

A Comparison between TG Grammar and Structural Grammar

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Abstract: *Two major schools of grammar emerged in the 20th century, namely American Structural Grammar represented by L. Bloomfield and Transformational-Generative Grammar (TG Grammar) represented by Chomsky. This paper compares the differences between the two schools of grammar from aspects of background, the stage of development, the philosophical and psychological basis, the view of language, goals of study, objects and methods of study, language acquisition theory and other aspects. This paper also compares the differences between the two schools of grammar in English teaching. It is helpful for us to better grasp the nature of these two schools of grammar by comparing them, so as to better apply them to English teaching.*

Keywords: *TG Grammar; Structural grammar; Comparative study; English teaching*

1. Introduction

Two major schools of grammar emerged in the 20th century, namely American Structural Grammar represented by L. Bloomfield and Transformational-Generative Grammar (TG Grammar) represented by Chomsky. Structural grammar and Transformational-Generative grammar represent the two main stages of the development of modern linguistics. Structural grammar focuses on the systematic analysis and description of language forms. The TG grammar founded by Chomsky aims at revealing the universal grammar in the human brain. In the 20th century, there are two peaks in American linguistics. One is the structural grammar of Bloomfield's period, the other is the TG grammar of Chomsky's period. The former advocates the behavioristic theory of language, adopts the inductive method and describes the structure of language. While the latter attaches importance to the universal phenomenon of language, advocates the rationalist view of language and adopts the deductive method to explain the phenomenon of language. The narrow sense of structuralist linguistics began with F. Saussure. Saussure maintains that the structure of language has nothing to do with history, and believes that the diachronic study of language cannot explain the process of creating language. In fact, the basic relationship that plays a role in language is the correspondence between signs and meanings, which is interrelated and interdependent to form a synchronic language system. Based on the philosophy of rationalism, TG grammar emphasizes the explanation of human language rather than just describing the behavior of language. It studies the cognitive system and universal grammar embodied in human brain. According to Chomsky, "language" is not something that actually exists. The concept is derived from grammar, which is the only thing that actually exists. TG grammar explains the ability of human language by using the formal methods of modern mathematical logic and deductively generating infinite sentences based on a finite system of axiomatic rules and principles.

This paper compares the differences between the two schools of grammar from aspects of background, the stage of development, the basis of philosophical and psychological, the view of language, research objectives, research objects and methods, language acquisition theory and other aspects. This paper also compares the differences between the two schools of grammar in English teaching. It is helpful for us to better grasp the essence of these two schools of grammar by comparing them, so as to better apply them to English teaching.

2. Differences of TG grammar and structural grammar

2.1. The differences in background

The history of linguistic research in the United States is very short, beginning in the late nineteenth and early twentieth centuries. In the United States, the influence of traditional grammar is little, and

English is dominant. Its cultural traditions are not as long established as in Europe, and the indigenous languages have no written forms, so there is no historical linguistics, and there is no basis for comparative linguistics. The first task of the American linguists was to record the native languages before they died out, so they recorded and described them objectively, without making any assumptions about the nature of the language. Boas, an American anthropologist, organized expeditions to investigate the native languages of the Americas north of Mexico for nearly two decades and published "A Handbook of American Indian Language" in 1911. This descriptive method marked the beginning of American structuralism. Structural grammar is also known as "descriptive grammar". It is formed on the basis of criticism of Traditional Grammar. Traditional grammar is normative and has long been dominant in the study of grammar. The originator of structural grammar is the Swiss linguist called Ferdinand de Saussure. In his classic work "A course of General Linguistics" (1916), he proposed a whole set of structuralist linguistic theories, which played an important role in the formation of structuralist grammar. Structural grammar was laid down by American linguist L.Bloomfield, and developed and perfected by other structuralist linguists.^[1]

Chomsky, a scholar with a good educational background in mathematics, linguistics and philosophy, originally studied Hebrew with the method of structuralism. However, he found that structuralism had great limitations in the process of study, so he reconsidered his field of research and tried to create a new way. Based on the computer mathematical model, a kind of new theory was put forward, which was to generate infinite sentences from finite syntactic rules. Therefore, this grammar is called TG grammar. Based on his own study, Chomsky believed that the original state of the human brain should contain all common features of all human languages, which was called universal grammar or linguistic universals. This was the original idea of the theory of TG grammar. In 1957 he published "Syntactic Structures". The book revolutionized linguistics and marked the birth of TG grammar.^[1]

