth century German rationalist, Gotfried Wilhelm von Leibniz.

CHAPTER ONE

INTRODUCTORY CHAPTER

> As a result of the ability of philosophical issues to transcend specialized boundary and to dig deeper than other problems, that is why their solutions require taking into account all aspects of an issue. Their solutions cannot but take in account all possible angles of scientific assumptions, pending their careful analysis.
> **Paul A. Mwaipaya**[1]

Preliminary Remarks

This chapter introduces the framework of our study. It is divided into six sections: statement of the problem; hypothesis; objectives of study; its justification and significance; methodology; conceptual framework, and scope and limitation.

Statement of the Problem

The primary question of this thesis states: What is the metaphysical framework underlying Chomsky's assumptions about the nature of language and its relation to the human mind in the elicitation of reality? What is its relevance to the development of current approaches to the mind-body problem?

Hypothesis

The basic assumption of this study is if considered in a metaphysical parlance, Chomsky's nativist account of language and the mind provides a novel framework within which speculations on the perennial mind-body problem can be based.

[1] Mwaipaya, 1982, p. 10

Objectives of Study

1. A demonstration of an understanding of metaphysics as the realm concerned with the delineation of reality and of language, and to explicate their interrelationships. Language in this context is viewed not as an instrument of philosophizing but as a mirror of reality;
2 A description of Chomsky's view and approach to the mind-matter problem;
3. The explication and discussion of the metaphysical framework upon which Chomsky's conception of language is founded;
4. The consideration, in critical detail, the cogency and acceptability of Chomsky's approach to the mind-body problem, particularly the question about unity and consistency of his metaphysical underpinning. That is, the extent to which Chomsky's account may be considered as adequate in explaining the present status of the mind-body question, and the breadth to which this may contribute to the furtherance of philosophy and science.

Justification and Importance of Study

As a revolutionary paradigm, Chomsky's nativist claim according to which the essential properties of language reflect and constitute an intrinsic feature of the human mind is an issue which calls in question the identification and specification of its underlying metaphysical framework. This framework comprises the cognitive state that acts as a vehicle of expressing and evoking human holistic tendencies and experiences. If formalized, the metaphysical framework becomes significant as in the sense of Lazerowitz. This is because like a dream, a metaphysical theory is 'a production of the unconscious and has both sense and motivation'. Again 'a metaphysical theory has to be uncovered before we see what it comes to and how it produces its effects' (Masih, 1975, p. viii). The metaphysical framework is therefore the drive underlying theory construction. The plausibility of any formulation will, in consequence,

reflect, justify and in turn be determined by the genuineness and soundness of its basic metaphysical frame.

Chomsky's principle aim is to show that a comprehensive analysis of the underlying properties of speech is fundamentally linked to the insights into the questions about the nature of the human mind and, therefore, to questions about mental and physical existence. In order to understand him, we go to the underlying metaphysical idea upon which his account of language is based and mark the relevance of that metaphysical frame to speculations about the perennial mind-body (or as it is known nowadays, the mind-matter) problem. The recurrence of this problem in various forms and fields of study reflect an increasingly confirmed conviction that this complex issue has widespread ramifications for philosophy and science. The present age realize that both philosophy and science reduce to the problem of knowledge about man's being and his place in the universe. For man's presence in the universe affects the character of reality itself. Leo Rauch once remarked that perhaps, it is man alone, that is real; and perhaps the world approaches reality only to the extent that it enters in human consciousness, or because the material for human understanding is science (1965, p. 5). The metaphysical underpinning of the relation of the mind to the body (matter) and to the universe, thus, measures to the problem of what the mind contributes to the content of human knowledge.

Unraveling the metaphysical basis will, therefore, not only illuminate on the understanding of reality. It will also help solve some problems in the field of human understanding that arise in the attempt to come to grips with the origin and purpose of the universe. In other words, such intractable issues as the nature and existence of God, the soul, the status of morality etc. could be made intelligible to the human mind. For these are metaphysical issues which, though depend on science for their explicitness, are not fully experienced within the sciences as such. The study of language within the paradigm of Chomsky's linguistic theory,

therefore, has widespread ramifications with respect not only to a wide range of discussions on these issues. It also has important conceptual implications for the mind-body problem and its role in providing substantial inroads into these problems.

The significance of this study can further be illustrated by drawing attention the observations by certain scholars in respect to the value and role of metaphysical insight. Firstly, there is D'Agostino's description of the influential role that metaphysical ideas can play in the development of philosophical and scientific theories. Secondly, there is Hodgson's demonstration of the importance of the mind-matter (or mind-brain) question not only in it, but also in providing a promising line of approach to the great metaphysical problems. He points that although the mind-matter question seems to be an unsolved misery it is amenable to solution. If a satisfactory answer for it is found and justified, it could provide substantial insight into the wholly intractable issues concerning human condition. These are issues as freedom of the will; the nature of the human self; the status of morality; the soul; the existence of God; and the purpose of life (Hodgson, 1991, p. 1).

Thirdly, we have the readings from Viscount Samuel, A. J. Ayer and Gilbert Ryle in their contribution to a series of talks on the *Physical Basis of Mind.* (1950). In his article, *We Have Made No Progress Toward Explaining How the Mind is Attached to the Body*, Samuel observes that despite the strenuous effort made by different philosophical schools to solve the mind-body problem, no success has been achieved and no single view has won general agreement. He remarks that 'until science and philosophy help us advance from that position we cannot hope that universe will for us, be rationalized' (Flew, 1964, p. 240). Ayer in his contribution, *But This is to Misconceive the Problem* concludes that the mind and body should no longer be conceived as two different entities between which we have to find an amphibious bridge. Rather, 'talking about minds and talking about bodies are two different ways of classifying and interpreting our experiences' (p. 244). Ryle holds that dualistic theorists of reality since

the time of Descartes have been guilty of a **category mistake** (see chapter 2). He believes that a valid approach should involve the dropping of words "Mind" and "Matter" since "these are just echoes from the hustling of philosophy and prejudice the solution of all these problems posed in terms of them" (p. 248).

Following Chomsky's hint that the fruitful way towards a cogent answer to the mind-matter problem expediently rests on its reconstruction, we explore his proposal against the background that what philosophy requires at present is the prescription of wide-ranging approaches to its essential questions. Our aim is to contribute to the search and prescription of a novel framework within which the mind-body problem can be approached.

Methodology

The study employs, as its basic instrument, the method of **conceptual** and **logical analysis**. This method as explained by Esa Itkonen (1978), is identifiable as **explication**. Explication is characteristically "an 'institution' which has developed out of simple reflection upon everyday concepts". Its purpose is not only to **clarify** but also to **justify** various philosophical concepts or theories. Its basic goal is to "transform atheoretical intuitive necessity into theoretical formal necessity" (pp. 44-45, 294). The method demands an adherence to **explanation** and **generalization**. That is, it requires the explanation of or generalizations about various philosophical conceptions on the basis of **abstractions** or **idealizations** from fundamental assertions in support of them.

The method of conceptual and logical analysis differs from the methodology of the natural and the social sciences in terms of its aims and approach. The distinction reflects the differences in subject matter between philosophy and the social sciences. According to Mwaipaya (1982) "philosophy proceeds by a **prescriptive method"** owing to its concern "with basic, highly abstract, rather mysterious and timeless issues". On the other hand, "the

sciences find descriptive approach more appropriate for their tasks" because of their preoccupation "with specialized problems- problems which are limited in scope and hence demand adherence to specialized interests" (p. 20). This variance can be illustrated further by drawing attention to Popper's view as to why the approaches of philosophers and scientists contrast:

> A scientist engaged in a piece of research, say in physics, can attack his problem straightaway. He can go at once to the heart of the matter: to heart, that is, of an organized structure. For a structure of scientific doctrines is already in existence; and with it, generally accepted problem-situation. This is he may leave it to others to fit his contribution into the framework of scientific knowledge... The philosopher finds himself in a different position. He does not face an organized structure, but something rather resembling a heap of ruins (though perhaps with treasure buried underneath). He cannot appeal to the fact that there is a generally accepted problem-situation; for there is no such a thing is perhaps the one fact which is generally accepted (Popper, 1961, preface).

The importance of conceptual analysis is underlined by the fact that "with the aid of conceptual and logical analysis, philosophy is able to dig deeper into the nature of issues than the sciences, resulting in a (somewhat) better explanation of 'ultimate', 'final', 'absolute', or 'perfect knowledge"'(Mwaipaya, p. 21). The differences in approach between the natural sciences and philosophy are, nevertheless, differences about the **means** rather than the **ends**. Both natural and social scientists often employ this procedure when testing the soundness of their findings. In the same strain, there in nothing bizarre in the philosopher attempting to utilize the scientific approach provided that he subjects his evidence to a rational test within the province of conceptual or logical analysis.

Moreover, conceptual analysis as a general starting point for philosophical study has the advantage of safeguarding against misunderstanding or misinterpretations. The same way, logical analysis has the profit of being 'essentially as a means for establishing coherence, for determining the consistence or inconsistency of assumptions, and for determining the validity or invalidity of beliefs or world views'. Logical analysis, thus, acts as a barometer for determining the reliability or unreliability of the basis of a belief or a worldview, and for

determining the soundness or absurdity of a proposition. It compels philosophers to go beyond the face value of issues, to transcend the appearance of things (Ibid, p. 22).

In this study, we have reviewed library texts including books, journals, reviews, articles, research papers, abstracts indexes, dissertations, theses etc. Our study has also relied on idealizations and conclusions from insights gained from consultations and discussions with various professional philosophers. In the main, these consultations and discussions were in the form of **dialectical method.**[1] In so far as the dialectical method requires the construction of explanations, generalizations or conclusions on the basis of logically coherent insights from discourse, it is indistinguishable from conceptual analysis. Our methodology proceeds as follows: our starting point was conceptual; we surveyed the various sources of our literature. On the basis of our insight from these materials, coupled with the abstractions from discourse, we developed our claims. From arguments generated in our discussion we employed logical analysis to establish the soundness of our abstractions and generalizations[2].

Conceptual Framework, Scope and Limitation

Our study examines Chomsky's conception of language from the perspective of philosophy of language in relation to the philosophy of mind. Emphasis is placed upon the following conceptual realms: the concept of person, the relationship between language and thought, and the connection between language and reality. Its scope spans a range of issues in metaphysics, language, psychology and cognitive inquiry, and is confined to an explication and discussion of those views that relate directly to the mind-body question.

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[1] Dialectical method as herein used is in the sense of Socrates. It is identifiable with the methodology of classical philosophy. It simply means "to converse" or "to discourse" (Sinha, 1990, p. 57). It is defined as any mode of reflective enquiry on a fundamental issue (whether in mathematics, ethics, theology, etc.) that begins from some assumption and then enquires into the grounds for that assumption (rather than simply the consequences of it). (J. Astley et al., *Theological Perspectives of Christian Formations.* Michigan, 1995, p. 376)

[2] Since this study is not opinion-based, as such, we draw attention to the reactions of experts consulted only at appropriate points. Some of them are listed in the acknowledgments.

Discussions of Chomsky's writings are characterized by a versatile use of terms such as: *universal grammar; transformational grammar; generative grammar; transformational-generative grammar; rationalism; nativism; schematism; grammatical rules; language; sentence; creativity; competence; performance* etc. Moore and Carling have commented that "Chomsky is genuinely difficult to interpret at times because of the way he uses language and, in particular, technical terms" (Modgil, 1987, p. 11). Pointing to perhaps, a conscious or unconscious act on the part of Chomsky to lay traps for his unwary critics, they warn that those "expecting to find a clear and straightforward exposition of his views" to approach him with a considerable "measure of caution". Here, we use terms as *language, grammar, transformational-generative grammar, sentence, competence,* in an analogous manner, referring to the linguistic structures that reflect the essential properties of the human mind.

Again, where Chomsky's writings on the nature of language is concerned, this study analyses his concept of language and mind specifically at the level of syntax, that is, at the level of sentence. In the main, this study steers a positive orientation on Chomsky's linguistic theory.

CHAPTER TWO

LITERATURE REVIEW

> The principal aim, therefore, has been to discover and to analyze two categories of writings: first those that were direct, immediate instruments in determining the course of events, and second, works that have molded the minds over centuries of time, slower in effect than the first, but sometimes penetrating more deeply.
> **Robert B. Downs**[1]

Preliminary Remarks

Revolutionary philosophical schools of the twentieth century, namely; logical positivism or logical empiricism; ordinary language philosophy; and philosophical linguistics, hold that traditional problems of philosophy resulted from the way in which language (used to formulate them) was employed. The contention of many of the proponents of these schools is that the perennial philosophical problems could be appropriately addressed or, at least, melted away with the proper employment of language.

Chomsky's Linguistic Theory

Chomsky is among the twentieth century thinkers who, through his influential work in linguistics, has immensely contributed to the analysis of language. To him, an in-depth analysis of natural languages ought to be enlivened by the consideration of language as a "mirror of the mind". It has been noted that "man is most clearly distinguished from other animal species, not by the faculty of thought or intelligence, as the standard zoological label 'Homo-Sapiens' might indicate, but by his capacity for language." (Lyons, 1977, p. 10)

Chomsky contends that his inquiries were inspired by the desire to discover the "abstract principles that govern its structure and use, principles that are universal by biological necessity and not mere historical accident that derive from mental characteristics of the species." He concluded that:

[1] Downs, *Books That Changed the World,* 1983, p. 9

> By studying the properties of natural languages, their structure, organization, and use, we may hope to gain some understanding of the specific characteristics of human intelligence. We may hope to learn something about human nature, something significant, if it is true that human cognitive capacity is truly distinctive and remarkable characteristic of the species (Ibid. pp. 4-5).

He thus, formulated his celebrated linguistic theory- the theory of **transformational generative grammar**. His aim was to provide a mathematically precise description of some of the most basic properties of language. He clarifies this thesis by making at least four claims about the nature of natural languages.

First, there is the claim that language is **innate** in all humans. He has argued that, apart from being born with the physical capacity that is, the appropriate physical organs, human being are born with the mental predisposition to language. "All human babies may be said to have the same predisposition, and if one baby eventually learns Chinese and another French, it is because their linguistic environments are either Chinese or French respectively" (Whitman, 1975, p. 22). This feature can be attributed to what Chomsky referred to as an **innate language faculty** mediated by the **language acquisition device** (LAD). The LAD is a set of rules for the induction and processing of environmental human language data. The notion becomes of real interest in philosophy since:

> The principles underlying the structure of language are so specific and so highly articulated that they may be regarded as being biologically given or what we call 'human nature' and as being genetically transmitted from parents to children (Lyons, p. 11).

Second, Chomsky has argued that because of its innate nature, language is **universal.** The language design can be said to be identical in all humans and as a result of the workings of it, the forms of grammars are, at bottom, identical. All languages have an underlying sameness. An interesting aspect of this claim involves the question whether the LAD could throw any light at the relationship between the human mind and language.

The third claim is that language is **abstract**. Since language is in the mind, and since the mind deals with abstractions, the phenomenon of language can be thought of as entailing an abstract or psychological reality on the part of the speaker or the hearer. His claim here is

that language as we speak or hear it, or as we see or write it, constitutes only its physical reality. It has an underlying mental reality. The process of producing the physically real sentence starts with extremely abstract concepts, gradually working up through less and less abstract concepts and organization, until finally it emerges in its finery (as we see it written or as we hear it). The question of how investigations into the structure of language could shed light into our inquiries into the features of the corresponding abstractions, is a matter of profound philosophical concern (Miller, 1990).

The fourth argument is that language is **creative**. To Chomsky, this is the most striking aspect of language. Of particular significance is the fact that language users can produce and understand completely novel utterances or sentence:

> The ability that children have to derive the structural regularities of their native language- its grammatical rules- from the utterances of their parents and others around them, and then to make use of the same regularities in the construction of utterances they have never heard before (Lyons, p. 11.)

This **creative** aspect is an area of philosophical curiosity. Chomsky points to this creative aspect of language as "the central fact to which any significant linguistic theory must address itself" and that "a theory that neglects the creative aspect of language is only of marginal interest" (Katz and Fodor, 1964, pp. 50-51). Thus, "language users who produce (or understand) sentences which are new to their experiences manifest their **linguistic productivity"** (D'Agostino, 1986, p. 3). The task of explaining the phenomenon of linguistic productivity constitutes the context in which Chomsky's characteristic philosophical claims about the basic structure of languages were developed. To him, explanations by modern linguists such as Leonard Bloomfield that linguistic productivity is to be accounted for "by assuming that language users produce (and understand) novel sentences by way of **analogy** with sentences which they are **familiar"**, seem vacuous. This is because "there will always be some way in which novel word sequences which are not grammatical are

nevertheless similar to familiar grammatical sentences and vice versa" (Chomsky, 1966, pp. 12-13). Linguistic productivity needs to be considered as follows:

> A language can be thought of as a set of sentences, some of which will be **familiar** to any language user and some of which will be unfamiliar. A grammar of the language [on the other hand] can be thought of as a recursive definition of this entire set. We can then explain the productivity of language by assuming that language users employ a mentally represented counterpart of the linguist's grammar in producing [and understanding] the sentence of their language, both novel and familiar (Chomsky, 1972, p. 92; D'Agostino, 1986, p. 3).

In effect, a grammar furnishes the language user with the semantic and phonetic interpretations for all the sentences of his language. This grammar derives from a more abstract object, the **universal** grammar. Moore and Carling refer to universal grammar as:

> A "unified system of principles with a fairly rich deductive structure and some open parameters to be set by experience". It provides the basis for which knowledge of a specific grammar develops. It is a characterization not of human language but 'the nature of the language faculty'. It is with this universal grammar that we are biologically endowed. Universal grammar, is an element of human genotype." (Modgil et al., 1987, p. 53).

About Metaphysics

D'Agostino (1986) observes that since a universal grammar constitutes a system of mentally represented rules and principles which account for the phenomenon of linguistic productivity, it follows that Chomsky's proposal is in effect a theory about the psychological basis for language use. This in turn "suggests a **subjectivist** view of language, according to which language users give linguistic entities the properties which they have, and according to which the scientific identification and explanation of these properties is, in effect, a psychological enterprise" (pp. 4-5).

D'Agostino also considers Chomsky's treatment of language as a purely psychological phenomenon with the creative aspect as the central task of a precise linguistic theory, as constituting the context upon which his characteristic metaphysical claims can be erected. Effectively, if we adopt the Popperian conception of metaphysical ideas according to which 'a metaphysical idea is embodied in a statement which, because of its distinctive logical form,

is not subject to empirical refutation', we can conclude that the pivotal metaphysical notion in Chomsky is that of **subjectivism**.

According to Moore and Carling (*Chomsky: Consensus and Controversy- Introduction*), Chomsky's works have always reflected his **realist** and **innatist** position:

> Over the years Chomsky has consistently taken a realist view of the status of grammars, both initial and Steady State, he has proposed. By a realist view we mean that Chomsky imputes existence to his theoretical construction: 'the grammar represented in the mind is a 'real object'". For Chomsky, as we understand him, this conviction about the psychological reality of grammars, their mental representations somewhere in the mind, is at base a claim about the truth of his linguistic theory (Modgil et al, p. 23).

Chomsky's metaphysical commitment, thus, emerge from his treatment of language as basically a subjective phenomenon and from his realist postulation that language has no existence apart from its mental representations (Chomsky, 1972, p. 95; D'Agostino, 1987).

Chomsky on the Mind-Body Problem

Although the mind-body problem can be traced back to earlier times, the seventeenth century French thinker, Descartes, effectively posed it. He conjectured that all natural things (which constitute reality) reduce ultimately to two irreducible and essentially different substances: **mind** and **matter**. To him, mind is an incorporeal substance the essence of which is to think. It is that which underlies and upholds the various intellectual functions. On the other hand, matter is a corporeal substance the essence of which is to be extended, or to be discerned in space and time. It upholds sensible qualities. This view of reality is the one commonly referred to as the mind-body **dualism**. The difficulty of explaining the causal relation between **mind** and **body** when they are conceived as essentially different substances constitutes the mind-body problem.

There have been various ontological approaches to the causal issue of the mind-body problem. Descartes, to whom the notion of dualism is attributed, proposed that there is, after all, an interaction or causal influence between the two essentially different substances.

This proposal has been called **interactionism**. It holds that mental states give rise to physical states and vice versa. According to another French philosopher, Malebranche, the causal connection between the two substances can be attributed to the view that he termed as **occasionalism**. This is the theory that "on the occasion of bodily stimuli or impressions, God creates the appropriate idea and response in the mind" (Miller, 1992, p. 114).

