

## CHAPTER-I

**Transformational Generative Grammar ( T.G.G.):  
The Linguistic Foundation**

The revolutionary attempt of Chomskyan linguistics actually started from his concept of Transformational Generative Grammar (TGG.). Chomsky elsewhere inclines to say that the goal of linguistic description should be to construct a theory that would account for the infinite number of sentences of a natural language. Such a theory would show which strings of words were sentences and which were not and would provide a description of the grammatical structure of each sentence. The description of a natural language would be a formal descriptive theory which would contain a set of grammatical rules that could generate the infinite set of sentences of the language, would not generate anything that was not a sentence and would provide a description of the grammatical structure of each sentence. Such a theory is called a **generative grammar** as its aim is to construct a device that would generate all and only the sentences of a language . The subject matter of generative grammar is to dig up speaker's knowledge of how to produce and understand sentences, his linguistic competence and its goal is to specify the grammatical rules underlying the construction of sentence through the methods of evaluation procedure. By innovating Transformational Generative Grammar (TGG.), Noam Chomsky has established himself as one of the most dynamic modern linguist. This is simply because of the fact that TGG. has established itself as one of the most exciting developments in modern linguistics. It is believed that this theory has far reaching implications for the study of human cognitive process. It reflects the cognitive structure of human brain. But why the so-called grammar is said to be *transformational* and *generative*?

A grammar is generative in the sense that it projects the creative aspect

of language . This does not make sense to say that the so-called grammar is all about regarding the existence of language . It only means that the grammar should be so designed that by following its rules any of the possible sentences of the language can be generated . To generate is to specify what could be the possible sentences of the language. A grammar generates the sentence *I go home*; but not the sentence *I goes home*. Another important aspect of this grammar is that it not only deals with an actual set of sentences ; but also with the possible set of sentences: It is not only related to the observed sentences, but also with the sentences that can occur. More interestingly, a generative grammar though generates an infinite number of sentences, it does not make a grammar infinite. A grammar has only a finite set of rules from which infinite sentences can be generated. A grammar is called transformational as it transforms one sentence into another by keeping the meaning intact . The active-passive transformation of sentences is a case in point. If the grammar is to consist of a finite set of rules operating upon a finite vocabulary and thereby capable of generating an infinite set of sentences, it follows that at least some of the rules must be applicable more than once in the generation of the same sentence . Such rules, and the structures they generate, are called recursive.

Traditionally, the basic aim of linguistic description is to specify the rules and thereby relates to string of speech and sounds to their semantic interpretation. This is not the process, which is actually applicable to a specific case; it is a long term process—a process which is applied to an infinite number of cases. The advantage of this process is that it gives rise to language competence to the user of language. Traditional Grammars, however, fails to specify in great detail how many different components of sentences combine to yield well formed sentence structures. The reader can acquire this device by his linguistic intention. As a result grammars are supposed to explain the nature of a speaker's linguistic knowledge and thereby appealing to that very knowledge in order to make good their deficiencies. This can be made if the grammatical rules are supposed to be fully explicit. Explicit grammatical rules help the grammar to specify the structure of sentences independently of a speaker's linguistic knowledge. Two possible alternative ways may be proposed.

One way of stating this requirement is to say that the predictions afforded by the grammar should be an automatic consequence of its actions and rules. Another way of stating is to say that the grammar must be specifiable in terms of its rules, which will generate all, and only grammatical sentences of a language.]

In order to understand the so-called grammar as propounded by Chomsky, it is necessary, first of all, to know the components of this grammar. In his **Aspects of the Theory of Syntax**, Chomsky holds that there are three essential parts of grammar, namely, a syntactical component that generates and describes the internal structures of the infinite number of sentences of the language; a phonological component that describes the sound structure of the sentences generated by the syntactical component, and a semantic component that describes the meaning structure of the sentences. Likewise, a theory of language consists of three components, namely, the phonological, the grammatical (syntactic including morphological) and the syntactic phonology. Syntactic phonology is the first step of learning language. It is a description of how speakers vocalize language. The second step of learning language is grammatical. It is a description of its grammatical nature. The third step is semantic which is supposed to be a description of its meaning. In this chapter, we are predominantly concerned with the grammatical aspects of language. This, of course, is not an isolated aspect, it is intimately connected with the other two. So, occasionally, the contexts of other two aspects may come to our discussion. According to Chomsky the syntactic description of sentences has two aspects: viz., **Surface Structure** and **Deep Structure**. Surface structure is the aspect of description that determines the phonetic form of sentences; while deep structure determines semantic interpretation. The rules that express the relation of Deep and Surface structures in sentences are called **Grammatical Transformation** and hence the terms **Transformational Generative Grammar**.

