CHAPTER II

THE THEORY OF GRAMMATICAL TRANSFORMATION

Language produces an infinite number and variety of sentences, so many that it is not possible to generate sentences from the phrase structure rules alone.   Another theory -- generally known as the theory of grammatical transformations --- is introduced to supplement the phrase structure part of a grammar and to simplify the overall grammar.   This chapter will deal with an outline of this theory.

It was pointed out in the last chapter that only some of the sequences of strings are permitted in a language.   The phrase structure rules fix the basic pattern of the language; the transformation theory generates the fixed pattern into a desirable expression within the limits of the sequences permitted.

A generative or transformation grammar of a language is then defined by Professor Bach as:

> A theory or set of statements which tell us in a formal and explicit way which sequences of the basic elements of the language are permitted.[1]

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[1]Bach, p. 7.

A transformation is basically a statement of certain relations holding between strings in a grammar. It states that if strings of a particular form are representations of grammatical sentences in a language, then also strings of another form derived from them are also grammatical. A system of mathematical symbols is used to represent utterances in order to simplify the statement of grammatical restrictions, for example:

$$S \longrightarrow NP + VP$$

An example of French sentence structure may be presented here as follows:

$$NP + VP \longrightarrow NP_1 + Pvb + AUX_1 + VB + NP_2$$

Transformational rules do not apply to sentences in their terminal form but rather to the underlying abstract strings produced at a certain point in a grammar. Each rule must be marked as either optional or obligatory. They are in an abbreviated form on both sides of an arrow ($\longrightarrow$). Elements on the left are "the structural description" showing a set of strings to which the rules apply. Those on the right are the specifics resulting from the change brought about by the transformation.