The German thinker, Leibniz suggested that a solution to the mind-body problem is found in the proposal that he called **pre-established harmony.** Accordingly, both "bodily and physical states have been preordained by God to correspond at every point with appropriate mental states, like two clocks synchronized and set to ticking at the same time" (Ibid. p.115). In accordance with the Dutch philosopher, Spinoza, the mind-body issue should be addressed within the framework of **the double aspect theory**. This theory holds that "there is only **one** reality, unknown to us except through its attributes of mind and matter, two of the infinite number of aspects of this reality" (Ibid.). There are also other approaches conceived within the framework of either **idealism** or **materialism.** Idealism is the metaphysical view that reality is constituted by the mind and its ideas. Materialism is the metaphysical doctrine that matter with its motions and qualities are the ultimate reality.

In modern times, the mind-body problem has been approached from a different perspective. This shift in approach started in 1949 with the publication by Ryle of his influential book, *The Concept of Mind.* In this book he observed:

> The mind-body problem, like so many philosophical problems, is not a real problem, but results from **linguistic** and **conceptual confusion.** That is, it a problem that results from our misunderstanding and misuse of (ordinary) language concepts (pp. 12-15)

He accused Descartes (who posed the problem) and most philosophers after him of being guilty of a colossal error that he termed a **category mistake**. This is the mistake of employing a concept (e.g. Mind) within a conceptual system to which it is inappropriate (e.g.

substance, causality, etc.). In his objection to Descartes' dualistic view of reality, or as he termed it, the **official doctrine**, Ryle noted:

> In ordinary life...we seldom use the noun **mind** or the adjective **mental** at all. What we do is to talk about people, of people calculating, conjuring, hoping, resolving, tasting bluffing, fretting, and so on. Nor in ordinary life do we talk of **matter** or things being **material**. What we do is to talk of steel, granite, and water; of wood, moss, and grain; of flesh, bone and sinew. The umbrella titles **mind** and **matter** obliterate the very differences they ought to interest us (Ibid.).

He observed that what we call the mind is but a set of dispositions, that is, capacities propensities, habits, tendencies etc. Therefore:

> A careful analysis of the ways of common talk about the mind would dissipate the confusions, dissolve the problem, and thus render otiose both idealism and its opposite, materialism, in short all the rival metaphysical views that had been the chief product of the field (Cole et al., 1990, p.49).

Ryle's approach has been called **ordinary language philosophy**. Its tacit theory is **logical behaviorism**. This is the view that truth of ascription of mental states implies and is implied by the truth of various statements of purely behavior.

Under the influence of Ryle, philosophy witnessed the birth of more radical approaches to the mind-body issue that drastically altered the traditional views on the question. Today, we have quite novel concerns that seem to have little or no bearing to the classical theories. According to the twentieth century British philosopher, Charles Sherrington, the mind-matter question seems to be no longer an issue of the causal connection between two essentially different substances (*Man on His Nature*, 1946, p.125). Rather, it involves the connection between what he called the electrochemical phenomenon of the central nervous system and the conscious experiences of the human person. It states as "How is it that the visual picture proceed- if that is the right word- from an electrical disturbance in the brain" (Flew, 1964). To the contemporary American philosopher, Searle, there are at least four features of our mental life which appear unconnected with the material world, and which make the mind-body problem seem so difficult (*Minds, Brains, and Science.* 1984, pp. 15-17). These are

consciousness; intentionally; subjectivity; and mental **causation** (Miller, 1992, p. 113). To the British thinker, Hodgson, the **mind-matter** question (sometimes called the brain-mind question) concerns 'the relationship between mind (consciousness), on the one hand, and matter (specifically, the brain) on the other'. It states: "how are conscious *mental events* (such as my hearing of a sound or feeling a stab of pain) related to the *physical events* associated with them (presumably, involve the firing of many neurons in my brain)?"(Hodgson, 1991).

These views permitted two widely accepted theories: **the identity theory** and **functionalism**. The identity theory, sometimes called the mind-brain identity theory, is the view that: 'Minds are brains, and the contents of minds- pains, thoughts, sensations and the like- just are (identical with) various happenings, processes and states of our brains'. Dennett (*Current Issues in the Philosophy of Mind,* 1978) has said of the identity theory that:

> The identity theory was to be an empirical theory, conceptually outlined by philosophy with the details filled by science, and its ontology was typically presumed to include only scientifically well-credentialed entities- only brain cells and their biochemistry and physics (Cole et al, 1990, p. 54).

Some commentators have argued that the identity theory seems to be a curious postulation in the sense that it appears to be motivated by an irrational fear of the advance of the sciences. This gave way to the adoption of other approaches to the mind-body problem, the most pervasive being the theory of **functionalism**.

Chomsky's approach, as we claim, is based on the theory of functionalism. Regarded as the doctrine which "steers a middle course between dualism and materialism", functionalism holds that the mind is not something that exists apart from the physical and neither are mental states identical with physical states. What is more important is not the physical substance itself, but the way in which this physical entity is organized (Beakley and Ludlow, 1992). According to Dennett functionalism does "not only satisfactorily seem to evade the philosophical objections to other forms of materialism. It is particularly well suited to serve the conceptual underpinning for current work in psychology, linguistics, and cybernetics or

artificial intelligence". All these operate at certain level of abstraction with functionalism providing the rationale and justification for such a strategy:

> In these disciplines one research strategy can be characterized in terms of one version of Chomsky's distinction between competence and performance: given a specification of a certain sort of competence say a discriminative competence, or a linguistic competence, the task is to devise a performance model- ...that exhibits that competence and if possible has a claim to **psychological reality** as well (Cole et al, p.54).

Today, questions about mind and matter appear more in scientific and secular contexts.

Chomsky draws attention to what we may regard as two periods of the mind-body problem. These are the **Cartesian era** and the **post-Newtonian period**. The Cartesian era was ushered by Descartes' formulation of the dualistic view of reality and of the existence of other minds, for example the existence of God. During this period, the question of the connection between mind and body emerged as a real philosophical problem. That is because Descartes had offered a fairly fixed and definite conception of body, or of the material world. He had pointed to the mechanistic view of the physical world according to which the body is taken to be a sensible substance discerned in space and time and which, in many respects reflect common-sense understanding (Chomsky, *Language and Problems of Knowledge*). Following Descartes' postulation of body, subsequent philosophers were able to develop their versions of the possible relationship between mind and body and of the existence of other minds:

> There were important works attempting to develop the concept of mind further, including studies by British Neo-Platonist of the seventeenth century that explored the categories and principles of perception and cognition along the lines that were later extended by Kant and were rediscovered, independently, in the twentieth century gestalt psychology (Beakley and Ludlow, 1992, p. 47).

Chomsky also points to the influence of the Cartesian doctrine to the development of the general philosophical grammar of the seventeenth century in terms of which Leibniz suggested that "languages are the best mirror of the mind" (Chomsky, 1986, p. 1). This also led to the development of libertarian ideas such as those of the French thinker, Rousseau.

The post-Newtonian era began in the seventeenth century. It began with the development of physics particularly with the work of Isaac Newton. According to Chomsky, this was the time that the concept of body was refuted. When Newton demonstrated that the motion of heavenly bodies could not be explained by Descartes' contact mechanics but by a new phenomenon, a **gravitational force**, Chomsky claims, it became clear that Cartesian concept of the physical world was rendered unacceptable. In the twentieth century, research in particle physics, particularly, the work of the chemist-philosopher, Joseph Priestly, revealed that "bodies themselves possess capacities that go beyond the limits of contact mechanics, specifically the properties of attracting other bodies". This demonstrated that the Cartesian framework was becoming untenable, on the verge of collapse and had to be abandoned (Beakley et al, p. 47).

Chomsky claims that in so far as science continues to make fresh findings, our conception of body is bound to be transformed or modified further. It is therefore fair to argue that we do not have a definite conception of the body. Any attempt to address the mind-body problem in the context of the traditional formulation seems to be a futile exercise. It would be appropriate to assume that:

> The material world is whatever we discover it to be with whatever properties it must be assumed to have for the purpose of explanatory theory. Any intelligible theory that offers genuine explanations and that can be assimilated to the core notions of physics becomes part of the theory of the material world, part of our account of body. If we have such a theory in some domain, we seek to assimilate it to the core notions of physics, perhaps modifying these notions as we carry out the enterprise. In the study of human psychology, if we develop a theory of some cognitive faculty (the language faculty for example) and find that this faculty has certain properties, we seek to discover the mechanisms of the brain that exhibits these properties and to account for them in terms of the physical sciences- keeping open the possibility that the concepts of the physical sciences might have to be modified (Ibid.).

The study of the distinctive features of language is a positive step in this direction. Of particular significance are the inquiries into the **creative aspect of language** (in technical sense, the feature of **competence**). Competence is "the system of rules and principles that

we assume have, in some manner enables a speaker, in principle, to understand an arbitrary sentence and to produce a sentence expressing his thought" (Chomsky, 1971, p. 44).

Critique

Chomsky's nativist claim constitutes an area of profound intellectual concern.[1] Sohan and Celia Modgil (*Chomsky: Consensus and Controversy- Introduction,* 1987) identify three areas in Chomsky's writings, which they believe to be fields of vast controversy. These are the **problem of confirmation/falsification**, the **problem of correspondence** and the **problem of psychological reality**. The problem of confirmation/falsification considers the nature and validity of the evidence set forth in support of Chomsky's linguistic theory. The problem of correspondence focuses on how linguistic expressions or "sentences" relate to our everyday use of sentences. The problem of psychological reality states:

> In what sense can the formal grammar, articulated, modified and refined by the linguist, generating necessarily a formal language, be usefully said to shed explanatory light on the 'unknown'- what is it in our heads that enable us acquire, produce and understand a language (Modgil et al, 1987, pp. 16-17).

Miller (1992) poses two questions in Chomsky's postulations that he believes require serious discussion. These are one; the need to debate on how the mind comes to possess the innate linguistic structures which Chomsky calls universal grammar. This question is identical with the problem of psychological reality posed by Modgil et al. Two, there is a more 'philosophical relevant' issue consisting of a series of related questions:

> What is the relation of these intellectual structures to truth? Are we driven to a view of Knowledge as arbitrarily determined by purely accidental endowment within the brain? Or can we believe in some sort of pre-established harmony where this intellectual endowment is made to correspond to reality? Are we driven to something like Plato's doctrine of pre-existence of the soul? Or perhaps our experience of reality is itself determined by our innate intellectual structures? (Miller, 1992, p. 214)

According to Ian Robinson, if we consider, in critical detail, some of Chomsky's arguments, we are bound to discover that contemporary linguistics, which he is largely

representative, does not seem to be enough of a discipline to make its standards those of thought about language. That is, Chomsky's linguistics theory does not appear to conform to the requirements of philosophy of language as represented by renowned thinkers in the area, specifically, Wittgenstein. He maintains that Chomsky relies on abstractions from empirical linguistic data for the measurement of the existence of innate grammar rather than on speculating on the fundamental issues of language itself. Thus, he falls short of achieving the object of philosophy of language in the sense of Wittgenstein. Robinson claims that this stems from the 'the fixty' of Chomsky's 'notion of science'. Otherwise Chomsky would have understood Wittgenstein's "vulgar slogan" that:

> Look for the use, not the meaning, and understood its bearing on his formulation of the question of linguistics. This may have made Chomsky's notion of LAD and extra-linguistic physical existence of language would have more benefiting (Robinson, 1975, p. 149).

The argument is open to further debate.

Nevertheless, Chomsky's metaphysical framework as we explicate it in this study should answer Robinson's criticism. In our view, such controversies constitute a collection of problems that call in question, the need to outline the philosophical framework upon which Chomsky's assumptions are founded. Such a frame, if found suitable, may turn out to be reliable foundation for addressing his inherent difficulties. It may also form the basis for further philosophical and scientific inquiries arising from insights in the nature of language.

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[1] See Chapter 5 for a discussion of the various areas of intellectual curiosity in Chomsky's theory.

CHAPTER THREE

CHOMSKY'S ACCOUNT OF LANGUAGE

> Language is that which gives us reality, and not as mere vehicle of reality, but as its true flesh, of which all the rest dumb or inarticulate representation, is merely the skeleton
> **Miguel de Unamuno**[1]

> Certain philosophical problems can be represented correctly as questions about the nature of language, and that, so represented, they can be solved on the basis of theoretical constructions that appear in linguistic theory.
> **Jerrold J. Katz**[2]

Preliminary Remarks

Man is termed the most remarkable and distinctive of all animals because of his capacity for speech production and comprehension. Whereas other animals communicate by instinctive means, or by responding to certain environmental stimuli, man seems to be the only creature capable of employing arbitrarily produced but conventional signals in interacting with another. This feature has for centuries, given rise to a number of fundamental questions regarding the nature of language and its relationship to reality.

Current orientation that philosophical insight is tied to an understanding of language is founded on this view that the language is a remarkable and distinctive human characteristic. It is the human capacity for cognition- the power to think, reason, and form opinion- that has positioned him as the most intelligent being. Since the only means of expressing one's thought is by language, thinkers, such as Wittgenstein, asserted that the 'limits of language means the limits of the world'. This was in response to the question whether our language determines the way we think, or whether our grooves of expression predispose us to interpret the world in certain patterns. Alland Jr. observed:

> One can think of beefsteak and how to prepare it even in the absence of hunger, and one can also think out a complex mathematical problem. The major tool for this kind of high-order is a symbol system, or language (1973, p. 207).

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[1] "Language and Philosophers" in R. D. Dagobert, 1959, p. 1187.

[2] "The Philosophical Relevance of Linguistic Theory" in J. R. Searle, 1972, p.101.

This view can be summed by drawing attention to the view of a Kenyan professional-philosopher, Ochieng-Odhiambo of the Consolata Institute of Philosophy, Nairobi, that language reflects a people's *Weltanschauung* or reality.

Another interesting perspective of the centrality of language to the analysis of reality arises out of a general acceptance of the findings of researchers in various disciplines including sociology, anthropology, psychology, and neurology. Such results have created an awareness on the part of those concerned with language that it is aspect of the total behavior of man and that his behavior, in turn, influences his language. They have also aided in raising fundamental questions concerning the interrelationships of language and thought, and those involving the nature and functions of the brain.

In this chapter, we explore Chomsky's speculations on the nature of language. In the first part we present some general conceptions of language and sketch some theories that dominate current discussions in philosophy of language. We then explicate Chomsky's notion on the nature of language and elucidate his **linguistic theory**. The issues heralded here include, among others, the aims and methodological assumptions that underlie his linguistic formulation.

The Nature of Language

A common-sense conception holds that language is a system of human expression by means of words. That is, it is the combination of meaningful sounds that humans produce and interpret when communicating with each other. According to this view, language, in a broader perspective, varies from one geographical area to another. In a narrower sense, it is understood as a system of expression confined to a particular ethnic or social group.

There is also another conception of language that is the product of a consensus of opinion of researchers in various disciplines such as, philosophy, psychology, physics etc. The

agreement that emerges from these subjects is that it is difficult to define language with such a precision as one world expect to find in specialized areas of study as in the natural sciences. Whatmough (*Language: A Modern Synthesis*, 1956) observed that though the definition of language varies according to particular subjects, the positions of their respective exponents emerge as inclusive. They bring out different aspects of the notion, which supplement instead of excluding one another. One aspect of this consensus of views language as a **means** by which human beings **communicate** with each other and by which they interpret signs, gestures, etc.

There is also the notion that language is a **system** of **symbols**. These are the structured arrangement of sounds in the formation of words, sentences and phrases. Although the selection of these signals is generally arbitrary, the resultant ties appear consistent and coherent. As Alland pointed, 'language involves an arbitrary connection between a thinkable symbol, most commonly a combination of sounds, and some object or concept':

> The sounds (g), (o), and (d) can be combined to form the word or concept "god" and the same sounds can be combined to form another word "dog". The feel that these sound combinations are arbitrary is easily demonstrated by examining the sound combinations, which stand for these words in other languages. The French, for example, the sounds (d), (j) and (O) signal "god" (*dieu*), and the sounds (š), (j), and (ε) signal "dog" (*chien*). Notice that it is not sounds alone which determine the particular concept but the order in which these sounds occur...(Alland, 1973, pp. 207-208).

Since human beings express themselves in language to maintain their social links and uphold their social structures, there is the opinion that language is a form of **social** behavior. Evidence from Anthropology suggests that "Language enables individuals to learn behavioral patters of other individuals so that successful predictions can be made about the potential actions of others in particular contexts. Through the code of language humans learn the code of behavior which anthropologists call culture. This code is also specifically human, and enables men to live and develop as members of highly differentiated cooperative groups" (Alland, 1973, p. 209-210). A Kenyan philosopher of education, G. A. Bennaars of

Kenyatta University, Nairobi, shares this view. He views language as a vital component of culture and defines it as socially standardized sounds having meaning. According to him, recent research has amassed enough evidence to indicate that higher apes like chimpanzees, gorillas, and other non- human primates have a limited capacity to learn and invent words, the bases of any language. This does not only hinder their share and preserve of knowledge, but also the possibility of cultural growth among them. It is only humans who possess this capacity. Thus, language springs as an important vehicle for the transmission of culture both from generation to generation and with the same generation.

As a means of social interaction language does not only help in the promotion of 'cooperative or even competitive activities'. It is, also, the only instrument available to man through a series of adjustable responses which 'increases the learning capacity of individuals as well a speeding up the time it takes to learn something' (Alland, 1973, p. 210). An important question generated by language-culture ties has been to discover whether varied world views and patterns of thought in a multitude of cultures depend on linguistic differences or whether the structure of culture depend on that of language, or is it vice versa?

Recent Approaches in Philosophy of Language

There are two major schools of thought characterizing philosophical speculations on language under the title **analytic philosophy**. These are logical positivism and ordinary language philosophy. Each of these schools is represented by at least two stages of advancement. Logical atomism and logical empiricism represent logical positivism while conceptual analysis and philosophical linguistics represent ordinary language philosophy.

Analytic philosophy, said to be the most striking innovation in philosophy at the start of the twentieth century, was founded on the views expressed by Bertrand Russell and Alfred North Whitehead in their monumental work *Principia Mathematica* (1910-1913). It set about to

learn from the methodology of the natural sciences stressing on the lean language of mathematics rather than observation and experiment. The task of philosophy according to Russell is to analyze every statement, stripping away the connotations and values that may appeal but do not convey precise meaning. Analytic philosophy rejected as too imprecise to merit debate most of the issues which for centuries had occupied speculations by theological and moral philosophers.

Logical positivism flourished at the University of Vienna in the 1920's. For many decades, it made a tremendous impact on conceptual trends in the development of contemporary philosophy. It was mainly espoused by youthful philosophers who met regularly under the chairmanship of Moritz Schlick to debate on the fundamental questions of philosophy and mathematics. In 1929 the gathering released their main publication, *Wissenschaftliche Weltauffassung: Der Wienner Kreis* (The Vienna Circle: Its Scientific World-Conception). In that volume, they announced as their principal aim, the unification of the special sciences and all knowledge accessible to man by employing the method of logical analysis. They portrayed traditional metaphysics especially German idealism (Hegelianism) as a relic of the past that served nothing but to engender problems of philosophy. The Circle suggested the need to eliminate metaphysical statements from natural science and mathematics.

Ordinary language philosophy is another influential movement. Also known as linguistic analysis, it maintains that the departure from everyday language creates philosophical problems that can be avoided if we do not misuse natural language. The philosophers of Cambridge University mainly advanced it in the 1950's. The most important advocates of this school were Moore, Wittgenstein and Ryle. Although the principal tenets of this school of thought abound in Wittgenstein's *Philosophical Investigations* (1953), the philosophizing of Moore and Ryle had a strong influence on the movement. Of specific importance was

Moore's "insistence on the imperviousness of common-sense knowledge to the erosion of philosophical doubt" (Crowley, 1989).

Ordinary language philosophy stressed the clarification of terms by maintaining that the crucial role of philosophy is:

> The elimination of metaphysical and skeptical paradox by attention to the actual meaning of language. A theory of meaning which found it in the use of words rather than a realm of abstract entities and a theory of mind as present rather in the overt bodily activities of men than in their more or less intractable inner feelings (Crowley, 1989, p. 334).

Wittgenstein maintained that language **functions** in a **context** and that it is only in relation to a particular environment of usage that the meaning of words can be discerned. Words are used in the light of their ordinary function and it is no longer proper to state their precision (definition of terms) in the context of a particularly formulated expression (or artificial statements). An acceptable tendency would be to **describe** how the words are used in a specific setting. Metaphysical speculations seem to engender confusion because of their illusory tendency to suggest that language function only in the same manner always.

