

## Die SOPHISTen

# Noam Chomsky and the Language Revolution

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This is part two of the article “Noam Chomsky and the Language Revolution.” The last article dealt with the state of affairs present at the publishing of Chomsky’s *Syntactic Structures* in 1957. It was some years before a majority of researchers were convinced of Chomsky’s proposals, and some remain unconvinced to this day! But with the publishing of *Aspects of the Theory of Syntax* in 1965, Chomsky’s ideas had matured into acceptability. Then the real research began.

Chomsky described language as being finitely bounded by genetically determined structures in the mind/brain. From this observation, he deduced that all human languages must therefore share common qualities as all humans utilize the same structures in the mind/brain. He further asserted that the study of language is the best way to study the underlying structures in the mind/brain. Similarly, the psychologist Carl Jung stated in 1927 that, “Man is born with a complicated psychic precondition that is anything but a *tabula rasa* (blank slate)... I have called the sphere of the general psychic inheritance the collective unconscious.”

Chomsky originally proposed that language consisted of three main parts: The communication component (phonological), the language ordering component in two parts (syntax of both surface structure and deep structure) and the meaning component (semantic). The order of each part in producing language is roughly as follows: a thought from the meaning (semantic) component is filtered by the syntactic deep structure component. This results in a general order of thought for a particular language. The syntactic surface structure component then attaches words to the order of thoughts. The mouth then tries to communicate the thought with the associated word and sound order (writing represents the spoken order). This entire process generally occurs simultaneously, although occasionally one may find themselves, “searching for a word,” to properly express themselves.

Furthermore, the surface structure syntax is the last filter before actual speech. Surface structure attaches the sounds of a language to the deep structure order so that thoughts can actually be expressed in a smooth and clear manner. But as the seemingly calm surface of the ocean is not the life of a large body of water, similarly, the surface structure gives the appearance of calmness and order when the most amazing things are rumbling around in the depths.

The deep structure syntax is the part of language that orders meaning into traditional grammar forms of Noun, Verb, Adjective and Preposition and Sentence. The boundaries of the deep structure are quite complex for the deep structure interfaces with memory and perceptions, instincts and habits. No small task to do in a short period of time when talking to someone!

Chomsky’s observation that most of language is actually syntax ordering is a critical part of his thinking. Syntax has the job of connecting a feeling or thought with an expressible form. This is by no means foolproof, as much transforming, deleting, generalizing and distorting must occur before the mouth is able to organize thoughts into sounds understandable by another. One borderline acceptable case of this process would be the tongue twister “How much wood could a woodchuck chuck if a woodchuck could chuck wood?”

Having elucidated his views of language, Chomsky then only needed some proof! So researchers began to look for the similarities across all languages which would indicate a possible common underlying mind/brain structure. No surprisingly, those people first learning language were some of the best sources for linguistic research.

Children make many errors when learning to speak a language, just like when learning to throw a ball. In English, for instance, constructions such as *She are running home*, *They is running home* are produced by young children when learning to speak but never *home she is running*, (perhaps as a question, but not a statement) or *she home is running*. Correspondingly, an arm has a wide range of motion, but some motion is simply impossible by the very nature of the construction of the arm. Similarly, the language organ simply does not make certain types of errors!

Current research indicates that the overall direction of Chomsky’s theory of language structure was correct! The range of possible construction orders in any human languages is actually quite limited. In works since *Aspects*, Chomsky developed his thinking further and stated that language is most certainly not a collection

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of arbitrary habits used by a group of speakers; Chomsky theorized that every language has a small number of parameters which describe the entire language! Because the language organ needs these parameters to be set somehow, only minimal exposure to a language will trigger the language organ into self-organization. The language organ will then mature to a fairly stable language state before puberty, much like a thumb that grows to a certain genetically determined size with some variance due to diet.

The parameters that describe all possible human languages have a minimal number of options, usually only two or three different settings and no more than seven. For example, one parameter determines the order in which a language presents its words. For instance, English is a Subject, Verb, Object (SVO) language. The order of Subject, Verb and Object is a parameter of languages across the globe. The parameter for sentence construction order has a maximum of 6 combinations (OSV, OVS, SOV, SVO, VOS, VSO) although VOS, VSO, and OVS are used by less than 1% of currently spoken languages and OSV seems not to be used at all! (Try simple sentences in each form. Some forms have vastly different sounding meanings! SVO = Ted runs home, VSO = Runs Ted home sound like a question? OSV = Home Ted runs, OVS Home runs Ted.)

Chomsky calls the domain of all possible human languages the universal grammar. The universal grammar is bounded by a small number of parameters (approximately 25 switches that are defined at a deeper level by genetics). Taken as a group, setting every parameter describes a possible human language along with associated word order and grammar rules. What remains is to develop some sounds compatible with the parameters! And even the sounds of a language may turn out to be strongly linked with structure of the language.

Exposing a newborn to language activates the language organ to begin trying different settings available in the universal grammar. The search narrows possibilities until just one group of settings brings the mother tongue into focus! The language organ can also figure out more than one language's settings as the parameter switches are not really set in concrete until puberty. The first language learned however has a powerful, lifelong influence upon the mind/brain.

As Noam Chomsky's theory spread through the academic world, researchers from various disciplines recognized parallels between Chomsky's view of language and related complex questions relating to the human mind. One such area is psychological therapy and two people that recognized the application were Richard Bandler and John Grinder. Their application of linguistics upon psychology will be covered in the next article.

The SOPHISTS utilize Chomsky's theories directly in our work in requirements engineering. An understanding of the complex process of translating thought into word allows us to be extra-cognizant of common shortcuts of language which may alter meaning. Language is the Swiss-army knife we use in our work, but Chomsky demonstrates the tools with which one must be cautious and when!

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