

A Theoretical Review and Analysis of Generative Grammar in Contemporary Linguistics

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ABSTRACT

Aim of the Study: The paper is a theoretical discussion of Generative Grammar and its role in the modern linguistic studies. The discussion begins by providing an overview of the origins of Generative Grammar with a special emphasis on the contributions of Noam Chomsky, who introduced the initial understanding of Generative Grammar, namely that language is a mental ability regulated by an internal system of rules called universal grammar.

Methodology: This paper employs the qualitative approach to research and descriptive research design based on library research. The latter method is chosen to analyze the theoretical basis of Noam Chomsky in his generative grammar in terms of a critical review of primary and secondary sources concerning the topics of nativism, Universal Grammar, competence, performance, and syntactic structure within the framework of transformational grammar. The primary source is the paper titled Generative Grammar and is supported by the literature on the subject, such as works by Noam Chomsky, M.A.K. Halliday and George Lakoff.

Findings: The article incorporates and contrasts important theoretical contributions and criticisms of the various schools of linguistics to assess the current state and viability of Generative Grammar. The discussion shows that Generative Grammar still plays a significant role in the linguistic theory, particularly in the explanation of syntactic phenomena and language acquisition.

Conclusion: Study concluded that nativism is one of the main concepts and it holds the view that the ability to speak a language is inborn, and it is not entirely learned. This perspective is related closely to the theory of Universal Grammar, the theoretical framework of structural rules common to all human languages.

Keywords: Generative Grammar, Contemporary Linguistics, Linguistic Theory, Nativism.

1. INTRODUCTION

Noam Chomsky is considered to be one of the most influential people in politics and linguistics (Barsky, 1998). The theory of Universal Grammar places Chomsky alongside influential linguistic scholars that include Franz Boas and Edward Sapir in the field of linguistic anthropology, Leonard Bloomfield in the

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field of structural linguistics, William Labov in the field of sociolinguistics, Joseph Greenberg in the field of typological linguistics, Steven Pinker in the field of cognitive linguistics, and Uriel Weinreich in the field of language contact. Additionally, he is considered a personality, who can start a revolution in the field of linguistics (Higginbotham, 1982; Sampson, 1980) as well as in the knowledge of human cognition (Barsky, 2011). In the views of Chomsky, language is not conditioned by behavioural systems, which rely on cycles and reactions, as suggested by linguists of the behaviourist school (Higginbottom, 1982). Rather, the establishment of a clear division between cognitive psychology and behavioural psychology in the formulation of language in Universal Grammar ultimately led to the development of linguistics as a subfield of psychology (Bauer, 1978).

The theoretical influence of the classification of morphemes that resemble each other in syntactic analysis, e.g. eat, drink, sleep, are all categorized into the verbs group. This theoretical influence is also inspired by the concept of linguistic universalism in grammar developed by Noam Chomsky. Verbs are even theorized to be a universal aspect of language as postulated by Zellig Harris (Sampson, 1980). Roman Jakobson was one of the most prominent representatives of the Prague School, especially in the field of phonology. Chomsky was therefore not only an heir of the American descriptivist intellectual tradition, as in particular to his first teacher, Zellig Harris but also retained links to both traditions. When discussing the genealogy of Chomskyan universal grammar theory, one must admit that Zellig Harris was one of the key figures that shaped the theory. The name generative of generative grammar with its general implications was borrowed after this early teacher. Prior to collaborating with Noam Chomsky, Zellig Harris had already worked with Chomsky's father (Barsky, 2011).

Modern linguistic research has undergone a paradigm shift due to the development of the theory of generative grammar, which was proposed by Noam Chomsky in the mid of the 20th century (Susiwati, 2019). This theory marked a paradigm shift of a behaviourist approach to a mentalistic and cognitive approach in understanding the nature of language. Chomsky made the argument that the faculty of language is an innate and universal trait of human beings, and not simply a consequence of imitation or the habituation of the environment (Mehrpour and Forutan, 2015). By means of this paradigm, language is no longer seen as an output of behaviour, but as a complex and structured system, which is embedded in human cognition. One of the key ideas of generative grammar is the concept of nativism, which asserts that a human being is born with certain biological mechanisms which help in the natural acquisition of language.