The second and recent stage in the development of ordinary language philosophy is philosophical linguistics. It is founded on the assumptions characterizing the opinions of modern linguists. These linguists have made a daring attempt to conduct the study of language by making use of the methodology of the natural sciences. Although founded on the idea of modern linguists, the essential notions of philosophical linguists are similar to the views and steps undertaken by Moore, Russell and Wittgenstein. Searle observes that:

> Linguistic philosophy consists in the attempt to solve philosophical problems by analyzing the logical relations between words in natural languages. ...In order to solve such traditional philosophical problems as those concerning determinism, skepticism, and causation or without special regard to **traditional** problems but as an investigation of concepts for their own interest, as an inquiry into certain aspects of the world by scrutinizing the classifications and distinctions we make in the language we use to characterize or describe the world (1971, p. 1).

Some renowned exponents of linguistic philosophy are V. W. Quine, Zelling Harris, J. L. Austin, P. F. Strawson, Katz and Chomsky.

At the start of his discussion on the *Philosophical Relevance of Linguistic Theory* (1967), Katz remarks:

> Certain philosophical problems can be represented correctly as questions about the nature of language, and that, so represented, they can be solved on the basis of theoretical construction that appear in **linguistic theory** (Searle, 1971, p. 101).

Linguistic theory is a "specification of the universals of languages". The need to construct a linguistic theory that would be the basis of speculations about the nature of languages was enlivened by the inability of the influential schools in contemporary philosophy of language. These failed to provide either sufficient understanding or persuasive arguments in favor of the questions of philosophy about language.

In the preface to *The Structure of Language* (Katz and Fodor, 1964), Katz begins by epitomizing the inadequacies of both ordinary language and logical positivism. He argues that though on the one level the logical positivist approach to language passionately sought to present a "systematic theory on the way an account of language ought to be", they were "neither responsive to reasonable methodological controls nor attentive to empirical evidence about language in its theoretical constructions". Solomon Monyenye of the Philosophy Department at University of Nairobi shares this view. For him, language expresses what is real. Therefore, most artificial languages as those proposed by the positivists cannot be said to provide an equivalent of 'real'. For example, the word 'rape' has no artificial equivalent.

On the other level, ordinary language philosophy, though "it correctly concentrates on evidence from natural language and is sensitive to even subtle nuances of usage, is intrinsically incapable of providing an acceptable theory of language because of its characteristically unsystematic orientation". The task of philosophy is "to shed light on the structure of conceptual knowledge on the basis of insights into the structure of language in which such knowledge is expressed and communicated". A substantive study of language must be one that embraces a systematic theory of the structure of natural language against a

background that accurately articulates the empirical and methodological constraints upon linguistic description.

Investigations envisaged in the context of Chomsky's **transformational-generative** approach illuminate a promising line in dealing with the picturesque issues of philosophy of language. Transformational generative grammar does not only aid in the strengthening of our answers to the fundamental philosophical questions. It also gives a concrete theory that precludes the inadequacies of both logical positivism and ordinary language philosophy without unnecessarily entering into their etiolated ideas. It can resolve the essential philosophical problems about language and supplement the views of earlier philosophical schools because it embraces the "virtues of both logical positivism and ordinary language philosophy without incurring in the vices of each other":

> The virtues of formalization and theory are combined with those of realistic concern with actual languages and careful description of linguistic structure. Thus, the conception is free of the vices of disregarding the character of natural languages to erect artificial languages as prescriptions of usage, on the one hand, and on the other, of restricting linguistic analysis to informal descriptions of usage that do not uncover explanatory principles of linguistic form (Katz, 1971, pp. 184-185).

Chomsky's Conception of Language

Chomsky is neither in agreement with the interdisciplinary consensus on language nor is he at one with the framework of the two schools of the analytic orientation. To him, if we make use of scientific tools currently at our disposal in addition to our rational analyses and speculations, we will discover that language is more than the systematic employment and interpretation of voluntarily produced acoustic signals.

In conceptual and scientific contexts, language emerges as **rule-governed behavior**. This means that speech is not 'free' but is controlled by mental rules of grammar. If we observe the way children acquire language, we discover that they do not start from scratch but seem to elicit an already known outline, presumably, existing in their brain. Chomsky believes that the

human brain contains a genetically transmitted blueprint, or linguistic plan, for building language. This plan he calls a **universal grammar**. It consists of a set of abstract rules that enable a speaker to construct what he actually says. It is the system, which relates sounds with meanings, and enables one to immediately express a particular thought in speech without, initially, searching his mind for the appropriate sentences. The grammar also enable people understand the meaning.

Since the conversion of thought into speech works in a highly abstract manner through grammar, the study of language focused on this process is, in effect, the analysis of the human mind. In *Language and Mind* (1972), Chomsky pointed that 'when we study human language, we are approaching what some might call "human essence", the distinctive of qualities of mind that are, so far as we know, unique to man' (Lyons, 1977, p. 18). This is the basis of his linguistic theory- to discover the principles of universal grammar as the foundation of all languages.

Owing to this presumption Chomsky's approach seems to be at variance with that employed by the analytic schools. To him, the analytic approach fails in so far as it proposes the study of language only at the level of words and sentences with little or no regard to the nature of language at its deep or underlying level, that is, at the level of thought. A comprehensive philosophy of language does not end in the construction of an artificial language so as to dissipate the confusions arising from ordinary language. It must not also end in the analysis of the functions of language. Rather, philosophers ought to be concerned with language at a deeper or abstract level if they are to harbor any hopes of attaining an understanding of its essence since the essential properties of language seem to go beyond perceptual characteristics.

His linguistic theory is an attestation of the notion that 'philosophy of language does not have to claim that there is always a relation between linguistic structure and concepts which

give rise to philosophical problems'. It demonstrates the idea that a sound philosophy of language 'can give a qualified endorsement to the doctrine that philosophical problems are linguistic in nature' (Katz, 1971). Chomsky's linguistic theory contains, within itself, a full specification of the nature of linguistic structures.

Kolakowski (1988) corroborates this standpoint by bringing to attention the primordial task of philosophy. He charges that "philosophy has been searching for an absolute language, a language which would be perfectly transparent and convey to us reality as it 'truly' is, without adulterating it in the process of naming and describing" (p. 11). To a greater degree, the universal grammar of natural language, the system responsible for the conversion of thought into expression, seems to be the kind of 'language' that philosophy seeks.

Chomsky's Predecessors

Although man's preoccupation with language stretches back to early times, the studies that culminated in the formulation of Chomsky's linguistic theory are a product of more recent work in the field of linguistics. Two categories of research epitomize the study of language within linguistics. First, there is the **structuralist** approach mainly advanced by North American linguists in the first half of the present century, such as, Bloomfield, Sapir, and Charles Fries in the United States of America. In Europe there were the Swiss linguist de Saussure, and Trubetskoi from Russia. Other leading exponents of this school were Franz Boas, Wilhelm von Humbolt, and Zelling Harris. The second and most important category is the **transformational generative** approach inaugurated by Chomsky in 1957 with the publication of *Syntactic Structures* and developed in *Aspects of Theory of Syntax* (1965).

Structuralism is also connected in its widest sense, to various groups of linguists notably those of the **Prague School**[1]. The basic purpose of the structuralist approach to language was the wish to establish linguistics as a hard science. The structuralists thought linguistics could make an instrumental contribution to the analysis of language only in so far as it was conducted in conformity with the basic steps of science. These are: the observation of facts; the analysis of data to form a hypothetical pattern; a description of this pattern; the extrapolation of the pattern to make predictions of new, as yet unobserved, occurrences and; the testing of these predictions to determine their accuracy (Whitman, 1975, p. 3). Linguistic expressions are according to the structuralists, the basic units of language. These are sounds, words, sentences, phrases, etc.

Because these primary linguistic data occur largely in perceptual circumstances, structuralists held that language is a system whose existence can be regarded as being independent of the speaker's mind. This is in so far as 'mind' was viewed as exquisitely unobservable so that "the study of language can be conducted only so long as we pay no attention to the meaning of what is spoken" (Bloomfield, *Language,* 1933). This stemmed from the view that meaning in so far as it is intrinsically unobserved escapes our analytic grip. Accordingly, the structural linguists realize their primary goal by studying the distribution of sounds within the words of a language. Sounds are defined as either distinctive (phonemes) or variants (allophones). At the **syntactic** level (or the level of sentence), structuralism seeks to categorize words into a limited set of sentence patterns by analyzing the sequence of the word classes.

The mechanisms of a sentence are to be established by means of a procedure called **immediate constituent analysis** (ICA). The ICA involves the demarcation of the various

[1] The Prague School was a 'Linguistic tradition from the founding of Prague Linguistic Circle in 1926'. Mainly concerned with the distinctive features of sounds such as grammatical forms, stylistic variations and extra-linguistic factors as social context. Main contributors include Roman Jacobson, Trubetskoy, Isacenko, Danes, and Fribas. (Richards, 1985, pp. 225-226)

syntactic units for each sentence under examination by showing the cluster of words that form the sequence to be realized as a sentence. Thus, a sentence is said to consist of a cluster of isolated words (each with a distinctive way of pronunciation although certain sounds are produced more than once in different positions in a particular word). In turn, the words are classified as article, noun, adjective, verbs, adverb etc.

Structural linguistics was developed in order to remedy the disillusionment arising from insufficiencies characterizing the hitherto traditional approach to language. The structuralists hoped to iron out what they considered as:

> ...The literary bias of traditional grammar. That bias which derived from the fact that the earliest Western grammarians were mainly concerned with the preservation and interpretation of texts of the classical Greek (and Latin) writers, manifested itself in various ways. Scholars tended to concentrates upon the difference between speech and writing ...the spoken language was only too often regarded as an imperfect copy of the written language (Lyons, 1977, p. 18).

This prejudice, they emphasized, was the cause of failure on the part of the traditionalists "to realize that the standard language is, from historical point of view, merely that regional or social dialect which has acquired prestige and become the instrument of administration, education and literature".

Transformational-Generative Theory of Language

The inception of transformational-generative approach to language heralded a rapid revolution in linguistics and attracted a wide range of interests beyond the frontiers of the field. Relevant to this concept was Chomsky's postulation that language must be regarded as 'rule-governed behavior". An instrumental analysis of it, must be one that is preoccupied with the specific creativity and linguistic intuitions of a native speaker, that is, the ability of the native child to produce and understand quite novel sentences with such an ingenuity that does not require the slightest formal instruction. Transformational-generative grammar can therefore be contrasted with structuralist approach in the sense that it does not only

supplement structuralism by explaining the segmentation and classification of linguistic expressions. It also places emphasis on the ideas in the mind that stands for such expressions by extrapolating how connections are made between physical and abstract sentences. In order to understand transformational generative approach to language, it is necessary to go back its historical and philosophical background.

Traditional Grammar

Traditional grammar aimed at analyzing language at the level of 'standard' literary language. Traditional grammarians argued that in the light of colloquial usage, linguistic expressions (both spoken and written) appear as largely incorrect and inconsequential to the understanding of language. That is why traditional grammarians were called **prescriptivits** and their approach christened as **prescriptivism**. Traditional grammar dates back to the **Universalist** assumptions of Roger Bacon (1214-1294) that:

> There was an ideal, or universal, grammar in whose terms the rules of all particular grammars could be discussed. To many, the classical languages Greek and Latin appeared to conform best to their concept of ideal grammar. English [and all other natural languages] then, would be described in terms of Latin forms and as if subject to Latin grammatical constraints (Whitman, 1975, p. 5).

At about the medieval period, the Universalist conception was abandoned because it was thought to be incapable of explaining of all the constructions of old English. Prescriptivism was adopted as it was thought that language consists of either "good" or "bad" grammar. The basic assumption of this view is:

> A very human trait to feel that there are right and wrong ways of doing things- including speaking- and as a consequence it is fair to say that prescriptivism in grammar has been around for as long as there have been grammarians (Ibid.).

An effective opinion arising from the prescriptive contention is the commonplace and entrenched attitude that a dictionary constitutes an authoritative and noble framework for 'correct' and 'incorrect' spelling, pronunciation, or for the measurement of 'grammatical' and 'ungrammatical' expressions. Many believe that one who has mastered the methods,

processes and all the facts at the disposition of such texts as dictionaries, encyclopedias, etc., lead to fluent speaking, proficient writing, sensitive reading, or to broad understanding or unmatched ingenuity and 'reasoning'.

Taxonomic Conception of Grammar

In virtue of emphasizing only the perceptual units of language, structural linguistics can be thought of as constituting part of the **taxonomic** approach to grammar. The main aim of taxonomic grammar is:

> To construct a theory of grammar which is more general than the traditional theory- one that is appropriate for the description of all human languages and is not biased in favor of those languages which are similar in their grammatical structure to Greek and Latin (Lyons, 1977. p. 21).

Consequently, the most salient feature of language warranting serious investigation was the **duality of structure**. This is the domain of language upon which the procedure of immediate constituent analysis could be applied. The duality of language consists of the presumption that a language has "two levels of grammatical structure":

> What we may call the 'primary', or syntactic, level of analysis, at which sentences can be represented as combinations of meaningful units: we may call these **words**... and there is also a 'secondary', or phonological, level, at which sentences can be represented as combinations of units which are themselves without meaning and serve for the identification of the 'primary' units. The 'secondary' units of language are sounds or morphemes... (Lyons, pp. 22-23)

In the context of immediate constituent analysis, linguistic expressions which comprise the duality of structure, can be described without recourse to the underlying meaning. There are, however, taxonomic grammarians who incorporate the underlying meaning of sentences in their study without necessarily hampering with the taxonomic objective[1].

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[1] Kenneth Pike and Sydney Lamb are taxonomic structuralists with plenty of generative flavor. Lamb's **Stratificational** grammar is a recent theory of language. It holds that language is the mental system that its speakers use to speak and understand each other. It has various strata of analysis, each which include 'tacit patterns of arrangement such as, **phonemic**, which relates sound systems; **semimic** concerned with semantic concepts and other strata between these two. **Tagmemics** on the other hand is a theory originated by Pike. It treats language as behavior and language elements as combinations of form and meaning with three hierarchies or systems: grammatical, phonological, and lexical each with various levels or **tagmemes.** (*Longman Dictionary of Applied Linguistics.* pp. 274, 288; White, "The Revolution Spreads: Stratificational Grammar"(1969); Pike, "Tagmemics" in Laird, 1971, pp. 223-225, 235-257)

Commenting on taxonomic approach to language without mentioning in retrospect the views of Wittgenstein is to 'put the cart before the horse'. Worth noting is his retroactive "style of conceptual analysis" in the *Tractatus* (1921) according to which "we understand meaning in terms of an examination of the public features of the way speakers actually use sentences to carry on social intercourse". Also, his later philosophizing, in particular, his insistence in the *Investigations* (1953) that "an understanding of the logical features of language is not to be obtained from the theories", but from investigations that:

> Sheds light on our problems by clearing misunderstandings away. Misunderstandings concerning the use of words caused among other things, by certain analogies between the forms of expression in different regions of languages (Katz, 1976, pp. 12-13).

Taxonomic approach fails because of its incapacity to deal with all aspects of language, in particular, to the exploration of the abstractions that underlie sentence production.

Generative Approach to Grammar

A serious limitation of immediate constituent analysis was its purpose to carry out grammatical descriptions by a series of isolations and classifications of overt linguistic expressions with less or no regard to the covert factors or forms. Generative grammar followed a more or less similar fashion but Chomsky ramified it by initiating the concept of grammatical rules. This means that grammar consists of 'a finite set of rules operating upon a finite vocabulary and is capable of generating an infinite set of sentences' (Lyons, 1977). A sentence could, therefore, be produced by means of 'a series of choices made **from left to right**, meaning that when the initial element at the leftmost position has been selected, and the other 'subsequent choices are determined by the immediately preceding elements'. It was later found out that a grammar of this sort, though it was sufficient to describe 'simple-structured' sentences, it is nonetheless incapable of accounting for complex constructions

(Ibid.). It became apparent that finite state grammar deserved modification or replacement. In its stead Chomsky proposed phrase structure grammar.

Phrase Structure Grammar

Chomsky sought a discovery procedure that would be ascribed to the tenets of both immediate constituent analysis and generative grammar, but powerful to subtend their inherent difficulties. Such a procedure would become admissible to the extent that it could be formalized by means of a system of grammatical (or generative) rules operating upon the constituents of a sentence. Phrase structure grammar, thus, sought to describe the operations acting upon syntactic units such as individual words and their combinations into phrases or clauses. It spells the rules that show how a sentence is broken down into various parts (or constituents). The letter "S" symbolizes the concept 'sentence' in the context of phrase-structure grammar. In the English language, for instance, a set of rules which were believed to underlie the derivation (or construction) of "S" include:

S - NP + VP
NP - Art + N (Art: article; N: Noun)
VP - Aux. + V + Comp. (V: Verb; Comp: Complement)
Aux. - Ten + (Mod) + (Perf.) + (Prog.) (Ten: tense; Mod: modal; Perf: perfect; Prog: progressive)
Comp- (NP)
(Adj.) (Adj.: adjective; Loc.: location)
(Loc.)
Loc. - P + NP (P: preposition)
Ten - (Present)
(Past)

Lexical Rules

Art - O, Lex. (Art) (a, the...)
Lex. - (N) (boy, girl, idea, stone, school...)
V - Lex. (V) (see, be, go...)
Mod - Lex. (Mod) (will, can...)
Perf. - have + en
Prog. - be + -ing
P - Lex. (P) (to, from...)
Adj. - Lex. (Adj.) (good, happy, liquid...) (Whitman, 1971).

Lyons (1977) illustrates that these rule are in the form: X - Y where X is a single element and Y a string consisting of one or more elements where the single. (leftmost) units are to be interpreted or substituted by the array of elements on the right. This means that a sentence "S" is interpreted as consisting of a noun phrase (NP) and a verb phrase (VP). In turn the "N" comprises an article (Art) and a proper noun (N) whereas the "VP" denotes a string consisting of a verb (V), or sometimes an auxiliary (verb), and another noun-phrase (NP), or predication. Thus, a sentence such as: "The cat killed the rat", could be interpreted as consisting of a NP and a VP. The NP embraces the Article "The" and the Noun "cat". The VP comprises the Verb "killed" and an embedded NP. The embedded NP includes the Article "the" and the Noun "rat". Alternatively, one would employ what is called the **labeled bracketing** procedure. This is the operation in the form:

S - (NP + VP (V = NP))

S - (((The) (cat)) ((killed) ((the) (rat)))).

Similar to the concept of bracketing in mathematics or symbolic logic, the phrase maker notion or the labeled bracketing procedure holds that the string of elements in the bracketed areas constitute part and parcel of the initial elements on the left-hand side of the 'enclave'. Since the procedure involves the rewriting or substitution of the initial units with the strings that follow to the right, phrase structure rules have been labeled **rewrite rules**.

Transformational Grammar

At the level of grammatical analysis the theory of transformational (generative) grammar has been termed as the *piece de resistance* of all of Chomsky's formulations. Inasmuch as it suggests a positive approach of the creative aspect, it also points to the fact that language is, in essence, **innate, abstract,** and **universal**. Transformational grammar sought to

complement the ideas of phrase structure grammar with a theory that is so 'simple', yet quite potent enough to characterize all aspects and processes involved in the production and understanding of linguistic expressions. Some typical notions underlying this theory are **deep structures** and **surface structures**; **performance** and linguistic **competence**; and transformational rules.

Deep Structures and Surface Structures

Primary to the transformational orientation is the fact that a sentence has two levels of structure and structural analysis: the level of **deep structure** and that of **surface structure**. The deep structure as was defined by Chomsky, is "the abstract underlying form, which determines the meaning of the sentence". It is considered to be subsumed under the mind of a speaker or hearer, or a writer or reader, and is not open perceptual observation. Rather, this **underlying** level is the domain upon which transformational rules operate. "The semantic content of the utterance has to be traced to the deep level underlying the order of words actually uttered, which constitute the surface structure" (Passmore, 1985).

