What is Transformational Generative Grammar (TGG)?

Transformational Generative Grammar (TGG)is a theory of syntax and linguistic structure developed by Noam Chomsky in the 1950s. The core idea behind TGG is that the structure of a sentence can be generated through a set of rules that transform basic sentence forms into more complex ones. These transformations allow for the generation of a wide variety of syntactically correct sentences from a smaller set of basic structures.

Transformational grammar is a system of language analysis that recognizes the relationship among the various elements of a sentence and among the possible sentences of a language and uses processes or rules (some of which are called transformations) to express these relationships. For example, transformational grammar relates the active sentence "John read the book" with its corresponding passive, "The book was read by John." The statement "George saw Mary" is related to the corresponding questions, "Whom [or who] did George see?" and "Who saw Mary?" Although sets such as these active and passive sentences appear to be very different on the surface (i.e., in such things as word order), a transformational grammar tries to show that in the "underlying structure" (i.e., in their deeper relations to one another), the sentences are very similar. Transformational grammar assigns a "deep structure" and a "surface structure" to show the relationship of such sentences. Thus, "I know a man who flies planes" can be considered the surface form of a deep structure approximately like "I know a man. The man flies airplanes." The notion of deep structure can be especially helpful in explaining ambiguous utterances; e.g., "Flying airplanes can be dangerous" may have a deep structure, or meaning, like "Airplanes can be dangerous when they fly" or "To fly airplanes can be dangerous."

Key Concepts of Transformational Generative Grammar

1. Deep Structure (DS): This is the underlying syntactic structure of a sentence, which represents its core meaning.
2. Surface Structure (SS): This is the final, outward form of the sentence that we actually hear or read. The surface structure results from transformations applied to the deep structure.
3. Transformations: These are rules that map deep structures to surface structures. A transformation can involve changes in word order, movement of elements, or the addition/removal of certain words.
4. Lexicon: The vocabulary of a language, which consists of the words and their properties (e.g., nouns, verbs, etc.), plays a crucial role in both the deep and surface structures.

Key Rules of Transformational Generative Grammar

Transformational rules describe how one structure of a sentence (called a "deep structure") can be transformed into a different structure (called a "surface structure") through a series of operations or rules. These rules help explain how complex sentences are derived from simpler

ones. These transformations are important in understanding how languages generate different sentence forms and how meaning is conveyed in various syntactic constructions. Here are some important rules that govern the transformations in TGG, along with examples:

1. S-Structure and D-Structure

- Deep Structure (D-Structure): The underlying syntactic structure from which a sentence is derived.
- Surface Structure (S-Structure): The final form after applying transformations.

Example:

- Deep Structure: "John loves Mary."
- Surface Structure: "Mary is loved by John."

The deep structure is the simpler, more basic form, and transformations can result in the surface structure.

2. Movement Transformation

This transformation involves moving elements within the sentence (e.g., moving the subject, object, or other elements).

Example 1:

- Deep Structure: "John will read the book."
- Surface Structure (question form): "Will John read the book?"

The subject "John" moves from the deep structure position to the surface structure position after the auxiliary "will."

Example 2 (Wh-movement/ Wh-Question Formation)

This rule allows for the creation of questions that begin with a wh-word (who, what, where, etc.), e.g.:

- Statement: "She is reading a book."
- Wh-question: "What is she reading?"

The object of the verb ("a book") is moved to the front by using the wh-word ("what") which is inserted at the beginning of the sentence and refers to (a book), e.g.:

- Deep Structure: "John is eating the apple."
- Surface Structure (wh-question): "What is John eating?"

The object "the apple" is moved to the front of the sentence, forming a question by using a wh-question (what) which refers to (the apple).

This rule describes how a wh-element (e.g., "what," "who") moves to the front of the sentence, e.g.:

- Deep structure: "You saw what."
- Surface structure: "What did you see?"

