Chapter 3: Linguistic Universals and Linguistic Relativity

3.1 Linguistic Universals

Linguistics has always been concerned with developing a general theory of the structure and nature of the language. Syntax is the main area of application of this general theory. Linguistic Universals is a debatable topic among both linguists and philosophers. Consequently, it is a vital interest not only to linguists, but also to philosophers, psychologists, anthropologists, psycho-biologists and ethnologists - in other words to researchers of all academic disciplines that are involved in what is known today as Cognitive Science (Mairal & Gil, 2006).

In the seventeen and eighteen century, with the Scientific Revolution or the Enlightenment, the concept of universal reason first arose, according to which the general takes precedence over the particular, the abstract over the concrete, and the non-temporal over the historical. This historical period produced philosophers such as Descartes, Leibniz, Locke; physicists such as Newton ; as well as many other great scholars. To a greater or lesser extent, all of them influenced the linguistic ideas of the time which were centered on a force to create new artificial and Universal Languages. Based on the philosophy of Descartes, Claude Lancelot and Antoine Arnaud (Paris 1660) formulated a series of universal principles underlying language in general.

Influenced by Cartesian philosophy, universals became a serious topic of discussion among philosophers and linguists. The idea of innateness was the basic assumption behind linguistic universals. The debate of innate ideas is very old. Plato in his Meno argued that all knowledge were innate. Descartes and Leibniz defended the view that human mind contains innate ideas. On the other hand, Berkeley, Hume and Locke refuted this view. The debate on innateness continued throughout the seventeenth and eighteenth centuries between European rationalists and British empiricists. Rationalists claim that knowledge is impossible without a significant stock of general innate concepts or judgments; empiricists argues that all ideas are acquired from experience (Guttenplan, 1995). Innateness hypothesis has major impact on the theory of child's language acquisition. Innatists believe that some *a priori* knowledge/rules exist in human mind. On the basis of that knowledge, external objects in the real world become knowledgeable. Innate ideas are shared by all human beings and so it is universal on the basis of innate ideas, experimental data is deduced and interpreted. On the other hand, British empiricists (Locke, Berkeley, Hume) argued that knowledge comes from perception, and thus can not be derived from innate principles, but rather solely from experience.

There are two major approaches to study Linguistic Universals. The two approaches are different on a number of parameters. The most important are:

i)   Database for research on Language Universal (a wide range of languages, or a highly restricted set of languages).

ii)   The degree of abstractness of analysis that is required in order to state Language Universal.

Many linguists argue that for research on Linguistic Universals, it is necessary to have data from wide range of languages. On the other hand some linguists argue that the detailed study of a limited number of languages is necessary to study the Linguistic universals. They also advocate Linguistic Universals in terms of abstract structures and favour innateness as the explanation for such universals. The first approach is closely associated with the work of Joseph H. Greenberg (1915-2001) . The second approach is closely associated with the work of Noam Chomsky(1928-   ) which is popularly known as Generative Linguistics (Comrie, 1989).

3.1.1 Greenberg's Approach :

The conference on Language Universal was held at Gould House, Dobbs Ferry, New York, April 13-15, 1961, under the sponsorship of the Linguistics and Psychology Committee of the Social Science Research Council with a grant from the national Science Foundation.

Three members of the committee Joseph H. Greenberg, Games J. Jenkins, and Charles E. Osgood prepared a memorandum on the subject of universals in language which served as a basis for theoretical investigation in the area the memorandum suggested the following kinds of topics of the conference (Greenberg, 1966).

i)   Examples of universals.

ii)   The nature of universals

iii)   Topical structure of universals.

iv)   Substantive classes of universals.

v)   Domain of the universals.

vi)   Interrelations of Language Universals.

Based on Greenberg's methodology, in terms of three clause constituents Subject (S), Object (O), and Verb (V), there are six logical possibilities for arranging these linearly;

a) SOV

b) SVO

c) VSO

d) VOS

e) OVS

f) OSV

Vast majority of the world's languages belong to first three types, types d) has only a very small number of languages, type e) even fewer and more geographically restricted language with OSV word order are still awaited some languages of the Amazon region have OSV word order (Comrie, 1989).

Most of the linguistic researches are done using English language materials, within the framework of case grammar. Grammatical relations of English bear only a very loose co-relation with semantic roles and that therefore some other vocabulary is required to give a complete account of the syntax and semantic of valency in English. Thus, if one take the sentences John open the door with the key, the key open the door, the door open, then the subjects of the sentences are John, the key and the door. It fails to recognize that semantic role of

the subject is different in each example, a difference that can be describe by assigning the semantic roles, respectively, of agent, instruments, and patient (Comrie, 1989, p.58).