To the contrary, the surface structure is the syntactic arrangement of the physically perceived sentence. It consists of a representation of the 'physical signal' which makes up the final string of words put in a specific order to convey the subsumed meaning. Such structures are always determined by their corresponding deep organizations by means of grammatical concepts in the form of transformational rules, and by certain **phonological inputs** that determine the phonetic nature of sentences. The grammar of a particular language is, therefore, construed as 'a set of definite rules by means of which the deep-lying meaning is transformed step by step into phrases and words'. The native speaker of that particular language is said, in turn, to **know** "subconsciously the rules that constitute his grammar, and in speech he intuitively applies these rules". In the 1970's, Chomsky

abandoned the concepts of deep and surface structures in favor of **competence** and **performance** respectively. This change of terminology was thought to be:

> Partly for technical reasons but also because... he had been misunderstood, as the French Structuralists had misunderstood him, by those who supposed that 'deep' structures were 'deep' in a metaphysical sense, that the properties of surface structures were, in contrast, 'superficial, unimportant, variable across languages and so on' (Passmore, pp. 34-35).

Performance and Linguistic Competence

Deep and **surface** sentences are distinguishable by virtue of the fact that the former is an abstraction inaccessible to perceptual observation, whereas the latter can be discovered through the senses. The distinction between competence and performance follows a more or less, similar fashion. On the one hand, performance is conceived to be the real act of speaking (or writing). The basic characteristics of performance consist of motor properties that include the movements of fingers in writing. Factors that condition the formation of performance are the intention of the user, his presuppositions, cognizance of the grammar (heuristics). Competence, on the other hand, entails the unconscious or encyclopedic aspect of language, which the native-speaker is said to know implicitly. It consists of "a system of rules that relate signals to the semantic interpretation of these signals". It is within the transformational paradigm that competence emerges as the object a serious linguist's interest. In this sense it is the technical equivalence of linguistic creativity.

The basic notion of the transformational generative approach holds that the natural language is to be explained in terms of its grammar. Grammar acts as a specific **device** that accounts for the manner in which that particular language operates. It is the **form** of that language consisting of a set of certain discrete mental rules which govern the conversion of thought, for example, an intention, from its abstract form in the mind, into its physical structure as in linguistic expressions, and conversely. The principle task for the grammarian is to discover this aspect, that is, to investigate the general properties of any system of rules that

may serve as the basis for a human language. He needs to elaborate what we may call, in traditional terms, the **general form of language**. This form underlies each particular realization of natural language (Searle, 1971, p. 75).

Although he developed it in the description of language, Chomsky's differentiation between performance and competence is not wholly credited to him. This distinction is reminiscent of Ferdinand de Saussure's explanation of the difference between *la parole* and *la langue* contained in a collection of lectures which he delivered at the University of Geneva and published posthumously by his students in 1915 as *Cours de linguistique generale.* In this volume de Saussure used the term *la parole* to refer to the act of speech or speaking. He used *la langue* to refer to the pattern underlying speech- the system of sound whereas symbols common to all speakers of a language together with a particular lexical inventory, that is, language *per se*[1].

Returning to transformational grammar, we have indicated that it was initiated so as to formalize the features implicit in traditional grammars as inexplicit transformational generative grammars. Transformational theory sought to account for the processes involved in the transfer of sentences from their deep to surface structures. Transformational rules are responsible for 'mathematically', not 'causally', converting utterances from their abstract form to their physical appearances. Chomsky sought to illustrate the processes comprising transformational rules by contriving the deficiency of taxonomic approach that he hoped to remedy. He argued that as far as structural analysis concentrated on the observable syntactical units, they could be said to have attained the level of **observational adequacy**. In contrast, phrase structure grammars could be credited with **descriptive adequacy** to the extent that they endeavored to formalize the notion of immediate constituent analysis by means of certain grammatical rules operating on the grammatical constituents of sentences.

However, their inability to enumerate the correct amalgam of terminal strings generated by phrase structure rules was a serious limitation to their approach.

Furthermore, transformational grammar was believed to be so powerful that it was credited with reaching the height of **explanatory adequacy**. With its tendrils long enough to touch on perhaps all known aspects of natural languages, transformational rules did not only salvage the vicissitudes of taxonomic approach to language, but also corroborated such theories by explicitly accounting for all languages and all possible languages. Unlike phrase structure rules which were in the form X - Y, transformational rules were formulated as "X-Y/ -V, to be read as X is to be rewritten as Y in the context of W to the left and V to the right" (Lyons, 1977).

Such a formulation enabled transformational rules to be termed as **context-sensitive** rules, and hence, the notion of context-sensitive grammar. The preceding phrase structure rules were referred to as **context-free** rules, thereby the concept of context-free grammar. Since their success was vested in the capacity to address linguistic creativity, transformational rules were believed to propel grammatical analysis to the level of explanatory adequacy. This had to be achieved in so far as such rules extrapolated linguistic competence.

Pointing out that linguistic competence is the "source of creativity that makes such understanding possible", Katz supports Chomsky by remarking that:

> The way this creativity operates suggests two principles to the transformationalist. First the speaker's internalized rules must recursively generate each of the infinitely many sentences of his language, so that a new sentence...is not new in the sense of being outside the set of sentences defined function for associating the phonetic representation of acoustic signals with their meaning. Thus, ...operating in the generation of sentences, that makes immediate understanding of new sentences possible (Katz, 1971, pp. 52-53).

Transformational-generative approach to language is hinged to the view that the grammar of a particular language consists of three significant parts: the **syntactic component**, the **phonological component** and the **semantic component**. The syntactic component is the

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[1] Liljelbald, S., "A Primitive Language?" (previously a Sigma Xi lecture at Idaho State University) in Laird and Gorrell., 1971, p.

most important aspect of linguistic creativity. It is the one we are primarily concerned with in this work. The other two segments, despite being relevant in their own respects are conceived as comprising corroborative parts of the syntactic component.

As the central part of language, the syntactic component is divided into a **base** component and a transformational component. The base consists of a set of phrase structure rules together with a list of the vocabulary of a language (or the **lexicon**). The transformational component is made up of a cluster of transformational rules that regulate the generation of the base structure into a real (perceivable) sentence. In this process the phonological component supplies the sentence with the phonetic interpretation (sounds and their pronunciations). At the same time the semantic constituent furnishes the sentence with its meaning. Thus, for the syntax of a language, a transformational generative grammar will establish the means by which acoustic signals and their corresponding meanings are reconstructed by the pairings of phonetic and semantic interpretations.

The transformational rules that assign functions to the respective members of the syntactic component of a sentence are many. Each operates in a specified manner. Some of these rules are **obligatory** in the sense that in their operations, they condition the rearrangement of the lexical constituents of a particular sentence, or carry out some deletions, or replace (substitute) certain constituents with a number of other constituents. Another set of these rules performs such operations in an **optional** way. Transformational rules operate on all languages mediating between the abstractions and the corresponding physical sentences. In the English language, for instance, transformational grammarians identify four broad perspectives of such operations. Our aim in this chapter is not to study the transformational grammar of the English language. Hence, we mention English transformations only as a way of illustration. The four categories that comprise all possible

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transformational rules in English are: operations that may occur with simple deep structures (that is deep structures with no embedded or conjoined sentence nodes); operations that are involved with modifying sentences; operations that are involved with nominalizing sentences; and operations that are involved with conjoined sentences.

To illustrate further, we give a case in point of the operations that involve deep structures as exemplified by Jacobs and Rosenbaum (1971). Contrasted with phrase structure operations, transformational rules that are responsible for the re-arrangement of constituents may be as follows: Consider a sentence as 'A tall philosopher denounced the behavioral psychologists'. This sentence could be translated as consisting of a NP and a VP where the NP comprise the Article "A", the adjective "tall", and the Noun "philosopher". The VP contains the Verb "denounce" (in past tense form "denounced") and an embedded NP. The buried NP include a Determiner (or Article) "the", another adjective "behavioral" and the Noun "psychologist".

A case of the **application of transformational rules** for the same sentence if made in the Passive form would be as follows: The sentence "the behavioral psychologist was denounced by a tall philosopher" can be interpreted as consisting of a NP, an Auxiliary, and a VP. The NP embodies a Determiner "the", an Adjective "behavioral', and the Noun "psychologist". The VP contains the Verb denounced in past tense form "denounced" and a Prepositional phrase (PP). These two phrases NP and VP are joined by the (Modal) Auxiliary "was". The PP embedded in the VP is made up of a Preposition "by" and another NP. This second NP which is subsumed in the VP contains a Determiner "a", another Adjective "tall", and the Noun "philosopher". In this case, we have an action where the original sentence as in the first example above is changed from an **active** to a **passive** form. *Passive* transformational rules accounts for the alteration of the sentence so that certain constituents are re-arranged to occupy various positions in contrast to the original form. The **subject** of

the first sentence has been re-arranged to become the **object** of the passive second sentence. In other words, the cluster of words constituting the first "NP" of the former sentence has been changed via transformational rules to become the array of elements that comprise second "NP" in the latter sentence. Nevertheless, in sentences, the intention and "idea" of the speaker (or writer) and subsequently the hearer (or reader) is retained. This way, a transformational-generative grammar achieves explanatory adequacy. It explains how sentences that would otherwise appear distinct in their surface level are nonetheless connected in their deep level (or the level of meaning).

In the same vein, transformational rules show how structures that are similar at their surface levels become distinguishable at their underlying levels and vice versa. In the history of the study of language, transformation approach is not wholly novel. Chomsky has pointed out that his theory of language should be viewed in the context of the **rationalist** tradition in philosophy. In particular, it should be considered against the background of the conventional phrase that "language is a (best) mirror of the mind" (Chomsky, 1986).

At the level of grammatical analysis, Chomsky's linguistic theory has not only revived the rationalist orientation of Descartes and Leibniz. It has also revitalized the primary conceptions of the *Port-Royal Grammar* of the seventeenth century written by Claude Lancelot and Antoine Arnauld (*Grammaire generale et raisonnee,* 1660). The insights brought out by the views of the grammarians of *Port Royal* are contained in the explanation that a sentence such as: "Invisible God created the visible word", has two levels of examination. There is the surface structure that is made up by three simple phrases and another structure that consists of a cluster of phrases and individual words that make up the surface arrangement. Hence, the sentence is automatically divisible into three simple phrases:

1) "God is invisible";
2) "God created the world" and;
3) "The world is visible".

Katz sums the views of the *Port Royal* grammarians as follows:

> The sentences: (1) God is invisible and (2) the world is visible, ...are frequently in the mind, without being expressed, as in the above example. But sometimes they are distinctly marked, and therein consists the use of the relative: as when I reduce the said example to these terms: "God who is invisible created the world which is visible. "The property therefore of the relative consists in this, that the proposition, into which it enters, shall constitute a part of the subject, or the attribute predicate of another position (Katz, 1971, p. 48).

Transformational generative approach has also been inspired, in the past several decades by various conceptual positions. Chomsky's differentiation of performance and competence is analogous to de Saussure's distinction of la *parole* and la *langue*. Harris also inspired him. Of particular significance is Postal's (*Limitation of Phrase Structure Grammars*) comment that:

> Suffice it to say that consideration of these limitations on the part of phrase structure led Chomsky, building on insights of Z. S. Harris, to the formulation of a new conception of grammatical theory in which phrase structure rules were supplemented by new, more powerful devices called transformations (Fodor and Katz, 1975, p. 145).

Other names mentioned include those of the German mathematicians, Humbolt and Frege. There are also the empiricists, Russell, Goodman and Quine. An interesting feature about the basic idea of these philosophers is their admission of the fact that humans possess certain abstract characteristics which lie beyond the scope of experience, not the result of our perception, but which are such that experience will confirm. These are (innate) principles such as the quality of space, the principles that underlie induction, ostension, and the regularities that set the mind in motion (Chomsky, 1971).

CHAPTER FOUR

CHOMSKY'S ACCOUNT OF MIND

> But the nature of the human mind, and of its relation to the body and to the whole natural order of physical things, is independently a source of puzzlement, and always stands in need of explanation.
> **Stuart Hampshire**[1]

> But human cognitive systems, when seriously investigated, prove to be no less marvelous and intricate than the physical structures that develop in the life of the organism.
> **Noam Chomsky**[2]

Preliminary Remarks

The philosophy of mind has witnessed a remarkable transformation in recent times. Whereas traditional theories about the relationship between body and mind were formulated and advanced in purely speculative situations, today's approaches have not only been conceptual but are also scientific. Recent work in various sciences, particularly, studies by brain scientists in the areas of psychology, neuro-physiology and microbiology, have produced immense evidence in support of this view. Studies conducted in exploring the operations of human neurological make-up are conducted with the hope that brains have structures that may shed some light on the nature and functioning of the mind. Hodgson (1991) outlines the major concerns of current brain sciences:

> Psychology: concerning the operation of human perception, feeling, and behavior; neurophysiology: concerning the pattern, connections, structure, and functioning of the neurons of the brain, and the relationship of this to various aspects of sensation, perception, emotion, thinking and action; microbiology: concerning the details of transmission of signals within the brain; ...the genetic code, and its contribution to the development and functioning of human beings (pp. 3-4).

Similarly, researchers in artificial intelligence are preoccupied with the study of programmed machines, such as computers, hoping that these kinds of instruments exhibit certain cognitive abilities which could serve as useful models of minds. Leiber (1975) emphasizes:

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[1] Hampshire, 1966, p.3

[2] Chomsky, 1975, p. 10

> It is only through software automata theory, through attempts to build and understand thinking what sort of software capacities he internalized... To a large degree man came to understand the physiology of his body not through studying animals, but through comparing aspects of his body to manufactured devices that he found familiar and explicable. (p. 144).

It can be claimed, however, that despite the interesting discussions and approaches generated by these sciences, the resultant theories have not yielded dependable answers to the mind-body problem. The question is still as vivid as seventeenth and eighteenth century rationalists posed it. Nevertheless, an examination of Chomsky's contribution to the subject reveals that a satisfactory answer is not utterly remote. Such an answer depends on the kind of frame of approach is adopted. According to Chomsky, investigations that have been conducted within the paradigm upon which transformational generative grammar was initiated have attained a meaningful level of success. He argues that such studies hold a much promising approach for the future.

The following chapter addresses Chomsky's response to the mind-body problem. The first part outlines some of the approaches that currently dominate the philosophy of mind. The next section focuses on Chomsky's notion on the nature of the mind. Explicated in this part is his concept of person and a possible model of the mind. The third part focuses on the relevance of such a model to questions about the origins of knowledge.

Current Approaches in Philosophy of Mind

The entry of Ryle's *Concept of Mind* in 1949 marked the dawn of a new era in the philosophy of mind. His inception of the idea of **category mistake** did not only pose one of the most gallant challenges to traditional philosophical theories, but also made great impact on the field by introducing exciting polemics on the mind-body issue. The effect of such discussions was to draw the attention of researchers in areas alien to philosophy. For the first time physical scientists, linguists, anthropologists and others embarked on investigating mind-body relations, a hitherto philosophical problem, as an important area of their inquiry. This

prompted Flew (1964) to remark that "questions about the relations, or lack of relations, between body and mind nowadays arise perhaps most typically in scientific contexts".

Again, current approaches advocate the fusion of Rylean-based linguistic **analysis** with empirical presuppositions in the domain of psychology or brain science. According to Dennett (*Current Issues in the Philosophy of Mind,* 1978), the argument for this fusion is:

> The philosopher of mind had three choices: abandon philosophy and pursue empirical theories, in the domain of psychology and brain science, abandon theory and settle for the modest illuminations and confusion-cures of purely linguistic analysis, or become a sort of meta-theorist, a conceptual critic of the empirical theories advanced by the relevant sciences (Cole et al, 1990, pp. 51-52).

The naturalistic approaches to mind were developed in response to Dennett's third choice. It is in terms of this selection that philosophers of mind were compelled to widen their scope and take keen interest in the data of psychology, the brain sciences, artificial intelligence and linguistics. Chomsky's strategic blend that characterizes his linguistic theory has been lauded as a reliable paradigm of this enterprise (see chapter 2).

Three approaches dominate the philosophy of mind in modern times. Firstly, there is the **ordinary language approach** that is founded on Ryle's diatribe against Cartesian heritage in philosophy. According to this view, all problems in philosophy of mind, problems initiated by Cartesian distinction between body and mind and the respective attempts to establish any links between these two substances, evaporate under **linguistic analysis**. Because of its affinity to the behaviorist psychology the tacit theory of ordinary language approach has been labeled **logical behaviorism**. Behaviorists argue that the study of human behavior is incomplete and unsatisfactory without reference to reasons, intentions, desires, beliefs, purposes etc. These dispositions are, to the logical behaviorist, the most important aspects in terms of which the human mind could be analyzed. We gain access to them only through the adverbial descriptions of various sorts of our action.

The second assertive area is the **identity theory of the mind**. Sometimes called **central state materialism**, the theory holds that "mental events are identical with physical occurrences within an origination's central nervous system or brain". It is deemed as perhaps an important "requisite conceptual foundation for a purely physicalistic or materialistic science of the mind" (Dennett, 1978). The theory is also pegged to the idea that it makes sense to assert that the characteristics of impressions and images pertaining to external senses as well as sensations and feelings are identical with those of the brain states, presumably, responsible for them. To Richard Rorty (*Mind-Body Identity, Privacy, and Categories*) the analogy is such that "empirical inquiry will discover that sensations (not thoughts) are identical with certain brain processes" (Hampshire, 1966, p. 8).

Difficulties arising from these two approaches led to the adoption of the third theory, namely, **functionalism** (Dennett, 1978). As he remarks, there are limitations to ordinary language approach that can be attested. First, there is the view that "a great deal of researches into ordinary idiom failed to produce anything more important or enlightening than on intense appreciation for the subtlety of English expression". Secondly, the tendency by such philosophers as Strawson and Shaffer to evince theory in the course of conceptual analysis had the effect of squandering the usefulness of language. Drawing attention to his revelation that can sum these limitations:

> The study of mind was the study of (ordinary) mental **concepts**, and since these had ordinary behavioral criteria of application, once these criteria had been adumbrated by philosophers, there was nothing left to do (Cole et al, 1990, p. 54).

As for the identity theory of the mind, Dennett observes that, as in the case of linguistic analysis, it seems to have been instituted on a weak logical background.[1] He refers to them as difficulties arising from Liebniz's law, problems about generalization, and abstract logical puzzles about identity relation. In the main, they are conceptual problems that call in

[1] From a large literature, Dennett identifies three main limitations of identity theory (Cole et al, pp. 54-59).

question the ascription of the nature of mental state vis-à-vis the nature of brain states. They arise from the distinctions between what has been termed as **type identity** and **token identity**. Critics of the identity thesis contend that as long as the theory seeks to explain, in somewhat empirical terms, the identities between external objects of perception such as images, impressions, etc., and the matching brain-processes it can certainly be said to be plausible. This is what has been referred to as type identity. As for token identity, it seems difficult to pose or propose any tangible empirical connections between mental states such as, consciousness, emotions, dispositions, etc., with their related brain-processes. That is to say, how do you establish that, for example, a particular disposition "A" (as happiness) is identical or analogous with a corresponding brain state "B" (happiness), or vice versa?

Another critic of the identity theory, Wilfrid Sellars (*The Identity Approach to the Mind-Body Problem*) addressed this problem. He argued that in the sense which Feigl, the founder of the theory, seem to have construed it, it "does not simply mean that the very same logical subjects which have 'raw feels' [e.g. sensations] characteristics, also have 'brain state' characteristics. Rather, the very characteristics themselves are identical" (Hampshire, 1966). It makes no sense to talk of the nature of, say, sensations in contrast to that of the accompanying brain states, as they are one and the same. This answer, nevertheless, engenders a further difficulty of conceptual nature: Is it plausible to remark that there is always a distinction between mental items in relation to space and time? If so, on what basis can such distinctions be established? If not, how come we always talk of them as different? Is this because we regard them that way according to their **causal roles**, **logical relations**, or **functional roles**?

These are some of the difficulties that permitted the formulation of **functionalism,** not as an alternative to the identity theory, but as an explanatory ingredient of the picturesque naturalistic approach of today. In support of functionalism, Dennett comments:

> As the differences between these three views [i.e. causal, logical, and functional relations] have been sorted out, and deficiencies noted and corrected, a single widely shared view has emerged

called **functionalism:** mental sates are functional states, that is, states individuated by their functional role within the whole system (Cole et al, p. 61).

Central to functionalism is the idea of form and that of **multiple-instantiation** initiated by Hilary Putnam (Beakley and Ludlow, 1992). The functionalist thinks that the identity theorist's characterization of psychological states as identical with some neurological states is quite unwarranted. Putnam argues that the same way it is difficult to characterize a particular psychological state, say a disposition, as a correlating brain state in the manner the token identity theorist argues, we cannot pretend to propose that type identity is sufficient. His claim is that mental states are functional states and are distinct from brain states. They consist of the **form** of the organism, a class of structurally identical states that can be realized in different ways. Functionalism bears striking similarity to Aristotle's notion of the formula of the soul according to which the soul is only realized in material substances such as bones, muscles, etc. It is a mistake to suppose that since soul or form is realized in the body, both are identical. In the same, it is senseless to say that a word inscribed on a paper is the same as the paper itself.