But what is a grammar? “A Grammar”, Chomsky says “consists of syntactic rules that generate certain underlying abstract objects, and rules of semantic and phonological interpretation that assign an intrinsic meaning and

an ideal phonetic representation to these abstract object.”<sup>(1)</sup> A grammar of a language is supposed to be a set of rules operating upon certain data for certain purposes. Grammar may be varied from language to language. So the rules of grammar of a specific language must generate a specific language. For example, the rules of grammar of Bengali language must generate all and only sentences which are used in Bengali language. Similar case may be applied to all other languages. Grammar guides language. If anybody gets the mastery of grammatical rules, he gradually turns into a fluent speaker of language. He enables to dig up whether a sentence is grammatical or ungrammatical. For example, a fluent speaker of English earns the capacity of recognising whether a string of words are formed grammatically or not to construct a sentence. Therefore, the rules of grammar must give rise to all and only those sentences he would recognise as grammatical. There may, of course, be some disputes among the speakers for determining whether a particular sentence is grammatical or ungrammatical. It may be the case that the sentence may be regarded as grammatical by a speaker but may not be regarded as grammatical by somebody else. This may happen due the inadequacy of grammar. So one has to decide which string an adequate grammar should generate. But it may be the fact that adequate grammatical rules are sufficient to provide grammatical strings and equally they preclude us to generate obviously ungrammatical ones. These rules also help us to decide in the marginal cases where our intuition fails us. Apart from this, rules also help us to apprehend the grammatical structure of the sentences.

So the grammar which Chomsky proposes to address here is the type of grammar that satisfies the two requirements stated above. This type of grammar is said to be a **phrase-structure grammar**. It is claimed that phrase-structure grammar is “the prevailing conception of syntactic description among modern linguists today”. Phrase-structure grammar, at times, may be called “Immediate Constituent” grammar. Phrase-structure is found a mental process for learning a language at the beginning. It is a kind of grammar, which we have taught at our kindergarten. Here we come to know the various components of sentence, viz., Noun, Verb, Adverb etc. But one of the important shortcomings of this

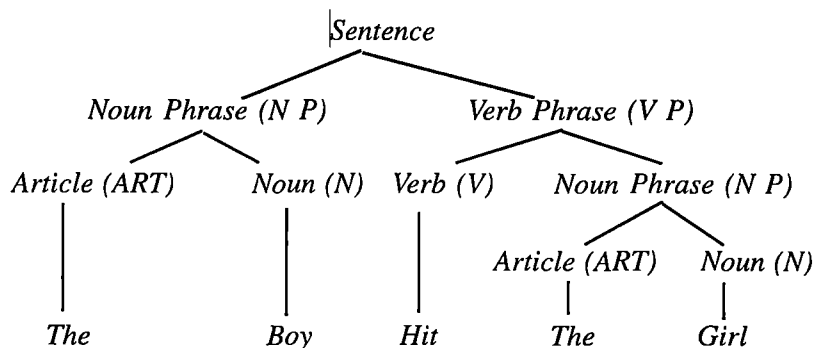
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1. Chomsky Noam : “Recent contributions to the Theory of Innate Ideas , ” included in *Philosophy of language* , edited by J.R. Searle, Oxford University Press, 1971, P-124.

type of grammar is that it seems to be inadequate as far as the learning process of a language is concerned. To speak up the shortcoming of this type of language, let us discuss it in detail.

## Phrase Structure Grammar

One of the important aspects of Phrase structure grammar is that any set of sentences that can be generated by a finite state grammar can equally be generated by a phrase structure grammar. Chomsky himself has attempted to construct a grammar on the basis of a carefully axiomatized and consistently detailed level of *Phrase Structure* that is, roughly, *bracketing as it is usually termed in linguistics, immediate constituent analysis*. Phrase structure grammar is more powerful than finite state grammar as they do everything that finite state grammars do and more. Let us consider the sentence *The boy hits the girl*. Now we can represent the structure of this sentence in the form of the following tree diagram:



Here the above structural description of the sentence under consideration is called the *Phrase Marker* (PM) of the sentence. PM informs us how many different ways the sentence can be distributively analysed. It shows that the sentence can be composed of a noun phrase and verb phrase and the verb phrase is again composed of a verb and another noun phrase; that a noun can be composed of an article plus a noun; and that among nouns are *boy* and *girl*. It also makes it clear under which categories certain English words belong to;

which higher degrees those categories belong to; to which categories the second categories belong to and so on. This makes sense to say that PM is a hierarchical process through which different categories and sub-categories of sentences can be reflected. It provides us with categorical information with the help of PM. We are very much aware of the categories of the sentence, viz., article, noun, verb etc. It is a complete characterization of the syntactic type of the constituents of a sentence. It helps us to show which constituents belong to the same type and which to other types.

