John Lyons' Chomsky: A Review Essay

Abisoye Eleshin
University of Lagos, Akoka, Lagos, Nigeria

This paper is based on the account of Lyons (1970) on the exploit of one of the greatest linguistic scholars, Noam Chomsky, in the book titled *Chomsky*. Lyons critically examined Chomsky's contribution and influence in the grammatical theories of Linguistics. He traced the development of Linguistics from the evolution of the Bloomfieldian school of linguistics, the famous and foremost American school of linguistics. Apart from the fact that the school serves as a springboard of some sort for early linguists before and after the Second World War, it is the same school that produced Chomsky, unarguably, the most notable figure in theoretical linguistics of our time.

In line with Chomsky's idea about the definition of grammar, or what and what should be considered as the grammar of a particular language, Lyons (p. 24) refers to grammar as:

> ... the whole of the systematic description of language, including both phonology and semantics, as well as syntax.

These three branches of linguistics are basic ideology of the grammatical analysis of any language. However, the author's concern hinges on the theory of syntax, which he said is the field where Chomsky has made his major contribution to linguistics.

Chomsky began his work on theoretical linguistics right from the publication of his work, *Syntactic Structures* in 1957. His transformational approach to the grammar of language has indeed become a landmark achievement in theoretical linguistics. His theoretical approach to grammar is seen as influential on not only aspects of language, but on other human activities that have the innate properties or operations of the mind (p. 12). This case is

similar to some other different disciplines as regard to Chomsky's transformational grammar.

He saw the idea of the structure of language as a universal phenomenon which is determined by the structure of the human mind. He stressed further that the universality of certain language properties is evidence that, at least, this part of the human nature is common to all members of the species, regardless of their race or class and their undoubted differences in individual human attributes (p. 15). This is a pointer to another indication that no language is inferior or superior to another since language structure is not only peculiar to a particular language, but to all other languages of the world.

The second chapter of the book talks about the advent, aims and attributes of modern linguistics, as well as the differences that exist between modern and traditional grammar. The chapter continues with how the Bloomfieldian School successfully tackled traditional grammar, in regards to the problem created by the approach, before and after the Second World War, not leaving out Chomsky's later reaction against the Bloomfieldian school, where he was trained.

Autonomy of discipline is considered as one clear distinction between the two linguistics eras. This emphasises, in clear terms, that linguistics is independent of all other disciplines. This is not the case with traditional grammar which is stringed with Philosophy and Literary criticism. The autonomy of discipline claimed in the modern linguistic circle is asking to be allowed to take a fresh and objective look at all languages without the prior influence of traditional grammar and also without any interference of view-point from other disciplines (p. 17).

Also, the traditional grammarians give more preference to written language over spoken language. They see spoken language as one which is unrefined and imperfect, both in structure and context. Despite this, the conclusion by the modern linguists is that speech is primary to the written form of language. They observe that all the languages of the world exist as spoken languages first, before they

are committed to writing (p. 18). Primarily, the basis of linguistic analysis such as phonetics and phonology are forms of analysis of the human speech production (phonetics), as well as the interaction and patterning of the sounds produced from one language to another (phonology).

The fact that written language is given prominence over spoken language in traditional grammar is another distinction between traditional grammar and modern linguistics. Traditional grammarians also condemn the use of colloquial or informal usage, both in speech and writing.

Furthermore, modern linguistics also tends to employ a general theory of grammar that will be able to cater for all the languages of the world, without any undue preference to Greek, Latin, and/or other languages that are similar in structure and usage. This follows from the claim that there are no inferior or superior languages. As to this, the vocabulary of each language is unique and not less important to the society in which such language is spoken. Also, mention is made of certain vocabularies of some South American languages that can never be sufficiently translated to other major world and famous languages whereas languages such as Greek and Latin are enriched with technological words that would be understandingly lacking in the less famous languages. In the same vein, the distinction in the structure of the grammar of the so called "superior and inferior" languages is no less systematic. This is to say that one cannot be said to be more structurally simpler or complex to another.

Lyons also talks about important features of human languages which distinguish them from other systems of communication used by other species. Chomsky mentions duality of structure as one of the striking properties of human language; he explains that every language has two levels of grammatical structure. The first is the primary or syntactic level of analysis. This is the level where the combination of meaningful units (words) is used to represent sentences. The second is the secondary level. This is the phonological level of grammatical analysis. His explanation touches

the phonemes that are meaningless, which serve for the identification of the primary meaningful units.