Chomsky's philosophy of mind is typically functionalist. Linguistic competence is, by analogy, the form of language. Its overt realization is performance. When we set out to construct performance models to account for the transformation of thought in expression and vice versa, we are, in effect, building explanatory procedure for discovering the nature of competence as a functional state that initiates various forms of performance. In drawing from Chomsky's position, functional states consist of a set of regularities, that is, the rules of universal grammar, whose role is to permit the processing of competence into performance. As Bechtel remarks (*The Functional Architecture of the Mind*), the regularities are such that "they are not the same as, or the sum of the neural processes operating in the individual brain

mechanism". They "cannot be eliminated in a complete science of the mind" as the identity theorist may want to suggest (Cole et al, 1990, p. 370).

The potency of functionalism is such that it permits the construction of conceptual inroads in the study of mind-brain connections. It is in terms of this that "highly abstract constraints and difficulties are to be explored without worrying about the mechanics and the biochemistry of concrete 'realizations' in the head while maintaining the fundamental physicalistic constraint that ones functionally described systems be somehow physically realizable" (Ibid.). Hence, functionalism does not attempt to reduce mental states into brain states. Also, it does not seek to explore the connections of such states in empirical terms. Rather, it is concerned with the psychological basis for linguistic expressions. Central to functionalism is the question of how neural processes constitute cognitive operations.

Chomsky and the Concept of Person

The philosophical **concept of person** is an important notion in terms of which Chomsky's commitment to functionalism can be based. Stretching back to Platonic times, this is a metaphysical construct that seeks to determine the essence of the human person as a prelude to gaining insight in the nature of the world. Determining the essence of the person is important because this nature defines man as a remarkable and distinctive being. As Solomon Monyenye of the University of Nairobi paints, a person is the being that has an 'entity and a distinctive mind'. Ochieng-Odhiambo of the Consolata Institute of Philosophy, Nairobi, defines a person as the being that is '(potentially) deliberative, conscious and moral'. The abstractive aspect of this being is what some refer to as the soul. Bennaars of Kenyatta University, Nairobi, upholds the view that the concept person refers to the being that exhibits certain qualities of total behavior, (organized behavior). Such qualities include the perceptual,

emotional, and motivational systems that determine man's unique response to his environment.

In Platonic philosophy the person was viewed as essentially a **composite being** made up of two distinct substances: the familiar corporeal element, the **body,** and something different in kind, the incorporeal **soul**. Monyenye refers to the soul as the definition for a kind of consciousness of a person's self-image of immortality. In subsequent philosophy, the soul was understood to be the **mind**. Descartes contrived the mind-body problem with a view of establishing links between the two basic substances. However, the scientific tradition triggered by the inception of the doctrine of empiricism in the eighteenth century rejected the distinctions supposed by Plato and explained by Descartes.

According to Hobbes, an exponent of empiricism, the nature of the person, and subsequently that of the world, could be characterized in the context of the theory of metaphysical materialism. This was the mechanical conception of nature that held that the world was no more than a conglomeration of physical substance and, hence, it could only be described by recourse to mechanistic analogies. That is, we could only attain an understanding of the nature of the universe by addressing the dimensions of magnitude according to which it is dependent, such as, length, breadth, depth etc.

The acceptance of this persuasion had further ramifications. Darwin's discoveries of the origin and development of species were advanced under the inclination that the world is basically an aggregate of tiny material substances or organisms. In drawing from this conception it can be claimed that, with the advancement of technology, fresh innovations will continue supplying scientists with even more powerful instruments and techniques for exploring the character and functions of natural organisms. In effect, if the materialist conception is discovered as an appropriate and plausible basis for further scientific progress, its inception may help in uncovering the most basic and hitherto unknown constituents of

the world. This is also the motivation for recent research in the electrochemical structure of the human nervous system.

Chomsky is of this persuasion. He claims that science has reliable tools for investigation. He is also contented with materialistic conception of nature, in particular the organic doctrine of the world. His concept of person rests on the belief that since man is considered the core of the world his nature is also the point of departure in the analysis of the world. Further, since human cognitive systems are no less intricate than his physical structure, then there is nothing bizarre if we investigated man's basic structure, including the essence of his mind, the same way we study the physical structures or organisms around us. Even if we end in discovering an immaterial existence, our understanding the nature of that world will depend on how we have successfully accounted for our materialist existence with the aid of the scientific and theoretical tools currently at our disposal.

As for the mind-body problem, he points that the rationalists of seventeenth and eighteenth century had a fair ground for initiating and characterizing mind-body connections because they had a fairly fixed and definite conception of the elements they were discussing. However, their ground has been shaken. The revision of Cartesian concept of body by Newtonian physics and the subsequent violation of Newton's gravitational doctrine by twentieth century discovery of magnetism evinces this point. So long as our notion of physical body is bound to change under the influence of new scientific findings, any attempt to approach the substance as if it were an inflexible element is a precarious enterprise. He argues that we require first; to discover genuine explanatory theories and use these discoveries to facilitate inquiry into physical mechanisms with the properties outlined in these theories (Beakley et al, 1992, p. 49). Chomsky's view our notion of the body echoes the sentiments of Monyenye according to which our hope of posing a proper conception of the nature of the

human person depends upon our definition of the concept as hinged on what we presently know.

This claim has wider implications for current approaches in the philosophy of mind. It elucidates that for either the identity theory of mind or for functionalism, even though they are filled with the picturesque naturalistic attitude of our time, to resolve the perennial mind-body question, their proponents must consider the fact that there is no definite conception of the physical body as yet. This can be illustrated, further, by drawing attention to Patricia Kitcher (*Two Versions of the Identity Theory*) comments on the deficiencies of eighteenth century kinetic theories and the difficulty arising from Wegener's thesis on drifting continents:

> The weakness of Wegener's theory of continental drift showed that no sophisticated theory of continental drift could be right, or the short- comings of eighteenth century Kinetic theories of heat showed that heat could not be explained by a more sophisticated Kinetic theory (Cole at al, 1990, p. 358).

Kitcher, nevertheless, departs from Chomsky's point when she concludes that it is unwarranted to make "straightforward extrapolation from the failings of early versions of a theory to the inevitable failure of later versions". Note that Chomsky, as we understand him, does not imply Kitcher's observation when he claims that we presently do not have at our disposal fixed notion of the material world. He seems to emphasize the precarious foundation on which our theories would be erected if we conducted our analyses without a definite idea about the nature of the entity that we are investigating.

A discovery procedure pivoted on Chomsky's claim cannot be attained without recourse to the fundamental properties of the human organism. These properties, because of their inflexible nature, cannot be subject to theoretical or scientific revision. If we adequately formulate a strategy for exploring and explaining the distinguishing features and principles of mankind, in brief the **faculty of intelligence**, then we shall have successfully advanced the framework for explaining both man's mental and physical attributes. This strategy may mark an important step in circumventing the perennial mind-body problem:

> We shall be studying the properties of the material world at a level of abstraction at which we believe, rightly or wrongly, that a genuine explanatory theory can be constructed, a theory that provides genuine insight into the nature of the phenomena that concerns us (Beakley and Ludlow, 1992, p. 48).

This claim can further be elaborated by drawing attention to the **psychological theory of reference** advanced by Kitcher in her attempt to blend the positive sides of both identity theory and functionalism:

> Many philosophers and psychologists believe that human behavior will never be explained in neurophysiological terms, either by laymen or experts... Philosophers and psychologists of this persuasion would wish to claim that, in using mental terms, we are referring to states which are best understood as psychological states... the claim is that psychological description is more perspicuous than any physical characterization...it is possible to see how it could be reasonable to claim that mental terms refer to presently unknown physiological states (Cole et al, p. 355).

Thus, in characterizing the faculty of intelligence, it can be drawn from Chomsky's as well as Kitcher, that we shall be providing useful insights into the nature and functioning of the human mind- the complex system to which the faculty of language belongs.

The whole point of this claim is the supposition that body (or matter) is potentially mind. It is bound to remain so until someone or some science formulates an inflexible conception of body. It is important to note, however, that this point does not, undermine the upsurge of the naturalistic attitude of our time. What is explained is that science, in particular, the theory of evolution by natural selection, has amassed evidence in support of the view that mind, just as matter or body, is a primordial substance. The distinction is that whereas the notion of mind has always been primarily fixed, the conception of body has always proved to be extremely volatile.

Nonetheless, the empirical procedure which led to the discovery of the nature of body in the seventeenth and eighteenth centuries, and which made it possible for the formulation of new conceptions of body in subsequent periods, is a useful methodology for searching the distinctive features of the mind. Body, thus, is important because its present nature permit the building of elucidatory theories in terms of which the mind can be characterized.

Chomsky on the Nature of the Human Mind

Chomsky is of the persuasion that the origin and development of the human mind is analogous to that of the physical world. This means that our physical as well as our mental structures and processes are hinged on certain genetically determined program. Our physical growth is governed by certain biological attributes that unfold under the triggering and controlling effect of the environment. The same way our mental structures are dependent on some genetic endowment that develop in the human person under the triggering effect of experience. Evidence available to us, particularly the proofs set for by (Darwin's) doctrine of evolution by natural selection, suggest that "the cognitive, intellectual aspects of human life are as much as part of our biology as the physiological, anatomical aspects" (Sampson, *Chomsky* in Roland, 1987, p. 157).

The implications for this conclusion evince the commonplace conception of mankind as a product of genetic heritage. For example, one cannot choose to be dark or light skinned if he was born otherwise. Such traits are termed natural. It is owing to species specific constraints that human beings have come to acquire the special features and functions that they portray. Chomsky (*Language: Chomsky's Theory*) observes that "were this not so each individual would grow in some kind of amoeboid creature, merely reflecting external contingencies, utterly impoverished, and lacking special structures that make human existence possible" (Gregory, 1987, p. 419).

Chomsky believes that the evidence from the various biological sciences, which demonstrate that our mental as well as our physical growth is regulated by genetic attributes accounts for a noticeable uniformity of the structures of thought. Except in cases of brain disorders such as aphasic states, madness, various forms of mental breakdown, etc., the way sense perception operates if generally presumed to be universal in humans. Habitually, the manner in which we perceive distinct colors, different smells, or an assortment of tastes is the

same. Likewise our sensations as pains, calmness, happiness, emotions and dispositions often occur, or are registered in a, more or less, similar fashion. If there are any differences of these states or sensations to be cited, they are always trivial in comparison to their resemblance. These similarities can be ascribed to unique capacities and characteristics of the human mind.

The growth and maturation of such special mental organs including systems of belief are "those that the mind as a biological structure, is designed to construct". This view is also shared by Bennaars of Kenyatta University, Nairobi. He affirms that language is a vital component of the human mind and that the mind facilitates cultural growth. To him, language does not only sustain the capacity to learn and to invent words, but also to share and to preserve knowledge.

There are various intellectual systems that Chomsky provides in support of his doctrine of genetic determination of cognition:

> Our capacity to organize visual space or to deal with abstract properties of the number system, or to comprehend and appreciate certain kinds of musical creation, or our ability to make sense of the social structures in which we play role (Gil, *On the Scope of Grammatical Theory* in Modgil et al, 1987, p. 119).

He maintains that, in essence, these capacities form part of the human **science-forming faculty**. This faculty "permits the construction of intelligible explanatory theories on weak and limited evidence in at least some domains of thought". This means that the conception of such abilities does not rely on experience. Similarly, experience has nothing to do with our conception of space or our ability to make of say, mathematical constructions such as the potential to perform addition. External factors are insignificant in the formation of moral principles, for example, our resentment of incest, or our incessant desire for the good, for happiness, justice etc., depend quite minimally on experience. As far as he is concerned, "we live in a world of shared understanding that extends far beyond the limited experience that evokes cognitive structures in the mind". Thus, these structures are unique, not only in the

sense of being universal in all humans, but also to the extent that they are **innate**. They are part of what may be regarded as the essence of the human mind. They are not the only inborn structures that humans own. There are also other faculties such as **memory** and **language**, among others.

The Linguistic Model of Mind

Going by the theory of biological determination of cognition, the mind can be considered as a matrix of discrete mechanisms that operate in very specialized manner in the formation of human intelligence. Among the structures of 'marvelous intricacy' which seems to enter in determining the nature of the mind is the language faculty. In contrast to other cognitive domains, the forte of language appears to be the only system that possess quite overt and well-articulated aspects, which can be open and subjected to empirical inquiry.

Empirical investigations on the properties of the human language aptitude are founded on certain assumptions. They seek to establish the hypothesis that the pace at which children exhibit their ability to use language effectively confirms the view that linguistic prowess is innate. They also attempt to ascertain the notion that language is a highly abstract phenomenon whose realization is permitted by primitive mental rules of grammar.

Certain idealizations go with these hypotheses. Okoth-Okombo of the Kenyan Sign Language Project, contends that mental activity consist of fitting together different concepts to find combinations which make our imaginations and perceptions sensible. Olela and Ochieng-Odhiambo who conceive thought as involving the relation of 'terms', 'ideas', and 'concepts' share this view. They believe, further, that although their relation is not precisely defined, there is a necessary connection between the mind and language, that is, both are complementary. If this is true, then language arise as an important mechanism, available for the human being, for the juxtaposition of such mental categories. This is not only because

language is an implicit instance of the mind. As a mental attribute permitted by the universal grammar it must be thought, therefore, that there is some property of mind that permits the faculty of language to function in a uniform manner in all humans. Hence, we conclude that the element of mind described by the mental rules of grammar, is, biologically, a primordial characteristic common to all humans. A universal grammar is, in essence, the "theory of innate mechanisms that provides a framework within which the growth of language proceeds" (Chomsky, *On the Biological Basis of Language Capacities*). To Chomsky, the way the language faculty grows and the form in which it dawns as an aspect of the mental system can be summed:

> We may suppose that there is a fixed genetically determined initial state of mind, common to all species with at most minor variation apart from pathology. The mind passes through a sequence of states under the boundary conditions set by experience achieving finally a "steady state" at relatively fixed age, a state that changes only in marginal ways. The basic property of this initial state is that, given experience, it develops to the steady state...the grammar of a language that has grown in the mind is a partial characterization of the steady state attained (Miller and Lenneberg, 1981, pp. 200-201).

Correspondingly, the language faculty is a distinctive system of the mind with an initial state attributed to genetic endowment and a final state graphed out by the effect of experience, that is, a particular linguistic environment.

Universal grammar is, therefore, a template that charts the transformation from an initial state to the acquired grammar of a specified natural language. The template is itself modular in that it consist of a range of computational processes in form of transformational rules. These are responsible for translation of thought into linguistic expression and permit the construction of the syntax of language. The linguistic model based on this claim is, in effect, a representational, computational, system. It is reminiscent of Fodor's **Representational Theory of Mind** (RTM) that:

> Each cognitive mechanism has a number of input system e.g. visual, audio, and by claim the language faculty, whose task is to map any incoming information from its physical form into representation in the language of thought in which form it can then interact with information either stored in memory or retrieved from other input systems (Kempson, 1988, p. 5).

Fodor's point is that any natural language in its initial state is essentially representational. Its acquisition is only made possible through some abstract computational processes. The linguistic compilations are such that they are part of the initial language and not the language subsequently learned. This means that a child, for example, gains linguistic competence by extrapolating from some internalized computations that permit the construction of the representational system.

Transformational rules are, therefore, part of cognitive structures which, in interacting with other mental systems, contribute to the formation of intelligence. Since cognitive structures are richly abstract it follows that the representations between them have to be accounted for in terms of the formal, syntactic properties of the language faculty. Chomsky sums this by observing:

> The mind employs certain primitive operations to interpret some of the data presented to it as linguistic experience, then selects among the languages consistent with this experience in accordance with an evaluation metric that assigns an abstract value to each language. The initial state of the language faulty" incorporates the primitive operations, the format for possible rule systems and the evaluation metric (Chomsky, 1986, p. 52).

The linguistic model of mind is, in essence, the outcome of a rationalist conception that focuses on the overt formal, syntactical elements of language. These overt elements reflect the covert operations of the mind. Monyenye's opinion that 'language is like a screen that reflects what is inside the mind' and that the picture in the screen is the same as that inside because they come from a similar source resound this. The linguistic model is rationalist in the sense that it supports and gives credence to the rationalist's notion that humans are born with innate principles in the mind. It corroborates, in particular, Descartes' claim that there are certain human thoughts which are neither the outcome external objects nor determined by will, but which came into being solely from the power of thinking. These thoughts constitute the central principles in the organization of perception and learning.

Acquisition of Knowledge

> Many paradoxes are associated with knowledge creation. Those which are related to language are probably the most difficult, but also the most interesting.
> **Antoine Danchin**[1]

Questions concerning the nature and acquisition of knowledge are, in philosophy, typified by the classical controversy between rationalism and empiricism. Rationalism is the doctrine that accepting reason as the primary role in explanation fundamentally leads to the discovery that there exists a priori knowledge. This is knowledge that has been innately implanted in all humans prior to experience. It constitutes a supra-sensible world that is the object of a purely intellectual intuition and that this world alone is wholly real. Its principle proponents were the seventeenth century thinkers, Descartes and Leibniz.

In his search for certain and indubitable truth, Descartes discovered that humans possess specific thoughts which are neither the outcome of external objects. Nor are they determined by the will, but are solely the product of intrinsic power of thinking. These thoughts are, for example, common notions such as the idea of pain, color, sound, the natural powers that enable us to claim the existence of a super-natural being or God, etc. Leibniz (*New Essays*) observed that "there are some ideas and some principles which do not come to us from the senses, and which we find in ourselves without forming them, though the senses give us the occasion to perceive them" (Harris, *Leibniz and Locke on Innate Ideas* in Tipton, 1977, p. 26). Examples of such ideas are all necessary truths, the idea of God, of identity and possibility, and geometrical figures. In forming these ideas, the mind acts, in a metaphorical way, as a block of marble or wax which although seems wholly plain, have some 'veins' or 'faults'. These veins can certainly be curved out to reveal the figure of, say, Hercules. It is, therefore, quite reasonable to suppose that the figure of Hercules is 'innately' engraved in the block. What is required for the realization of that figure is the cutting away of 'undesired' parts which prevents it from appearing.

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[1] *Biological Foundations of Language* in Modgil et al., 1987, p. 29)

By analogy, the human mind possess specific intrinsic forms that only need the occasion of experience, just as the figure of Hercules require the occasion of chopping and cutting to facilitate its appearance. Leibniz concluded that "it is such ideas and truth that, are for us innate, as inclinations, dispositions, habits, or natural potentialities, and not as actions" (Ibid.).

Empiricism, to the contrary, is the doctrine that denies the possibility of a supra-sensible world. Dismissing as nonsensical the descriptions given by the rationalists of a priori existence, the empiricists maintain that knowledge is derived from sense perception and hence grounded in experience and observation. The early exponents of this opinion were the British philosophers, Locke and Berkeley. Locke claimed that the entire philosophical enterprise risked drifting in total fantasy if the doctrine of innate ideas received acceptance. To him, the human mind is a blank tablet at birth or as he termed it, a *tabula rasa.* This means that humans are born in total ignorance and that 'they manage to acquire knowledge from two great fountains: sensation and reflection, where sensation refers to the various impressions received through stimulation of the sense organs; and reflection to the process where the mind ponders over its own operations'. On his part, Berkeley claimed that nothing could be said to exist unless the senses apprehended it. In his famous dictum, which maintains the primacy of experience in the acquisition of knowledge, he asserted *esse est percipi.* This means "to be is to be perceived".

In modern times the assumptions of empiricists have been strongly echoed by the logical positivists, especially in the nineteenth century and behaviorists more recently. The main proponents of behaviorism such as Skinner and Bloomfield held strongly that behavioral data are the central source of learning. In the case of man, behavior involves what they refer to as a stimulus and response theory. This means that for man, as for animals, stimulus-response notion signifies the manner in which the organism functions in reference to its surrounding. The specific responses, by which on the basis of or conditioned by previous experiences, and

accompanied by various checks, are integrated to form behavior. The stimulus-response theory is an affirmation of the hypothesis that knowledge consists of activity, behavior, or conduct acting upon constrains of experience that we ascribe the terms reflective, intelligent and mental.