It seems clear that the structural description of a sentence depends upon a hierarchical classification of linguistic elements. But it has a limitation. According to Chomsky any grammar which goes along with the study of a corpus is unwanted simply because it can hardly describe a language that consists of an infinite number of sentences. But what is a corpus? A corpus, says Chomsky, is an arbitrary and accidentally selected set of utterances of a language. It is even possible that in a corpus one can leave out many interesting features of the language. In this sense a description of a corpus is hardly a description of a complete language. Any language, which is obtained via media of a corpus, is mechanical. If the conception of the corpus as the subject matter of grammar is rejected, the mechanical method of discovering phonemes, morphemes, etc., of a language also loses its significance. Chomsky in this *Syntactic Structure* attempts to spell out the hollowness of such a mechanical device for discovering the grammar of a language, which is provided by corpus. According to Chomsky, a linguistic theory, 'should be identified with a manual of useful procedures, nor should it be expected to provide mechanical procedures for the discovery of grammar'.<sup>(2)</sup> By adopting this principle, Chomsky, however, doesn't completely ignore the utility of mechanical procedure what he would like to say that one should give importance to the validity of the result rather than on the procedures by which it is achieved. Structural linguistics heavily depends upon scientific methodology. But Lees reminds us, "Not even the most advanced of physical science, not to mention the whole remainingless exact body of scientific knowledge is so powerful as to provide a discovery procedure for its area of interest. There is no mechanical procedure in all of advanced theoretical

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2. Chomsky Noam : *Syntactic Structure*, The Hague; Mouton & Co.,1957. P-40

physics, which will permit an expert physicist to find the ways of nature which connected the readings on the matters of his laboratory one with another, or each with the phenomena outside the laboratory”<sup>(3)</sup> It is therefore not surprising that no linguist has yet come anywhere near formulating any adequate discovery procedures.

According to Chomsky any PM with certain rules can be considered as a derivation of a string. The rule will have the form  $X \rightarrow Y$ , where  $X$  can be re-written as another symbol or string of symbol  $Y$ . So the rule sentence  $\rightarrow NP + VP$  tells us that the symbol sentence can be re-written as the symbols  $NP + VP$ . Any rule of this kind is said to be a phrase-structure rule (PS-rule). Accordingly the following PS-rule will allow us to derive the sentence *the boy hits the girl*.

1.	Sentence	$\rightarrow$	NP + VP
2.	NP	$\rightarrow$	Art + VP
3.	VP	$\rightarrow$	V + NP
4.	ART	$\rightarrow$	'the'
5.	N	$\rightarrow$	'boy', 'girl'
6.	V	$\rightarrow$	'hit'

Following these rules, the sentence under consideration can be *derived in* the following way. The number of rule employed in course of derivation is placed on the right.

	<u>Sentence</u>		
NP + VP	$\rightarrow$		(1)
ART + N + VP	$\rightarrow$		(2)
ART + N + V + NP	$\rightarrow$		(3)
The + N + V + NP	$\rightarrow$		(4)
The boy + V + NP	$\rightarrow$		(5)
The boy + V + ART + N	$\rightarrow$		(2)
The + boy + V + ART + N	$\rightarrow$		(2)
The boy hit the girl	$\rightarrow$		(6)

3. Robert B.Ler : Review of Syntactic Structure. G.Herman(e.d.) on Noam Chomsky Critical Essays, Anchor Books,1974, P-40

It is important to point out here that the above derivation corresponds exactly to the derivation that we have in the PM of the sentence. It is also to be noticed here that both in the derivation as well as in the phrase marker a NP can be composed of ART +N, or that *the* is an ART and so on.

We are now in a position to define a grammatical sentence within the framework of a phrase structure grammar. According to Chomsky any line, which we obtain by applying PS-rules is called a string. A string is said to be well formed if all of its components traced back to the level sentence at the top of a tree diagram. The last line of a PM is called a terminal string. *The boy hits the girl,* for example, is said to be a terminal string as it is placed at the bottom of the tree diagram. A string is called terminal when there are no more PS-rules, which can be applied to the sentence. A terminal string is said to be grammatical if and only if it is originated in accordance with the PS-rules of the grammar. Since the sentence under consideration is a terminal string of a PM, it is supposed to be a grammatical sentence being used in English. The PS-rules, which we have so far discussed is simple. But it is supposed to be more complicated. As far as the verb position of the PS-rules is concerned, there we have different types of verb, viz., transitive verb and intransitive verb. A verb phrase may be composed either of a transitive verb together with an object noun, or simply of an intransitive verb. Secondly, a PS-rule is said to be context sensitive in the sense that one symbol may be rewritten as another irrespective of what other symbols occur in the string to which the rules are applied. Usually, it is not allowed to replace one symbol instead of other if that symbol occurs in a string of a certain sort. For example, there is a rule in PS, which asserts that at times the verb in English language must end in S when the subject noun is singular, otherwise the verb must end without S.

