Assignment -1

The assertion that humans differ from animals in their use of language has been the subject of much discussion as scientists have investigated language use by non-human species.

The advent of scientific growth in the 20th century we have seen many new advancements in this area.

A language is a tool which communicates our needs , wants , desires ,emotions,etc. It has certain characteristics , listed below,which makes it special . Language is a set of symbols like sounds , words and rules like syntax and grammar .

Some essential features of language are Semanticity,Arbitrariness,Discreteness,Displacement ,Duality of patterning,Generativity, grammar and recursion.
Grammar gives the language , rules like word order , phonology, Morphology ,Phase structure : a set of rewrite rules , Linguistic Productivity .

Table 2.3
Hockett's Design Features of Communication

Feature	Definition
1. Auditory-vocal channel	Sound is transmitted from the mouth to the ear.
2. Broadcast transmission and directional reception	An auditory signal can be detected by any perceiver within hearing range, and the perceiver's ears are used to localize the signal.
3. Rapid fading	In contrast to some visual and olfactory signals, auditory signals are transitory.
4. Interchangeability	Competent users of a language can produce any signal that they can comprehend.
5. Total feedback	All signals produced by an individual can be reflected upon.
6. Specialization	The only function of the acoustic waveforms of speech is to convey meaning.
7. Semanticity	A signal conveys meaning through its association with objects and events in the environment.
8. Arbitrariness	The speech signal itself bears no relationship with the object or event that it is associated with.
9. Discreteness	Speech is comprised of a small set of acoustically distinct units or elements.
10. Displacement	Speech signals can refer to objects and events that are removed from the present in both space and time.
11. Productivity	Speech allows for the expression of an infinite variety of meaningful utterances as a result of combining discrete elements into new sentences.
12. Traditional transmission	Language structure and usage is passed on from one generation to the next via pedagogy and learning.
13. Duality of patterning	The particular sound elements of language have no intrinsic meaning, but combine to form structures (e.g., words, phrases) that do have meaning.

Hockett , a prominent American linguist, who came up with a list of 13 features that distinguish human language from animal communication, including displacement and productivity.
These were some basic rules and characteristics which will help us in convincing ourselves that human communication system and animal communication system are Different.
So, without a further ado , let's begin our discussion.
Why do we call our communication system as language and their communication system as just a communication and not a language?

There are two hypotheses on the origin of language .
Continuity and discontinuity hypothesis .
I firmly support the latter one , the discontinuity hypothesis , today's aspect of human language does speak of a clean break from the past . Human language is not just evolved but also a surprisingly transformed form of early communication.

Today's human language is Qualitatively different from the basic communication systems of other species and our own ancestor’s who once lived on this earth tens of thousands years ago.

There was a significant break which must have happened , something changed drastically , where the curve of human communication went to a different path and left all other species behind .

Humans possess rich communication abilities that do not occur in other animal species. I will give evidence of the most closely (biologically) related species to humans , that is apes and chimps .
Humans seem to be a different animal altogether.

Noam chomsky defended this position and suggested the concept of a “language organ” And instead of accepting that this “organ” could have evolved from pre-existing structures in the body , Chomsky instead suggested that language could be a big mutation in our species at some point in the past.

If the continuity hypothesis would have been true , other animals would also have evolved from just their basic communication systems .

Here are some examples of animal communication:

We can clearly see that these animals communicate very well and they live in groups .Although they possess a rich communication system , but it is clear that they are not as rich as human language . They only talk in a very basic manner , like , when they want food , etc.

To compare human language and animal communication systems , let's choose one animal, which has almost the same DNA as humans , they have 98% the same genetic makeup as humans. So, they seem to be the best candidates for testing their communication skills , consequently scientists taught them language , just like we teach human children .


here , vervet monkeys are making different calls for different predators.

Diana monkeys also makes different calls for aerial and ground predators , so did the vervet monkeys .

Apes also make some vocalisations to address several things , for example Kanzi was found to make different vocal responses to different fruits .

Vocal apparatus of different apes and monkeys are at the upper part of their mouth , unlike humans , so they are biologically capable of speaking like humans , so researchers taught them using sign and gestural language , and as they are pretty intelligent , they spontaneously picked them up.

Some famous examples are Nim chimpsky, Washoe, Kanzi ,Rico and Koko.

Washoe making a gesture of “come”.
Researchers reported that Washoe could use 133 signs when she was 5 year old .

Researchers said in their research , the chimpanzees can communicate information , which hasn’t been available to them , like she would climb the tree , and tell them , who is coming inside the house , without anyone telling them explicitly , how to do this.
This video of chimpanzees make us realise that they were raised in a human environment for years , still they do not acquire human linguistic skills.
Where on the other side ,deaf children with little linguistic input can still have the ability to create a complex language on their own , clearly not from what they have heard , but something that is innate in them.

This great conversation with koko, penny armed Koko how to understand language , Koko fallen in love with a kitten and aspired to be a mother , he can understand sign language , and this conversation between koko and penny conveniently proves us that he is capable on communications through basic gestures , has great sense of humour , but still it is in no fact in comparison to the human language .

Chimps like koko , washoe , and kanzi have shown to form a link between object and symbol , but they couldn't combine those symbols to create more thoughts , unlike the human child .
They were only able to pick up one or two word utterances , while a human child at age of two or three years, started speaking in full sentences , but these chimpanzees could not do that .
Chimps communication does not show the concept of **generativity** and **combinatorial ability** , Washoe could combine the word "water" and "bird" to denote "duck" , but no other evidence has shown that their communication possess basic generativity not even comparable to human language .

Savage - Rumbaugh raised a chimp and bonobo named *Panpanzee* and *Panbanisha*,in the same language rich environment .
Their study concluded that they used fewer words. They raised a lot of animals like this , but only 4 of them were able to understand 500 words with a working vocab of just 150 words .

