**Kennealy: The First Word Ana Álvaro Martínez (grupo T1)**

**Noam Chomsky**

Noam Chomsky is a linguist that had an office at the Department of Linguistics and Philosophy for forty-five years. At first, he considered language evolution’s investigation unworthy to carry on; but later, he made some interviews, wrote some books and expositions defending his signature: all humans share a ‘’universal grammar’’ known us UG, a set of rules that can generate syntax of every human language. Traditionally, some linguistics believed that universal grammar exists somewhere in our brain which probably is a language organ that all humans have but not animals. For Chomsky, syntactic structure is the core of human language.

Before Chomsky, there was a group of linguistics that used to learn the local language of an area, transcribing sounds, words, etc to create the grammar of the language. But Chomsky defended that a language should be studied and recognized in a simple but elegant way. Not finding differences between languages but similarities (for example ‘’The man reads the book.’’ ‘’The book was read by the man.’’). So taking into account this, language is basically a set of sentences. And grammar has to create all the allowable sentences of that language.

Talking about syntactic structures, Skinner (a psychologist) had the theory of behaviorism. He suggested in his book that language was a simple behavior, and depending on which ‘’machine’’ you’re dealing with (animal or human), you can control the behavior of itself. For Skinner, if you push someone in the right way, that someone will respond in a predictable way (stimulus- response). But in Chomsky’s review if children learn thousands and thousands of words so fast, stimulus-response is not enough. So there might be a mental component that helps them learning the language.

With this theory, linguistics were not only catalogers but also people who investigate the deepest mysteries of language. Now, the matter of the language was not the region of where it came from, it was that language came from our brain. So they believed that Universal Grammar allows children to develop the correct syntax of each language, and also it specified every rule for every language in the world. And anyone who born with UG has the capacity to learn any language.

However, linguistics started again to be similar to the ones that learned a local language. They thought that language organ was separated from another parts of the brain, even the speaking part). When someone speaks, the brain had to take grammatical information from the sound waves but ignored any other information in those waves that might help interpret it. Chomsky took this into account and divide language not only in similarities but also in its essential parts. He also introduced a new concept that was called ‘’discrete infinity’’ which consist on the relation between things that you’ve heard before and the creation of a new sentence. So for example “Kate read the book that Bill wrote” can go with in “Ally saw,” becoming “Ally saw that Kate read the book that Bill wrote.” and again you can add something like “Andrew explained how Ally saw that Kate read the book that Bill wrote,” and so on.

Ten years after Syntactic Structures was published and two years after Aspects, the louder his supporters were, the more critics he had. Some people thought that he changed his ideas and also that separating language from the way it was used was ridiculous. But Chomsky explained that if his critics saw something wrong on his theory, they don’t just have to point out that. He also said that he didn’t change his mind, but having his first ideas together with new ones that he was considering right for his theory. His concepts were also changing with time: in the principles and parameters theory, children are born with a finite set of parameters for language that their experience of a particular language then modifies. So the brain was specifically made to acquire and modify information. With all of this people started to think about Chomsky in a different way : he was the Einstein and a genius of language.

Certainly no one knew whether language was a function more of physics than of behavior or biology. In his book Language and Mind he stablished that probably language must given us a kind of advantage , but it seems that it comes more of a ‘’natural seletion’’ than from a slow evolution process. Chomsky defined language as an idealized,perfect, and elegant system. The brain, on the other hand, he said, was messy. So how did something so messy develop something so perfect? ‘’It is a mistery.’’ he said. And that took him to relationate biology and linguistic. Probably language was created by a simple ‘’mutation’’ inside us, but he just suggested this possibility.

So there was still many questions to be answered. The problem of language evolution remained for most of the twentieth century. Meanwhile Chomsky was studying language as a feature that only human being has, Sue Savage-Rumbaugh will take care of teaching other species how to use it.

**Sue Savage-Rumbaugh**

Sue Savage maybe is know so well-known as Chomsky, but she was the one who bridge the species gap by teaching an ape to produce and understand some aspects of language. But at first, some apes like Washoe, Sara and Lana just used language to get what they wanted, but there was no listening and they couldn’t play a different role in the comunication progress.

Sue realized that apes were taught in an indirectly way more that an explicit one. Kanzi, one of the apes, has been learning language by obverving her mom learning with Sue. And the same happens with human children who they start to have some contact with the language by hearing around people speaking. So to help these bonobos or apes to adquire language skills, they had pictures, television and words that were spoken during feeding, playing and grooming helped Kanzi and other bonobos like Panbanisha to adquire those skills and vocabulary. With all of these, particularly these two bonobos were able to understand English, long orders or even having conversations of different statements ; and also, they showed that they could spontaneously create sentences by combining words, as human children do as well.

However, in 2002 Heidi Lyn, who was working at the time in the Language Research Center at Georgia State University, told what happenned when Sue told Kanzi to get water on a carrot. Kanzi threw the carrot outdoors because it was raining. So although there is a lot of progress on this experiment, there is still some difficulty in comprehension. Lyn has also been working with dolphins and she explained in an interview some documented cases of apes living in human houses with human children. In the late 1970s, that animal research really boomed.

