

Linguistics: Chomsky and Universal Grammar

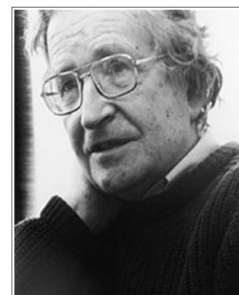
Noam Chomsky was born in Philadelphia in 1928. He received a bachelor's degree from the University of Pennsylvania in 1949, a master's degree in 1951, and a PhD in linguistics in 1955.

Chomsky advocated universal grammar, saying that there is a universal structure common to all languages. (Chomsky 1957) It is thought that utterance is reached by generating language from representations in the brain. Phrase structure grammar is a transformation rule that describes the process by which sentences from representation to utterance in the brain are generated.

A sentence is a sequence of words, but the order of the words does matter. For example, in the case of "eating bread," the object is spoken before the verb.

In this way, there are rules for the order of utterances. We call it a grammar or syntactic rule.

What we think of as grammar is English grammar. The rule is that s is added to sentence patterns such as sv, svc, svo, svoo, svoc, and verbs that represent the present when he and she are the subjects. This is called prescriptive grammar, and it is a set of rules to follow when learning a language in order to speak like a native speaker. The grammar Chomsky refers to is the rules of language in the human brain. This is called descriptive grammar. The majority of grammar studies are about this descriptive grammar. Chomsky's linguistic theory cannot be avoided when discussing modern linguistics, and its influence has been extended not only to natural language research, but also to computer languages, philosophy, mathematics, and other fields.



Noam Chomsky 1928–
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1 What the brain is doing to speak

- Q1 Discuss the process by which the message you are trying to utter in your brain is transmitted. discuss at what stage the grammar will be used. (FIGURE 1)

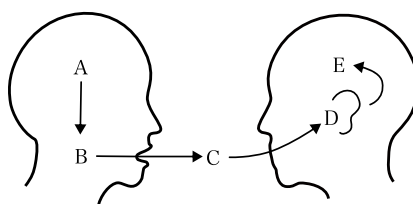


FIGURE 1: Language and thought from brain to utterance.

- Q2 When something you want to say comes to your mind, how does it come out of your mouth as a language? (FIGURE 2)

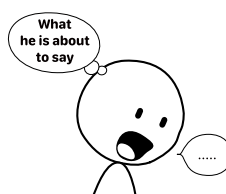


FIGURE 2: How will an utterance be generated in the brain?

2 Universal grammar

The main task of linguistics has been to collect and classify the myriad of linguistics that exist around the world and to elucidate their historical trends. However, Chomsky wanted to make linguistics a logical discipline comparable to the theoretical physics established by Einstein and others. The logical explanation of linguistics was to use abstract theory to construct a hypothetical model of language. He believed that human beings acquire language not through acquired knowledge, but based on a “universal grammar” that is already inherited. The idea that we have inborn linguistic information was directly contrary to the idea of “behaviorist psychology,” which believes that we can become any kind of person depending on our environment.

Q3 Discuss the difference between “behavioral psychology” and Chomsky’s idea that “human beings have the potential to produce language by nature.”

Q4 Discuss what you think of the idea that “potentially humans have the ability to produce language.”

3 Phrase structure grammar

Q5 Put ‘he’ ‘hit’ ‘it’ in the empty box below.

the	boy	hit	the	ball
			it	
		[act]		

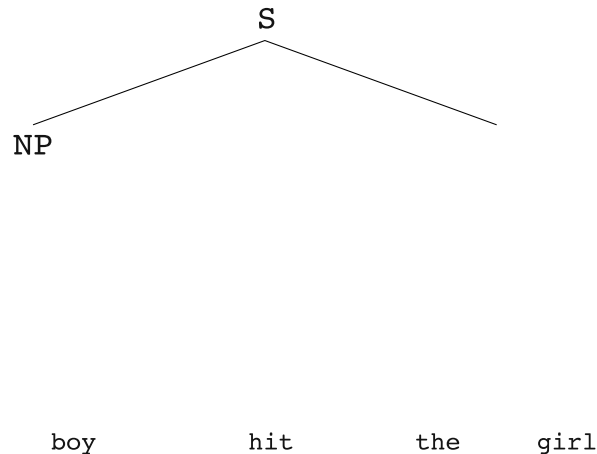
Q6 Write ‘t’(article), ‘n’(noun), ‘v’(verb), ‘np’(noun phrase), and ‘vp’(verb phrase) in the following boxes.

the	boy	hit	the	ball

Q7 Make rules such as $S \rightarrow NP + VP$.

1. $S \rightarrow NP + VP$
2. $NP \rightarrow$
3. $VP \rightarrow$
4. $t \rightarrow$
5. $n \rightarrow$
6. $v \rightarrow$

Q8 Draw the tree of sentence “the boy hits the girl.”



4 Generative grammar

He advocated the theory of language innate, which states that its universal characteristics are innate and biological, and viewed language as a biological organ of human beings. The deductive methodology he used in his early theory of transformational generative grammar dramatically improved the quality and precision of linguistic research compared to pre-Chomskyan linguistics. Before Chomsky, the dominant approach to linguistics was the structuralist approach to observing and describing linguistic forms (structuralist linguistics, or structural linguistics), based on the theories of Ferdinand de Saussure and American structuralism as represented by Leonard Bloomfield. In contrast, generative grammar was revolutionary in that it focused on the human ability (or mechanism) to produce language. More specifically, it makes a strict distinction between linguistic competence (the ability to produce appropriate linguistic forms) and linguistic performance (the actual production of linguistic forms), with the former being the focus of research.

Since then, linguistics has acquired a strong affinity with cognitive science and information processing. In addition, by insisting on the independence of syntax, the adjacent disciplines such as semantics and pragmatics have received more attention.

On the other hand, several positions have criticized generative grammar for its thorough deductive approach and its emphasis on the autonomy of language. For example, cognitive linguistics is critical of the idea of language as autonomous from the human cognitive system, and criticizes the hypothesis of generative grammar that there are modules in the human brain that autonomously govern language.

- Q9 Discuss what is a top-level axiom in the process of language generation.
- Q10 What is the first rule of language generation? and next?
- Q11 Categorize the types of elements of the followings: $\{the, boy, hit, ball, NP, S, VP, T, N, V\}$
- Q12 According to Rule 1.6 of “the boy hits the girl,” write a new sentence by yourself.
- Q13 Write a tree of the following sentence: I said that the boy had done his homework.
- Q14 Think of another sentence which includes recursive elements and draw the tree.
- Q15 Discuss the differences between Markov chain/process and a phrase structure grammar.
- Q16 Discuss the meanings of the following sentence: “They are visiting firemen.” (Slobin 1979: 21)
- Q17 Draw a tree of the following sentence for each possible meaning: “They are visiting firemen.”

5 Transformational Grammar

Q18 Draw a tree (a phrase structure) with the following sentences.

1. Watch out!
2. what are doing?
3. I the book yours?

Q19 Find out the relevance of the following terms to generative grammars and exchange ideas: minimalist program, economical, natural rules, optimality.

6 Chomsky's terms

Q20 The following terms are those used in chomsky's theory. examine them with the internet or various documents, and find out what they are, and discuss how the following four are used properly.

1. Universal grammar:
2. Generative grammar:
3. Transformation grammar:
4. Phrase structure grammar:

7 Political activist

Q21 Find out and discuss why chomsky started a political movement.

References

Chomsky, Noam (1957) *Syntactic Structures*, The Hague: Mouton and Co.
Slobin, Dan Isaac (1979) *Psycholinguistics*: Scott, Foresman.