In this context, every person is supposed to have a Language Acquisition Device (LAD), which is the basis of linguistic competence (Krashen, 1981). This theory explains why children of the world can learn their first language in a comparatively brief period and with intricate frameworks, without having to undergo a period of extensive formal education. Nativism can then be of significance in the formulation of subsequent linguistic theories (Braine, 1994), especially in the emergence of the first language acquisition. Moreover, the idea of Universal Grammar proposed by Noam Chomsky, implies that all human languages have a set of structural principles in common. The principles are regarded as fixed and universal, i.e. variation between languages can only be on parameters but not on basic structures. This concept underlines the hypothesis that mankind has an inner ability to comprehend and produce an unlimited variety of linguistic frameworks. Besides strengthening the argument that language is innate, Universal Grammar also forms a basis in cross-linguistic analysis in typology and syntax.

The other noteworthy notion in Generative Grammar Theory (GGT) is the difference between competence and performance. Competence is the internal and intuit knowledge of the language rules by a speaker whereas performance is the actual application of the language in real-life circumstances (Shohamy, 1995; Taylor, 1988). Whereas both are interrelated, Noam Chomsky emphasizes more on competence since it is a stable internal system that cannot be affected by psychological or situational factors. The distinction is necessary in the study of linguistics since the distinction allows scholars to remove the errors that are brought by cognitive limitations and those that are brought by external conditions. The definition of grammar and its role in the generative framework is also discussed. In the

view of Chomsky, grammar is a finite system of rules that have the capacity to produce an infinite number of sentences.

In this way, grammar is indeed a generative system explaining the human ability to be linguistically creative. It consists of three basic elements, each playing a different role in the syntactic, semantic and phonological structures of sentence building and decoding. Lastly, another set of criticisms of the theory of Generative Grammar that have been put forward by other linguistic traditions are also considered in this paper, specifically generative semantics as proposed by George Lakoff and systemic functional grammar as proposed by M.A.K. Halliday. These came about as a response to perceived shortcomings in Chomsky's framework, particularly its weak emphasis on meaning and social context in the use of language. The approach of generative semantics suggests a model that places a greater emphasis on meaning as a component of the syntactic structures, whereas the approach by Halliday focuses on the social and communicative role of language. In general, the discussion of these views is an expansion of the consideration of the development and dynamics of linguistic theory in the post-Chomskyan era.

1.1 Statement of the Problem

The theory of Generative Grammar, which was developed by Noam Chomsky, has had a significant impact on the modern field of linguistics with its concepts of nativism, Universal Grammar, competence and performance, and transformational structures; still, there are a number of unresolved issues connected with this theory. Among the key issues is that the lack of a clear and empirically verifiable explanation on how nativism explains the innate human capacity of language acquisition and the difficulty of defining and operationalizing the Universal Grammar in the context of various linguistic settings. Also, the issue of competence and performance presents difficulties to any practical analysis of linguistics, especially in explaining the use of languages in real life situations. When it comes to the actual interaction of fundamental elements of transformational generative grammar such as deep and surface structures, phrase structure rules, and transformations, questions still remain. Moreover, critics have criticized the theory because of its limited understanding of meaning, context, and the social nature of language, and alternative linguistic approaches have not yet fully clarified their effectiveness in filling these gaps and thus necessitating a critical re-evaluation of the explanatory power and applicability of generative grammar.

1.2 Research Questions (RQs)

According to the background and the initial discussion of GGT suggested by Noam Chomsky, along with its further development and theoretical reactions, the following research questions had been answered in the course of this research:

1. What is the explanation of the innate human ability to acquire a language based on the concept of nativism?
2. What are the fundamental postulates of the Universal Grammar theory, and what are the applications in the study of linguistics?
3. What can the difference between competence and performance be applied to in the analysis of language, especially in both theoretical and practical linguistics?
4. How are the main components of transformational generative grammar, and what are the main interactions of these components in the development of the sentence?
5. What is the structure and role of grammar explained by the transformational generative grammar theory?
6. What is the reaction of the alternative approaches to the limitations of the Generative Grammar Theory such as generative semantics and systemic functional grammar?

1.3 Importance of the Study

The importance of a work of Generative Grammar, one of the theories, pioneered by Noam Chomsky, is that it allows re-evaluating the applicability of this influential framework in modern linguistics, refines

theoretical knowledge of the structure of language, and connects it with contemporary disciplines such as cognitive science and artificial intelligence. Such a research also promotes a critical comparison with other approaches, promotes more effective language teaching, and helps to determine whether Generative Grammar still provides an adequate explanation of how humans acquire and use language today.