Anyway after some experiments let comming to the conclusion that sign language was easier than vocal communication. Allan and Beatrix Gardner, a husband-and-wife team at the University of Nevada in Reno taught Washoe American sign language. And the ape really made progress and leant a lot of different signs. Duane Rumbaugh taught other apes to communicate with picture symbols called lexigrams. All of this helped Lyn to say that this can be interesting.

But n the 1970s a young academic named Herb Terrace followed Gardner couple’s experiment closely with a chimpanzee called Nim, and he realized that he was mostly imitating the sings that Herb or other people gave him. After Terrace publication, Gardner’s experiment was so criticized.

Ont he other hand Savage was able to make some progress. Another ape called Tamuli was with Kanzi and Panbanisha, but Tamuli was not able to adquire the same language skills. The same happens with human children : they’ve got a crucial period on the development of the brain in where they’ve got to adquire language skills, and even if they’re neurologically normal, after that period you’re not able to adquire language properly. Other experiment was made with another ape called Genie. She was looked in a room, with any interation of communicating with someone. This prooved that if you don’t have any contact with language during that period of time, you don’t spontaneously produce it. Language is not innated such as our instint of breathe or cry. So Tamuli’s experience suggests that apes have an opportunity. By the way, there produced some mistakes as well, they are able to understand a three-noun phrase, but not two separate actions (‘’Bring me the ball and the orange.’’). So the more complex it gets, it’s more difficult for them to understanding it.

As a conclusion, apes researchers (above all Kanzi’s) helped to understand language evolution, and that not only *could* be studied but *should* be studied.

**3. Steven Pinker and Paul Bloom**

Paul Bloom, a twenty-five-year-old graduate student in the psychology department at MIT was interested in child language development. He decided to work with Steven Pinker,a young professor in the psychology department who studied language. Both were argueing with Chomsky’s ideas about the concept of evolution of language, althought they were agreed that there were factors in evolution other than natural selection. Their principal objective was to discover if where evolutionary theory and generative grammar were compatible, and they also said that natural selection couldn’t explain everything about the evolution of language.

We know that all languages have their difficulties and facilities, and also that not present languages are better than the old ones. In this way, children are able to create difficult sentences and learn the complex features of a language. But complexity is not a problem for evolution. Knowing the feelings and the thoughts about the people we know is important for language, because language is to show those thoughts or feelings. Taking into account the evolution or the organs of the body, there is nothing that proves that language didn’t evolve as well. The rule of syntax and intonation and words matured with time until the system that we know today.

The article that Pinker and Bloom wrote was considered by some linguistics like Jim Hurford deeply satisfying. This made them publish more books : in 1994 Pinker wrote The Language Instint relationating language as a biological instint and Bloom published The Behavioral and Brain Sciences. Anyway, there’re still too many questions that are waiting to be answered ; like ‘’did language evolve ? How did it evolve ?’’ ‘’What does gesture have to to with human language ?’’

**4. Philip Lieberman**

Philip Lieberman was a student of Chomsky, but they have taken opposite positions on the subject of the evolution of language. For Lieberman, you can’t study language if you can’t begin studying evolution. His parents went to the Soviet Union in the 1930s, while he was reading books like The Commissar of the Gold Express, and he also went to the first class of Chomsky. He enjoyed the class, and from that moment he started wondering about speech.

When he was requested to work with apes, he observed that they don´t make the same variety of sounds as humans. This was because of the physiology of their tongues. Our larynx and other facts that takes part on speaking process make us produce a lot of different sounds and take control of them. So that’s why if you transplant a human brain on a horse, he might not be able to speak because of the way his mouth and his tongue is not made to make the same sounds that we do. This made Lieberman to stablish a relation between motor control and high levels of language.

Lieberman’s first book, *The Biology and Evolution of Language,* was published in 1984. On it he said that brain can take control of our body parts and their actions and other part that has to do with our thought and the use of words. Althought he was more agreed with Pinker and Bloom’s paper, there was also a difference between them. Pinker and Bloom believed that Darwinian evolution and Chomsky’s universal grammar were compatible, but Lieberman on the other hand believed the incongruity between slow evolutionary change and aninnate language-specific organ was irresolvable.

To start with the connection between high levels of language and motor control, he started with the basal ganglia. Basal ganglia control the way different physical movements or mental operations are ordered., so he compared basal ganglia with the patients that had Parkinson’s disease and so they had a damage on basal ganglia. What intrigued Lieberman about these people was that they also had trouble comprehending and producing syntax, and also understand it passive sentences. They could only use syntax in a simple way. He made an experiment with them that prooved that was true.

Now the next step took place in 1993, comparing linguistic and motor performance of Parkinson’s patients and individuals who were climbing Mount Everest, both groups with damage on the basal ganglia. For example, the only difference between a b and a p is that you vibrate your vocal cords much sooner for the former than for the latter. In these patients their b’s sounds like p’s and it’s also added on their difficulty on comprehension. So Lieberman came to the conclusion that basal ganglia is very important when we produce sounds and also they way we create complicate sentences. And not only humans but animals also have it.

It is true that all these scientists had their critics and also different points of view and there’re still too many questions to be answered, but they really helped a lot in the process of understand where language come from and why it is so important for us.