3.1.2   Noam Chomsky (1928 -   )

Chomsky published his first work *Syntactic structures* in 1957. According to *Syntactic structures* a language is " a set … of sentences, is finite in length and constructed out of a finite in length and constructed out of a finite set of elements" (Chomsky, 1957, p.13), and the "the fundamental aim in the linguistic analysis is of a language L is to separate the grammatical sequences which are the sentences of L from the ungrammatical sequences which are not sentences of L… the grammar of L will thus B a device that generates all the grammatical sequences of L and none of the ungrammatical ones" (Chomsky, 1957, p.13).

Chomsky was against the behaviorist school of thought. In his review of Skinner's *Verbal behavior* (Chomsky 1959), he challenged behaviorist theories of language acquisition and gave new idea; " the fact that all normal children acquired essentially comparable grammars with remarkable rapidity suggest that human beings are some how especially design to do this, with data handling or 'hypothesis-formulating' ability of unknown character and complexity" (Chomsky, 1959, p. 57).

Chomsky's research on language acquisition is based on innateness hypothesis.These body of research has amply demonstrated that the grammar of any human language is a highly systematic, abstract structure and that there are certain basic structural features shared by the

grammars of all human languages, collectively called *Universal Grammar*. Variation among the specific grammars of the world's languages can be seen as reflecting different setting of a small number of parameters that can, with in the constraints of *Universal Grammar*, take any of several different values (Garfield, 1995).

Chomsky's assumptions are taken for granted throughout his work and are not subject to question. Chomsky's view of language is based on Cartesian conception of the mind.

3.1.2.1 Deep Structure and Surface Structure

The standard model, proposed by Chomsky, consists of a base component

and a transformational component based on the former. This dual formation is introduced in order to facilitate differentiation of two levels of language, deep structure and surface structure. The following sentences have similar surface structures, but totally different deep structures:

John is easy to please.
John is eager to please.

The structural meanings such as subject-of are anchored in the deep structure which is generated by the basic component of the model. This is then followed by the action of the transformational component of the model which produces the surface structure by reordering the elements in the deep structure, as is required in such transformations as negation. Transformations

such as negation, passive voice, question form, etc., generally leave the deep structure of a sentence more or less unchanged, but they are responsible for the apparent modifications which one deep structure may undergo, as is the case in the following sentences:

Fritz sells a car to Franz.

A car is sold by Fritz to Franz.

Is Fritz not selling a car to Franz?

The surface structure of the sentence, which already contains information about the order of the words, is finally subjected to the third component of the model, namely the *phonological* component which provides the necessary program for the proper articulation (Horman, 1979).
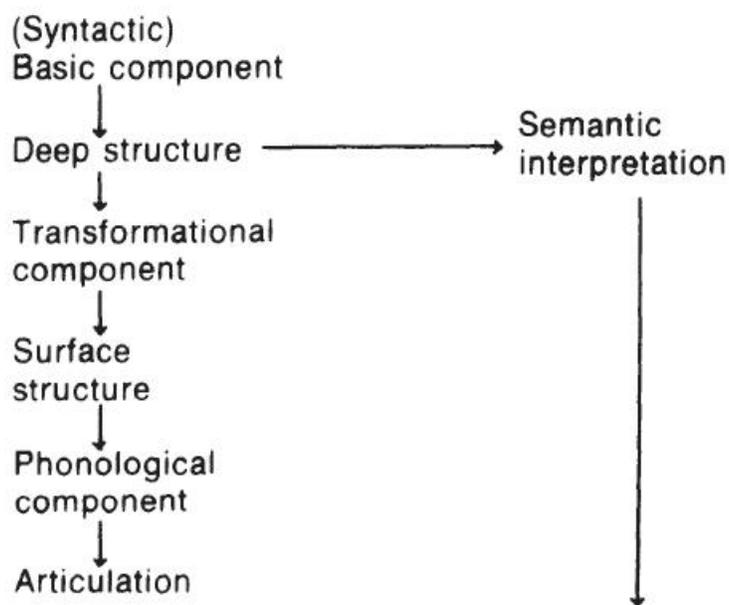
(Syntactic)
Basic component
↓
Deep structure ————————→ Semantic interpretation
↓
Transformational
component
↓
Surface
structure
↓
Phonological
component
↓
Articulation

Figure 3.1: Linguistic units and the rules for their connection (Horman, 1979, p. 50)

Since the mid-seventies, the major figures in the generative-interpretive debate have developed their thinking in disparate ways. Chomsky's interpretive view of language has evolved still further from the standard theory through the EXTended Standard Theory of 1970 to the revised EXTended Standard Theory of 1975 onwards. In this latter revision, the relation between syntax and semantics is virtually the opposite of what it was in the standard theory: the interpretation of

what a sentence means is derived from its surface structure, rather than from its deep structure. Deep structure still exists but may be less misleadingly refer to as the 'Initial Phrase marker'.