2. LITERATURE REVIEW

The theoretical analysis of generative grammar in the modern linguistic context reveals a complicated and ever growing field which has had a significant influence on the linguistic theoretical approach since its introduction in the middle of 20th century. Generative grammar, to a large extent due to Noam Chomsky, focuses on the inborn linguistic capacity of humans and attempts to explain the implicit knowledge that allows speakers to generate and understand an endless number of sentences. This methodology has undergone a number of evolutions, with theoretical views and methodological aspects evolving. The following parts discuss the main aspects of generative grammar, its evolution through the history and its present implications. The concept of generative grammar dates back to 1950s, when Noam Chomsky came up with the idea of language being a mental construct, and that humans have an inherent language faculty. The ability to produce an unlimited number of sentences with a limited set of rules and vocabulary is known as linguistic competence according to this theory (Klingvall and Manninen, 2023). The framework has evolved in various stages which include: The Standard Theory, Extended Standard Theory and Minimalism, all of which have provided refinements to the understanding of the syntactic structures and their association to meaning and sound (Bagha, 2009). The syntactic or computational component is the core of generative grammar; it is a component that builds hierarchical structures through syntactic or computational operations, like merge and interfaces with phonological and semantic systems connecting structure with sound and meaning (Klingvall and Manninen, 2023).

Generative grammar over the decades has been criticized, and extensively revised in theory. Critics have argued that its heavy focus on syntax has been to the detriment of other aspects of linguistics, especially semantics and pragmatics (Edelman, 2003). Reactively, there appeared cognitive linguistics, which foregrounded the meaning and conceptual frameworks in understanding language and challenged the syntactocentric orientation of generative grammar (Fortis, 2012). Irrespective of these criticisms, generative grammar has since then continued to develop through incorporation of the ideas of cognitive science and psycholinguistics. Nevertheless, there are scholars who argue that it still has deficient empirical underpinnings to some of the theoretical constructs, including movement and traces (Edelman, 2003). Generative grammar methodologically, generative grammar attempts to formalize linguistic knowledge in terms of explicit rules and structural representations, and the goal is to develop a comprehensive theory of language that is consistent with cognitive and neurological evidence.

The insistence by Noam Chomsky that generative grammar is explicit has led to debate on whether or not the word generative should be construed to mean simply that generative grammar is explicit. The reliance of the framework on mathematical and formal analysis has been both considered a significant strength, and as a point of criticism, with some scholars arguing that it generates grammatical models that are too powerful to be fully consistent with the constraints of natural language (Berwick, 1984). Generative grammar is still used to influence the linguistic theory, yet discussions are still going on regarding its relevance and applicability given the new developments in the field of linguistics and cognitive science (Freidin, 2016). The integration of generative grammar with cognitive linguistics and other interdisciplinary solutions provides the prospect of a more integrated understanding of language, into which syntax, semantics, and cognitive processes are integrated (Edelman, 2003; Fortis, 2012). It is believed that future studies will continue to refine its theoretical constructs to be more in line with empirical evidence and explore its implications on language acquisition and language processing (Ogawa, 2001).

Although generative grammar is still an important theory used in the study of linguistics, it is contested by other theories such as those of meaning and cognitive processes. The further evolution of generative

grammar is the reflection of broader tendencies in the linguistic theory and the emphasis on the dynamism of the sphere and the need to incorporate the variety of perspectives to further enrich the knowledge about language.

3. METHOD

This paper employs the qualitative approach to research and descriptive research design based on library research. The latter method is chosen to analyze the theoretical basis of Noam Chomsky in his generative grammar in terms of a critical review of primary and secondary sources concerning the topics of nativism, Universal Grammar, competence, performance, and syntactic structure within the framework of transformational grammar. The primary source is the paper titled Generative Grammar and is supported by the literature on the subject, such as works by Noam Chomsky, M.A.K. Halliday and George Lakoff. This method is aimed at systematic articulation of the theory, interpretation of its main theses, and evaluation of the relevance of the theory in modern linguistic research.

The data was gathered from the written documents, such as scholarly articles, language reference books, and other written sources covering the topic of generative grammar. The data was collected using documentation methods, and a comprehensive literature review (Polkinghorne, 2005). The researcher isolates some central concepts in the texts, among them is the Language Acquisition Device (LAD), deep structure, surface structure, and the hierarchy provided by Chomsky. The data units were then critically and contextually analyzed to show relationships among concepts and between the perspectives of Noam Chomsky and other scholars including M.A.K. Halliday and George Lakoff.

The analysis of the data was conducted with the help of qualitative approach through the steps of data reduction, data display and drawing conclusions (Miles, 1994). Data reduction entails the choice of the necessary information in the supporting literature that is relevant. The data is given in the mode of an analytical narrative to demonstrate how the elements of generative grammar are logically related. Conclusion drawing aims at reinforcing the role of generative grammar in both theoretical and applied Linguistic research.