In the case of language learning, the structuralist/behaviorist standpoint echoes empiricism by rejecting the possibility of an innate faculty of language. It invokes the notions of **analogy** and **familiarity**, according to which the process of language acquisition involves the **matching** of the sentences we produce with those previously encountered. This works with the supposition that each set results from previous experience. Thus, acquisition of knowledge is based on the structuralist notion of analogy. It is suggestive of the thought that knowledge is a form of inductive experience.

Chomsky, however, maintains that evidence from linguistic theory, by large, contradicts the empiricist position. Going by the conceptual trend typical of current research in linguistics and psychology we find judgments that tell in favor of rationalism. In *Linguistics and Philosophy*, he argues:

> A case can be made that certain well-founded conclusions about the nature of language do bear on traditional philosophical questions, specifically, these conclusions are relevant to the problem of how the character of human knowledge is acquired and how the character of human knowledge is determined by certain general properties of the mind (Hook, 1969, p. 59).

The linguistic theory of mind is therefore a methodical strategy of the present age of linguistics and psychology that supports rationalism. As Chomsky (*On Cognitive Capacities and Their Development*) notes:

> The crucial point in the present connection is that cognitive structures and physical organs seem to be comparable, as far as the possibility of "biological explanation" is concerned... [Hence], a neutral scientist, unencumbered by traditional doctrine, should approach cognitive structures such as he would investigate an organ such as the eye or heart, seeking to determine: (1) its character in particular individual; (2) its general properties, invariant across the species apart from gross defect; (3) its place in a system of such structures; (4) The course of its development in the individual; (5) the genetically determined basis for this development; (6) the factors that gave rise to this mental organ in the course of evolution (Beakley et al., p. 394).

These issues form the basis of his theory of knowledge acquisition. This is the theory that language learning is exemplary of acquisition of knowledge because it is among the cognitive structures that constitute knowledge.

But how do we determine that language has innate properties that establish the theory of rationalism? Chomsky gives us one of his evidences, the creative aspect of language This is the ability on the part of a native child to immediately recognize as 'grammatical' ('acceptable') or ungrammatical ('unacceptable') sentences of his language which he has never before encountered. Consider the following sentence constructions of English:

1. The book is in the library - Is the book in the library?
2. The book in the library is outdated - Is the book in the library outdated?
3. John killed the snake - The snake was killed by John.
4. John tried to kill the snake - The snake was tried to be killed by John.

Sentences (1) and (2) are examples of declarative question formations of English whereas (3) and (4) are illustrations of active-passive constructions. A native speaker, presented with these sentences for the first time, will, unequivocally recognize (1) and (3) as grammatical and acceptable sentence formations of his language but never (2) and (4). According to Chomsky, this is the result of the process that he termed **structure-dependent operation**.

The structure dependent operation as opposed to **structure-independent operation** suggests that linguistic, or grammatical rules, which operate abstractly in determination of 'correctness' or 'incorrectness' of the sentences of a particular natural language, "considers not merely the sequence of elements that constitute the sentence but also their structure". In the case of (1) the declarative sentence is analyzed as a sequence of words as well as physically marked phrases, whereas in (2) the analysis of the declarative appears to depend on successive words as well as abstract phrases not usually marked physically. The same case applies for the analysis of the active construction (3) and (4). The abstract phrase refers to the phrase conceived independently of the physically realizable word-sequences of say, the

declarative. In the case of the construction of the declarative question as in (2), the language user assumes that the operation involved in its cognizance applies for all the sentences of that language as in (2), or the passive construction in (4).

Chomsky sums the hypothesis of structure-dependent property of linguistic rules that though a child may make many errors in language learning, he will seldom make unacceptable construction as (2) and (4). "A person might go through much or of his life without ever having been exposed to relevant evidence, but he will, unerringly, employ 'structure-dependent operations', never 'structure-independent operations', on the first relevant occasion" (Ibid. p. 389).

Recent research can be invoked to illustrate the concept of structure dependence. The scientist, Ernst Poppel of the University of Berlin discovered neurological states which demonstrate that "we do not only have an innate repertoire for speech but also and innate capacity for speaking correctly and grammatically"[1]. For him, this ability can be attributed to "certain mechanisms in the brain, which enable us to produce and interpret acoustic signals".

In Chomsky's perspective, it means that grammatical rules of language are part of the schematism applied by the mind. In contrast to the position of behaviorism, grammatical rules are quite remarkable properties that appear to be inexplicable on the basis of experience alone. Hence, one who attempts to uncover the **tacit knowledge** which explains how he can distinguish what in his language is grammatically permissible or not- the grammar (or theory) of his language- need to be concerned with **competence** rather than **performance**. This is because competence concerns the ability to make effective use of structure-dependent operations of a particular language as permitted by its grammar.

In proposing the linguistic theory of knowledge acquisition, which rejects the received empiricist tradition, Chomsky reawakens and gives considerable credence to Kant's

transcendental rationalism. This is the critical doctrine that juxtaposes the positive sides of both rationalism and empiricism, and at the same time refutes what Kant perceived to be their inherent drawbacks. As Kant claimed, neither of the position is independently capable of eliciting how knowledge is attained. His statement was that both are correct in what they **affirm**, and wrong in what they deny:

> Empiricism is right in as much as it points out that propositions of facts can be derived from experience. But rationalism is also right as it points out that knowledge is constituted of a priori elements also. Again empiricism is wrong in as much as it denies the presence of a priori elements involved in knowledge. In the same way rationalism wrongly denies that sense-experience also constitutes knowledge. The proper view is knowledge **begins with** experience, but does not necessarily **originate from it**. As soon as sense-experience registers its impressions on the mind, the mind at once is stirred into its own activity and contributes its own ordering activity into discrete impressions. The ordering activity is discharged by a priori elements. Knowledge proper is a joint venture of sense and understanding (Masih, 1975, p. 198).

A case can be made that Chomsky's theory of learning conforms to Kant's rationalism. Consider a neutral scientist wishing to gain insight in the functioning and operations of the mind in the acquisition of knowledge. He may begin his analysis by considering the overt linguistic data availed to him through sense perception or observation but not previous experience. He may then try to determine whether his data conforms to certain intrinsic properties of the mind. Following Chomsky's discovery procedure the scientist arrives at the conclusion that in the case of language there seems to be some aspects of it, which suggest an underlying, innate structure. And "in so far as properties of language are 'species-specific'- not explicable on some general grounds of functional utility or simplicity that would apply to arbitrary systems that serve the purpose of language", his claim is:

> Such principals, we may speculate, are a priori for the species- they provide the framework for the interpretation of experience on the basis of experience- but are not necessary or even natural properties of all imaginable systems that might serve the functions of human language. It is for this reason that these principals are of interest for the study of the nature of the human mind (Chomsky, 1971, p.44).

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[1] Poppel, E., in "The Miraculous Cosmos of the Brain"; a Kenya Broadcasting Corporation television documentary, February 7th, 1995

The linguistic conception of learning has important implications for epistemology. The linguistic theory is instrumental in so far as it seems to dispel the received opinion among many empiricists, such as logical positivists and behaviorists. These believed that the avowed victory of empiricism over its rival was no less than "the triumph of truth, objectivity, and science over the forces of superstition, nonsense and religious and political authoritarianism" (Chomsky, 1975). In his attack on Rylean-oriented or Bloomfieldian-focused empirical tradition Chomsky criticizes them that:

> There has been a tendency in modern analytic philosophy to employ the notion "disposition" or "capacity" where the more abstract concept "cognitive structure" is, I believe, more appropriate. I think we see here an unfortunate residue of empiricism. The notion "capacity" and "family of disposition" are more closely related to behavior and "language use", they do not learn to inquire in the nature of "ghost in the machine" through the study of cognitive structures and their organization, as normal scientific practice and intellectual curiosity would demand... The proper way to exorcise the ghost in the machine is to determine the structure of the mind and its products. There is nothing essentially mysterious about the concept of abstract cognitive structure, created by innate faculty of mind, represented in some still-unknown way in the brain, and entering into the system of capacities and dispositions to act and interpret (Chomsky, 1975, pp. 23, 230).

His theory of knowledge creation is also successful in as much as it admits the role of experience in elicitation of a priori elements as in the Kantian sense, even though it claims inclination to rationalism. Its significance seems to abound in its wont to set a common ground for investigating human cognitive structures. This makes it a reasonable paradigm, which, in principle, forms part of a deductive, explanatory account of a particular mental organ. The study of the other mental systems will, in consequence, depend on our grasp of the proposals outlined in this theory.

CHAPTER FIVE

CHOMSKY'S METAPHYSICAL FRAMEWORK

> The metaphysical conception is of what is foundational to all forms of entity, for these arise only within it.
> **Viscount Haldane**[1]

Preliminary Remarks

Metaphysics concerns the attempt to understand reality as a whole. Contrasted to science, which is based on sensory experience and observation, metaphysics deals with issues that transcend sense experience and are founded solely on reason. This means that metaphysics treats of the nature of things as they really are than as they appear. Metaphysics is important because of its zeal and characteristic to shed light on those problems which although quite general in nature and wider in scope are, nevertheless, basic to human existence. Questions concerning the existence of God, immortality of the soul, freedom of the will, the purpose of life, the mind-body problem, are some of the major issues of metaphysics. To Kolakowski, metaphysical insight is actually "the search for what is really 'real' as opposed to what only appears". This is quite typical of "guesses about the ultimate origin of the distinction between real and unreal in a sense which goes beyond what is and what is not shared by people, and of speculation on the nature of reality".

From a historical perspective we see that these guesses and speculations contributed immensely to the development of philosophical as well as scientific theories:

> One can certainly argue that the distinction was a necessary condition of the emergence of science in a modern sense. ...It so happened that it was Democritus who said that in truth there is nothing but void, but if nobody had come up with such a speculative idea, modern atomistic theory would never have arisen; it so happened that the Pythagoreans decided that numerical relationships had a sort of ontological priority over empirical phenomena, but someone had to assert the cognitive independence if mathematics was to develop at all. ... Mankind would not have been capable of building science had it not been previously worked out the distinction between essence and phenomena (Kolakowski· 1988, pp. 12, 13).

[1] *The Function of Metaphysics in Scientific Method* in Muirhead, 1953, p. 137

Metaphysics, therefore, is an intuitive concept or a generalization that comes out as a necessary condition upon which our judgments about reality depend. It consists an 'instinctive' drive in the human mind which, in the sense of Haldane, 'compels us to suspect that the truly real world is hidden underneath the touchable surface'. As a result, it prompts us to seek insight into that realm by formulating philosophical theories. These theories, in turn, determine the basis upon which our conjectures and discoveries sprout. Philosophical constructions are the outcome of metaphysics as a general frame. They do not, however, exist independently of metaphysics but are typified and explained by metaphysical concepts. In turn, philosophical conceptions function as a mirror that reflect and define the metaphysical elixir of human thought. Haldane observed, further, that "the use of abstract principles has indeed an advantage, it makes possible definition of aspects, and so clearness an extension of the range of comprehension by symbolic methods" (Muirehead, p. 133).

The significance of metaphysics is also striking in the sense of Popper and Watkins. To them 'metaphysical ideas are those that are suited to act as organizing principles at the center of a conceptual system whose parts exhibit mutual affinity because they all can be discerned and result under the same central metaphysical influence' (D'Agostino, 1986). The Kenyan philosopher, the late Henry Olela, also underscored the relevance of Metaphysics. Referring to his famous book, *From Ancient Africa to Ancient Greece* (1986), he observed that all philosophies or philosophical perspectives have assumptions or presuppositions about metaphysics. He also stated that each philosophical realm point back to a more fundamental world-view or cognitive picture involving specific, though not acknowledged conclusions about the nature of ultimate reality.

The present chapter focuses on the metaphysical fabric of Chomsky claims about reality, in particular, those arising from his matching of the structures of language to those of the mind. The first section, which serves as a background to Chomsky's metaphysical idea,

includes some introductory notes on the metaphysical theories that have continued to underlie and dominate philosophical conceptions and discussions since the formal inception of the enterprise. This section The next part inspects Chomsky's technique and approach to language and underlines its bearing to the metaphysical theories profiled in section one. In the third section we focus on his treatment of the nature language and the mind, and identify the relevant metaphysical theme underlying Chomsky's strategy. Having charted Chomsky's metaphysical framework, the third part provides an appraisal of it in the light of its bearing to the typical metaphysical views within the philosophical scheme.

The Nature of Metaphysical Theories

The construction of metaphysical theories constitutes a crucial and indiscriminate problem in philosophy. According to William Halverson, this vast concern objectify the constructive task of philosophy that is, at bottom, the attempt to "construct an all-inclusive picture of reality in which every element and knowledge finds its proper place". Thus, a plausible metaphysical theory, or worldview, satisfies the following conditions:

> 1) It must provide a plausible explanation of some facts, that is, there must be some evidence supporting it, 2) there must be some evidence that decisively counts against it, that is, none that can be plausibly accounted within the world-view, and 3) it must be internally consistent, that is, it must not contradict itself (Halverson, 1981, pp. 381, 382).

In the sense of Popper, a metaphysical theory is that notion that underlies philosophical reflections. It consists of "a statement which, because of its distinctive logical form, is not subject to empirical refutation" (D'Agostino, 1986, p. 2).

In history of philosophy, there are certain formulations that can be said to fulfill Halverson's three conditions, therefore, qualifying as metaphysical theories. These are **monism, dualism** and **pluralism**. Monism is the doctrine that the ultimate stuff of the world is one. Dualism maintains that there are essentially two kinds of reality, that is, mental and material worlds or reality. Pluralism is founded on the view that it is nonsensical to

reduce the welter of the universe to two substances because reality as it is, is manifold, meaning that the world is a conglomerate of numerous substances. The nature of these theories, is such that they consist of the attempt to address the ontological question about "the ultimate nature of that which undergoes growth and evolution, that may not have originated and which has a destiny" (Patrick, 1978, p. 181).

Of the three metaphysical theories, monism and dualism seem to be the most widely acclaimed. Some of the monistic statements that appear prominently in philosophy are materialism and idealism. In their traditional sense, these statements can be contrasted. Materialism, on the one hand, sought to explain the universe in purely mechanistic terms by characterizing the whole of nature as a product of matter or mass particles in motion. Idealism, on the other hand, exposés that the reality is basically mind (or spirit), and that matter is a representation of the mind so that, in the final analysis, only the mind and its attributes are known to exist objectively.

The distinction between traditional materialism and idealism reflect the opposition among empiricism and rationalism. On a closer look, however, empiricism as it insists on sense perception as the primordial source of explanation, can be said to incorporate a materialist conception of reality. This is because sense-experience and observation seems to apply suitably in the discovery of what is essentially material. An example of a materialistic world-view that entails the empiricist conjecture is the Democritean atomistic idea of the universe according to which the world is a combination of several atoms acted upon by discrete laws of nature. Darwin's concept of evolution and Newton's notion of gravity are all materialistic theories that call in question the adoption of empiricism.

On a closer look, further, rationalism can be said to involve an idealistic scheme. For instance, Kant's metaphysical rationalism- his treatment of reason as prior to experience, preconditioning or determining the world of appearance through some twelve categories of

the understanding- is an instructive brand of idealism. This is the notion that upholds the primacy of mental phenomena. Similarly, there is Leibniz's emphasis that the physical things have 'a real objective existence, independent of the mind that perceives them'. To him, 'only we come to examine into the real nature of these objective things when we discover that in their inner bearing they are actually mental', is reflective of the rationalism.

Materialistic and idealistic world-views can, therefore, be classified as contrasting metaphysical constructs that entail empiricism and rationalism respectively. This has interesting ramifications. Rationalism appears to be an ingredient of idealism whereas empiricism seems to be an integral attribute of the materialistic conception. The former metaphysical constructs are, nonetheless, distinguishable from the latter postulations in the sense that inasmuch as materialism and idealism can be said to be ontological in perspective, rationalism and empiricism appear to be methodological in orientation.

Ontological theories are viewed as descriptive in focus, while methodological theses are those that can be termed as entailing a prescriptive axis. While the ontological theorist confines himself to the description or the various aspects of the world that adequately conforms to his adjectival definitions and characterizations, the methodological speculator is engrossed in the employment of a prescriptive scheme. This means that, apart from being implicitly concerned with the basic constitution of the universe, he is also preoccupied with specifying the appropriate framework for exploring those characteristics. Hence, ontological formulations that can be said to be general in nature, as opposed to methodological doctrines are thought to be specific.

In recent times the implied opposition between these metaphysical conjectures has been softened. The onset of what Dennett calls the **naturalistic attitude** of the present era (see chapter 4) has not only created an awareness on the part of researchers in various fields other than philosophy, but has also fueled their interest in philosophical problems. A general

discernment arising from many findings is that idealism no longer exists as a radical antithesis of materialism. Rather the general disposition of the present era is:

> Recent studies in physics have changed our notions about the mind. Perhaps what we call matter is not so primordial as we used to think. It may be reduced to electric discharge, to pure energy, to singularities in the space-time manifold, or as Mr. Whitehead so wisely tells us, to the "passage of events", thus becoming a mere halting place in the cosmic process. ...Mind is no longer that simple substance, whose nature is to think. ...If in its most highly perfected form, as in human personality, it is found in connection with highly integrated nervous system, it will by no means follow from this that it is an incident in the evolutionary process or less real (Patrick, 1978, pp. 211-212).

Such discoveries permitted the rise of modern **realism**. This is the metaphysical assumption that our general experience (or common sense) is such that the external world exits objectively. That is, objects exist independently of our perception of them and of the knowing mind. For the realist, metaphysical constructs entail the assumptions as Ayer (1971) thought that the existence of objects constitutes an empirical question that cannot be settled by any possible observation. They also entails Michael Dummett's (*Truth and Other Enigmas,* 1978) statement that "a class of entities- statements about the physical world or about mental events...the question is whether such statements possess and objective truth value, independent of our means of knowing it" (Passmore, 1985, p. 83).

Realism in this sense is important because it softens the opposition between idealism and materialism. It is also softens the difficulties arising from the adoption of either a rationalistic approach or an empirical one. This brand of realism is also pertinent as it espouses the dualistic doctrine. Dualism, in this sense, should be distinguished from the traditional dualistic conceptions that maintain that there are two brands of reality. Rather, it is construed as entailing the monistic notion according to which reality is one but with two distinguishable aspects or realizations- the mental and the physical. A significant aspect of modern realism is the craving to ascertain whether the various theories advanced for the elicitation of reality can least, in principle, be subject to empirical justification even though some may not entail direct observation (Mackie, 1976). The emphasis here is whether there are any empirical grounds

upon which even the idealistic conceptions can be founded. This view reflects Kant's argument that even though our knowledge of the external world may begin with perceptive experience, it does not necessarily mean that sense experience is its end. The realists are exploring a common ground for the commencement of philosophical investigation. Science seems to provide a powerful tool for this exercise.

Chomsky's metaphysical framework can be considered in the context of the realists' proposals. As he often remarks we need to rely on the overt linguistic structures, which are the product of experimental analysis, so as to extrapolate on the covert forms that underlie them. The metaphysical elixir of Chomsky's theory is therefore conducted within the methodological overtures arising from an expedient adoption of the realistic paradigm.

Chomsky's Methodology and Approach

Chomsky's approach to language and mind can be considered in relation current approaches in philosophies of language and mind. These are **positivism, ordinary language philosophy** and **conceptual analysis.** Positivism is the modern approach, mainly in the philosophy of science, that is "characterized by the methodological requirement that all theoretical statements should be wholly reducible to observation". It is "the doctrine according to which the natural sciences is directly applicable to all human sciences" (Itkonen, 1978, p. 3). Ordinary language philosophy is fundamentally typified by the functional investigation of ordinary linguistic expressions. Conceptual analysis is characteristically explication as in the sense of Itkonen (1978) and Mwaipaya (1982). (See chapter one).

Adopting conceptual inquiry we discover that Chomsky's approach is not inclined exclusively to any of the current philosophical trends. Rather, taking cue from modern realism, he seems to incorporate in his approach the positive aspects of these approaches. His approximation can be termed as a **meta-theory** that blends the positive sides of both

positivism and conceptual analysis. It does not reject their postulations, but attempts to remedy their limitations. His procedure aims at reconciling rationalism and empiricism and at the same time try to fuse materialism and idealism. As many have indicated we do not agree that Chomsky's theory is wholly an exoneration of rationalism in favor of empiricism. Rather, we view it as an emphasis of the primacy of rationalism over empiricism.