2.2. The differences in the stage of development

The development of structuralist grammar went through three stages. First, it was called the early stage. The representative figures are Boas and E. Sapir. This period of linguistic study describes the features and development of language and establishes the basic framework of descriptive linguistics. Second, it was called the initial development stage. The representative figure is Bloomfield, who is the founder of American structural grammar. The publication of "Language" in 1933 made great influence in the linguistic circle, and the period from 1933 to 1950 was called the "Bloomfield Era". Finally, it was called the post-Bloomfield stage. The representative figures are Z.Harris, C.Hockett and K.Pike, etc. This period of linguistic study summarized and developed the results of the progressive structuralist model since the 1930s, and further promoted the development of structuralism.

After the 1950s, structuralism gradually lost its dominant position in the United States due to its limitations, so the TG grammar established by Chomsky received widespread attention. Since its birth, the theory of TG grammar has experienced five stages of development. The first stage is called the stage of classical theory. The theory emphasizes the generative power of language, introduces transformation rules and argues that semantics should not be considered in grammatical description.^[2] The second stage is called the stage of standard theory. This theory holds that derived nouns have the same semantic properties as related verbs, and semantic interpretation depends on the deep structure. And the theory holds that the process of convention keeps the semantics unchanged. The third stage is called the extended standard theory. The theory holds that the semantic interpretation is completely placed on the surface structure, and the corresponding logical expression is obtained from the semantic interpretation rules. The fourth stage is called the stage of "Government and Binding theory". This theory introduced a new direction of "empty category" in language. The fifth stage is called the simplest solution. In the minimalist scheme, "government" has been abandoned in favour of a more general theory of feature checking. In conclusion, the development of TG grammar is a process of simplifying theory and controlling generative power. Although the process is complex, the purpose and intention of each stage of development is consistent and continuous. And these stages explore the nature and use of human language.^[3]

2.3. The differences in philosophical and psychological basis

The biggest differences between structuralist grammar and TG grammar are as follows: Structuralist grammar follows philosophical empiricism and psychological behaviorism; TG grammar follows philosophical rationalism and psychological spiritualism. Among them, Bloomfield is the representative of the American structuralism school is a prominent representative. He believes that

psychology is the basis of linguistics, and the psychology has the characteristics of positivism, which belongs to behaviorism. As a method of study, the key of behaviorism theory is to explore from the perspective of behaviorism language view on the basis of things not recognized by human beings. It holds that the process of children acquiring language is “stimulus -- reflection -- reinforcement”, while the process of human language is “stimulus -- reflection”.^[4]

In Bloomfield’s works, behaviorism is deeply explored and has a profound influence on the course of linguistic research.^[5] There are three main ideas about Bloomfield’s principles. First, when a person is given a corresponding stimulus, he will use his language to react to another person. Second, the division of labor and all human activities are based on language. Thirdly, there is a corresponding distance between the speaker and the listener, which is mainly connected by the nervous system, in which the sound wave is the most powerful.

Different from Bloomfield, Chomsky believes that linguistic research pays more attention to rationalism and spiritualism. In fact, rationalists attach no importance to experience and advocate reasoning. They believed that only by we obtain the true knowledge of the world by the process of reasoning. Spiritualism focuses on cognitive psychology in the field of mind and the process of thinking. And it opposes any form of empiricism. Rationalism is completely different from empiricism in terms of the source of knowledge and the method of knowledge transfer. Spiritualism is philosophically concerned with the process of understanding and thinking of the mind. It has an emphasis on cognitive psychology, and opposes to empiricism such as Bloomfield’s behaviorism.