Kanzi was able to identify many words close to 500 , as shown in this video, but they were only single word utterances - very basic communication.

There have been tremendous differences between the extensively taught animals and even very young childrens. It is important for us to see them , as they will be helpful in differentiating their communication skills .

Almost all children acquire language spontaneously , but only some apes will acquire the language when exposed to the very same environment .
Mostly apes just mimic the words taught to them , without showing **creativity** , just using the same sets of words , while children actively experiment with the vocab taught to them to make their own words .

#When children start uttering multi-word sentences ,their long utterances contain parts from theri short utterances but also some **new elements** , but for the apes , it is common for them to just speak the **same set of elements with repetition.**
This is the behaviour which points to 90% of apes behaviour ,and hints that they do not really understand what they have been taught to the extent closer to a human child.
Apes use their language for much **shallower works** ,while human children use it for all sorts of stuff.
#Apes apply grammatical rules , **much less consistently** than humans.
#They differ a lot in taking turns during interactions, they **usually interrupt** people all the time , unlike human children, of course to ask for food .
A picture from traxler which summarizes my key differences between them is :-

Differences between apes' and children's language behaviour

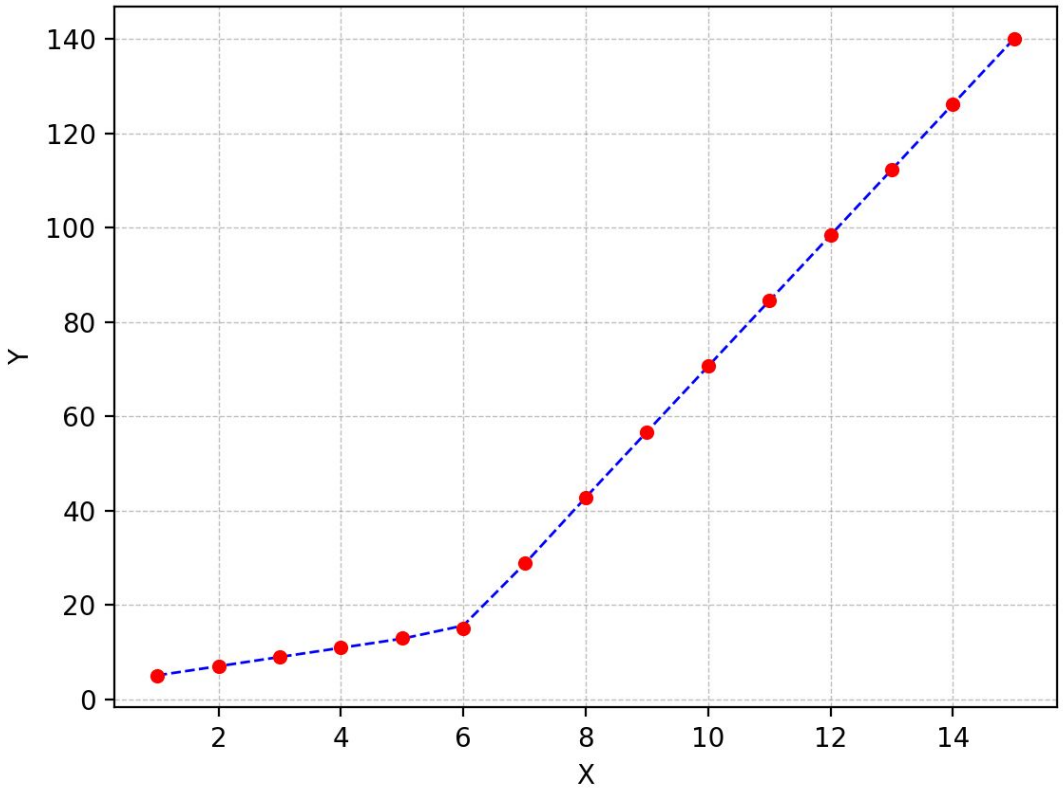
Apes	*Children*
Utterances are mainly in the here-and-now	Utterances can involve temporal displacement
Lack of syntactic structure	Clear syntactic structure and consistency

Apes	*Children*
Little comprehension of syntactic relationships between units	Ability to pick up syntactic relationships between units
Need explicit training to use symbols	Do not need explicit training to use symbols
Cannot reject ill-formed sentences	Can reject ill-formed sentences
Rarely ask questions	Frequently ask questions
No spontaneous referential use of symbols	Spontaneous referential use of symbols

Apes	Children
Utterances are in here & now.	Utterances can involve temporal displacement.
Lack of Syntactic Structure.	Clear and consistent syntactic structure.
Little comprehension of syntactic relationship between units.	Ability to pick up syntactic relationships between units.
Need explicit training to learn symbols.	Can pick up symbols without training.
Cannot reject ill-formed sentences.	Can do slow in later stages.
Rarely ask questions.	Frequently ask questions.
Do not use symbols referentially, (second degree associations).	Can use symbols referentially.

Through all these differences observed between apes and humans , we can clearly see that there are huge differences between the ways which humans or apes use this language .

Citing the example of the difference between chimps and humans ,i can conclude that although chimps learnt a bit of the language taught to them,they weren't able to learn things such as basic grammar and hockett features which clearly asserts qualitative differences between animals and humans, On these basis we can comfortably say that Discontinuity Hypothesis is correct .



_Where X is in a Millions of years and Y is in the magnitude of language development in humans .

I can say that the graph of language development in humans must have looked like this. At some point in the past , there must have been some events , which paved the way for the humans as they are now .

Thank you for reading my answer .
I Hope that I was able to convince you that the Discontinuity hypothesis is correct .

References -
psy499 lectures
Discussion hours
Traxler