Though this work is founded on library research, its context is still applicable in the academic activities in the tertiary level, especially in the development of theoretical linguistics teaching resources. The study is carried out within the professional framework of linguistics, and the purpose of the study is to come up with a scholarly exposition that can be applied in lectures, module development, or in a journal publication. The applicability of the study is that it contributes towards unravelling the generative grammar structure as a basic tool of syntactic analysis and language learning among advanced learners.

4. DISCUSSION

4.1 Nativism

Nativist school of thought emphasizes the innate abilities of children and it attributes a secondary role in development to environmental factors. In this perspective a child is born with an intrinsic hypothesis about language, including its structural organization. The languages throughout the world differ in their structure i.e. some languages follow a Subject-Verb-Object (SVO) pattern whereas others use a Subject-Object-Verb (SOV) pattern. One of the SVO-structures is found in English and Indonesian as we can see in the following sentences: Saya (S) bermain (V) bola (O) and She (S) sings (V) a song (O). By contrast, Japanese and Pakistani, urdu generally follow an SOV structure, as shown by: 'Watashi 'I' (S) wa gohan 'rice' (O) o tabemasu a eat' (V) and Walid a father' (S) kitab a book' (O) parta hai a read' (V). This sentence shows the word order Subject-Object-Verb (SOV) in Japanese and Pakistani, urdu language.

Japanese: Watashi wa gohan o tabemasu -I eat rice.

Urdu: Walid kitab parta hai- Father reads a book.

The subject is presented at the beginning of both examples, followed by the object and the verb appears at the end, which is typical of the SOV language structure. Language systems all over the world are highly complex, but the innate nature of language acquisition has enabled children to start using language at a very early age. According to (Saville-Troike, 1973, 2008), at about six months old, infants begin to produce all the vowel and consonant sounds of other languages. When children listen to the words spoken by their parents, they get to know about the language that is being used around them. They gradually recognise its structure and organise it into an accurate grammatical system. They instinctively realize that there are words which are verbs, nouns, adjectives, etc. and they learn how to combine these units into sentences. This ability can be achieved due to the fact that children are born with a set of language-learning mechanisms called the Language Acquisition Device (LAD) (McNeill, 1966).

Saville-Troike describes five tendencies that explain the innate human ability to acquire language:

1. In all languages children begin the study of the language of their mother, at about the same age, and in a more or less similar manner.
2. In any language, children learn successfully to acquire some basic grammar and phonology.
3. They can understand and make utterances they have never heard before, even when these do not match the speech in their environment.
4. First language acquisition has a cut-off point, after which full mastery may not be realised.
5. The process of acquisition of first language is not entirely dependent on general intelligence.

Unlike behaviourists, who believe that learning a language involves imitating and reinforcing, nativists believe that children do not just imitate and reinforce to learn a language. Rather, they internalize linguistic rules and use them to create new sentences, which they have not previously encountered. Examples of how the nativist theory can be applied to the development of English language can be discussed as follows:

Example-1: Sister is going.

In attempting to say this sentence, a child who relies solely on imitation may say such things as-sister is, is sister, go sister. This kind of utterance is rational to a child who is yet to acquire their first language, and has not as yet mastered grammatical categories or syntax. There are quite a number of children who say instead, sister go. Although this sentence is not grammatically correct in English, its word order is logical. The subject sister comes before the verb go, suggesting that the child intuitively grasps the basic structure.

Example-2: She hitted me just now.

This sentence has a wrong form of the past tense of the verb hit that should not be changed to have a new past tense form of the verb of hitted. It is not surprising to find the use of hitted because the child is using a general rule of adding -ed in order to form the past tense. The order of the words, as in the previous example is correct: she (subject) comes before hitted (verb) and me (object). This implies that the child is not merely parroting speech but is dynamically developing language on the basis of internalised rules.

Example-3: 'Go!' (intentional connotation: One must go away now!)

In this illustration, the child simplifies a complex sentence to a command with only one word. Whereas they are not yet in a position to produce the entire sentence, they choose go, a verb that is used to depict action. This shows that the child has understood the main concept of verbal action and can express intent even with a limited vocabulary. These types of behaviour reinforce the opinion that children are born with an internal language learning system or LAD. Combined, these examples reinforce the argument that language acquisition is not merely the product of environmental imitation, but an innate, biologically based process that lets children use language in creative, systematic ways.

4.2 Universal Grammar

Universal Grammar is a theory of linguistics, which postulates that all human languages have the common set of innate principles. It seeks to explain the similarities in the development of language in various linguistic systems, beyond the confines of individual languages. The human ability to learn any language led Noam Chomsky, a leading linguist of the 1950s, to suggest that every language is based on a universal grammatical framework. The emergence of this conjecture spawned a great deal of interest and debate in the discipline of linguistics and gradually evolved into a scholarly movement aimed at determining the universal rules of human languages, which is referred to as Universal Grammar. Chomsky started developing this theoretical model in 1957.