Chomsky's meta-theory may be elaborated by rehearsing some of his views on the distinctive features of language. According to Chomsky, the ultimate aim of philosophical inquiry is to construct various **evaluation procedures** for the perspicacity and elicitation of reality. He sees current research in philosophy, linguistics, and psychology as gleaning a strategy that is powerful enough to come to grips with reality within the realm of language. The basic strategy that these disciplines embody is **cognitive inquiry**.

Linguistic theory is, therefore, the product of cognitive analysis. It is the outcome of this study since, to Chomsky, it is a merger of 'systems of hypotheses concerning the general features of human language put forth in an attempt to account for a certain range of linguistic phenomena'. The primary objective of these hypotheses is to account for the creative aspect of language. Linguistic theory proceeds in a very typical fashion.

First, Chomsky thinks that it highly unnecessary to treat of it as a methodical procedure involving set regulations. Lyons (1977) espouses this by attributing the building of a set of procedures to a tendency especially by some American linguists in the **Bloomfieldian period** who were immensely preoccupied with the desire to make their enterprise productive. These scholars reformulated questions about **theory** as issues concerning **method** and sought to answer problems such as: "How should one go about the **practical** task of analyzing language?" They had assumed that it was "possible to develop a set of procedures which, when applied to a corpus of material in an unknown language (or a language treated as

unknown to the linguist) would yield the correct grammatical analysis of language of which the corpus was representative". Lyons observes:

> A linguistic theory should not be identified with a manner of useful procedures, nor should it be expected to provide mechanical procedures for the discovery of grammars'. The means by which a linguist arrives, in practice, at one analysis rather than another might include 'intuition, guess work, all sorts of partial methodological hints, reliance on past experiences, etc.'. What counts is the result; and this can be represented without reference to the procedures that have been followed to achieve it (Lyons, pp. 14-15).

This means that to proceed methodically, as in the Bloomfieldian practice implies that the researcher is setting standards that emerge as irrelevant to the formulation of an adequate explanatory procedure. This is an undertaking that is bound to be unfruitful because of our present notion of language. The nature of language is such that procedural standards do not seem to be sufficient in exploring its covert attributes. We require that our speculations on their behavior and operations of these characteristics be based upon a non-methodical examination of their overt forms.

Secondly, Chomsky encapsulates his justification for his approach that a good deal of argument can be expended in favor of evidence, in biology and related sciences, that the language faculty is one of those features of cognition which are the product of human natural heritage. He finds it stimulating to pose the following query: "Why then, should we not study the acquisition of a cognitive structure such as language more or less as we study some complex bodily organ?" He then proceeds to point that there are some "gross observations suffice to establish some qualitative conclusions which deal with significant characteristics of the species, or perhaps, of organisms generally" (Chomsky, 1975).

What he argues is an adherence to a procedure that is hinged upon the 'methods' of **rational inquiry**. These methods are many and do not depend on any formal procedures. Rather they are essentially in the form of what Popper referred to as 'the one method of all **rational discussion'** that though characteristic of philosophical investigations is implicit in

the natural sciences. To Popper rational discussion simply involves the "stating of ones problem clearly and examining its various solutions *critically*". He sums it as follows:

> The point is that whatever we try to propose a solution to a problem, we ought to be as hard as we can to overthrow our solution, rather than defend it. Few of us, unfortunately, practice this precept; but other people, fortunately will supply the criticism for us if we fail to supply it ourselves. Yet criticism will be fruitful only if we state our problem as clearly as we can and put our solutions in a sufficiently definite form- a form in which it can be critically discussed (Popper, 1958, p. 16).

The application of this procedure has interesting ramifications for the researcher. It means that in addition to utilizing the method of rational inquiry he is also engrossed in what Hobhouse (*The Philosophy of Development*) called the 'scientific spirit'. The 'spirit' requires that the analyst treats his results as '**hypothetical** and **provisional**' and 'to deal with each specific problem on its own merit without ever having an eye on its bearing on the cherished system' (Muirehead, 1958, p. 152). This has the advantage of safeguarding against any 'surprises' in the event of the discovery of new facts about the nature of the object of analysis. For such a possibility will have been preempted.

Chomsky's methodological design can be conceived in the context of this 'spirit'. His linguistic theory is an intelligible theory that seems to offer genuine explanations. In the study of language, the 'spirit' is perfectly suited to help in the discovery and exhibition of, otherwise unknown, intrinsic linguistic properties and to account for them in terms of the assumptions of the physical sciences. This is conducted while keeping open the possibility that, with scientific progress, the physical representations of language and their corresponding cognitive states may as well be modified. In this way linguistic theory is never at variance with the physical scientist's approach. Like the scientist, the linguist claims that the "abstract nature" of his linguistic theory 'permits some **latitude** in interpretation of particular results'. This is in so far as 'we do not have a clear picture of cognitive structures as embedded within the theory of performance' (Chomsky, 1975, p. 37). The explanatory

potency of Chomsky's approach lies in his having proposed the study of language in the context of both the method of rational inquiry and the scientific 'spirit'.

Chomsky's Treatment of Language and the Mind

Following the linguistic conception of the nature of the mind which we term the linguistic model (see previous chapter), Chomsky's claims point to the fact that the mind consists the central **steady state** cognitive system made up of various units of mechanisms. These interact with each other in the formation of human intelligent behavior. The faculty of language is among the distinct units that the mind imputes. The nature and functioning of this faculty is such that it consists the representational, abstract (or psychological), counterpart of, physically realizable, linguistic expressions. The computational process responsible for the translation of thought to language within the domain of language faculty is usually permitted and mediated by some mental axioms in the form of transformational rules. Changes, which occur in the language forte in response to particular linguistic environments and permit the acquisition of specific languages say, language 'A', in favor of another say, 'B', constitute the behavior of that mechanism. Hence a natural language is, and needs to be treated as, a form of, **rule-governed** behavior initiated and mediated by some mental rules of grammar in the form of transformations.

Whereas the behavior of language unit is embodied in the fact that it varies according to different linguistic surroundings, the way the mind operates, or behaves, appears to be such that it constitutes a 'steady state' invariant across the human species. An illustrative instance of this argument is Alland's contention on systematic behavior that:

> Any system, which is self-regulating, must by definition be one in which the supporting units of the system can change their value. These changes usually occur in response to environmental variation and act to maintain the stability or integrity of the system. Changes, which occur in these units, can be referred to as behavior. The sum total of integrated behaviors displayed by these units can be referred to as behavior of the system (Alland, 1973, p. 189).

The mind can, therefore, be treated as a self-regulating cognitive system. It is the aggregate of various mechanisms that act as its supporting units and performing a number of systematic operations so as to uphold its nature and function. The resultant behavior of the mind is, in consequence, intelligent behavior or the aggregate of integrated behaviors manifested by the various cognitive systems, among them, the language faculty.

The notion of rule-governance implies that language is an integral aspect of the human mental life. As an abstract entity, the notion of language confirms the concept of **psychological reality** of language. This imputes the doctrine identified by D'Agostino as **naturalistic intellectualism**. Naturalistic intellectualism results from the fusion of Chomsky's **linguist intellectualism** and **naturalism**.

Linguistic intellectualism, on the one hand, holds that language is rule-governed rather the law-governed. This means that linguistic behavior "involves language users and their environment which are best described in rational, computational terms, rather than in strictly causal terms in which the behavior, for instance, of atoms and planets is best described". Naturalism, on the other hand, is a **reductionist** approach. It demands that human abilities and intelligent behavior be explained in "terms of causal relations between individuals and their environments in just the way, in which natural scientists explain dispositions and behavior of other non-intelligent entities" (D'Agostino, 1986, p. 114).

If adopted in isolation, both naturalism and intellectualism are insufficient. This is because naturalism, as far as it proposes the adoption of the methodology of the natural sciences, seems to be an empiricist preoccupation that neglects the role of rationalism in explanation. This is reminiscent of Haldane's criticism of the physicalist's approach of the human organism in terms of the concept of causation as not only ineffectual. It is also contrary to common-sense since 'the life of the human organism pursues a definite course of action in the interest of the species' and that 'this course with the developments which are

exhibited through it, is determined by the ends, the fulfillment of which is characteristic of mankind'. To the contrary, intellectualism is weak in so far as it is prone to logical refutation in the sense of Ryle's reductionist argument. The refutation, which is in the form of *reductio ad absurdum*, is constituted by the threat of an **infinite regress** arising as follows:

> If we explain the occurrences of some overt intelligent action by postulating the performance of some covert intellectual action, as intellectualism requires, then by the principle of inheritance, the overt intelligent actions inherits its quality of intelligence. ...Which it passes on to the overt action which it guides, from the intelligent performance of some second-order covert intellectual action which guides the performance of the postulated first order intellectual action. And so on ad infinitum. If an intellectualist explanation of intelligent behavior in effect involves an infinite regress, such an explanation must be rejected (Ryle, 1949, p. 29; D'Agostino, 1986, p. 124).

The naturalist version of intellectualism, nevertheless, attempts to overcome the weakness of the naturalist methodology. It protects intellectualism against Ryle's criticism by incorporating the positive aspects of these two formulations. It points that "intelligent behavior is to be explained by postulating etiological prior intellectual actions which involves behavior-guiding rules or maxims". It seems to "provide an account of the primitive intellectual actions which show how these actions are rationally, and not merely causally, responsive to the situation in which the agent as a biological entity acts" (Ibid. pp. 128, 129).

The metaphysical underpinning of Chomsky's treatment of language and the mind can now be traced. To him, the particular grammar of a natural language in its **final state** is derived from its initial, universal schematism in the domain of the central cognitive system. The status of the grammar, both initial and steady state, espouse the claim that they are really 'real' mental objects. This implies the concept of psychological reality, bringing out Chomsky's realist persuasion. In turn, it imputes his inclination and commitment to the doctrine of metaphysical **realism**.

Moreover, the postulation of naturalistic intellectualism, insofar as it stresses the role of evolutionary considerations in harmonizing naturalistic and intellectual elements of an adequate intellectualist account of intelligence, the doctrine certainly presupposes the theory

of metaphysical materialism. Hence it also reveals Chomsky's commitment to the conception of **materialist ontology**. An illustrative instance of this materialist framework is found in Chomsky's argument that the mind is a biological given system and that language comprises the "biological properties of the organism" and that:

> "Admissible hypotheses" are available to this specific system and that this fact accounts for its ability to construct rich and complex explanatory theories which reveal, in some respect at least, that there is nothing contradictory in the belief that investigations of the inherent intellectual capacities of a specific biological organisms, humans, might lead to a scientific demonstration that some possible sciences lie beyond human grasp, perhaps the science of causation of behavior among them (Chomsky, 1975, pp. 155-56, 157).

Materialism, as thus specified, constitutes an influential **intellectualist research strategy** that is typical of linguistic theory. The impetus of this strategy is embodied in the fact that arguments in favor of its justification are immune to reductionist refutation.

Contrary to reductionism a materialist-based strategy is founded on the notion espoused by Fodor (*The Language of Thought*, 1975) that: "every event referred to by every natural kind predicate of every science is a physical event"(D'Agostino, 1986, pp. 188, 139). In the case of human behavior, Fodor argues that the application of practical maxims appear to 'provide greater 'insight' into the bases of intelligent behavior than would be provided by reductionist explanation in physical terms'. Linguistic theory, thus, satisfies this claim.

The Metaphysical Framework: An Appraisal

Although metaphysical conception is pertinent in the sense underscored earlier, its cogency is always dogged by the legacy of empiricism as represented by the policies of logical positivism and behaviorism. Some of the early critics of metaphysics were the logical positivists most notably, Carnap and Ayer. Carnap once remarked that "the pages of metaphysics are full of arguments and polemics" (*The Elimination of Metaphysics,* 1932). Ayer on his part viewed the metaphysician as a person who "unknowingly lapses into linguistic confusion in the vain attempt of knowing the world by non-scientific means" (*Language, Truth and Logic,* 1946;

Masih, 1975, p. viii). The logical positivists thought that prospects for philosophical and intellectual progress rested on nothing but the **scientific method**. They sought to purge metaphysical statements from their language and metaphysical conceptions from their subject.

Metaphysics is, nevertheless, as we claim in this work; not irrelevant to philosophical and scientific progress in the way the positivists may want us to believe. Much can be gained from advancing the metaphysical conception. Metaphysical conception is inherently foundational to theory-construction because it forms the basis for philosophical and scientific inquiry. Kant's philosophizing is an illustrative case. In his attempt to refute metaphysics, in the way outlined by the positivists, Kant rediscovered that his endeavor was bound to be a futile exercise *(Critique of Pure Reason, 1871).* He later uncovered that, though metaphysics may fail as a science, it is, nonetheless, a stimulating possibility as a natural disposition *(Critique of Practical Reason, 1876).*

In chapter one we identified some of Chomsky's intellectual curiosity regions. Those regions seem to portend serious problems in as far as the cogency and acceptability of Chomsky's claims go. The discussion of the underlying metaphysical parlance of those criticisms may, nevertheless, diffuse the implied problems. Consider, for instance, the problem of psychological reality identified by Moore and Carling. This problem is essentially concerned with the criteria for justification of Chomsky's research strategy. It is, of course, embodied in the attempt to draw an analogy of the linguistic conception to physical postulations in the natural sciences with a view of ascertaining the plausibility of the theory. It consists of a series of questions:

> How does deductively formulated theory in linguistics stand? Is it on a par with deductively formulated theory in physics? Or is linguistics currently in a state more akin to those natural sciences where it would be 'premature' and 'fruitless' to try to introduce it? If the physical reality of physicists' theories is in part acceptable because of the validity of the evidence of their predictions, we can ask what predictions, does Chomsky deductively formulated linguistic theory make, and how accurate, reliable and truthful are they? Are they generally sufficient to give confidence to a belief in their psychological reality? (Modgil et al, 1987, pp. 23-24)

The underlying assumption of this problem entails the fact that if Chomsky's theory is erected on materialism, then his notion of language and the mind oughts to provide results that are analogous to those from the physical sciences. That is, its plausibility needs to be hinged against a background that provides empirical evidence in support of the manner in which a native child constructs a mental representation of his language. As Moore and Carling espouse, there needs to be, at least, a 'temporal or psychological priority to syntax in the order that Chomsky is seeking to establish the links between his initial and final steady state grammars'. For them, such evidence seems to be lacking in Chomsky's procedure as his formulation depends on "logical order holding among the components of his theory". This in turn entails the fallacy that they term as "the appearance of **category confusion**" (Ibid.). Chomsky's appears, on the basis of materialist conception, to draw an analogy between the task of the linguistic to that of the child. This fallacy, to Moore and Carling, impugns the predictive power of linguistic theory and therein its implausibility.

The psychological problem can, nevertheless, be tackled. There seems to a considerable amount of affinity to the basis of this question to the empiricist legacy underscored by the positivists. Locke treated innate knowledge and innate ideas as an empirical question to be settled by recourse to evidence about how people think and speak (Mackie, 1976, p. 101). The same way, the psychological problem treats linguistic theory as an empirical question concerning the availability of empirical facts in support of assertions about the nature and function of linguistic structures. The linguistic theory is, however, as we understand it, a question about the rational clarification of the nature of linguistic data. Even though it may be lacking in empirical evidence, it embodies the prospects of such evidence. Justus Mbayi of the American Cultural and Information Center, Nairobi, upholds this view. To him it is implausible to attack rationalism using the tenets of empiricism. For these are rival theories. Rather rationalism needs to be criticized in its own merits.

It is therefore, unnecessary to remark that the absence of a psychological-physical analogue is implied by the meagerness of observational or experimental data. Again, the existence of such material does not presuppose any finality. There is always a chance that novel scientific findings may come up with new facts, hence impugning the plausibility of the old information. The presence of empirical properties accessible to observation and experimental discovery provides the possibility of certainty and demonstration (what science always strives for). The same way, the detailed working-out of corpuscular hypotheses concerning a priori properties and powers giving rise to linguistic structures provides adequate grounds acting as the unavoidable starting point for explanation. This is what science hopes to achieve. Moreover, insofar as scientific advancement has gone in the past three centuries, it seems that 'chemists and physicists have achieved this sort of micro-structure of which Locke despaired, and they have achieved it not, in the main, by devising more powerful microscopes but by framing and testing detailed hypotheses' (Mackie, 1976). It points back to Monyenye's view that our understanding of the nature of the human person needs to be shaped with our present knowledge of the organism.

Chomsky response to the psychological reality challenge is ingrained in the fact that a distinction should be made between questions concerning the nature of evidence in support of theories and those about the reliability of the evidence or the depth of theories. Questions on the nature of evidence are, on the one hand, embodied in the belief that any test of acceptability must itself meet certain empirical conditions. On the other hand, those concerned with reliability are deeply ingrained in the view that the persuasiveness of evidence "depend on its character and reliability, on the degree to which the principles dealing with this evidence are tenable, intelligible, compelling, and so on". The psychological reality question seems to be based on the former thesis while linguistic theory is the product of the latter argument. In the case of language he claims:

> In the world of actual research on language, it would be fair to say, I think, that principles based on evidence derived from informal judgment have proved to be deeper and more revealing than those evidence derived from experiments on processing and the like... (Because) some may bear on process models that incorporate a characterization of linguistic competence while other evidence seems to bear on competence more directly, in abstraction from conditions of language use... But just as a body of data does not come bearing its explanation on its sleeve, so it does not come marked for "confirming theories" or "for establishing reality" (*On the Biological Basis for Language Capacities* in Miller and Lenneberg, 1978, pp. 207, 209).

This can be illustrated by drawing attention to the fact that the analysis of language bears a close affinity to 'investigations in thermonuclear reactions in the solar interior whose mechanisms is limited to evidence provided by light emitted at the periphery' (Ibid.).

Another critical point in Chomsky derives from his concept of biological inheritance. Jean Piaget who believes that on the basis of evolutionary biology, Chomsky's thesis stands inexplicably has championed this criticism. Evolutionary biology is concerned with questions such as: What has the organism been in the past? How has it grown? What part has it played in evolution? (Hobhouse, *The Philosophy of Development* in Muirehead, 1958, p. 177) This being the case, it is apparent that the effects of natural selection are such that the organism will have to acquire fresh characteristics in response to a changing natural environment. Natural selection, thus, represents mechanisms of continuity or of survival as adapted by the organism to be understood as self-regulation mechanisms. They entail the observation that:

> A living organism exists and continues to exist only if it is both internally and externally adapted. The internal adaptation depends on the adjustments of the various organs and their activities, so that various psychological processes constitute a continuing functioning system by which the life of the organism is maintained. The external adaptation is that of the organism to the environment within which it lives (Radcliffe-Brown, *Structure and Function in Primitive Society*, 1952 in Alland, 1973, p. 150).

The task of the evolutionary biologist is therefore to sort out the similarities that exist between various levels of organization or self-regulation from the very beginning of organic life, through its current state and beyond.

In the case of the mind, it can be argued, as Hobhouse, does that we are 'apt to think of the mental life as like the physical organ, a **survival device** thrown up by the organism under

the conditions of natural selection'. Its growth can, nevertheless, be curtailed, as Piaget has claimed, by mutation pressures acting against natural selection. Mutations may bring about changes in the nature of mental systems so that cognitive systems cannot be termed as innate or as mediated by perception. Rather, like Kant, cognitive structures will have to be viewed as those aspects of the mind, which organize experience. Thus, it is reasonable to reject the notion that language is innate because:

> If reason is innate, either it is general and one must have it go back as far as the protozoa, or it is specific (species-specific or genus-specific, for instance) and one must explain (even if it is deprived of its essential character of necessity) through which mutations and under the influence of which natural selections it developed. But since ...as research stands at presents, current explanations would be reduced for this particular problem to a pure and simple verbalism; in fact, they would consist of making reason the product of random mutation, hence mere chance (*The Psychogenesis of Knowledge and Its Epistemological Significance* in Beakley and Ludlow, 1992, p. 381).

The notion of biological origin of language is therefore, for Piaget, inexplicable.

In its stead he suggests that language can be attributed to some biologically given or in-built mechanisms in form of general intelligence. These enable the mind to maintain its nature automatically. They can be termed as **autoregulation** mechanisms whose explicit theory is 'eminently **constructivist**'. Constructivism is the notion that "the functioning of intelligence alone is hereditary and creates structures only through an organization of successive actions performed on objects" (Ibid.). Hermina Sinclair observes that "all human languages have been erected by humans and therefore dependent on human biological capacities". However, it is implausible to impute, as Chomsky does, that human beings possess capacities for sound production and speech comprehension. Various (psychological) experiments conducted on infants in their first weeks of life have brought to light that this process is a "type of auditive perceptual mechanism"[1].