### **The Inadequacy of P.S.**

Barring so many advantages PS-Grammar (or Rules) is claimed to be

inadequate on many accounts. Although it can be said that PS rules enable to generate a very large number of English sentences; but from this it does not follow that PS rules are adequate. Chomsky elsewhere acknowledges, as we have mentioned, the strength of phrase structure grammar for providing information about string of terminal elements. But he has a strong reservation about the adequacy of PS-Rules (Grammar). It should not be supposed, as Lee observes that PS-Rules are impossible; but Lyons points out that there may have certain languages in which PS-rules have no application at all. Lyons says, "... that there do exist certain construction in other languages, if not in English, which are beyond the scope of **Phrase Structure Grammar ...**"<sup>(4)</sup> According to Chomsky PS Grammar is a weaker theory which can be applied clumsily and which is absolutely complex, ad hoc and unrevealing. Regarding PS Grammar Chomsky says, "a weaker but perfectly sufficient demonstration of inadequacy would be to show that the theory can apply only clumsily, i.e. to show that any grammar that can be constructed in terms of this theory will be extremely complex, ad hoc and *unrevealing*"<sup>(5)</sup> PS Grammar enables to generate a large number of sentences; but it requires far more rules for generating grammatical sentences.

Let us consider a passive sentence to make this point clear. It is important to note that formation of a passive sentence is based on a number of constrains, viz., the verb must be a transitive one; the first NP must be the object of a transitive verb having an appropriate subject. We can say *A student is admired by his teacher*, but we do not say that *A student is admired by his honesty*. In passive form the verb followed by *by* and NP must utilize a certain form of string of morphemes, beten. Similar restrictions have to be followed in the case of active sentences. Now if we are acted on the model of PS Grammar, we have to state rules and restrictions twice. We have to follow one set of rules when we derive active sentences; follow different set of rules when we derive passive sentences. This makes the system complex. For example, the sentence *the girl was hit by the boy* is the passive form of *the boy hit the girl*. The structure of the active sentence could be represented as.  $NP_1 + V + NP_2$ . In PS-Grammar, we

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4. Lyons, J : Chomsky, Fontana, 1970 P-62

5. Chomsky Noam : Syntactic Structure, The Hague; Mouton & Co., 1957, P-34

have a rule which tells us of a sentence having that grammatical structure. It may have the following grammatical structure in another sentence as:  $NP_2$  - beten - V - by  $NP_1$ . Here *beten* stands as a string of morphemes which makes the sentence passive. Thus we have a rule in PS-Grammar, which allows us to transform an active sentence into a passive one like the following:

$NP_1 - V - NP_2 \leftrightarrow NP_2 - \text{beten} - V - \text{by} - NP_1$ . This rule is said to be a transformation rule (T-rule). It helps us to transform one sentence into another. It tells us to invert the order of the NPs to transform the verb in a specific way; and also tells us to insert *by* before the last NP.

Moreover there we witness many instances of sentences which can be understood quite differently, but for which there seems to be no grounds within phrase structure for assigning different representations without introducing either intolerably complex or arbitrarily machinery. For example, there is no point in PS-Grammar to say that the sentence *what are you looking for?* and the sentence *what are you running for?* have different structures. It is obvious that the sentence: *what are you looking for?* contains a prepositional phrase for What; while the second sentence: *what are you running for?* contains an interrogative *what* for *why*. There is no mechanism, it is claimed, for associating a sentence with its paraphrase, and the two sentences appear therefore to have identical constituent structures.

Furthermore, there are many cases of ambiguous sentences for which only a single analysis seems justified. The sentence, for example, *I am going to the bank* appears to be ambiguous as the term *bank* has more than one meaning. Accordingly, the sentence may be understood in two ways: Either I am going to the bank in which monetary transaction is going on or I am going to the bank of river. Likewise, the sentence: *This teacher's marks are very low* is understood in two ways. This teacher gives low marks or this teacher gets low marks. Thus although the sentences under consideration are very much ambiguous, but still there is no reason for assigning two different immediate - constituent analyses, nor is there any word in the sentence which may be said to have two different lexical meanings.

Another type of difficulty involves in PS grammar when we try to formulate such rules as that of conjunction. In order to specify which sequences may appear on the two sides of the conjunction **and** , it would be necessary to designate more than the internal immediate constituent construction of each component, for they must be constituents of the same kind. ~~and derivation to yield fully grammatical conjunctions~~. Moreover, if conjunctions could be described simply as constituents of the same internal and external structures, connected by means of a conjunction morpheme , sentences of the following sort could not be described as *imperative plus declarative*; *Hurry up or you will be late unless* the notion of imperative and declarative sentence type is relinquished . The whole notion of sentence type is therefore quite unmotivated in a PS grammar. Thus there underlies no point to show that *John hit Bill* and *Bill was hit by John* are related, though of different constituent structure , is a way that *John hit Bill* and *Bill hit John* are not, though of similar structure.

