

The Lion of Logical Linguistics..!

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For many years there has been a battle between linguistics as to whether language acquisition is innate or learned. Chomsky argues that language acquisition is an innate structure, or function, of the human brain. Although known that there are structures of the brain that control the interpretation and production of speech, it was not clear as to how humans acquired language ability, both in its interpretive sense and its production. This is where Noam Chomsky made his contribution.

Avram Noam Chomsky born on 7th December 1928, in the East Oak Lane neighborhood of Philadelphia, Pennsylvania, is an American linguist, philosopher, political activist, author, and lecturer. He is an Institute Professor and professor emeritus of linguistics at the Massachusetts Institute of Technology.

Chomsky is credited with the creation of the theory of generative grammar, considered to be one of the most significant contributions to the field of linguistics made in the 20th century.

Chomsky received his PhD in linguistics from the University of Pennsylvania in 1955. He conducted part of his doctoral research during four years at Harvard University as a Harvard Junior Fellow. In his doctoral thesis, he began to develop some of his linguistic ideas, elaborating on them in his 1957 book *Syntactic Structures*, and his best-known work in linguistics.

Chomskyan linguistics, beginning with his *Syntactic Structures*, a distillation of his *Logical Structure of Linguistic Theory* (1955, 75), challenges structural linguistics and introduces transformational grammar. This theory takes utterances (sequences of words) to have a syntax which can be characterized by a formal grammar; in particular, a context-free grammar extended with transformational rules.

Children are hypothesized to have an innate knowledge of the basic grammatical structure common to all human languages (i.e. they assume that any language which they encounter is of a certain restricted kind). This innate knowledge is often referred to as universal grammar.

Chomsky's ideas have had a strong influence on researchers investigating the acquisition of language in children, though some researchers who work in this area today do not support Chomsky's theories, instead advocating emergentist or connectionist theories reducing language to an instance of general processing mechanisms in the brain.

He also theorizes that unlimited extension of a language such as English is possible only by the recursive device of embedding sentences in sentences.

Generative grammar

The Chomskyan approach towards syntax, often termed generative grammar, studies grammar as a body of knowledge possessed by language users. Since the 1960s, Chomsky has maintained that much of this knowledge is innate, implying that children need only learn certain parochial features of their native languages. The innate body of linguistic knowledge is often termed Universal Grammar. From Chomsky's perspective, the strongest evidence for the existence of Universal Grammar is simply the fact that children successfully acquire their native languages in so little time.

Today there are many different branches of generative grammar; one can view grammatical frameworks such as head-driven phrase structure grammar, lexical functional grammar and combinatory categorical grammar as broadly Chomskian and generative in orientation, but with significant differences in execution.

Chomsky hierarchy

Chomsky is famous for investigating various kinds of formal languages and whether or not they might be capable of capturing key properties of human language. His Chomsky hierarchy partitions formal grammars into classes, or groups, with increasing expressive power, i.e., each successive class can generate a broader set of formal languages than the one before. Interestingly, Chomsky argues that modeling some aspects of human language requires a more complex formal grammar (as measured by the Chomsky hierarchy) than modeling others. For example, while a regular language is powerful enough to model English morphology, it is not powerful enough to model English syntax. In addition to being relevant in linguistics, the Chomsky hierarchy has also become important in computer science (especially in compiler construction and automata theory).

His best-known work in phonology is *The Sound Pattern of English*, written with Morris Halle (and often known as simply *SPE*). Though extremely influential in its day, this work is considered outdated.

Contributions to linguistics

The Principles and Parameters approach (P&P)-developed in his Pisa 1979 Lectures, later published as *Lectures on Government and Binding* (LGB)-make strong claims regarding universal grammar: that the grammatical principles underlying languages are innate and fixed, and the differences among the world's languages can be characterized in terms of parameter settings in the brain (such as the pro-drop parameter, which indicates whether an explicit subject is always required, as in English, or can be optionally dropped, as in Spanish), which are often likened to switches. (Hence the term principles and parameters, often given to this approach.) In this view, a child learning a language need only acquire the necessary lexical items (words, grammatical morphemes, and idioms), and determine the appropriate parameter settings, which can be done based on a few key examples.

Proponents of this view argue that the pace at which children learn languages is inexplicably rapid, unless children have an innate ability to learn languages. The similar steps followed by children all across the world when learning languages, and the fact that children make certain characteristic errors as they learn their first language, whereas other seemingly logical kinds of errors never occur are also pointed to as motivation for innateness.

More recently, in his Minimalist Program (1995), while retaining the core concept of *principles and parameters*, Chomsky attempts a major overhaul of the linguistic machinery involved in the LGB model, stripping from it all but the barest necessary elements, while advocating a general approach to the architecture of the human language faculty that emphasizes principles of economy and optimal design, reverting to a derivational approach to generation, in contrast with the largely representational approach of classic P&P.

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Theory

Chomsky's research and influence on linguistics changed and modernized the discipline. For many years there has been a battle between linguistics as to whether language acquisition is innate or learned. Chomsky argues that language acquisition is an innate structure, or function, of the human brain.

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