

Die SOPHISTen

Noam Chomsky and the Language Revolution – (original uncut version)

Perhaps the single most important scientist this century for the furthering of the study of language this is Noam Chomsky. Similarly, Mr. Chomsky is also critically important to SOPHIST GmbH's work in applied linguistic and analytic philosophy in the field of Computer Science. Mr. Chomsky reversed approximately 300 years of thought over about a decade starting in 1957 with the publishing of his book *Syntactic Structures*. Since *Syntactic Structures*, Dr. Chomsky has published over 40 books concerning language and still going strong. Therefore a brief review of his achievements and theories is difficult in summary form.

Noam Chomsky received his Doctorate from the University of Pennsylvania in 1951. At that time there were three major streams of thought in Chomsky's area of specialization, although Chomsky himself was never an active participant in any of the groups.

The three groups could be humorously classified as the rat zappers, grammar geeks (label lovers, endless analysis, sentence surgeons), and finally the computer heads (brainiacs, computer heads, computroids). The first group, the rat zapping behaviorists, spent their days alternatively zapping rats with electricity as punishment for poor behavior or rewarding the rats with food pellets for good behavior. Their goal was a stimulus-response theory of learning based upon Pavlov's drooling dog experiments in the early part of this century. The second group, the sentence surgeons, spent their days laboriously dissecting sentences into sometimes vaguely defined constituent parts such as noun, subject, verb, predicate and so on in efforts to decode language. Some scientists even participated in both groups in an effort to synthesize the rat zapping research with the sentence surgeon studies. (Would these cross disciplinary pioneers have been called geek rat grammar zappers or perhaps just rat geeks? The world may never know) Their practical goal was to teach grammar to the biggest and baddest rat of all – humans! (The movie *A Clockwork Orange* investigates the potentially sinister methods of the behaviorists applied to humans in depth) A third group of scientists, the brainiacs/computer heads, took the view that the newly invented digital computers would soon be complex enough to learn language, simulate the brain, and basically make life easy for everybody in every way imaginable (if only Microsoft would regain that vision).

Chomsky felt this impending Orwellian schooling system was not only morally repugnant, but the basic scientific assumptions of all groups were simply wrong and extremely over-simplified! Chomsky felt humans were not like rats, language was not simple and could not be easily, if ever, simulated on a digital computer. So Chomsky set out to exhibit the errors of all schools of thought.

Chomsky's plan for saving generation upon generation of schoolchildren from simplistic punishment and reward learning systems such as electrified seats and correctness cookies was elegantly simple. Question how people learn, speak and understand language. Chomsky attacked the prevailing belief that language and all learning for that matter, was simply a matter of imitation reinforced with immediate reward or punishment. To disprove this theory of learning, Chomsky showed that most sentences spoken in daily living have never been uttered before, therefore it is impossible that children learn language solely through copying their parents. Furthermore, the samples of language that children are exposed to when young are neither complete descriptions of the language, nor are the samples of language even correct, nor is there usually any sort of reinforcement involved whatsoever, good or bad! Children observe and absorb language and in doing so, learn to speak fluently long before any teacher ever gets hold of them. And probably much the better for actual speaking, at that!

For instance, Chomsky's famous sentence *Colorless green ideas sleep furiously* [p149, *Aspects of the Theory of Syntax*] is a sentence that is grammatically flawless, yet is absolutely meaningless. In creating the sentence, Chomsky merely used the rules and categories provided by the grammar geeks. In doing so, Chomsky exhibited one of the possible bizarre sentences which normal grammar systems can end up producing merely by following the rules provided! So the grammar geeks were stumped.

In regards to the rat zapping behaviorists who felt people only learned through punishment and reward, they had no answer for the colorless green ideas sentence either. Chomsky generated the demonstration sentence despite the fact that neither he nor anybody else in history had neither uttered nor heard the sentence. The rat zapping behaviorists zapped rats for a few years longer, but no suitable answer by the rat zappers was ever

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found in regards to Chomsky's question and they are now a footnote in history, relegated to the dark nether regions of psychology.