### Inadequacy of P.S-Rules

(1) PS-Grammar is supposed to be unnecessarily and absurdly complex, as it is required for more rules for generating grammatical sentences. This is reflected in the case of transforming an active sentence into a passive one; and the vice-versa. There we have to follow a number of restrictions in PS-grammar for making passive sentence. These are (1) the verb must be transitive one; we cannot say *he is slept by John*; (2) the noun phrase in the passive sentence must be one which can appear as the object of a transitive verb having an appropriate subject. For example, we cannot say, *The student is admired by his honesty*; (3) The verb followed by + NP must utilize a certain form of the string of morphemes *beten*. For example, we are not allowed to say, *Ram is eating by*

*lunch*; plenty of restrictions equally apply in the formation of active sentences. Here the object must be preceded by a transitive verb. Now, if we confine ourselves within PS-grammar, we have to follow the rules and restrictions twice. We have to follow one set of rules when we are going to formulate an active sentence from the passive one; and vice-versa. For example, the PS-rule derivation for *The girl was hit by the boy* will have to contain a restriction on what V can be rewritten as for the derivation *The boy hit the girl*. Thus it requires an unnecessary duplication of rules. But if we confine ourselves within T-rules we have to state the restriction only once in deriving the active sentence. Then by a single T- rule, we can derive the passive sentence. To derive a passive from active sentence in T- rule, we don't need to restate them all. This means to say unlike PS- rules, T- rules provide an enormous simplification in the Grammar in terms of the number of rules that is required.

The second inadequacy of PS- rules is that it fails to exhibit the intuitive interrelationships among sentences. Let us consider the following sentences:

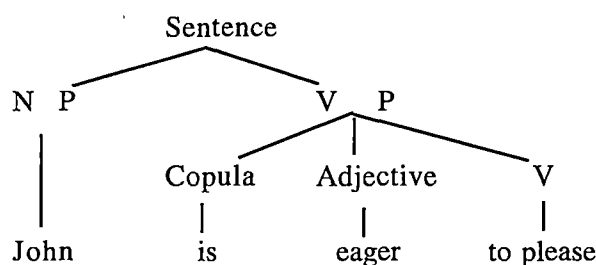
- (i) The boy hit the girl.
- (ii) Did the boy hit the girl.
- (iii) The girl was hit by the boy.
- (iv) Hit the girl, boy !

There, of course, underlies a close relationship among the above sentences. PS-grammar must provide different PM for each of these sentences. Since every sentence possesses different PM, there is no way in which the interrelationship among them can be made. But the interrelation is made possible once we enter into T- rules. But how? Let us exhibit the PM of the first sentence under PS-grammar. Then we can easily show the relationship of the other sentences to this rule by showing how each of them can be derived from it by applying T-rules. Since the PM for the first sentence will reveal that *The boy* is the subject, *hit* is the transitive verb, etc. Now we can transfer all such information with the help of T- rules into interrogative, the passive, the imperative etc. Chomsky

summarises the above point in the following passage:

“There are certain sentences (... Simple declarative active sentences ...) that can be generated by a constituent structure grammar in a quite natural way. There are others (e.g. passives...) that cannot be generated in an economic and natural way... but that are systematically related to sentences of simpler structure. Transformations that are constructed to express this relations can thus materially simplify the grammar when used to generate more complex sentences and their structural description from already generated simpler ones.”<sup>(6)</sup>

The third inadequacy of phrase structure (PS- grammar) is that it fails to explain our intuitive understanding of many aspects of language. A Grammar is said to be adequate not only for the fact that it helps us to generate an innumerable sentence, as PS- grammar does, but also for the fact that it enables to explain an enormous number of intuitions that speakers have about their language including their recognition of ambiguities, of structural dissimilarities; or of underlying similarities between different sentences. It is said that PS-grammar apart from generating only the grammatical sentences of a language fails to provide the others just mentioned. A sentence has two structures, viz., deep and surface. PS- grammar enables to exhibit only the surface structure of the sentence. But surface structure of a sentence is not supposed to be the real nature of sentence. So if anybody confines himself within the framework of PS- grammar it would not be possible for him at times to know the real nature of the sentence. The surface structure of the sentence, *John is eager to please* under the PS- grammar will be represented by the following diagram:



What is represented by the above tree- diagram is said to be the surface

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6. Chomsky, Noam: *On the notion " Rule and Grammar "*, in *The Structure of Language*, ed. J. Fodor and J.J. Katz, Prentice- Hall, 1964, P.129

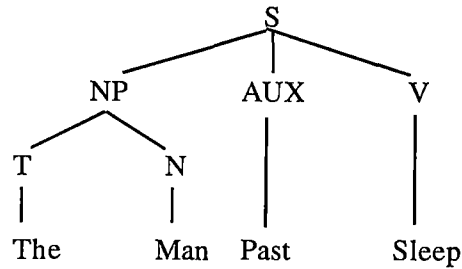
structure of the sentence: *John is eager to please* under PS- grammar. But Chomsky claims that we should go beyond the surface structure of the sentence owing to explain our intuitive understanding of many aspects of language. We have to know the deep sentence structure, which will reflect the true structure of language.