Based on Chomsky’s cognition, the school of grammar believes that the study of language can show the real reflection of human brain. The most basic human knowledge is based on rational analysis. Behaviorism rejects the distinction between behavior and psychology. It argues that knowledge is based on experience. Chomsky’s concept comes from the rationalism of Plato and Descartes. He believes that the human brain is a complex structure, which has a profound influence on human psychological activities. He believed that human created language, and language is not fixed. Chomsky, a follower of rationalism, argued that language is innate, not learned, and came up with his theory of “Innate Hypothesis”.^[3]

2.4. The differences in the views of language

The two schools of grammar have different philosophical basis. And therefore they also have different views on the nature of language. Structural grammar believed that we should study the theory of speech in the study of language. Therefore, the real utterance of the speaker is taken as the object of study. Under the influence of Saussure, structural grammar considered language as an arbitrary system of forms. There is a conventional relationship between the form and meaning of language signs. Language items are put together in a certain way to form sentences. So the task of the linguist is to describe this system, but to neglect the description of the semantics. At the same time, structural grammar believed that language is used for communication. Although their analysis of materials are from real discourse users, this point is not reflected in its theory.

Unlike structuralism, Chomsky believes that language is a system connecting meaning and substance, which is consistent with traditional grammar. Influenced by the German linguist W.V. Humboldt, Chomsky considered language as the infinite use of finite means. Language is a limited system of certain rules and principles, but everyone that can speak can say sentences he has never heard before. And the power is limitless. So Chomsky thinks that language is innate. It means that people are born with the ability to learn language and use it creatively. Chomsky firmly believed that language is a mental image of the system of human internalized rules, and that language is universal. TG grammarians consider universal grammar as a set of features, conditions, and other things that constitute the “initial state” of a language learner. Therefore, it is the basis of the development of language knowledge and the system of principles, conditions and rules that all human languages must have. It represents something fundamental about human language.

2.5. The differences in goals of study

Structural grammarians believes that every language is a rigid structure, forming its own unique system. It is the structure of the system that allows people to understand sentences they have not heard before. A grammar should be a description of the language structure, and it should reflect the overall picture of the language structure. The task of a linguist is to describe the system of language in detail and faithfully and develop a set of formal procedures and processing methods.^[6]

Chomsky's TG grammar has two goals. First of all, it should have the ability of accurate description of language. Once a grammar has the ability to accurately describe human language, it also has the power to explain the perception of the user. Secondly, the general principles of language acquisition are put forward. It aims at explaining the cognitive ability of human and the nature of human by the study of language. And then it wants to achieve the goal of understanding the unique intellectual characteristics of human. In other words, it aims at understanding the nature of humans. From the above comparison, we can see that structural grammar focuses on the specific system of language and the behavior of language. TG grammar focuses on the ability of human language, the mechanism of human brain and the nature of human thought. In this sense, Chomsky's TG grammar is more like a branch of psychology.

2.6. The differences in objects and method of study

Structuralist grammar takes language behavior as the object of study. In language studies, emphasis is placed on oral materials. The study of the speaker's speech in its natural state, without considering whether the speech is grammatical or not. So structural grammar only focuses on the analysis of forms of language. Influenced by empiricism, they believed that only when language description is based on the study of daily speech, the data obtained can be reliable. In terms of method of study, structural grammar adopts inductive method, which means to draw objective conclusions based on analysis and classification through observation of a number of facts. Therefore, in the study of linguistics, structuralist linguists only describe all the linguistic facts that are observed strictly according to the steps of the "the process of discovery", and then make objective conclusions.

In contrast to structural grammar, Chomsky studies any material that reflects a language user's tacit knowledge of his or her mother tongue. He does not pay attention to what the speaker is saying, but looks beyond the surface of the language to see the inner nature. Therefore, Chomsky focuses on the study of human language ability. In the method of study, the deductive method is adopted in order to establish a scientific hypothesis. And then he wants to prove the authenticity of the hypothesis through facts. In the concrete analysis, Chomsky uses ideas of mathematics and logic, so that the language can be derived step by step like a mathematical formula. [7]

2.7. The differences in the theory of language acquisition

Structuralism considers language as the process of "stimulus - response". During the process of learning, if a person makes the right response to external stimulus, this response will be reinforced and fixed into a habit. Otherwise, it is considered to have made a mistake in language learning. Errors are small and allowed. In short, structural grammar believed that language is acquired, a habit learned in the interaction with environment, and the process of language learning is also the process of habit formation.