The second striking feature of human language is what he termed creativity (p. 24), and open-endedness. This is the ability of a native speaker to be able to produce new grammatical sentences that he/she has not heard before. He concluded that a native speaker has the ability to create an infinite number of sentences that will still be generally acceptable in such speech community. Looking at the general distinction between traditional grammar and modern linguistics, it was observed that modern linguistics claims to be more general and more scientific than traditional grammar. Also, modern linguistics considers speech as being primary to the analysis of any grammar since the written language is derived from the unwritten language.

In chapter three of the book, Lyons takes a look at the establishment and the contributions of the Bloomfieldian school of linguistics to the overall development of linguistics in the United States and the world over. Lyons reports that most linguists in the United States were involved in the analysis of the American Indian languages. This is some sort of training for almost all the Bloomfieldians in the early 20th century. The rush for the linguistic analysis of the American Indian languages can be traced to the fact that most of these languages are almost going into extinction, and they were, by then, spoken by very few people.

It should however be noted that in the pre-Bloomfieldian era, Franz Boas (1858-1942) had already embarked on the analysis of these American Indian languages through the publication of his work, *Handbook of American Indian Languages* (1911). In the book, Boas posits that it is not right to base one's generalisation of linguistic analysis on the more 'exotic' languages of Europe and the North American sub-continent. He claims that many of the grammatical categories of traditional grammar were not even found in the American Indian languages. He buttresses this by showing that the distinction between singular and plural that was established by traditional grammar was not obligatory in Kwakiutl (p. 28). He

elaborates on this by claiming that every language has its own unique grammatical structure, which should be respected by any linguist who wishes to work on such language. Lyons terms this 'structuralist'. Although it was confirmed that there had been work using the structuralist approach to grammatical analysis by Wilhelm von Humboldt (1767-1835), but it was Boas and his successors that improved on the use of the structuralist approach to grammatical analysis.

After Boas, the next two important linguists in America between the period of the American Linguistics School in 1924 and the beginning of the Second World War were Edward Sapir (1884-1939) and Leonard Bloomfield (1887-1949). Sapir, who was trained in Germanic philology came under the tutelage of Boas and studied American Indian languages. He was an anthropologist, just like Boas, and he also took interest in literature, music and art. As regards to Leonard Bloomfield, Lyons agreed that he did more than anyone else in a bid to make linguistics autonomous and scientific.

It may be said that Sapir did little as compared to Bloomfield in the area of publication of grammar books. However, it is observed that Chomsky adopted Sapir's attitudes towards language, although Chomsky's ideas have been developed in the 'Bloomfieldian' tradition of 'autonomous' linguistics (p. 30).

Bloomfield based his linguistic study on the behaviourist approach, which was founded by J.B. Watson, a psychologist. Bloomfield speculated that all data that have not been directly and physically observed should be neglected in grammatical analysis. He adopted behaviourism as a framework for linguistic description in his monumental book titled *Language* (p. 31).

Bloomfield, then, argued that semantics is the weak point of language. His argument hinges on the conviction that "a precise definition of the meaning of words presupposes a complete 'scientific' description of the objects, states, processes, etc., to which they refer (i.e. for which they operate as 'substitute')" (p. 33). He concluded on this that we already have a precise definition of certain

words and this would not give us the chance to properly analyse the scientific meaning that should be ascribed to these terms. This was also the conclusion of his followers for the next thirty years.

One of Bloomfield's followers, Zellig Harris, in his work, *Methods in Structural Linguistics*, first published in 1951, started the idea that Chomsky would later refer to as a system of language description called 'discovery procedures'. Although when Chomsky published his first book, *Syntactic Structures* in 1957, he had already shifted ground from other Bloomfieldians on the question of 'discovery procedures'. He believed that semantics was secondary, dependent on syntax and outside linguistics proper. In many other ways, Chomsky had developed on the ideas of the Bloomfieldians, although the approaches of Harris served as a spring board for him in most of his linguistic approaches (pp. 34-35).

In analysing what linguistic theory is all out to do, Lyons brings to mind the idea that Chomsky places great stress on creativity: the ability that all fluent speakers of a language possess in order to produce and understand sentences which they have never heard before. He realised that two linguists, Wilhelm von Humboldt and Ferdinand de Saussure (1857-1913), had earlier used the same approach.

He held the opinion that all languages are capable of producing an infinite number of sentences, only a small fraction of which have ever been uttered and may never be uttered. He advanced the view that there is great distinction between the sentences generated by the grammar of a language and a sample of the utterances produced in the condition of use by native speakers. The ability of the grammar of a language to generate sentences is what he referred to as *competence* and the utterances produced, *performance*. He however continued that the linguist must idealise the 'raw data' to a great extent, such that the native speaker should be able to eliminate all the utterances that are not grammatical in the language.