### **A plea for Transformation Rules (T - Rules )**

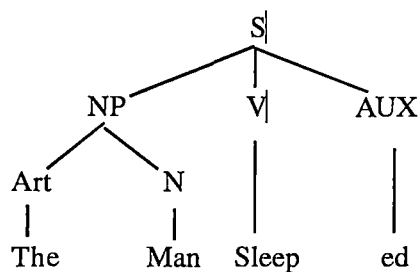
So far we have examined the pro and cons of PS- grammar. We have seen that barring a few advantages, it has many shortcomings for which the real or true structure of a sentence can not be grasped. There is no question of doubt that at the surface level of sentence, the relevance of PS-grammar is justified : but at the deep level the relevance of PS-grammar is being questioned. PS-rules, of course, provide the underlying string on which transformation and phonetic rules are applied. For example, the underlying string derived from PS-Rules is John + open + the + door. Now by applying obligatory transformation on the string ; we have: *John does not open the door* and by applying phonetic rules we get the sentence: *John doesn't open the door*. That means without the assistance of transformation rules, no PS-rules can generate a sentence. PS-Rules can give us only terminal string like The + men + open + the + door, but this is yet to be a sentence as it is not bound by transforation rules. A terminal string as given by PS-rules can be designated as a sentence only by obeying at least some transformation rules. This is where the relevance of T-rules is being justified.

T- rules may be categorised into four types. These are: (i) Transformation by changing the place of the elements of a sentence. For example, for the

generation of the sentence: *The man slept* forms:



OR



(ii) Transformation in terms of substitution. For example, by using pronoun in place of noun, Pro- verb in the place of verb, such as *I like football, so does my child*.

(iii) Transformation in term of deletion. For example, from *I desire that I have scored 80% marks* to *I desire to have scored 80% marks* where the second *I* is deleted.

(iv) Transformation in terms of addition, e.g., by introducing **be + in**, by in the case of passive sentence.

Thus it appears clear that T-rules are more powerful than PS-rules in case of generative sentences. Let us now find out the difference between PS-rules and T-rules.



guided by restrictions unlike T- rules. In T- rules the symbols, viz.,  $NP_1$  or V can be acted as variables. But when they appear in PS- rules, they have acted as constants. The meaning of variable and constant is significant. They are logical concept. One constant cannot be replaced by another; whereas one variable be replaced by another. Constant is definite and unique; where a variable is not definite. Variables are ambiguous. If it is supposed that the symbol, which are used in PS- rules are acted as constant, then it means to say that a certain symbol can not be replaced by another symbol. On the contrary, if the symbols, which are used in T-rules acted as variables, then of course one symbol can be replaced by another symbol simply because T-rule tells us that anything which is of a certain grammatical form can be transformed into something of a different grammatical form. The difference between PS-rules and T-rules is like the difference between algebraic and arithmetical rules.  $1+1$  simply tells us that  $1+1$  can be replaced by 2; but  $a + a = 2a$  tells us something about all numbers. It tells us that whenever numbers are arranged in a certain way, they can also be arranged in a different way.

There we find a third distinction between PS- rules and T- rules. It is said that unlike T- rules, PS- rules cannot make use of information concerning the history of string derivation. That is if you consider a practical string of a derivation under PS- rules, we do not know the history of this string. You do not know what would be the status of this string in the previous string, from where the string is derived. When we apply PS- rules at a certain stage in a derivation, e.g.,  $NP \rightarrow ART + N$ : it is irrelevant how the symbol NP was itself derived at an earlier stage. But we do not face the same sort of difficulty in T- rules. In T-rules every thing is specified. Let us consider the active - passive transformation. Here we can easily detect that *The boy* is the subject of the active sentence as it is derived from  $NP_1$ . We are allowed to place it at the end of the sentence preceded by *by*. Here we come to know that *hit* in the active sentence is a transitive verb as we know that it has been derived from V transitive. We are allowed to transform it in a specific way so that we have to make it a passive one. Katz says, "Transformation rules thus differ from phrase structure rules in that, while a phrase structure rule can only make use of information contained in the linear

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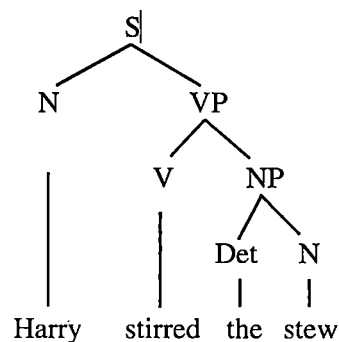
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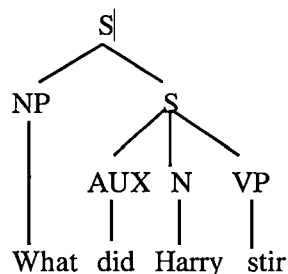
context of the symbol to be rewritten, a transformation rule can use any information in a phrase marker to which it applies".<sup>(7)</sup>

### A Plea for Deep Structure of Sentence

According to Chomsky although PS-grammar being an **immediate constituent analysis**, represents a considerable technical advance on previous analysis in making a rigorous syntactic representation of sentence, but still it is, in principle, inadequate to describe some constructions of language. The introduction of T-rules, is therefore, being justified. We have explained the inadequacy of PS - rules on many accounts. PS-rules, as we saw, make explicit the internal structure of one particular phrase structure into another. Phrase structure rules (PS-rules) would produce the sentence : Harry stirred the stew in the following tree :



and then a new T-rules would change the whole sentence into another one:




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7. J. J. Katz: *The Philosophy of language*, Harper & Row, 1966, P.144.