In his process of long observation and study, Chomsky finds that children learn their mother tongue quickly and effortlessly. In the process of learning, they are in different environments, but they go through roughly the same stage of learning, and their language skills develop in roughly the same way. Based on these observations, Chomsky came up with the "Language Acquisition Device," or LAD. LAD consists of three parts, they are the hypothesis mechanism, universal law in human language and the procedure of evaluation. In the process of language learning, learners constantly compare the language they come into contact with their own system of language, and then they modify their own system of language. Errors usually occur in the stage of interlanguage. Interlanguage refers to the separateness of a second language learner's system, a system that has a structurally intermediate status between the native and target languages.

Errors are nothing more than making incorrect assumptions about the target language. Errors are the evidence of the process of learning. In conclusion, Chomsky doesn't believe that language learning is not a process of habit formation, but a process of hypothesis formation and hypothesis verification.

2.8. The differences in the application of English teaching

Any linguistic theory is to be applied to practice. Without application, theory will lose the value of existence. In addition to studying linguistic theory, Bloomfield also participated in many practical works in foreign language teaching. He wrote elementary textbooks in German and English in the 1920s and "Spoken Russian: Basic Course" (1945) in the 1940s. These books contribute greatly to the

cultivation of talents of foreign language during the war. The 1960s was the heyday of this teaching method, which almost appeared the platform of foreign language teaching in various countries. The famous foreign language method “Audiolingual method” was formed. [7]The first principle of this teaching method is to put listening and speaking in the first place. Before humans could read and write, they used language to communicate verbally. Therefore, structuralists believed that teaching students the skill of listening and speaking is the most important in the process of teaching, and the skill of reading and writing should be carried out on the basis of students mastering certain listening and speaking skills. The second principle is to emphasize the cultivation of the habits of language by practice. Language is a system of habits. And human learn languages like the behavioral learning of other animals. In other words, the process of learning can only be completed through stimulation and reinforcement. Therefore, when teaching a foreign language, students should unconsciously master the rules of a foreign language just as they learn their mother tongue. The only way to do this is through a lot of practice, such as imitation, memorization, practice, etc. The audiolingual method made language teaching based on science for the first time. But the linguistic theory of structural grammar also has its limitations. For example, it focuses on language form rather than semantics and functionality. Under the guidance of this theory, the audiolingual method also has some disadvantages. It places too much emphasis on rote practice, and the verbal material is not realistic in the process of communication, because it neglects the verbal context. This is not conducive to the cultivation of students’ ability of verbal communication. For example, students can try their best to recite the sentence patterns, but they cannot use them flexibly when they meet the actual environment.

TG grammar is different from structural grammar. Chomsky disagreed with the structuralist view of language and the process of learning language. He believes that language is not a system of habits, but a device that generates infinite words from finite rules. Language is transformational and generative. The conception of conversion is to convert one kind of sentence into another kind of sentence by certain rules. For example, we can change an active sentence into a passive sentence, and change a declarative sentence into a question. A language has a system of rules of grammar. This set of rules is limited, but it can produce infinite potential sentences. So, it is generative. From the perspective of language learning, Chomsky thinks it is absurd to explain human learning process by animal behavior. Language learning is a creative and active process, not simply by mechanical imitation and memory. Moreover, the sentences contained in a language are infinite, and it is completely impossible to master a language only by imitation and memory. In Chomsky’s opinion, the brain has the ability to recognize and understand sentences, summarize language materials, deduce rules of speaker, and generate sentences that conform to the rules. This ability is not a skill or habit formed by stimulation or reinforcement. The only explanation is that humans are born with language acquisition device. When this device receives input material of speech, it will automatically recognize and process a set of rules. Then it can use the system of rules to produce new sentences. In the process of language learning, the language acquisition device works on the basis of hypothesis, check and correct.

