UNIT 3 LOOKING AT DATA-2

Structure

3.0 OBJECTIVES

In this unit, we will discuss

- the Generative framework of grammar
- its differences with the Structuralists
  We will also briefly talk about Transformational Generative Grammar.

Some of these ideas may appear difficult but they will be clear to you as you read the course. Don't get discouraged if some concepts appear difficult and complex. They will be clarified as we proceed along.

3.1 FORMAL LINGUISTICS - AN INTRODUCTION

In the early 1950's, signs of restiveness began to disturb the calm of structuralism, and by the end of the decade new ideas emerged in a big way. Chomsky, a student of Zellig Harris was concerned with discovering **a general theory of grammatical structure**. He believed that an **adequate grammar** should provide a basis for explaining how sentences are used and understood. He reproaches the Bloomfieldeans for "their satisfaction with description [and] their refusal to **explain**" (1981:38). According to him, as other developing sciences, linguistics should also endeavour to establish a more ambitious goal than mere description and classification. Linguists should aim at developing methods not just for the description of language but also **for understanding the nature of language**. And this was possible only if one takes recourse to **intuition** of native speakers. Intuition had, however, remained a source of discomfiture for Bloomfield. American structuralists have maintained a Bloomfieldian mistrust of meaning. They held the opinion that for describing and classifying the forms of expression in a language it was unnecessary – nay misleading to have a knowledge of the meanings. All they considered necessary was to know which utterances are possible, which are ambiguous and which ones are syntactically related to each other. This, they believed, could reduce the dependence on the intuitions of native speakers (which most of them recognized, was unavoidable).

Recognition of **possible** utterances provides a basis for making a formal analysis of language. Making a distinction between several aspects of this "possibility" is

necessary because an utterance may be appropriate in some circumstances and not in others depending upon the situation. An utterance may be **wellformed** but not **acceptable, for acceptability involves wellformedness together with appropriateness to context**–linguistic or situational, e.g. an utterance *Colorless green ideas sleep furiously* is completely nonsensical but grammatically correct. Judgements on the wellformedness of expression cannot simply be based on observable occurrences of utterances in the speech of native speakers. As Chomsky points out, the mere occurrence of an utterance, even wellformed, does not make it more representative, because there are countless other possible utterances which may not have occurred during the observation. This makes the recourse to native speakers indispensable. This could not be obtained through **discovery procedure**. Also, if one were to look into the syntactic relatedness between two sentences, an immediate constituent analysis would fail to tell us anything about an underlying kin relationship between the active and passive voice : *Mary sees George–George is seen by Mary.*

The flaws in the structuralist edifice brought a shift in methodology and orientation in linguistic theory and initiated an all–encompassing theory of language in which the **whole assumes primacy over the parts. Intuitions** and **judgement of native speaker** of language became pivotal for revealing the underlying relationship between sentences and parts of sentences. The speaker of a language, not the text or a corpus, was considered a source of all linguistic studies. This creative aspect of language i.e. ability to produce or create 'novel' sentences which s/he might not have heard before became a central concern of language study. Behaviourists' postulate that *la langue* is a "system of habits" was replaced by the idealist position of "innate ideas" and the belief that human beings are born with the innate capacity to learn languages. The theories of universal grammar were outlined to account for the creativity and the recursive property in language.

The theory of language which came to be associated with the shift in 'orientation' has been referred to as *generative grammar*.

3.2 GENERATIVE GRAMMAR

It is the theory of language proposed by Chomsky in his *Syntactic Structures* (1957). It provides a set of finite rules that defines the unlimited number of sentences of the language and associates each with an appropriate grammatical description.

3.2.1 Principal goals

There are two principal goals which underline this theory. These are :

(a) The **universal** features (i.e. features which are intrinsic to language as a whole) which constitute grammars of individual language should be characterized in formal terms.

(b) Formal statements should be provided for characterizing the grammars of individual languages. This goal is equated with characterizing the tacit knowledge or **competence** which native speakers have about syntactic, phonological, morphological and semantic patterning in their language. Generative grammar sees the theory of competence as forming a central component of language which interacts with principles from cognition, neurology, physiology and other domains to give language its overall character.