Generative semantics and interpretive semantics were both developed out of the standard theory of 1965. Transformational grammar is the theory of language in which syntax is considered to have to kinds of rules: Phrase-structure rules which specify the from of Constituent-Structure trees, and transformational rules, which in essence convert one kind of tree structure into another (as for example, an active structure into a passive structure). In Chomsky's syntactic structures - meaning was in effect ignored. It was assume that syntactic rules operated incomplete independence from meaning: there function was two generate or specify by rules the grammatical sentences of a language, and to assign to this sentences there correct structure.

The surface structure of a sentence was derived from the deep structure by means of transformational rules involving such operations as a deletion of constituents, the movement of constitutes from one part of sentence to another, etc. The rules which specified the deep structure were phase structure rules, which spelt out the basic constituency of sentences in terms of categories like Noun Phrases, verbs, etc. These rules made up the base components of syntax, and had as their output deep structure; the transformational rules made up, the transformational components of syntax, and had as their output surface structure. Apart from syntax, which was the central part of the total grammar, their were two interpretive components: the phonological and the semantic. The phonetic interpretation of a sentence was derived from its surface structure by means of phonological rules, while the semantic interpretation of a sentence was derived from the deep structure through the operation of so-called ***projection rules*** of semantics. The whole theory, therefore, through the interaction of its various components, provided a matching of phonetic outputs with semantic outputs (Leech, 1981).

3.1.2.2 George Lakoff on Chomsky:

Lakoff & Johnson (1999, p.423) considers that Chomsky inherited his views from formalist philosophy. The basic metaphor Chomsky uses in defining his theory of grammar in *Syntactic Structures* that a natural language is a formal system.

Chomsky's metaphor :

A natural language is a formal language.

A String of Formal Symbols ⟹ **A sentence**

A Set of Such String ⟹ **A language**

Rules for Generating Such a Set ⟹ **A Grammar**

> "A formal language is a purely mathematical entity conceptualized by logicians in terms of aspect of written natural languages. It was a form of pure mathematics having nothing to do literally with real natural languages. Chomsky took it not as metaphor for modeling natural language syntax , but as a truth " (Lakoff & Johnson, 1999, 423).

Chomsky's theory of language thus comes in two parts. The first part is his a priori philosophical worldview, a blend of Cartesian and formalist philosophy. This is not subject to question or change. It defines a philosophical perspective that he calls " the generative enterprise". To engage in the enterprise is to accept the worldview. To engage in the enterprise is to accept the worldview. The second part is his specific linguistic theory at a given time, who's details have

changed considerably several times over the years the generative enterprise, as Chomsky understand it, is a long term philosophical project defined by an a priori philosophical worldview.

Chomsky's philosophical worldview constrains what "syntax" and "language" could possibly mean. Both his Cartesian and formalist perspectives require that "language" must be both mathematical and purely formal. Both require that it be autonomous, that is, the "syntax" of a "language" be characterizable independent of meaning or of any other external input. Chomsky's Cartesian philosophy requires that "language" be an autonomous faculty of mind. Its autonomy requires that "language" be independent of "external" aspects of body and brain. As an autonomous faculty in Chomsky's philosophy, "language" must be:

o   Independent of memory

o   Independent of attention

o   Independent of perception

o   Independent of motion & gesture

o   Independent of social interaction and culture

o   Independent of contextual knowledge

o   Independent of the needs of inter personal communication

Lakoff & Johnson (1999) also notes that according to Chomsky syntax is the creative part of the human mind. It creates, from nothing external to itself, the structures of language upon which all human rationality is built.

In Chomsky's theory, "syntax" autonomously creates ("generates") the structures used in language. Of course, there is more to language than just "syntax". There are other components to a whole grammar, for example, semantic and phonological components that take structures created by the "syntax" as input and perform other operations on them. But it is "syntax" that characterizes the essence of "language" and so it must be autonomous and take no other input.