His argument is that the main goal of Universal Grammar is to develop a universal grammar that can explain all languages and hence be universal. In line with this objective, the proponents of the nativist school of thought conducted an intensive research that led to the development of the Universal Grammar theory. To Noam Chomsky and his followers, Universal Grammar is closely associated with the innate ability of humans to language as well as the logical structure of language (i.e., linguistic input). This ability is perceived as a system of inborn universal rules (Aziz, 2009). It is said that in the absence of these universal rules, the languages of the world would be so diverse and different that communicating and understanding each other would be quite impossible.

Taking into account the universal nature of language, it can be seen that all languages work with systematic structures and rules with none being completely exceptional. This universality is especially conspicuous in the initial language acquisition. The concepts of Universal Grammar have been considered to be innately instilled in the human mind at birth. This has led to the acquisition of these rules being seen as an inherent biological ability common to all neurologically normal individuals regardless of their first language, cultural background, or educational attainment. Therefore, in humans, language acquisition is a natural process as long as such a person is not influenced by any severe cognitive or physiological disorders that can impair his/her capacity to perceive, comprehend, or generate language.

This view is opposed to behaviourist theories which say that language is acquired through habits, practice and repetitions. Comparatively, Universal Grammar holds that language is a natural mental ability- it is a part of human thought since birth. Further, there are several linguistic features that are said to be universal in all languages: (1) verbs express an action, process, or state, not attributes; (2) transitive verbs necessarily require a subject; (3) intransitive verbs do not need supplementary complements, as they carry full meaning on their own; (4) adjectives modify nouns or noun phrases; and (5) adverbs modify verbs, adjectives, numerals and even complete sentences. In their turn, numerals indicate quantity, grouping, or order of nominal elements (Fishman, 1972; Gumperz and Cook-Gumperz, 2008; Halliday, 1993; Poedjosoedarmo, 1984).

Universal Grammar theory is an ensemble of grammatical principles and elements that are necessarily present in all human languages, and allow children to arrange linguistic input in certain ways. These principles are based on what Noam Chomsky refers to as the Language Acquisition Device (LAD) and they include both substantive and formal universals (Mahmud & Idham, 2019). Chomsky metaphorically referred to this natural linguistic ability as a small black box in the brain (McNeill, 1966). It is also elaborated that the LAD is made up of four inherent linguistic capabilities, namely, the ability to distinguish between speech sounds and other environmental sounds, the ability to categorise linguistic input into categories which could later be refined, the ability to recognise that only certain types of linguistic systems were possible whilst others were not, and the ability to evaluate emerging linguistic systems and construct the simplest one based on the input one received. With the LAD, children can learn the language of the environment in rapid and effective ways even when they are subjected to less linguistic input.

4.3 Competence and Performance

In his seminal work *Aspects of the Theory of Syntax* (Chomsky, 2014), Noam Chomsky believes that linguistics is in fact a branch of psychology that deals with human cognition. He suggests that there exists a difference between two basic elements of language; competence and performance, which together are the foundations of linguistic behaviour. The initial one of them is the competence which is an abstract, innate, ability within the human mind which helps in language processing. It is the internalized knowledge that a speaker has about his/her language and includes its phonological, semantic and syntactic structures. That is, competence is an indicator of an implied knowledge of rules that apply to language that a speaker uses. Chomsky argues that even though most of the utterances that native speakers produce are completely novel, yet they can produce and interpret them with ease due to this internalized linguistic system.

The second element, performance, is related to the practice of using language in real-life situations. It is the manifestation of competence which is observed and is often constrained by a variety of psychological and environmental factors, such as memory limitations, fatigue, distraction, emotional states, and other additional linguistic components. These aspects have the potential to interfere with the proper manifestation of the linguistic competence of a given person when it comes to producing as well as comprehending the language. Thus, although competence is the idealized, cognitive knowledge of language, performance is concerned with its practical application in communication. To have performance reflecting closely on competence such additional linguistic effects would ideally have to be minimized. The performance in its turn is the practical application of language, the way it is pronounced and received in the communicative situations in the real life.