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[1] Sinclair, H., *Language: A Gift of Nature or A Home-Made Tool* in Modgil et al, 1987, pp. 178-79. In this paper Sinclair draws attention to research conducted by E. Ferrairo (1971) on Children's mastery of the means by which French speakers express the correct succession of events. Ferrairo's experiments uncovered an inverse order on the part of the children. This pattern, Sinclair argues escapes psycholinguistic explanation. Therefore 'only ingenious evaluation procedure is capable of bringing the discovered forms to light'. (Sinclair, H., *Conflict and Progress*, 1978 in Ibid. pp. 177-78 and Lenneberg et al, pp. 187-197)

Chomsky's reaction to this criticism is that, true, evolutionary development is 'biologically unexplained'. But is unwarranted for Piaget, Sinclair and their followers to assert the stronger contention that it is 'biologically inexplicable'. He remarks that true, we may not have any finite idea about how or why random mutations have endowed humans with the specific capacity to learn human language. But he hastens to caution that, in the very way, we have no better idea on how or why random mutations have led to the development of particular structures of, say, the mammalian eye or the cerebral cortex. Therefore 'the basic nature of these structures in the mature individual is determined through interaction with the environment' (Beakley et al, 1992, p. 394). Coming to our response to this Chomsky-Piaget/Sinclair interchange we note that, unlike these scholars, our study is not based on hard facts or data[1]. We cannot pretend to provide substantial contribution to this debate that we term the **biological origin problem**. Rather, we consider the opprobrium in the context of whether their arguments undermine the ontological soundness of Chomsky's notion of biological basis for language and the mind.

Empiricist refutation of metaphysical stemmed from its characteristic of being, in the sense of Carnap, full of arguments and polemics. This claim can be challenged. Masih maintains that arguments and polemics form an integral component of metaphysics as a cognitive enterprise. They are in the form of linguistic and logical statements that are "subservient to the holistic tendency in man". Their advantage is that:

> They do form an important part in any metaphysical discourse, whether it be Vedantic, Buddhist, or be Kantian or Hegelian, [or, for our purpose here, Chomskian or Piagetian]. ... Cognitive statements determine the genuineness and appropriateness of our holistic state; the attainment of which remains the primary end of a metaphysician... for this the metaphysical language only will superficially be called 'linguistic confusion' (Masih, Y., 1975, p. ix).

We argue that the interchange from the biological origin problem forms an important part of metaphysical discourse. It unravels the doctrine of materialism. Chomsky and his biological

[1] By hard facts we mean actual data (or experiments) on children's mastery of the use linguistic structures.

origin critics, converge, at least, at the fact that mental as well as physical attributes are the product of man's materialistic nature and can be accounted in terms of evolutionary biology. For us, nothing goes wrong with Chomsky's concept if approached from the materialist perspective.

Further, Chomsky's thesis appears more plausible than constructivism. Recall D'Agostino's distinction between naturalism and intellectualism. Each of these conjectures cannot individually specify the concept of materialist ontology because of their susceptibility to Ryle's *reductio ad absurdum* argument. A parallel can be drawn between the weakness of intellectualism with that of constructivism. Ryle holds that intellectualism is embodied in the claim that 'intelligence performance involves the observance of rules or criteria'; Piaget maintains that constructivism is manifested in the argument that intelligent action is the result of 'constructions of sensorimotor intelligence'. According to Ryle, intellectualism is weak insofar as it emphasizes the **principle of inheritance**. That is, 'an intelligent action inherits its quality of intelligence from ancestral intellectual action (of applying) some rule which itself is intelligently performed'; for Piaget, an intelligent action, the result of sensorimotor intelligence is 'prior to language and results from joint organic and behavioral autoregulations that determine this epigenesis'.

In the sense of Ryle, the crucial refutation of intellectualist legend derives from the contention that there are certain 'intellectual performances, which are not controlled by any interior acknowledgment of the principle applied in them', (1949, pp. 29-31), but which is purely inherent in humans. For example, "Aristotle finding himself and others reasoning now intelligently and now stupidly" or as "Izaak Walton finding himself and others angling sometimes effectively and sometimes ineffectively". Thus, to attribute intelligent action to the principle of inheritance implies the fallacy of an **infinite regress** encapsulating as follows: if, for any operation to be intelligently executed, a prior theoretical operation had first to be

performed. This performed operation must also have to be first performed, and so on *ad infinitum*. It would be logically impossible for anyone to break the circle. Constructivism seems to insinuate the construction of conceptual schemes about conceptual schemes, and so on *ad infinitum*, thus, its implausibility.

To the contrary, transformational theory seems cogent. It not only abandons the principle of inheritance (note that this does not mean species-specificity, but inheritance handed down from parents to children, for example) but espouses the thesis of primitive intellectual actions. These incorporate behavior guiding rules on the basis of rationally and not merely causally responsive situations. One can therefore, seldom fail to notice the affinity of the Piagetian biological criticism, like the psychological reality problem, to the empiricist demand for evidence. Like the positivist criticism of metaphysics, the psychological reality problem is essentially the product of an empiricist legacy.

CONCLUSION

In this work, an attempt has been made at explaining how Chomsky's linguistic enterprise emerges as an innovative and influential conception of language in the past forty years or so. It has been noted that his linguistic theory has not only made an enormous contribution in the field of linguistics alone by providing some striking insights in the essential properties of natural languages and the methods for their elicitation. It is also said to be an effective procedure embodying what Thomas de Zengotita has termed as 'a logically explicit theory of the naturally definable domains of cognition, perception and behavior which are uniquely characteristic of human species, and which entail empirical consequences for testing that domain' (de Zengotita, *Systems of Kinship's: The Historical Construction of Moral Orders* in Modgil et al, 1987, p. 237).

We have attributed the influential role and significance of Chomsky's enterprise to its being firmly ingrained in a sound metaphysical framework. Because of his treatment of language as an intrinsic property of the mind, and of the mind as the product of biological inheritance, this work has specified Chomsky's fundamental conception as, by large, the outcome of a **materialist** metaphysical frame. The conditions under which this metaphysical framework can be termed as materialist, or as we have termed it herein, the logico-conceptual foundations of linguistic theory, emanate from its being compatible with the constructive (and to a lesser extent, the critical) task of philosophy.

One of the characteristics of constructive philosophy that implies a sound metaphysical doctrine derives from the fact that the creed must provide a plausible explanation of some facts, that is, there must be some evidence supporting it. This work has attributed the plausibility of linguistic theory to its explication that the development of language as a symbolic system in which arbitrary symbols stand for objects or concepts is a truly distinctive and species-specific characteristic of man. The symbolic system is an innate, abstract, and

universal feature that can be accounted for in terms of the **creative aspect of language**, that is, man's ability (except in pathological cases) to produce and understand sentences of his native language that he has never before encountered. This creativity is seen as giving sufficient credence to the fact that language enhances the process of learning and also provides man with the capacity for conducting intellectual and scientific activity. In turn philosophical and scientific insight can be viewed as essentially tied to an understanding of the nature of language.

The philosophical question that can be linked to language is the mind-body problem (nowadays conceived as the mind-brain problem). This work maintains that the scantiness of rapid progress in addressing this issue stems from a deficiency in hitherto philosophical and even scientific tendencies and policies. Philosophers who still pursue the matter believe, albeit erroneously, that our understanding of the nature of the world is still as it was in the seventeenth and eighteenth centuries, the time of the formal inception of the mind-body problem. Likewise scientists seem to presume, again in a defective way, that the mind-body issue is seemingly a 'non-philosophical' question that concerns the relationship between electro-chemical mechanisms of the central nervous system and the human brain to be investigated by researchers as neuro-physiologists, micro-biologists, etc. If the proposals advanced in the linguistic theory are conceded and justified, that the mind is a biological organ then there is nothing occult in treating or studying it the same way the scientist investigate other biological organs through its overt characteristics (performance).

The ramifications for the linguistic approach to the mind are pervasive. Firstly, it dispels the opinion that the mind-body problem is an occult matter, (certainly not in the sense of Ryle according to which it is a pseudo-problem that results in linguistic confusion). If philosophers have been anticipating some impetus form somewhere (as it seems), this works prescribes the materialist approach to the mind-body that is founded on the fundamental

presumptions underlying linguistic theory. The linguistic theory treats the mind as an integral aspect of the material nature that is discovered to possess certain properties, among them the language faculty. These features can then be rationalized within the framework of an **explanatory theory**. It is in terms of this theory, as in scientific inquiries, that findings are treated as hypothetical and provisional as possible, keeping open the possibility of fresh information or data about these properties (thanks to scientific progress).

Secondly, the materialist-based linguistic approach spells fresh opportunities for philosophers and scientists. It does not only set a substantive methodological standard for the sciences of human nature, but also implicitly possess a stimulating challenge to researchers in these domains to reconsider their theses in light of its vital components. This could be done within the province of the mind-body issue whose understanding is, the key to insight into other seemingly intractable philosophical problems such as the existence of God; the destiny of the soul; the status of morality; the meaning of life, etc. An illustrative instance is de Zengotita's suggestion to anthropologists- that the linguistic theory connotes a situation where the anthropologist is confronted with a 'clear choice': 'to give up their traditional subject for the study of brain organization' or 'to find appropriate way of approaching it'. Another instance is embodied in the basic task of cognitive science. As D'Agostino paints, a lot of stimulating work lies before the cognitive scientist in the area of **Artificial Intelligence** where there has been a remarkable 'analogy between computer (and other programmable machines) simulation of intelligent behavior which is provided for by naturalistic intellectualism'.

In this work, therefore, the whole point of our approach has been to show that metaphysics underlies theory construction both in philosophy and in science. We have indicated that the metaphysical framework forms a significant foundation within which explanatory approaches to intractable problems of mankind can be erected. And in

paraphrasing the comments of Michael Dummett (*Truth and Other Enigmas, 1978)*, if we have made any worthwhile contribution to philosophy, in particular, and scholarship, generally, we believe, it lies in having addressed Chomsky's approach to language in metaphysical terms. Researchers in fields such as philosophy, linguistics, cognitive inquiry, neuroscience and related disciplines will certainly find this study exciting. We conclude this thesis by quoting from the twentieth century Spanish philosopher, Mario de Carmen who once wrote:

> Mankind, blinded by the illusion of science and technology, has left aside the metaphysical task. The scientific-technological vacuum governs our civilization. We live in a time, which lacks ontological foundation. But it is not possible for man to live without wisdom. It is necessary to return to the motivation of philosophy.[1]

[1] de Carmen, "Is a World Without Metaphysics Possible?" (an abstract) in Odera-Oruka, 1991

APPENDIX

Noam Chomsky: Biographical Note

> It would be impertinent to write a personal biography of a particularly an individual like Chomsky whose intellectual biography come close to being a sketch of what has happened to theoretical linguistics in the past fifteen years.
> **Justin Leiber** [1]

Noam Avrum Chomsky was born in Philadelphia, a metropolitan city in the eastern American State of Pennsylvania, on 7th December 1928. He is the son of William and Elsie Simonofsky. His father William Chomsky, an emigrant from Russia, was a Hebrew teacher of considerable repute, who published a scholarly edition of Medieval Hebrew grammar.

He began his earlier education at the Oak Lane Country Day and the Central High School, Philadelphia before joining the University of Pennsylvania in 1945 where he studied Linguistics, Mathematics and Philosophy, receiving his Ph.D. in 1955. At Pennsylvania, he studied under the tutelage of Zelling Harris whose *Methods in Structural Linguistics* he proofread. His intellectual development was the influence of Harris. He has explained that it was actually his sympathy for Harris' political views that led him to work as an undergraduate in Linguistics. He received his graduate instructions from the empiricist-philosopher, Nelson Goodman, who in 1951 nominated him as a junior fellow of the society of fellows at Harvard University, Massachusetts, where he served until 1955. In the same year, with the encouragement of Morris Halle of the Massachusetts Institute of Technology (MIT) Faculty, he constructed models of the psychological reality of language and language use. His differences with Goodman led him to the construction of linguistic theory.

While traveling to Europe in 1963, Chomsky pondered over what has been referred to as a stunning revolution in modern thought about language. During this trip, it dawned upon him that his attempt to formalize structural linguistics, which was the topic for his Ph.D. dissertation, would be a futile exercise. He discovered that language was a highly abstract generative phenomenon and resolved that his further work should concern models of this phenomenon. Hence, "the work for which he is now famous, the construction of a system of generative grammar, developed out of his interest in modern logic and the foundations of mathematics, and was only subsequently applied to the description of natural languages" (Lyons, 1977, p. 174).

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[1] Leiber , 1975, p. 10

Chomsky claims that his theory of transformational-generative grammar did not only successfully establish linguistics as an important branch of science whose aim is to discover some explanatory principles for accounting for human intelligence. It also heralded a landmark in academic circles by apparently knocking down the hitherto demarcations constructed between disciplines such as linguistics, philosophy, and psychology. With generative grammar, he believes, these disciplines should no longer be termed or considered as separate and distinct, or autonomous, fields of investigation, but as brands of the same 'science'. He once remarked that the distinction of these fields of study "has always seemed quite senseless", and that "delineation of disciplines may be useful in administering universities or organizing professional societies, but apart from that, it is an undertaking of limited merit" (Miller and Lenneberg, 1978, p. 210).

Chomsky's eminence is not only limited to his redefinition of these disciplines. He has also been "a figure of national attention through his leadership in Resist, a national movement founded to support draft resistance and radical social change, and through his criticism of American political life" (Chomsky, 1975). His interest in politics dates back to his youthful days. Between 1940 and 1945, he became acquainted with the workings of a radical Jewish community in the city of New York who advocated social-anarchist approach to politics. During the same period he contemplated traveling to the Middle East particularly Israel, to contribute to the cause of Arab-Jewish cooperation.

As a radical political critic Chomsky published, perhaps, the most powerful diatribe against American involvement in Vietnam in the 1960's, *American Power and the New Mandarins* (1969). In this book, he supported the communists insurgency in Cambodia and reacted bitterly to the unprecedented atrocities which followed the Khmer Rouge take over with a series of polemics in questionable taste disputing the precise numbers killed (Turner, 1987, p. 158). To press his point, Chomsky participated in a demonstration against American policy on South East Asia at the Justice Department and the Pentagon in Washington before he was arrested and detained. He also spent a week in North Vietnam just before the Cambodian invasion. Commenting on his arrest Chomsky asserted that the Washington demonstrations symbolized the transition 'from dissent to resistance.' **Resistance** to him is 'in part a moral responsibility that cannot be shirked, in part a tactic to affect government policy'. But he hastens to caution that 'We must not, thoughtlessly urge others to commit civil disobedience, and we must be careful not to construct situations in which young people will find themselves induced,

perhaps in violation of their basic convictions, to commit civil disobedience. Resistance must be freely undertaken' (Chomsky, 1969, pp. 368, 384, 385).

In many respects, Chomsky's anarchist approach to politics reflects and augments his concept of language. To him, the incorrigibility typical of the kind of politics illustrated by American foreign policy in South East Asia in 1960's betokens the abuse of language. Christopher Coker (*The Mandarin and The Commissar: The Political Thought of Noam Chomsky*) has encapsulated how the essential philosophical underpinning of Chomsky's work in language illuminates his treatment of politics:

> If freedom is the basis of man's actions, and if his consciousness of freedom distinguishes him from the 'the beast machine' it is the use of language which confirms the distinction. To the Cartesians, each man possess a mind, a substance whose essence is thought, and it is the use of language which reflects man's freedom of thought... he believes that language is not taught but 'awakened' in the mind, a phenomenon which he likens to be 'awakening' of political consciousness... (Modgil et al, 1987, p. 220)

Coker also praises Chomsky for aiding in shaping 'the sensibilities of a generation of American political scientists':

> Chomsky has shown an impressive ability to bring to life the banal and the most disturbing elements of American foreign policy and to go further: to look at the damaging effects it has upon post-war attitudes and values in the United States itself... At heart, Chomsky is an advocate, more than a philosopher, a writer whose political philosophy is much more elusive than his political journalism. (Ibid, p. 209)

Like every political critic of deep-seated ideological commitment, Chomsky's character has not gone unscathed. In 1980 he contributed a preface to a book by a Frenchman who argued that "the Nazi concentration-camps' gas chambers were a myth invented by postwar Zionism for its own ends". His later admittance that he had not read the book drew intense criticisms from various quarters. His reaction to the furor occasioned in France by his confession was that the clamor "was a symptom of the lower standards of French intellectual life by comparison to that of America" (Turner, 1987, p. 158). This seriously dented his intellectual image and was a great slur to his political audience. Because of this, it is said, he has 'forfeited much of the audience which his analyses of the politics of his country doubtless deserve'.

Returning to his professional achievements, Chomsky has been honored with several distinguished positions. On leaving his fellowship at Harvard in 1955, he secured a teaching position at MIT with the assistance of Halle where he is now Ferrari P. Ward Professor of Modern Languages and Linguistics since 1966. He has also held other positions which include, member of the faculty (1955-61), Professor (1961-66), Institute Professor (from

1976) all at MIT. He has served as a Research Fellow (1951-55) and American Council of Learned Societies fellow (1964-5) both at Harvard Cognitive Studies Center. In addition he has served as: Visiting Professor, Colombia University, New York (1957-58); National Science Foundation Fellow, Institute for Advanced Studies, Princeton, New Jersey (1958-59); Linguistic Society of America Professor, University of California at Los Angeles (1967); Beckman Professor, University of California, Berkeley (1966-67); John Locke Lecturer at Oxford University and Sherman Lecturer, University of London (1969); and Russell Lecturer, Trinity College, Cambridge University. He has been awarded Honorary Doctorate by University of Chicago and University of London (1967); Loyola University and Swarthmore College (1970); Bard College at Annandale-on-Hudson, New York (1971); Delhi University, India (1972) the University of Massachusetts, Amherst (1973); and Visa-Bharati University, West Bengal (1980). At present, he is a member of American Academy of Arts and Sciences, the American Academy of Political and Social Sciences, the National Academy of Sciences and a Corresponding Fellow of the British Academy.

Chomsky is certainly an erudite scholar and writer. He has published dozens of works and contributed several of others to many journals. He has published extensively in several disciplines including philosophy, psychology, linguistics, cognitive inquiry, history, and politics, among others. According to Coker, his voluminous books "present a case which is so telling that it frequently rolls over any misgivings which might arise over the nature of his melodramatic appeal... His writing is of such a massive explicitness that one is at the same time overawed on such a large scale that all doubts are dispelled; but equally when he strikes a false note it lasts, as long in memory as other peoples books" (Modgil et al, 1987, p. 269). His most important work, *Syntactic Structures* was published in 1957 when he was twenty-nine years old. This book marked the beginning of an astonishing authorship, though, perhaps comparable to those of Immanuel Kant and Bertrand Russell. It was followed by *The Transformation Basis of Syntax* (1959), *Current Issues in Linguistic Theory* (1964), *Aspects of the Theory of Syntax* (1965), *Cartesian Linguistics* (1966), *Topics in the Theory of Generative grammar* (1966), *Language and Mind* (1968), *Remarks On Nominalization* (1968), with Morris Halle; *The Sound Patterns of English* (1968), *Chomsky: Selected Readings* (1971), Problems *of Knowledge and Freedom* (1972), *Studies on Semantics in Generative Grammar* (1972), *Reflections on Language* (1975), *Essays on Form and Interpretation* (1977), *Language and Responsibility* (1979), *Language and Learning* (1980), *Rules and Representation* (1980), *Lectures on Government and Binding* (1981), *Some Concepts and Consequences of the Theory of Government and Binding* (1982), *and Knowledge of Language* (1985).

His political works include, *American Power and the New Mandarins* (1960), *At War With Asia* (1970), *Two Essays on Cambodia* (1970), *The Backroom Boys* (1972), *For Reasons of State* (1973), *Peace in the Middle East?* (1975), *Chomsky on Carter* (1977), *Intellectuals and the State* (1978), *"Human Rights" and American Foreign Policy* (1978), *The Political Economy of Human Rights* (1979), *Radical Priorities* (1981), *Towards a New Cold War* (1982), *The Fateful Triangle* (1983), and editor with Howard Zinn, *The Pentagon Papers Vol. 5: Critical Essays* (1971).[1]

Chomsky is married to Carol Daris Schatz, a professor at Harvard. They have three children, a son, Harry Allan, and daughters, Aviva and Diane. His address is Massachusetts Institute of Technology, 77 Massachusetts Avenue, Cambridge, Massachusetts 02139, USA.

[1] Note that this list is only meant to show how scholarly Noam Chomsky is. It has no relation to the bibliography.

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