Problems with Chomsky's Cartesian Linguistics

The philosophical assumptions behind Chomsky's linguistic theory are almost entirely inconsistent with empirical research on mind and language coming out of second-generation cognitive science. That research indicates that the syntax of a language is structured:

• not independently of meaning, but so as to express meaning

• not independently of communication, but in accordance with communicative strategies

• not independently of culture, but often in accord with the deepest aspects of culture

• not independently of the body, but arising from aspects of the sensorimotor system

There is a wide-ranging literature in cognitive, functional, and other types of linguistic research establishing this. What follows is an extremely brief account of some of the phenomena that have led many linguists to reject the Chomskyan paradigm (Lakoff & Johnson, 1999).

Finally, there is no Chomskyan person, for whom language is pure syntax, pure form insulated from and independent of all meaning, context, perception, emotion, memory, attention, action, and the dynamic nature of communication. Moreover, human language is not a totally genetic innovation. Rather, central aspects of language arise evolutionarily from sensory, motor, and other neural systems that are present in "lower" animals (p.17).

3.1.3 Jerry Fodor & Language of Thought

Fodor presents a stronger view known as LANGUAGE OF THOUGHT (LOT) hypothesis. According to LOT, the human representational system exploit an innate language of thought which has all of the expressive power of any learnable human language. The language in which the human information processing system represents information can not be a human spoken language. Fodor argues that there must be a non-conventional language of thought which is different from all natural languages

3.2 Linguistic Relativity:

The linguistic relativity hypothesis is the proposal that the particular language one speaks influences the way one thinks about reality. The hypothesis has two claims. First, languages differ significantly in their interpretations of experience-both what they select for representation and how they arrange it. Second, these interpretations of experience influence thought when they are used to guide or support it.

Interest in the intellectual significance of the diversity of language categories has deep roots in the European tradition. Formulations related to contemporary ones appeared in England (Locke), France (Condillac, Diderot), and Germany (Harman, Herder) near the beginning of the eighteenth century. They were stimulated by opposition to the universal grammarians, by

concerns about the reliability of language-based knowledge, and by practical efforts to consolidate national identities and cope with colonial expansion. Work in the nineteenth century, notably that of Humboldt in Germany and Saussure in Switzerland and France, drew heavily on this earlier tradition and set the stage for contemporary approaches. The linguistic relativity proposal received new impetus and reformulation in America during the early twentieth century in the work of anthropological linguists Sapir (1949) and Whorf (1956). Hence the common designation as "the Sapir-Whorf hypothesis.

There has been little empirical research that both compares linguistic meaning structures and then independently assesses thought (Lucy, 1992). This stems partly from the interdisciplinary nature of the problem and partly from concern about the implications of relativism and determinism.

3.2.1 Edward Sapir (1884-1939):

Edward Sapir was Boas's premier student in the area of linguistic studies . He was known for both the quality and the quantity of his empirical research on specific languages and also for his theoretical vision. He also played an important role in developing the subfield of culture and personality, which is concerned with the interaction between psychological functioning and cultural patterns. His concern for the relationship between language and thought stands at the intersection of these two areas of interest .

Sapir worked out the implications of the fact that the implicit classifications of experience in language (described by Boas) cohere into formally complete systems . Thus , the differences among languages lie not merely in the content of the individual classifications themselves , but , among other things , in their systematic formal arrangement . The formal , systemic nature of these classifications is one factor contributing to their remaining out-of-awareness. Whereas Boas saw language as primarily reflecting thought and culture and only on occasion having a direct influence back on them, Sapir began to see in language a powerful shaping factor because of the impact of using this creative symbolic tool in the interpretation of experience . He argued that the use of this tool transforms and , in part , constitutes conceptual thought ; the naive acceptance of language-specific properties as guides to reality channels and shapes the speakers' view of physical and social reality. While Sapir recognized the logical plausibility of the influence of language on culture via its influence on thought , he felt the evidence on this issue was negative . However, in his later writings certain reconceptualizations of thought and culture emerged which pointed toward a notion of culture involving shared symbolic understandings , which of necessity depend largely on a linguistic base .

Boas and Sapir lay the groundwork for a notion of linguistic relativity by showing that each language represents a classification of experience which can vary considerably. However, they differ in their sense as to the importance of this variation for thought and culture. Boas believed that the influences on thought and culture were minimal and , if anything, that stronger influences ran in the other direction . Sapir felt (particularly in the later period) that there was an influence on thought, although he did not investigate this in detail, but he felt that the linkage to culture was questionable given the available evidence (Lucy, 1992).

3.2.2 Benjamin Lee Whorf (1897-1941)

Benjamin Lee Whorf (1897-1941) was trained as a chemical engineer at the Massachusetts Institute of Technology and worked as a fire prevention engineer for the Hartford Insurance Company for his entire professional career. A vocationally , however, he pursued a wide variety of interests, centering for the most part on a deep concern for the apparent conflict between science and religion . This general interest eventually became focused on linguistic problems , and it is in the area of language-related studies that he made his most important scholarly contributions (Lucy,1992).