3.3 GENERATIVISTS AND STRUCTURALISTS

Generative grammar has its roots firmly grounded in the structuralist tradition. Generativists share with structuralists the idea that "the grammar of a language is a

statement of the systematic structural interrelationships holding between linguistic elements" (Newmeyer 1992 : 46). Even Chomsky's notion's of '**competence**' and '**performance**' are in many ways modern reinterpretations of Saussure's classic distinction between 'langue' and 'parole'. However, there are differences between generativists and structuralists–the most significant being Chomsky's reinterpretation of the goals of linguistic theory. He proposed a novel conception of what a linguistic theory actually addresses. While the structuralists' goal of linguistics was to construct inventories of the linguistic elements in particular languages, alongwith statements of their distributions, Chomsky believed that the goal of linguistics has to be redefined in order to provide a rigorous and formal characterization of a "possible human language" i.e. **specification of a universal grammar** (UG). This UG is innate to human mind. He has gone to the extent of characterizing linguistics as a branch of cognitive psychology.

3.3.1 Generativists and Bloomfieldians

Generativists had certain differences with Bloomfieldians. Chomsky reacted against the (post-) Bloomfieldian's "separation of level" principle (phonemic, morphemic, etc.), that is, an analytical, structural description that breaks the utterance down into watertight layers. This principle gives functional independence to each level i.e. one need not refer to morphology if one is conducting a phonemic study. Chomsky, however, believes that the opposite is true. Further, Chomsky believes that the post-Bloomfieldian linguistics does not "take the speaker and his role in the constitution of the utterance into account; instead it proposes an empirical description, which claims to be 'neutral' and 'objective', of the spoken chain in itself" (Kristeva 1989: 253).

Nevertheless, generative grammar owes a considerable historical debt to post-Bloomfieldians. Chomsky has been a student of Zellig Harris, one of the leading post-Bloomfieldian, and this certainly had an impact on him. He remained faithful to the post-Bloomfieldian demands of rigor, neutral and formal descriptions, as well as to their mistrust of the meaning (which has led to an emergence of a doctrine that has come to be known as the 'autonomy of syntax'). He took up certain concepts given by his teacher, Harris, his inspired precursor–and gave them a new interpretation (for example, the notion of **transformation**, which in the sense of Harris is an **inter-sentential** phenomenon, while in Chomskian sense it is an **intrasentential** phenomenon). He also interpreted many features of the American structuralism in a new fashion , as for example his notion of **deep structure** could be traced back to Sapir's **inner-form**. Despite the resemblances to his predecessors, there was an element of novelty in Chomskian theory.

As opposed to post-Bloomfieldian's **analytical** approach to structure, Chomsky proposed a **synthetic** description. He believed that instead of breaking down the sentence into immediate constituents, "one should follow the synthetic process that leads these constituents to a syntagmatic structure, or transforms this structure into another one" (Kristeva 1989 : 253-54).

In this operation, the implicit linguistic intuition of a speaker becomes, according to Chomsky, the only criterion for the **grammaticality** or **ungrammaticality** of a sentence. To quote Chomsky: "The fundamental aim in the linguistic analysis of a language L is to separate the **grammatical** sequences which are the sentences of L from the **ungrammatical** sequences which are not the sentences of L and to study the structure of the grammatical sequences"(Chomsky 1957:13). Chomsky noticed that the notion of grammaticality could not be identified with that of "meaningful" or "significant" in any semantic sense, as we can see in the following two sentences:

1.   *Colorless green ideas sleep furiously*
2.   *Furiously sleep ideas green colorless*

For an English speaker, while both (1) and (2) are nonsensical, the first is grammatical and the second is not. Chomsky did not suggest "meaningful" to be the criterion for identification because he believed that "semantic theories have not been made sufficiently exact to justify proposing a notion of meaning that could give us a practical way of deciding on the grammatical status of pairs of sentences [given above]" (Dinneen 1967:362). From such considerations Chomsky notes that "we are forced to conclude that grammar is autonomous and independent of meaning" (1957:15 and 19).

Chomsky also devoted himself to looking into the highly abstract theory capable of finding universal formalism valid for all languages "with no specific reference to particular languages" (1957 : 11). He looked at grammar more as a **theory of la langue** leading to a "condition of generality" and less as an empirical description. He believed that the "grammar of a given language must be considered in accordance with the specific theory of linguistic structure in which terms like 'phoneme' and 'syntagm' are defined independently of any particular language" (Kristeva 1989: 255).