On the other roles of linguistic theory, Chomsky assigns what he terms intuitions or judgements of the native speaker(s). Just like the

linguists in the Bloomfieldian era and other linguistic schools, the distinction between descriptive rules and prescriptive rules are given prominence. Against the idea of the traditional grammarians that rules of language should be prescriptive, these schools believe that not all prescribed grammatical rules are capable of analysing all the languages of the world. Rather, description of the rules of grammar of each language should be solely considered. The grammaticality or the correctness of sentence should be based on the judgement of native speakers and should be included in the corpus of material which formed the basis of the grammatical description (p. 37). Chomsky attaches much more importance to the intuitions of the speakers of a language; he sees them (intuitions) as part of the data to be accounted for by the grammar.

On the question of how linguists should go about the task of analysing a language, American linguists in the Bloomfieldian tradition are very procedural in orientation. They believed that it should be possible to develop a set of procedure which would be suitable for analysis when applied to the corpus of any world language. However, Chomsky had a different conception about this. In his *Syntactic Structures,* Chomsky objects that this is not necessary, claiming that linguistic theory should not have a manual of procedures. He argued that the means with which a linguist concludes his analysis can be through intuition, guess work, sorts of methodological hints, reliance on past experience, among other points. He added that the most important thing is the result, i.e. what he eventually arrived at. (p. 40).

At this juncture, Lyons posits that Chomsky suggests formal system for the analysis of language. He proposes three models of grammar that could be adopted in the description of language as discussed in his *Syntactic Structures*. These are generative grammar, phrase structure grammar and transformational grammar.

 Chomsky admitted that his generative grammar is a scientific theory. He maintained that the grammar of a language consists of all the sentences that such a grammar can generate. He stressed that the set of sentences that can be generated is infinite. This he argued, is

because there are sentences and phrases that can be extended indefinitely and such will still be seen as well-formed constructions.

Chomsky also said that both the grammatical rules and the words that can be generated in a language are supposedly finite and they are capable of generating an infinite number of sentences. He explained that this is possible because, the rules can be used and re-used. He referred to such rules as recursive rules (p. 49). So, according to him, finite state grammars are the grammars that are capable of generating an infinite set of sentences by means of a finite number of recursive rules operating upon a finite vocabulary (p. 51).

The second of Chomsky's three models for the description of language is the phrase structure grammar. Lyons made a distinction between a generative grammar and a phrase structure grammar. He said that any set of sentences that can be generated by a generative grammar can also be generated by a phrase structure grammar. However, the reverse is not the case as not all the sentences that can be generated by the phrase structure grammar can also be generated by the generative grammar. The relationship that exists between the two grammars is such that the phrase structure grammar is intrinsically more powerful than the generative grammar. The phrase structure grammar is essentially what the Bloomfieldian linguists referred to as the notions of immediate constituent analysis. The immediate constituents of a sentence are the two important phrases in a sentence, the noun phrase and the verb phrase. He likened this phrase structure to the system of bracketing in mathematics or symbolic logic. He uses this illustration:
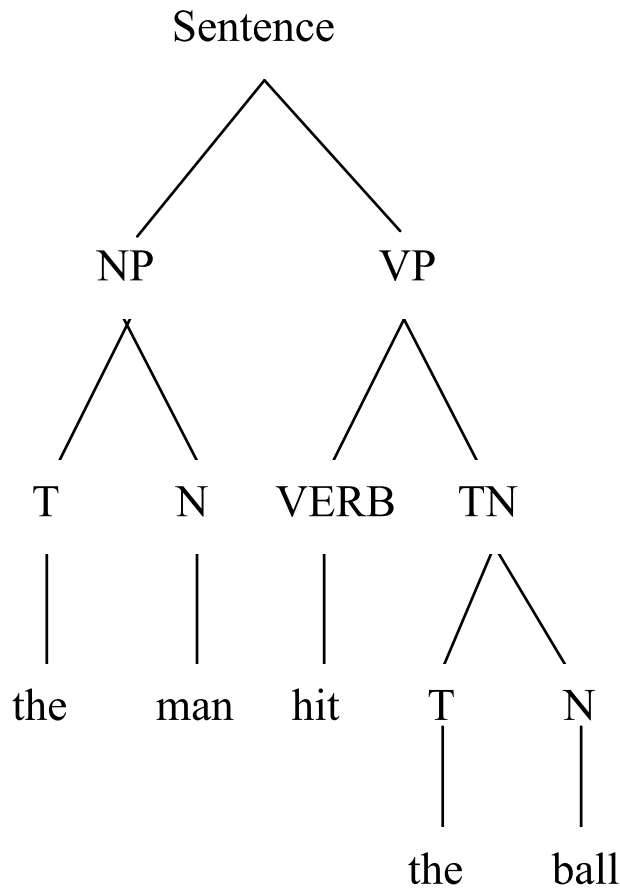
$X \times (Y+Z)$, when $X=2$, $Y=3$ and $Z=5$