Whorf was initially self-taught in linguistics , but later (after 1931) benefited significantly from interaction with Sapir and his circle of students at nearby Yale . His interest in and formulation of the specifically linguistic relativity principle probably stemmed in large part from this contact with Sapir. It is important to realize that despite his "amateur" status , Whorf's work in linguistics was and still is recognized as being of superb professional quality by linguists.

He produced general descriptive works on the modern Nahuatl (Aztec) and Hopi languages, partial descriptive studies of a variety of other languages contemporary and ancient , historical reconstructions of the Uto-Aztecan and adjacent language families , epigraphic studies of Mayan and central Mexican hieroglyphic writings , and a number of theoretical articles . Most of these works are still of contemporary relevance .

Language classifies experience

Whorf shared with Boas and Sapir the view that language was classificatory , isolating and organizing elements of experience . And, like Sapir, he emphasized the productive formal completeness of the linguistic system of classifications and the dependency of meaning on the patterns of relations among classifications . Further, he agreed with Sapir that the analysis of experience implicit in a language might only be in accord with objective experience up to a point ; thereafter, the role of the socially conventional linguistic scheme itself becomes important in further defining the nature of what is classified and in what way . Whorf went much further than Sapir by examining less obvious morphological categories to reveal the full classificatory nature of language and hence the true extent of the possible interactions of language classifications with thought (Whorf, 1956).

Language determines thought:

Whorfian hypothesis on the dependence of thought on language gave birth to much debate among philosophers of language. Whorf proposed a) Language determines thought and b) Every language embodies a definite world view. If the above propositions are valid, there must have remarkable implications in information retrieval. Classification or Indexing is one kind of knowledge representation in notational or semi-linguistic form.

Knowledge representation is today's major area of research in different fields viz, computer science etc. The standard assumption in artificial intelligence and cognitive science in general is that knowledge should be represented in some language-independent code. In classification also, thought contents are analyzed and sequenced in a language-independent

form in the idea plane. But the Whorfian hypothesis raises the obvious question : can knowledge be language-independent ? Language determines the world knowledge of a person and differences in unrelated languages ultimately lead to differences in the way people (of different linguistic community) think or see the world. Whorf studied American-Indian languages in a grant deal and came to the conclusion that these languages have deep differences with the Standard Average European (SAE) languages namely, English, French, German, Italian etc. In English, there is a single term for "show". Englishmen need not to differentiate it. But an Eskimo sees "snow" in a different way-differentiates it into many categories and designates them by different terms.

The absence of elementary terms for certain colors led to the conclusion that the Greeks were color-blind in these areas. The Bororo of Brazil are said to be incapable of noting the features common to all parrots because they have names for individual species of parrots but no terms for parrots in general.

At this point one may argue that the linguistic relatively discussed above is actually the differences in the number of words in the vocabulary of those linguistic community and it is quite natural. Vocabulary of a primitive society may not be the same to the vocabulary of a technologically developed society. But there exists another kind of linguistic relativity and it is not more differences in the vocabularies. In this case, a grammatical category in one language is expressed as another category. There are many languages in the world which express an adjective as verb. In such a language the sentence 'the leaf is green' would be literally translated as something like 'the leaf greens'. In the strongest form of the hypothesis,

Whorf argues that, it would be very difficult for a Hopi and an English physicist to understand each other's thinking. This relatively in the categorization of thought has great implications in the context of information storage and retrieval. The work in idea plane would differ substantially for the persons belonging to almost unrelated linguistic community. Therefore, analysis of thought content into fundamental categories and their sequence in a helpful manner would be different for such languages.

Recent studies in cognitive and information science also suggest that the world knowledge of users may be determined partly by demographic factors such as ethnicity and gender. However, research into how a user's world knowledge can influence information retrieval is incomplete, and there are few clear indications as to how world knowledge can be effectively modelled in an information system.

Whorfian hypothesis, however, is an extreme doctrine and it has been severely criticized from different corners. Several lines of researches are now converging to reveal that not only all humans, but probably all birds and mammals, share the same fundamental cognitive machinery and use the same processes of inference. And despite cultural and biological differences, people, pigeons and primates seem to construct much the same view of the world .

However, a weaker version of the Whorfian hypothesis is generally accepted. Language may not determine the way people think, but it does influence the way people perceive and remember, and it affects the ease with which they perform mental tasks.