“It is a fact that native speakers have different intuitions about their language. They can easily apprehend whether a string is well formed or ill - formed, whether certain sentences are closely related to or not; whether certain sentences are different or not inspite of apparently close similarities between them; whether certain sentences are synonymous or not etc. A grammar can not exhibit the principle of linguistic production without doing justice to the different judgement that native speakers can make about syntax and meanings. This means to say that a theory of language should not confine only with syntax; but also with meaning. It should deal with syntax and semantic. But the syntactic and semantic intuitions are not accounted in terms of surface structure but in terms of deep structure.”

According to Chomsky the deep structure is introduced to explain the fact of meaning as, “the surface structure generally gives us very little indication in itself of the meaning of the sentence”.<sup>(8)</sup> He reiterates the same in the following passage.

“It is clear, however, that the deep structure must be quite different from (the) surface structure. For one thing the surface representation in no way expresses the grammatical relation that are ... crucial for semantic interpretation. Secondly, in the case of an ambiguous sentence ... only a single surface structure may be assigned, but the deep structure must obviously differ. (This is) sufficient to indicate that the deep structure underlying a sentence cannot be simply a labeled bracketing of it. Since there is a good evidence that the surface structure should, in fact, simply be a labeled bracketing, we conclude that the deep structure cannot be identical with surface structure”.<sup>(9)</sup>

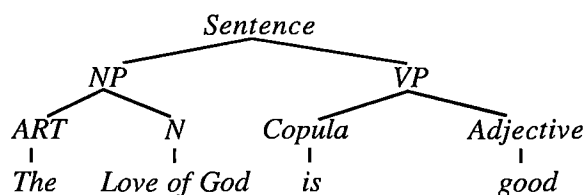
To examine the ineptness of surface structure let us consider a sentence: *The love of God is good*. This sentence is supposed to be ambiguous as it has more than one meanings. It could be paraphrased either as (a) *It is good for people to love God*, or (b) *God's love for people is good*. Now it is said that there is no way of exhibiting this ambiguity if we represent the structure of the sentence by a PM

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8. Chomsky Noam: *Language and Mind, Harcourt, New York Brace & World, 1968, P-87.*

9. Chomsky Noam: *Topics in the Theory of Generative Grammar, The Hague; 1966, P-13.*

derived solely in accordance with PS-rules. The single PM that we have from PS-rules is like the following:



The surface structure of this sentence, which is reflected by the single PM cannot reveal its ambiguity. Here we have two different underlying sentences having different meanings. We can reflect this ambiguity at a deeper level. We can think of there being two different underlying string from which the sentence *The love of God is good* can be derived by different T-rules. There is one string in which God is supposed to be the object of the verb *Love*, (*It is good for people to love God*); and this is finally transformed into the sentence *The love of God is good* by a T-rule which transforms the verb *love* into a noun form. The second underlying string will represent *God* as the subject of the verb *love* (*God's love for people is good*) and this is transformed into a sentence *the love of God is good* by a different T-rule. But it is said that the two PM's having the two different meanings are not reflected in PS grammar. It is important to note here that the ambiguity so far discussed in the sentence under consideration is not semantic but grammatical. It is a systematic ambiguity - an ambiguity which is not related to a single word like *I went to the bank*. In the case of systematic ambiguity we have to presuppose two different deep structures underlying the sentences by different T-rules.

Surface structure at time fails to provide meaning where two sentences having same meanings but different structures. The surface structure of a sentence is exemplified or illustrated by the PM. The meaning of the sentence: *They denied the existence of God* is same with the sentence: *They denied that God exists*; but they have different surface structures as exemplified by the PM's. This is reflected at the deep level. At the deep level or deep structure, it seems clear that both sentences having the same deep structure. This is made possible at this level simply because here *God is designated*, as the subject of

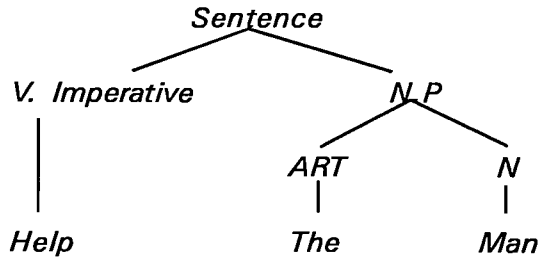
the verb *exists* in both sentences under consideration. If God is supposed to be the subject of the verb *exists*, then in the case of the first sentence, we can derive the actual sentence by applying T-rules which will modify the verb into a noun. Similarly, another T-rule may be applied to derive the second sentence from the same underlying string.