How did Chomsky establish the rules of his theory ? He went about doing it by examining two models of grammatical description namely, **finite state grammars** and **phrase structures grammars**. The former bore a close resemblance to the type of device promoted by communication theorists. It was rejected because it could not explain the speaker's ability to produce and understand new utterances. The kind of descriptions which phrase structure grammars provided were identical to of the post - Bloomfieldians' procedures (resembling IC analysis)—the way sentences are broken into parts. The tree diagram is used, but turned upside down, since the progression is from the sentence to the parts, as in case of the following sentences : *the man hit the ball* shown in Figure–1.

Fig. 1
Step-I
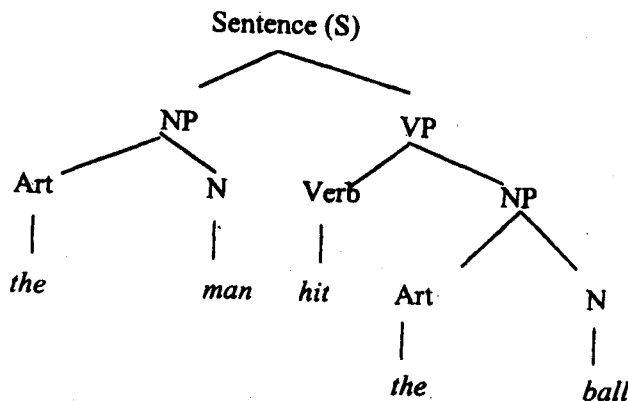
Here the step (I) basically gives a summary diagram. There are two other steps also which can be applied on the same sentence.

Step-II

(i) Sentence ————> NP + VP
(ii) NP————>(Art)+ N
(iii) VP————>V + (NP)
(iv) Art (article) ————>*the*
(v) N (noun)————>*man, ball*
(vi) V (verb) ————>*hit*

Step-III

Sentence
NP + VP   (i)
Art+N+VP   (ii)

Art+N+V+NP	(iii)
The +N+V+NP	(iv)
The+*man*+V+NP	(v)
The+*man*+*hit*+NP	(vi)
The+*man*+*hit*+Art+N	(vii)
The+*man*+*hit*+*the*+N	(viii)
The+*man*+*hit*+*the*+*ball* .	(ix)

Here the steps (II) and (III) respectively, provide a grammatical analysis and information regarding derivation.

Chomsky himself rejected this type of grammatical description, as he realized that it was inadequate for describing the structure of English sentences. By means of several examples he showed the limitations of phrase structure grammars.

The first example of the weakness inherent in phrase structure grammars can be seen in the ordinary formation of new sentence by conjunctions. If one had two sentences Z+X+W and Z+Y+W, and if X and Y are the "constituents" of these sentences, one could in principle form a new sentence, such as :

Z-X+and+Y-W.

e.g. 1   (i) (a)   *The scene–of the movie–was in Chicago*
           (b)   *The scene–of the play–was in Chicago*
      (ii)(c)   *The scene–of the movie and of the play–was in Chicago.*

If, however, X and Y **are not** the constituents, then the formula cannot be applied, for it would produce, for example :

   2   (i) (a)   *The –liner sailed down the–river*
           (b)   *The–tugboat chugged up the–river*
      (ii)(c) *The–liner sailed down the and the tugboat chugged up the –river.*

It is clear from the above examples (i) and (ii) that in order to apply syntagmatic rules to a language like English, one needs to know not only the final shape of sentences but also the structure of their constituents at the time of application i.e. the "history of derivation"(p37).

Similar weaknesses in phrase structure grammar may be seen when attempting to deal with forms of the verbs other than the simple forms produced by rewriting rules like Verb———> *hit* or *take*, since we may be required to have in other contexts, forms like *takes, has+taken, will+take*, and so on. Limitations may also be seen in the treatment of the active–passive relation, statements and questions, emphatic utterances (*I did tell them*) and unemphatic ones (*I told them*) and so on.