Here, "what" moves from its object position to the front to form a wh-question.

3. Passivization Transformation

Passivization is the transformation where the object of an active sentence becomes the subject of the passive sentence. This is a common syntactic transformation.

Example:

- Active sentence: "The cat chased the mouse."
- Passive sentence: "The mouse was chased by the cat."

In the passive version, the object ("the mouse") becomes the subject, and the subject ("the cat") is placed after the verb in a "by-phrase" or omitted.

4. Auxiliary Inversion/ Subject-Auxiliary Inversion in Questions

A very common transformation in English is the inversion of the subject and the auxiliary verb when forming questions.

Example:

- Statement: "They are coming."
- Question: "Are they coming?"

The auxiliary verb "are" moves to the front to form the question. This transformation changes the position of auxiliary verbs in questions.

Example:

- Declarative: "She is reading a book."
- Interrogative: "Is she reading a book?"

The auxiliary verb "is" moves to the front of the sentence to form a yes/no question.

5. Negation Transformation

This transformation involves inserting a negation element (like "not") into a sentence to turn it into its negative form.

Example:

- Affirmative: "John is coming."
- Negative: "John is not coming."

The negation element "not" is inserted after the auxiliary verb "is" to negate the sentence.

6. Omission/ Ellipsis Transformations

Omission rules are of two types. Constant omission rules specify the omission of identified sentence elements. An example is the imperative sentence in English in which the subject "You" is omitted, e.g.

- Close the door.

In this example, the sentence starts with a verb as it is an imperative sentence, while the subject which is "You" is omitted.

The rules of omitting identical elements specify that the second of identical elements in a sentence can be omitted and the different elements are kept. For example:

- I don't like milk. I don't like sugar.
- I don't like milk and sugar.

Sometimes, parts of a sentence can be omitted during the transformation process, particularly when forming ellipsis structures or questions.

Example:

- "John can play the guitar, and Mary can too."
- After omission: "John can play the guitar, and Mary can."

Here, the phrase "play the guitar" is omitted from the second clause due to ellipsis.

Omission of "That" in Complement Clauses

In certain contexts, the complementizer "that" can be omitted, especially in informal speech.

Example:

- Full version: "I believe that she is coming."
- With omission: "I believe she is coming."

In this case, the word "that" is omitted in the surface structure, even though it is present in the deep structure.

7. Clefting

This transformation involves creating a sentence with a structure like "It is X that Y," to focus on a particular element of the sentence.

- o Deep structure: "John bought a book."
- o Surface structure: "It was John who bought a book."

Here, some elements (namely, It was… who…) were inserted in the surface structure to transform the deep structure by clefting.

8. Topicalization

In topicalization, an element of the sentence is moved to the front for emphasis or focus.

- o Deep structure: "I don't like pizza."
- o Surface structure: "Pizza, I don't like."

Here, the object (pizza) is moved to the front to show emphasis on it.

9. Insertion
This rule states that any inserted element itself must have no meaning. The words "it" and "there" are often used in this manner. For example, in the sentence "It is raining" the word "it" occupies a position in the sentence, but it has no function and no meaning in that sentence. The same is true for "There is a test tomorrow". The word "there" is used to introduce the sentence, but it has no meaning of its own.

10. Substitution
This rule governs the substitution of a word for another word or phrase. The most common application of this rule is the substitution of pronouns for nouns. For example, "Mary helps herself" is used rather than "Mary helps Mary" and "Joe helps his sister" is used rather than "Joe helps Joe's sister".

Summary

Transformational Generative Grammar provides a way to generate sentences using a set of formal rules that describe how underlying structures (deep structures) can be transformed into surface structures. These rules, such as movement, passivization, question formation, and negation, allow for the creation of a wide variety of syntactically correct sentences based on a set of foundational principles. The goal of TGG is to explain how the human mind can generate all possible grammatical sentences in a language, based on the interactions of these rules.