Moreover, it may be the case that there we have two sentences having identical surface structure; but they may differ in their syntax. *John is eager to please* and *John is easy to please* e.g. are two sentences having different grammatical structure. If we carefully observe, it seems clear that the sentence *John is easy to please* can linguistically be paraphrased as *It is easy to please John*. But can the sentence *John is eager to please* be paraphrased like: *It is eager to please John*?

Certainly not. But if we exemplify both sentences in terms of PM's, we have identical surface structures of these sentences. This make sense to say that there underlies a fundamental distinction between the sentences which cannot be reflected at the surface structures. This invites us to pass on to deep structures, which will enable to dig up the distinction between the sentences. In the sentence *John is eager to please*, John is stood as the subject of the verb *please*. It might be something like *John is eager to please someone*. But in the sentence *John is easy to please*, John is acted as the object of *please*. This is tantamount to *It is easy for someone to please John*. It seems clear that although the sentence under consideration having identical surface structures; but at the deep level it appears that they have different structures, which can be exemplified by using different T-rules.

Another aspect of introducing the deep level of sentence is to exemplify the constituents of the sentence, which lie submerged in the surface structure. It is claimed that at surface level the constituents of a sentence at time may not be reflected. Let us consider the imperative sentence *Help the man*. The surface

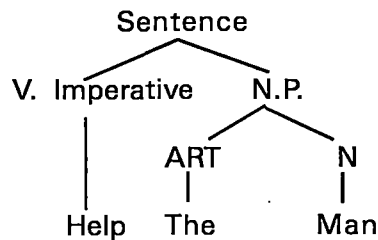
structure of this sentence is depicted by the following PM.



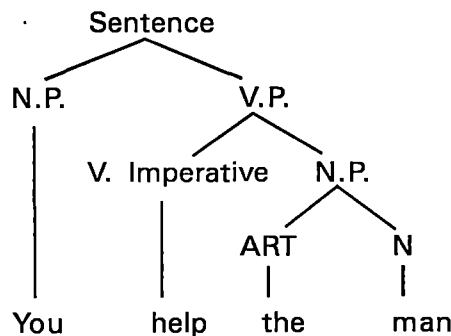
We can say that in the above PM, all constituents of the sentence are not depicted. There remains at least one string, which is not reflected by above PM *Who helps the man?* In answering to this question, it is advisable to say that in underlying this sentence the string *you* as the subject of *help* is not exemplified. Various arguments may be provided in support of this addition. It is understandable for everyone that the command is directed towards the person who is being addressed. That is to say that from speaker's point of view it indicates *You* rather than anything else. It is usual to say that *Help the man* means *You help the man* rather than to say *They help the man*. In such a case like this command is usually associated with *You* rather than *They*. However it is correct to take up a reflexive pronoun as the object of a verb where the object is the same as the subject. That is, we can say, *Ram likes himself*, but not to say *Ram likes herself*. Similarly, when we issue a command, say, *Help yourself*, and by this we usually mean *You help yourself*, we thereby justify the use of reflexive pronoun. Now, if *You* is supposed to be postulated as the subject of *Help yourself*, it is equally reasonable to say that *You* can also be the subject of command *Help the man*. If so, then the command *Help the man* has been transformally derived from an underlying string in which *You* appears as the subject. Here the effect of T-rule in question is simply to obliterate (delete) the occurrence of *You*.

What we learn from the above consideration is that any attempt to exemplify the structure of sentences with the help of PM's which is formulated solely by PS-rules leaves unexplained various intuitions we feel about sentences. We do, of course, have the intuition and explain them if we make a distinction between deep structures —structures which are exemplified by PM's in accordance with PS-rules, and surface structures, which are derived from

the deep structures by the application of T-rules. Any attempt of formulating structures by applying PS-rules alone is supposed to be over simplified, as it fails to dig up all information about the meanings of the sentences which can only be adequately highlighted at the deep level. So we can say that owing to exemplify the true structures of sentences T-rule is desired .The nature of transformational grammar of language is also clear from the above discussion. A transformational grammar of a language is nothing but a supposed set of rules, which are adequate for bringing about all and only the grammatical sentences of that language. The application of grammar is two folds. In one sense PS- rules which generate string by successive stages of the rewriting of symbols. In other way, PS-rules served to derive PM's which can be represented in tree-diagrams. T-rules then operate to convert this PM's into other PM's. Katz says, " A transformational rule is a rule that operates on a phrase marker converting it into another phrase marker".<sup>(10)</sup> The sentence *help the man* can be represented like the following :



The above PM of the sentence under consideration may be converted into another PM by transformational rule. It allows us to bring the subject in imperative sentence and thereby we have a new PM. This is like the following



The phrase marker of the sentence *you help the man* , is more adequate than the phrase marker of the sentence *help the man* as unlike the second one, the first one does not exemplify the fact that *you* is its subject.