The outcome will be 16. $(2 \times 3) + (2 \times 5) = 16$... (p. 57)

In comparing this with grammatical situation, we have:

Old (men and women) = Old men and Old women... (p. 58)

A better way of representing the labelled bracketing is the tree diagram. Consider this tree diagram as given by Lyons:

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                          Sentence
                          /      \
                         /        \
                       NP          VP
                      /  \        /  \
                     /    \      /    \
                    T      N   VERB    TN
                    |      |    |     /  \
                    |      |    |    /    \
                   the    man  hit  T      N
                                    |      |
                                    |      |
                                   the    ball
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Using the phrase structure grammar. The sentence is first divided into two parts:

Sentence------NP(the man) and VP (hit the ball)

The NP consists of two constituents, T (the) and N(man)

The VP consists of V(hit) and another NP(the ball)

Lastly, the NP contains another two constituents, T(the) and N(ball).

The notion of domination as proposed by Chomsky (notably in his *Aspects of the Theory of Syntax*), can be made explicit with a tree diagram. This talks about how the NP (subject) and VP (predicate) are directly dominated by the sentence, and the object is the NP, which is directly dominated by the VP (p. 61).

The third mode of grammar established by Chomsky is the transformational grammar. This grammar has a cordial relationship with the phrase structure grammar in the sense that it does not only consist of the transformational rules alone, it also extends to the

phrase structure rules. Its application depends on the previous application of the phrase structure, and it is capable of converting one string element into another while not leaving out the phrase marker (p. 66).

In the application of the transformational rules, all the phrases are accounted for along with any other morphemic attachment. For instance, both the singular and the plural noun phrases are accounted for in any construction involving the transformational rules. Lyons employs the example below (p. 66) as used by Chomsky in *Syntactic Structures:*

1. Sentence $\longrightarrow$ NP + VP

2. VP $\longrightarrow$ Verb + NP

3. NP $\longrightarrow$ $\left\{ \begin{array}{l} \text{NP}_{\text{sing}} \\ \text{NP}_{\text{pl}} \end{array} \right\}$

4. $\longrightarrow$ NPsing T + N

5. $\longrightarrow$ NPpl   T + N + s

6. $\longrightarrow$ T   the

7. $\longrightarrow$ $\{$N   man, ball, door, dog, book,...$\}$

8. $\longrightarrow$ Verb   Aux + V

9. $\longrightarrow$ $\{$V   hit, take, bite eat, walk, open,... $\}$

10. $\longrightarrow$ Aux   Tense (+ M) (+ have +en) (+ be + ing)

11. $\longrightarrow$ Tense $\left\{ \begin{array}{l} \text{Present} \\ \text{Past} \end{array} \right.$

12. $\longrightarrow$ $\{$M   will, can, may, shall, must$\}$

It will be observed that all the components of the structure are carefully accounted for with the transformational rule. Singular and plural N phrases are accounted for in 3. The tenses and the moods are introduced, thereby making explicit the underlying transformation in the construction. Also, the presence of the morphemes in 5 and 10 can be accounted for through the application of the transformational rule. Furthermore, Chomsky utilised these rules to transform an active sentence to a passive one. The rule employed underline both the active sentence, (The man may have opened the door) and the passive (The door may have been opened by the man):

13. $NP1 + Aux + V + NP2 \longrightarrow NP2 + Aux + be + en + V + by + NP1$

The distinction between this rule and the phrase structure rule is explicit as there are more than an element to the left side of the arrow and the permutation of the two NPs are also carried out.

In conclusion, Chomsky identified a very important point that diverse derived passive sentences are not derived from the single active sentence, rather they are derived from a common underlying string. This means that the derived sentences use the obligatory transformational rule. He called the active sentence a kernel sentence while he referred to the diverse passive sentences that can be derived from it as non-kernel sentences.

The three grammars proposed by Chomsky and evaluated by Lyons – generative grammar, phrase structure grammar and transformational grammar – are all capable of deriving, in one way or the other, sentences that will be able to meet up with the grammaticality of any world language. This means that they are capable of producing sentences that will be acceptable by the native speakers of such language.

In view of the above, there are increasing challenges of world grammar that will continually check the strength of Universal Grammar, invariably adding new forms to the concept of UG. The parameters needed by each language are constantly found in the principle of the Universal Grammar.

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