The inadequacies of the phrase structure grammars for a language like English demand incoporating new rules into it. But doing that completely changes the conception of the linguistic structure. Hence the concept of a "grammatical transformation" was proposed by Chomsky, which he formulated as : "a grammatical trasformation T operates on a given string (or . . . on a set of strings) with a given constituent structure and converts it into a new string with a new derived constituent structure" (1957:44). This introduction of the concept of a transformation has led to referring to the entire formal approach as *Transformational Generative Grammar.*

3.4   TRANSFORMATIONAL GENERATIVE GRAMMAR– 1957 MODEL

A transformation is a way of specifying, by rule, the relationships between sentence types. Transformations perform two types of functions:

(a)   They change underlying grammatical relations, as in the case of passives which are derived from actives, for example. *John saw Jill——>Jill was seen by John*. Since the relationship applies to the syntactic elements, not just to these particular words, it may be algebraically expressed as :

NP1+Aux+V+NP2———>NP2+Aux+be+*en*+V+*by*+NP1

This may be verbalized as : The two noun phrases exchange places, with *by* placed before the one that now comes last. The tense (Aux) remains the same (past *saw* matches past *saw*), but a form of *be* is inserted and the verb takes its past participle (*en*) form : *was seen* by applying the *Affix hopping rules*, under which the affix moves to a place immediately after the V.

These transformations are referred to as **singularly (simple) transformations**. They include transformations like Passive, Auxilliary, Negative.

(b)   As a second function, transformations create complex sentences out of simple ones, as in the case of embedding, e.g. the sentence *John thinks that Bill will leave* was derived by an embedding transformation that combined *John thinks* and *Bill will leave*.

These transformations are referred to as **generalized (double-based) transformations**.

In formulating the principle of transformational grammar, Chomsky clarified essential properties of transformations, for example, the order in which these transformations are applied. Two types of rule ordering were identified – *Extrinsic ordering* and *Intrinsic ordering*. The former explicitly specifies the order in which the rules must be applied, while in the latter the ordering is a consequence of the way in which the rules are stated. Chomsky further argued that at least some transformations had to be *strictly ordered* with respect to each other in the grammar i.e. transformation rules are lined up in a certain order. For example, reflexivization must apply before 'you' deletion:

(a)   Reflexivization
(b)   'you' deletion

Where there are identical NPs in the same sentence, the second NP is changed into reflexive by applying rule (a):

NP_1		NP_1	
You	hang	you	You hang yourself

Then rule (b) is applied to arrive at ——→
Hang yourself

If the order is changed, it will result in giving a sentence 'hang you' and then there is no way of reflexivizing 'you'.

He also pointed out that some transformations are **obligatory** while others are **optional**. The Auxiliary transformation and the **Do** transformation are obligatory while passives, negatives, imperatives, Wh-and yes-no questions are optional. Sentences that are produced by applying obligatory transformations are called **kernel** strings while the sentences obtained by applying optional transformations are called **derived**.

With regard to the question of grammar and meaning, Chomsky felt that "grammar is autonomous and independent of meaning" (1957:17). However, his insistence on the independence of grammar of meaning is not in tune with post-Bloomfieldian

structuralism. He was clear that the question of the relation of grammar and meaning is an empirical one and he gave many examples to illustrate his position. Nevertheless, the role of syntax remains crucial in determining the meaning. This can be seen in case of handling ambiguity and paraphrases, which are semantic notions. The ambiguity of the sentences, according to him, can easily be resolved by transformational description by merely reestablishing the transformational rules that produced it. To quote Chomsky : ". . . if a certain sentence S is ambiguous, we can test the adequacy of a given linguistic theory by asking whether or not the simplest grammar constructible in terms of this theory for the language in question automatically provides distinct ways of generating the sentence S" (1957 :123).

Thus, the Chomskian approach offered a dynamic vision of syntagmatic structure that was missing in structural grammar. It also eliminated the atomization of **la langue** that accompanied post -Bloomfieldian methods. Instead, it suggested a processual conception of **la langue** in which "each sequence of rules stems from a coherent whole centered on the consciousness of the subject – locuter whose freedom consists of submitting to the norms of grammaticality" (Kristeva 1989:259).

You will read more on Chomskyan linguistics in Block 5.

3.5   LET US SUM UP

In this unit, we gave you another point of view from that of the structuralist - behaviourist. We gave you the reasons for the dissatisfaction with the structuralists. We discussed the main points of generative framework, and its differences from the structuralists.

We have given you several examples and used some technical terminology. Do not be intimidated by it. You will understand all that is discussed by the time you finish the course.