Noam Chomsky sees grammar as a finite collection of rules that can be used to generate an infinite number of sentences. In the normal use of language, people are able to both produce and comprehend an unlimited variety of sentences, many of which they may never have previously encountered or expressed. It is not very likely that even when the same sentence has been previously used, it will be repeated in the exact form. This ability is referred to as the creative element of language (Abdul, 2012). Compared to most linguistic approaches and in particular descriptive linguistics which treats performance as the primary focus of analysis-generative grammar as further developed by Noam Chomsky, puts primary emphasis on competence, although performance is still regarded as relevant. It is thus necessary to distinguish between competence and performance as a means to distinguish between an error that is a temporary lapse in speech and an error that is a true lack of linguistic knowledge. Such a difference ultimately offers a means to determine the actual linguistic competence of an individual.

As an illustration, suppose that you are a native speaker of English and you say:

I swimmmed in the ocean this weekend.

This is thought to be an error of performance and not competence. An internalized knowledge that a native speaker has is how to form the irregular verb inflection (like changing swim to swam when speaking of the past). Nevertheless, when the language performance is disrupted by other factors like mental fatigue, emotional stress, or even short lapses in attention, the language performance can be affected in a negative way, resulting in forms such as swimmmed instead of the correct swam. The competence performance distinction is a distinction used by linguists to distinguish between slips made by native speakers indicating a temporary loss of performance and errors made by children or non-native speakers, who may not yet fully comprehend the grammatical rule, thereby reflecting a limitation of linguistic competence.

4.4 Elements of Transformational Generative Grammar

Transformational-generative grammar analysis is meant to show the knowledge and capability of the speakers to comprehend and write an unlimited number of sentences. Transformational-generative grammar is a form of formal rule system that recursively builds a broad variety of sentence structures.

This framework which is built on a set of rules can be subdivided into three key segments, namely, the syntactic segment, the phonological segment, and the semantic segment. The syntactic component explains and generates an infinity of abstract structures, each of which contains all the information needed to understand a particular sentence. The phonological component gives the phonetic expression of a syntactically constructed sentence the connection between syntactic structure and sound representation. In the meantime, the semantic component gives the meaning or interpretation of a sentence. The phonological and semantic components are both interpretive systems.

All these elements are based on the information provided by the syntactic part of a language and interacts with the rest of them. Accordingly, the syntactic constituent has to correspond to each sentence in two structural levels, that is, deep structure and surface structure. The semantic interpretation is determined by the deep structure, and the surface structure is generated by repeatedly applying certain transformational rules. The syntactic part must be able to produce deep and surface structures as well as linking them in a systematic way. The main subcomponent of the syntactic system is a set of base rules that generates a finite set of sequences of the phrase markers with a specific structural description. These simple phrases markers are the essential components of deep structure. The rules are called base rules. Behind each sentence is a series of linguistic units called a base phrase marker that is produced by the base constituent of syntax.

Besides the base component, the syntactic component of transformational-generative grammar has also a transformational subcomponent. Syntactic component describes sentences that seem to be surface structures that are generated out of base-generated structures. Since only a few phrase markers are generated by the base rules, they typically are associated with the kernel sentences. Thus, the transformational rules enhance the expressive strength of the grammar as non-kernel (derived) sentences are based on these fundamental structures.

According to Noam Chomsky, a grammar has to explain or account the reality and phenomena of language as they are described. This means that it will use a deductive system that will build on the deficiencies of traditional grammar but remove the deficiencies. He attributes his style to the olden grammar, and abandons its faults. The difference between deep structure and surface structure relies on rules of transformation. This points to the failure of taxonomic grammar to give semantic explanations or accounts of sentences in a language. Rather, Noam Chomsky focuses on the relationship between the structure of the language and the structure of logic.

Deep structure is the totality of grammatical functions, and relations between lexical elements that define the semantic content of a sentence. This process takes place in two stages. To start with, the base form, with the help of rewrite rules, generates a pre-terminal sequence composed of grammatical elements and symbols, thereby determining the grammatical properties of the sentence. Second, the symbols, at this point are substituted by the lexical items that determine the semantic meaning of the sentence. These are complex symbols, which contain phonological, semantic and syntactic types. In deep structure, it is possible to identify three logical foundations: (1) classification of word classes (the lexicon), (2) classification of relationships, (3) classification of functions.

Rules of subcategorization give basic pattern and structural descriptions of each sentence, which are referred to as markers of basic phrase structure. These signs are then the components of deep structure. The lexicon consists of a list of morphemes along with the data that must be used to interpret them in a semantic, syntactic, and phonological manner. Even though the exact form of the lexicon is yet to be well established, it must contain details such as the type of word, the elements that might precede or follow a word in a sentence, and whether the item is abstract or not. Transformation rules transform the deep structure generated by the lexicon category rules into the surface structure. The semantic component gives the sequence of elements produced by the base subcomponent, a meaning, and the meaning of a sentence is determined by this semantic system. The semantics of a morpheme may be described by stating the semantic characteristics of the morpheme in question. As an example, when comparing the words father

and mother, with pencil and chair, one will notice that the semantic feature of living being applies to the words father and mother, but not to pencil and chair. Consequently, sentence (1) and (2) are valid whereas (3) and (4) are invalid:

- (1) Father likes to eat durian.
- (2) Mother likes to eat durian.
- (3) *Pencil likes to eat durian.
- (4) *Chair likes to eat durian.

