

Noam Chomsky and Generative Grammar S2 / 5th lect

II. Phrase Structure Grammar (P.S.G)

P.S.G. is a type of Generative Grammar which represents constituent structure directly. The idea of P.S.G. is simple. we first note what syntactic categories appear to exist in a given language, and what different internal structures each of these can have. Then, for each structure we write a rule that displays that structure. e.g. $S \rightarrow NP VP NP (det) N$. The set of rules obtained can be used to generate stories.

P.S.G. is less simple and more satisfactory model, it treats stories as if they had a layered structure. One might assume that a person has a mental list of a number of different story types, each possessing a number of different "slots" which could be extended in various ways. For example, if we assume that a noun phrase (NP) followed by a verb phrase (VP), [NP VP] is a basic English story type, then we might have or find the following expansions:

NP

VP

Ducks

Quack

Those ducks

quack horribly

Those fat ducks

will quack horribly

Consequently, P.S.G. would contain a series of rewrite rules which show the progressive expansions.

Then, we can say that P.S.G is a system of rules, it was introduced by Chomsky in his first version in 1957. In its terms:

- Any English stce is composed of NP VP.
- or - Any English stce is written as NP VP.
- or - Any English stce rewrites as NP VP.

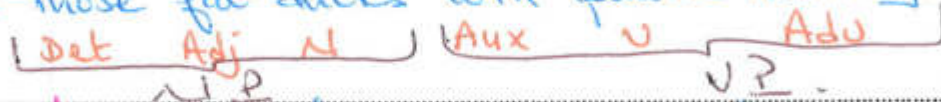
Thus, we call these rules rewrites rules.

The main rules of P.S.G are =

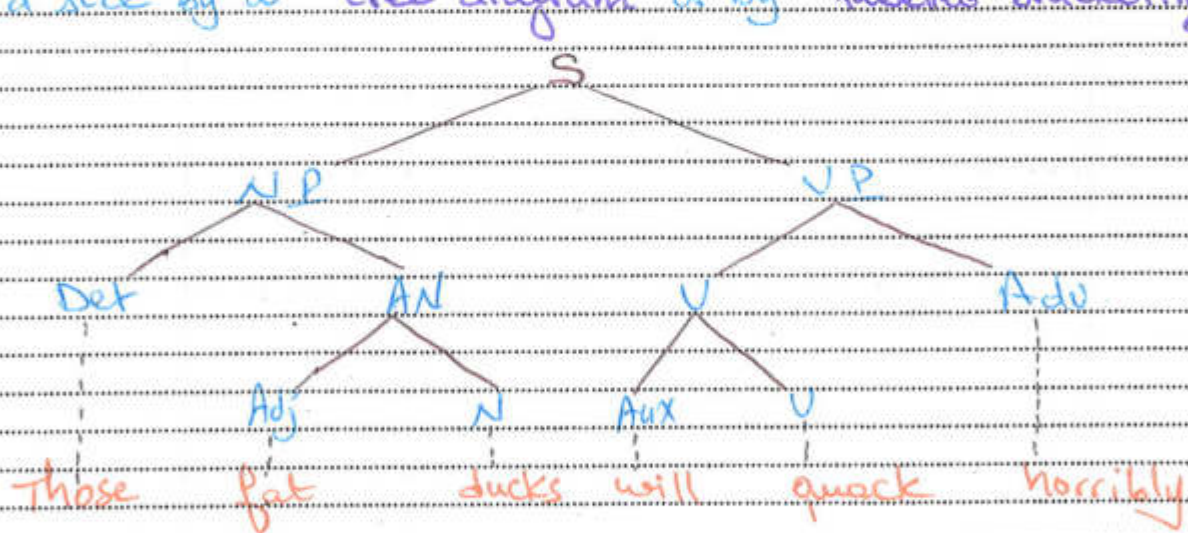
$S \rightarrow NP + VP$ $NP \rightarrow (Det) N$ $VP \rightarrow V + NP$.

$V \rightarrow (Aux) V$. Note: what is found between brackets is optional

Example: Those fat ducks will quack horribly.



Phrase Marker: The representation of the phrase structure of a stce by a "tree diagram" or by "labelled bracketing".



* Context-free vs Context-sensitive rules :

Chomsky claimed that there are two types of P.S.G. rules :

1. **Context-free rules** : are those rules in which we don't take into consideration the context of the occurrence of the word in the stce i.e. formulated without regard to context.

2. **Context-sensitive rules** : are those rules in which we have to take into account the context of the word occurrence in the stce i.e. syntactic and semantic environment affects its application.

* English is not context-free (eg: She speaks good English)

* The Weaknesses of P.S.G.:

P.S.G. is the most appropriate type of Gr for teaching elementary syntax, and it is powerful enough to describe successfully almost every construction occurring in any lge. However, it has some inadequacies :

1. It can generate stces that are good in structure but have no meaning, or which are not good English. (The car will repair the boy)

2. P.S.G. cannot generate complex stces, it generates only simple ones. Chomsky criticized his P.S.G. saying that: "P.S.G. is not very far from I.C.A. in that it generates only simple stces of the form NP VP". The simple stces generated by P.S.G. rules are called **kernel sentences**, and other types of stces are called **Transforms**.

3. We require an enormous number of rules to be able to generate all stces of English.

4. This model doesn't capture the intuitions of the native speakers about their lge.

eg: { *John is anxious to help.
*John is difficult to help.

These stces are radically different:

1. John is planning to help others.
2. John needs to be helped, but it is difficult.

Yet, the "slot" pattern is identical:

John is anxious to help.

John is difficult to help.

* A similar problem occurs with the stce: John is ready to eat.

Thanks to intuitions, any native speaker could recognize that this stce has two meanings:

- John was hungry and wanted to eat something.
- John had fallen into cannibals' hands and made ready for consumption.

The slot model, however, cannot easily show the two radically different interpretations of this stce.

* The opposite occurs with pairs of stces such as:

- * To swallow safety pins is quite stupid.
- * It is quite stupid to swallow safety pins.

{ *Yesterday, it snowed.

{ *It snowed yesterday.

{ *The cat ate the canary up.

{ *The cat ate up the canary.

The stces in each pair would be regarded as very similar by English speakers, yet this similarity cannot be captured by this model since each stce requires a different slot pattern.

Chomsky argued that a gr that provides only one structure for . . . stces which are felt to be radically different by native speakers, and different structures for stces which are felt to be similar is a bad grammar.

PSG. cannot account for discontinuous morphemes (ne . . . pas) and Passive (addition of by). It can only deal with simple stces and the order of rules must be respected. This gr needs context sensitive rules because co-occurrence restrictions exist in all lges. e.g. careful drivers not careful houses: the use of "careful" is restricted to human beings. Co-occurrence restrictions include Concord such as that of number. e.g. the girl goes