The grammar geeks were not to be so easily vanquished, however. For the grammar geeks were representatives of 'proper speech' and protectors of the language against the attacks by the ignorant underclass. In this regard, the grammar geeks had a mission, nay a holy war, to uphold language from attack by the ignorant and ill-mannered masses of rabble.

To these fanatics, Chomsky proposed yet another sentence that is well formed and acceptable by the rules of his opponents. Chomsky challenged the grammar geeks to dissect the sentence I had a book stolen [p21, Aspects of the Theory of Syntax] The sentence analyzers went to work dutifully dissecting the sentence into subjects, predicates, objects, nouns, verbs, etc. For instance, the nouns are I and book. The verb is had. Adjectives are a and stolen. The subject is clearly I, and the predicate is ... hmmm. What exactly is going on in this sentence? Things get cloudy here. The action could be had stolen or it could be had. Similarly, a possible object is book modified by stolen. But who actually stole the book? Did 'I' have a book stolen or did 'I' steal a book? Whoever stole the book should be the subject! Ah, everything is getting complicated!

After much muddling around, the grammar geeks finally had to admit that they could not diagram the sentence in one way because it had three possible interpretations. Nor could they explain how or why the sentence had three meanings according to the laws of proper writing. Sadly, educational grammar instructors have ignored Chomsky's findings and continue to use methods of teaching that are neither natural nor scientifically sound. Perhaps that is why many students found grammar in school to be both vague and tiring. So, although the great majority of writing teachers today thoroughly ignore Chomsky's work, Chomsky did trigger a complete restructuring of the scientific discipline of language study and that was his goal.

As regards the computer heads, well, they sort of disproved themselves. After Chomsky had exposed the rat zappers and the grammar geeks as having simplistic views, the computer heads were left with lots of computers and nothing to compute (because all the useful modeling theories had been destroyed by Chomsky). So some of the computer heads began studiously to study Chomsky's theories hoping to understand the originator of all their sorrows. These computer heads began to get some glimpse of the grand scope of the problem.

The rest of the computer heads decided the problem would yet submit to computers and the problem only needed more computation. After all, there is no problem that cannot be solved with a sufficiently large computer! Right? So this group continued to build bigger and bigger computers, hoping to reach some mythical complexity level beyond which the computer would miraculously begin to talk, fart, snore and basically exhibit all those annoying traits that identify humans as human. I may note in passing that some of these really big computers have managed to do some of the less notable tasks of humans such as playing chess (although chess is not necessarily human behavior, chess is a human created game of logic) but speech and creative thought seem a yet distant goal.

Since Chomsky spent a good deal of his early adulthood throwing stones at glasshouses, naturally the inhabitants became quite irate, some even so to this day! After all, Noam Chomsky had managed to supplant visions of a world of optimal learning, exemplary behavior, fabulous literature and plenty of spare time as the computers did the dishes, mowed the lawn and balanced the checkbook. Furthermore, Chomsky had the gall to call the destruction of Utopia progress! So what exactly did he say that caused such a ruckus? Would he have been better off to simply insulting everybody's mother and be done with it?

Chomsky said that language is an organ just like a liver. The language organ is pre-wired to generate and understand language and once fragments of a language are heard by the young child, the language organ goes to work organizing itself into a pattern that most optimally discerns the underlying rhythm or harmony of the language. For one language, this process is finished by about age 3-5. The language organ additionally works on at least two different levels with over thirty different grammar sub-systems! Languages and humans are not so simple after all!

SOPHIST GmbH takes the opinion that language and the people speaking language are very complex and efforts to simulate humans or language with software or neural nets or whatever is an endeavor that is not soon to be realized. Evolution spent millions of years designing humans and we may never actually simulate ourselves. Computers are complex tools in the tradition of the first stone hammers and are to be used as such. Noam Chomsky re-humanized the world by respecting the basic complexity of the simplest of human actions and communications. Bibliography

Chomsky, Noam. Aspects of the Theory of Syntax Cambridge, Massachusetts: The MIT Press, 1965. Technically difficult. Much of the theory has been revised. Not recommended.

Chomsky, Noam Language and Mind New York: Harcourt, Brace and World, Inc., 1968. An excellent overview of linguistics at the time of publishing.

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