3.6   KEY WORDS

Intuition:	A judgement which you make about your own language (whether something is grammatical or not), what it means, whether it is ambiguous or not, how it is related to something else, and so on.
Well-formed:	The state of being grammatical. A well-formed sentence in a language is a sentence which is consistent with all the grammatical rules of that language. However well-formedness includes acceptability and appropriacy.
Behaviourism:	An approach to psychology which holds that psychologists should study only observable and measurable phenomena, and should not appeal to unobservable things like 'minds' and 'intentions'. **Leonard Bloomfield** and the **American structuralists** were much influenced by behaviourist ideas, but ever since **Noam Chomsky's** devastating critique

of B.F. **Skinner's** behaviourist account of **language acquisition,** linguists have generally rejected behaviourism in favour of **mentalism.**

Bloomfield, Leonard:

A distinguished and influential American linguist (1887-1949). Trained in historical linguistics, Bloomfield did important work on Germanic and Austroneasian languages, and his famous work on Algonquian languages pioneered the application of the comparative method to native-American languages. His 1933 book *Language* revolutionized linguistic thinking and his ideas were developed by his colleagues and successors into **American structuralism,** which dominated the American linguistic scene until about 1960.

Generative grammar:

1. A particular grammar of a particular language which, in a purely mechanical way, is capable of enumerating all and only the grammatical sentences of that language. Generative gramar in this sense was introduced by **Noam Chomsky** in the 1950s.

2. Any theory of grammar which has as its goal the construction of such grammars.

3. The enterprise of constructing such theories of grammar.

Universal language:

Any property which is present in all languages or in nearly all languages example: all languages distinguish nouns & verbs.

Competence:

An idealisation of a speaker's knowledge of her/his language, excluding such factors as slips of tongue, memory limitations or distractions.

Phonology:

Pertaining to the sound system.

Morphology:

Pertaining to word-formation

Semantics:

Pertaining to meaning

Performance:

The actual linguistic behaviour of particular individuals on particular occasions, including any hesitations, memory lapses, slips of the tongue or processing difficulties arising from long or complex structures.

Universal Grammar (UG):

The hypothetical structural properties which are necessarily common to all human languages, both real and possible, presumably because these properties are part of the human **language faculty.** The term is

particularly associated with the work of **Noam Chomsky** and his followers; not all linguists are convinced that UG exists.

Transformation: In a **formal grammar**, a type of grammatical rule which has the power to change the structure of a sentence which is being generated by the grammar, for example by deleting something or by moving it to a different position.

Transformational grammar (TG): A theory of grammar developed by Noam **Chomsky** in the 1950s and extensively modified by Chomsky and others in the succeeding decades.

3.7 QUESTIONS

1. What is the difference between the Generativists and the Structuralists? In what ways have the Generativists made advancements on the Structuralists?

2. "The relationship between the signifier and the signified is arbitrary". Are there any exceptions to this rule? Think of some words in English and your mother tongue in which the relationship between the signifier and the signified is not arbitrary, but is based on some similarity between them.

3. 'Noun is the name of a person, place or thing' Do you think that this definition is adequate? What about the words like *investigation, division, congratulation?* Are they the name of a person, place or thing? The Struturalist approach to language provides a better alternative definition. Can you define noun using its distributional pattern in language?

3.8 SUGGESTED READINGS

Benveniste, E. 1971 *Problems in General Linguistics*, by Mary E. Meek, University of Miami Press.

Bloomfield, L. 1933 *Language*, New York: Henry Holt

Chomsky, N. 1957 *Syntactic Structures*, The Hague: Mouton.

Dinneen, F. P. 1967 *An Introduction to General Linguistics*, New York: Holt, Rinehart and Winston..

Hymes D. and J. Fought 1975 *American Structuralism*, The Hague: Mouton.

Ivic, M. 1965 *Trends in Linguistics*, The Hague: Mouton

Kristeva, J. 1989 *Language- The Unknown: An Initiation into Linguistics*. Tr. by Anne M. Menker, London, Sydney and Tokyo: Harvaster Wheatsheaf.

Lepschy, G. 1992 : "Early Structuralism", in W. Bright (ed) *International Encyclopedia of Linguistics*, Oxford: Oxford University Press.

Newmeyer, F. J. 1986 *Linguistic theory in America*, New York: Academic Press, Inc.

----------------1992 " Generative grammar" in Bright (*ed*)

Rastogi, K. 1997 *Structural Linguistics : Its Origin and Development*, Delhi: Penman Publishers.

Saussure, F. de 1959 *Course in General Linguistics*, McGraw Hill.

Thibault, P.J. 1998 "Structuralism" in P. Bouissac (ed) *Encyclopedia of Semiotics*, Oxford: Oxford University Press.