Sentences (3) and (4) are not acceptable since the verb eat may only be performed by a noun with the semantic feature of a living being, and may not be performed by a noun with the semantic feature of an object. The phonological component gives a phonological interpretation to the series of items generated by the transformational rules. This order is articulated and pronounced with the help of the rules of phonology. In contrast to structural grammar, the purpose of which is to describe the features of individual languages, transformational grammar is aimed at explaining the universals of language. Noam Chomsky has defined the phonological component as the part that does the processing of every spoken or uttered sentence. That is, it has the mandate of coming up with the phonic representation of each sentence.

4.5 Reaction of Generative Transformational Theory to Generative Grammar

In response to Noam Chomsky, George Lakoff and his collaborators reacted to what they saw as the failure of structural theory, developed under his tutor Zellig Harris, to solve linguistic problems, especially in syntax. Such a reaction prompted George Lakoff to formulate a system called generative semantics. The reason behind the development of this theory was the disillusionment with the semantic treatment of the generative-transformational grammar. In generative-transformational theory, Noam Chomsky states that the relationship between semantics and syntax is disjunctive because of the different internal structure of both. This is seen in a statement that was accredited to him in *Semantic Generative* written by (Lakoff, 1969) where Chomsky points out that properties of surface structure play a unique role in semantic interpretation. Nevertheless, semantic and syntactic structures are homogeneous in the generative semantic theory whereby they can be analysed together and related through transformational rules alone (Abdul, 2012). This opinion is founded on the conception that semantic structure is the same as logical structure, which does not presuppose the strict division of predicates and sets of arguments within a proposition.

4.6 Systemic Functional Grammar

Michael Alexander Kirkwood Halliday, born in Leeds on April 13, 1925. M.A.K. Halliday is a distinguished Australian linguist who was born in England and is referred to as the founder of Systemic Functional Linguistics (SFL) model. His career started as a teacher of the Mandarin language in London until 1961 he published his influential paper on the SFL model. He too had some affiliations with the European team of linguists affiliated to the Prague School. The background of M.A.K. Halliday in English and Chinese especially with the unique morphology of Chinese made him decide not to consider morphology as an independent level of linguistic analysis in his theory. In 1976 he emigrated to Australia, becoming the Foundation Professor of Linguistics at the University of Sydney, where he was based until his retirement. His work is not limited to linguistics, and his work has a huge influence on such spheres as visual and multimodal communication. He is also considered as having been a pioneer of social semiotics. M.A.K. Halliday has made contributions to both theoretical and applied linguistics, and has stressed the value of applying knowledge of the fundamental functions of language in education.

Firth is considered to have first used the term system in a new sense, which became the technical term systemic as used in the context of SFG. The fact that Halliday was influenced by Malinowski can be seen in the fact that Halliday divided the functions of language into three meta functions: ideational, interpersonal, and textual. Not surprisingly, considering the early influence Halliday received and applied

when developing his functional model of the language architecture, it is unsurprising that Halliday and his followers are often referred to as the Neo-Firthian school, which is a continuation of the London School of Linguistics. The works of Malinowski and Firth were also instrumental in the formation of SFG by Halliday. The idea of Malinowski that meaning is functional in context played a significant role in the theory of Halliday who has linked the meaning to the extent to which a person can perform. Firth, as a linguist, highlighted the need to balance 'anatomy' and 'physiology' in the study of linguistic phenomena. This school of thought came into being as a reaction to the American structural school of thought headed by Bloomfield, which overemphasized the concept of anatomy. Halliday followed the line of an approach which emphasized the function in part in reaction to the formalism of Chomsky. In order to demonstrate the differences between the theory presented by Chomsky in Generative Transformational Grammar and the theory that was proposed by Halliday in Systemic Functional Grammar, the following table has been made:

Table 1. *Differences Between Chomsky's and Halliday's Theories*

Chomsky	Halliday
The study of language is limited exclusively to language for its own sake	The study of language encompasses elements of social inquiry
Formalism (a mental phenomenon)	Functionalism (a social phenomenon)
Influenced by Zellig Harris and Jacobson	Influenced by Firth, Malinowski, and the Prague School
Gives priority to syntactic structure or sentence form	Gives priority to semantic structure or sentence meaning
Psychology	Anthropology, Sociology, Psychology