While opposing the structuralist view of language learning, Chomsky also disagreed with the structuralist theory of pedagogy. But he did not have a specific opinion on what teaching method should be used. Some educators and foreign language workers get inspiration from his theory and put forward “the cognitive method” which is opposite to “audiolingual method”. Cognitive method can be summarized into several points. First, since language is a rule-governed system, the understanding and mastery of grammar rules should be emphasized in the process of learning. Practice is necessary for foreign language learning, but it is not mechanical practice, but meaningful practice on the basis of understanding the rules. Second, the four skills of listening, speaking, reading and writing should be emphasized at the same time. Third, in the process of learning, mistakes are inevitable. And mistakes should not be corrected in time. Fourthly, in the process of teaching, we should completely change the teacher-centered approach in the past. We should adopt the student-centered approach.

However, these two kinds of teaching method on the different basis of grammar also have its own advantages. For example, audiolingual method emphasizes the practice of patterns of sentences and the cultivation of habits of language, while cognitive method emphasizes the understanding of rules of language and advocates meaningful practice.

3. Advantages and disadvantages of two schools of grammar

The two schools of grammar have their own advantages and disadvantages. In this section, I will discuss the advantages and disadvantages of each school of grammar. The main contributions of structural grammar to linguistics have four points. First of all, it realizes that language has structural

layers. Secondly, it attached importance to the description and investigation of “living language”, and it attached importance to spoken language. Thirdly, a complementary distribution method was proposed to find phonemes, phonemes and morphemes. Fourthly, the constituent analysis was proposed. The constituent analysis is the most outstanding contribution of structural grammar, because it can not only show the hierarchical structure of the language, but also explain some ambiguous sentences.^[7]

Transformational-generative grammar is based on structural grammar and developed in the process of various debates. It had several outstanding contributions. First of all, it broke through the limitation of traditional grammar and made up for some deficiencies of structural grammar. It was a bold and enlightening idea that had a profound impact on the study of linguistics. Secondly, it linked linguistics with fringe sciences, such as philosophy, mathematics, psychology and so on. It had great inspiration and reference for the machine translation, computer programming and so on. Then, it can not only distinguish some sentences with identical surface structure, but also dealt with ambiguous sentences. For example, an English sentence like “The shooting of the hunters was terrible.” At first glance, there is only one surface structure, but the deep structure is different. So it has different meanings. As Palmer says, “There are ambiguous sentences that can only be resolved by transforming. TG grammar can help us illuminate a wide variety of grammatical relationships that cannot be elucidate otherwise.”^[8] Finally, it can not only analyze existing sentences, but also generate previously unheard of utterances.

However, two schools of grammar also have its own disadvantages. Structural grammar has the following shortcomings. First, it paid much attention to form, and it paid little attention to syntax. And it almost didn't pay attention to meaning. Therefore, it made little contribution to lexicology and semantics. Second, it has not edited and published a complete grammar book. And more than 900 patterns of English sentence summarized by it are not enough to explain the whole of the English language, so it is one-sided. Third, it cannot distinguish any ambiguous sentences. For example, “the love of Tom” has two meanings. It may mean “Tom's love for someone else”. It may also means that “someone's love for Tom”. But structural grammar can do nothing about this. Fourth, it only focuses on the surface structure. For example, the two sentences “He is difficult to teach” and “He is difficult to leave”, although there are great differences in meaning, the structural grammar thinks that their structural forms are completely same, and it is impossible to give a reasonable explanation for them.

However, TG grammar also has the following obvious drawbacks. First, it overemphasizes syntax and ignores lexical meaning and the meaning of context. Second, its system of grammar is very abstract and complex, involving mathematics and modern mathematical logic and other aspects of knowledge. And it's constantly evolving and improving, and it's hard for us to understand. So it is not suitable for foreign language teaching.

In conclusion, all of them have made outstanding contributions to the study and development of linguistics and had an indelible impact, especially transformational-generative grammar. Although it can not explain all the problems in language, it points out the direction of language research and gives people profound enlightenment.

4. Conclusion

Through a series of comparisons from different aspects, we can clearly see the differences between the two linguistic theories, structural grammar and transformational-generative grammar. It is also clear to see some advantages and disadvantages of each. To sum up, structural grammar and transformational-generative grammar both play a very important role in the study of grammar, and it is difficult to confirm or deny one side. Both of them are of great significance to modern English teaching. In the process of teaching, teachers should learn and master these two linguistic theories, and take their advantages to guide their own teaching.

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