

PAPER 6 (DESCRIPTIVE LINGUISTICS)

What is phrase structure grammar? What are its limitations?

There are three distinctive periods of development in the theory of constituent structure. Bloomfield only introduced notion and explained it by means of example. His followers notably Eugene, Nida, Rulon Wells, Zells Harris, formulated the principles of constituent analysis in greater detail and replaced Bloomfield's somewhat vague reference to 'taking account of the meanings, with explicitly distributional criteria'. Finally, in the last few years, the theory of constituent structure has been formalized and subjected to rigor by Chomsky and other linguists and has been called 'Phrase Structure Grammar'.

Once we start to use labels, we have clearly departed from simple analysis and are undertaking analysis somewhat similar to traditional phrasing, the division of sentences into already established grammatical elements. This kind of analysis is today usually called 'phrase structure grammar'. It shows some of the weaknesses of the simple IC analysis. There are sophisticated versions of phrase structure grammars. The three best known are 'Scale and Category grammar' associated with the name of Michael Halliday in London University, 'Tagmemics' associated with the name of Kenneth Pike of Michigan, and 'Stratificational grammar' associated with Sidney Lamb of Yale.

Thus, phrase structure grammar is an alternative way of expressing the information found in a tree diagram by means of 're-write' rules. In this model the linguist formalizes the grammar by means of generative rules which explicitly assign the correct constituent structure to sentences. Such systems are called simple 'phrase structure grammars'. This model of grammar shows not only the terminal elements or constituents of a linear structure but also specifies the subunits and the level at which these units form natural groups. So the linguist is her interested in

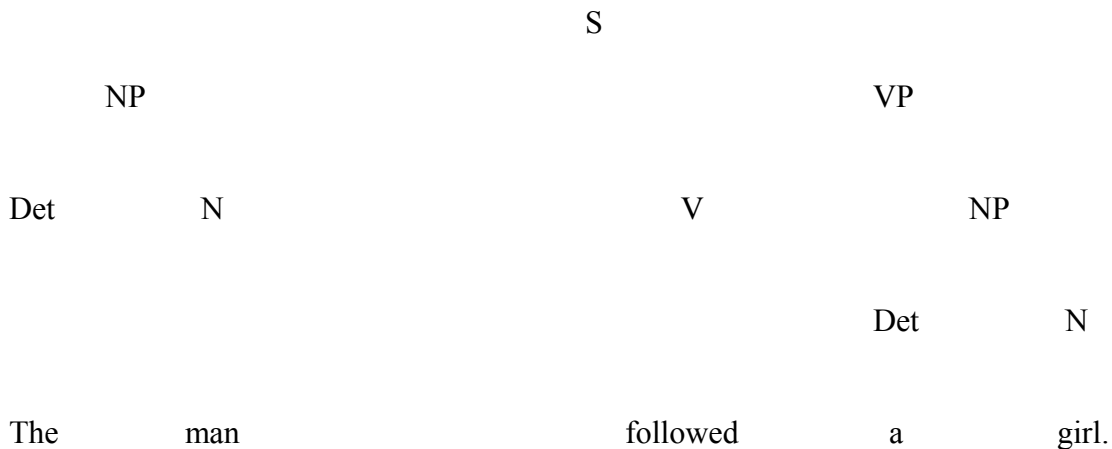
1. the pattern underlying the sentence and the constituents; and in
2. the syntactic devices used to link the constituents together, and the ways in which various parts relate to one another.

Without the axiom, there are bound to be an unlimited number of rules. This implies that we can neither formulate nor write down such rules in one life time which rules out the possibility of someone using this grammar to master a language. The fact that we learn a language by the time we are three or four years old refutes such an implication and compels us to believe that the rules of a grammar have got to be finite and not infinite.

Phrase structure rules of the generative grammar are an amalgamation of the subject-predicate and parsing systems of the traditional grammars and the IC analysis of the structural grammar. They are framed to derive a 'kernel' sentence (in the Syntactic Structures, Chomsky 1957), or 'underlying (deep) strings (in the Aspects, Chomsky 1965). These rules define basic grammatical relations that function in the deep structure. They also make explicit the domination of constituent over the other. In short, they make explicit the universal conditions that define 'human language'.

The phrase structure of a sentence is generally represented by a tree diagram. This representation of the phrase structure of a sentence is known as its 'phrase marker' or 'P marker' for short. The points that are joined by the lines or branches are called 'Nodes'. Each of the nodes, except those on the bottom line (which are the terminal nodes) is given a label that represents a grammatically definable constituent - N, V, NP, VP, etc. where one node is higher than another and joined to it by branches, it is said to 'Dominate' it, if it is placed immediately above it and joined by a single line, it 'Immediately' dominates it. 'Dominance' then shows how a larger constituent may consist of one or more constituents of a smaller kind. It is also important to note that the tree structure preserves the linear order of the constituents, just as plain IC analysis does. The first noun phrase precedes the verb phrase, the verb precedes the second noun phrase. The determiner precedes the noun. 'Precedence' thus like 'Dominance' is clearly shown in the tree diagram.

The sentence "the man followed a girl" will be represented by a tree diagram as



Labeled bracketing and phrase structure trees provide much more information than IC analysis, but they still do not state, except by implication, how new sentences can be generated. This can be done with the use of 'phrase structure rules' (PS rules). The tree structure of the sentence given in the example can be generated by six rules.

1. S----NP-----VP
2. VP----V-----NP
3. NP----DET-----N
4. V-----Followed
5. DET-----the, a
6. N-----man, girl

These rules will not generate only the one sentence handled in the tree diagram - 'The man followed a girl'. Since both 'the' and 'a' are shown as determiners and both 'man' and 'girl' as nouns, the rules permit us to permute the determiners in each determiner position and the two nouns in each noun position and in fact, to generate no less than sixteen different sentences including, for instance:

A girl followed the man.
The girl followed a man.
A girl followed a man.

The phrase structure rule can generate longer sentences also.

LIMITATIONS OF PHRASE STRUCTURE GRAMMAR

A phrase structure grammar is essentially a grammar of segmentation and categorization, it is a taxonomic model - a grammar of lists, an inventory of elements, and of class of sequences of elements. Although it is very strong in giving structural description of the language, yet it is deficient in generative capacity. It is incapable of accounting for all the intentions of native speakers. It fails to disambiguate all the ambiguities and understand all the synonymies.

The processes that pose problems to PS grammar are:

1. ambiguities
2. synonymies
3. permutations
4. discontinuous constituents (e.g. particles)
5. remote relationship (e.g. those of cases)
6. concord phenomena
7. co-ordination.

Despite its rules of inference, binarity and irreflexibility, etc. a PS grammar runs into difficulties in describing syntactic structures of questions, negatives, passives, relatives, etc. easily. It fails to capture the deep meaning. It cannot discover the crucial notions, not can it prevent the assignment of false, ungrammatical structure.

PS rules are incapable of - except by having recourse to very arbitrary solutions - of accounting for the multiplicity of relations existing either between elements in the same sentence, or between different sentences. For example:

1. The police diverted the traffic.
2. The traffic was diverted by the police.
3. The traffic was diverted by a country road.

PS rules fail to show the relationship that connects 1 to 2. In sentence 2 'by the police' will be shown as a prepositional phrase consisting of a preposition, a determiner and a noun, and in sentence 3 'by a country road' too will be shown as a prepositional phrase (prep + NP). Thus, it would ignore semantic considerations and case relations.

PS grammar does not have the precision, simplicity, elegance, power, insight, and competence of the TG grammar. It would be very complex and cumbersome and clumsy with so many constraints.