The generative transformation theory looks at language on the sentence level and in particular, it looks at syntax, semantics and phonology. Conversely, the theory by Halliday associates language with the social circumstance of the society. The theory by Chomsky is referred to as formalism or cognitive theory, which postulates that language is an innate structure and has been in existence since birth. Chomsky says that children possess intuitive ideas about language because the idea of language is already in the minds of the children. Conversely, the theory of functionalism, developed by Halliday, considers language as a communicative tool which is developed through human interaction. This view is contrary to the opinion expressed by Chomsky that the acquisition of language is not influenced by the environmental conditions. As we all know, Chomsky came up with the theory of generative transformation out of the disappointment he felt toward the analytical approach of language, especially in the syntactic area, which was taken by his mentor Zellig Harris. Chomsky wanted to convert sentences with the help of tree diagrams. Besides Zellig Harris, Chomsky was also inspired by the Prague School of Linguistics, in particular Roman Jakobson, who postulated the existence of a universal phonological system. Halliday, by contrast, was influenced by continental structuralism as well as by the Prague School, in developing his theory of systemic functional grammar (SFG). His structural influences were due to his mentors, Firth and Malinowski, the latter having been a cultural anthropologist and pioneer of linguistic anthropology. The influence of the Prague School on Halliday also led to his development of the functionalism of sentences.

Regarding its application to other studies, the theory of Chomsky has been applied in psychology, especially in language acquisition studies, due to his belief in the genetic nature of language, and his proposal that the human brain was equipped with a universal language structure (Language Acquisition Device). This theory of psychology is known as the cognitive genetic theory. Meanwhile, the structural-functional theory of linguistics by Halliday is said to have been influenced by three academic disciplines: anthropology (with its emphasis on semiotic systems), sociology (with its focus on social roles and

status), and psychology (in particular, behaviorism and consciousness theories). The three influences can be traced back to the works of Ferdinand de Saussure, who is considered the father of the modern linguistics and who claimed that functionalism is the product of structuralism.

5. CONCLUSION

The analysis of generative grammar is comprised of numerous central concepts, which explain the workings of language in the human mind. Nativism is one of the main concepts and it holds the view that the ability to speak a language is inborn, and it is not entirely learned. This perspective is related closely to the theory of Universal Grammar, the theoretical framework of structural rules common to all human languages. Another distinction made by Chomsky is the importance of concentrating on competence, as opposed to concentrating on performance (actual language use). The other significant focus is on the role of grammar and specifically the abstract syntactic rules which control the structure of a sentence. These concepts culminated to what is referred to as transformational generative grammar that includes such concepts as phrase structure rules, transformational rules and deep and surface structure. These theoretical tools elaborate the relationship between different forms of sentences and how humans can make grammatically correct sentences even in the absence of their explicit instructions, which shows the cognitive level of the theory.

Transformation generative grammar was a major breakthrough in the linguistic theory since it offered a system of formalities to explain how language is structured. This model proposed a number of elements that interact to produce grammatical sentences out of a collection of abstract rules. Fundamental to it are the rules of phrase structure, which specify the way words form phrases and sentences. Transformational rules modify these structures to explain any variation by question, passive constructions or embedded clauses. Another concept that was introduced by the model of Chomsky is the deep structure or surface structure where deep structure is the central meaning of a sentence and surface structure is the spoken or written form of the sentence. This paradigm enabled linguists to explain, in a systematic way, the ambiguity of sentences and the syntactic movement. With time, the theory was refined into several theoretical frameworks including the Government and Binding Theory and the Minimalist Program, but the basic elements of transformational grammar remain crucial in understanding the syntactic relationship in the human language.

The theory of generative grammar developed by Chomsky has been extensively influential outside the field of linguistics, especially in the field of psychology. His theory of an innate Language Acquisition Device (LAD) suggests that children are biologically predisposed to acquire language, confirming the theory that grammar is one of the aspects of human cognition. This viewpoint was a contrast to learning-based models and has been the centre of discussion to how language grows within the brain. Nevertheless, the thoughts of Chomsky have also had some negative reactions by the other linguists. As an example, Michael Halliday has criticized generative grammar, in a functionalist perspective, in terms of language application to social situations as opposed to abstract competence. Cognitive linguist George P. Lakoff also challenged the innateness hypothesis and emphasized that meaning and conceptual structures play a crucial role in determining grammar. Nevertheless, despite these criticisms, the theory of Chomsky has still been very influential, by offering a formal and explanatory framework which continues to inform the research in both theoretical linguistics and cognitive science.

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