Uniqueness Of Human Language Compared To Other Animals

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List Of Content

Introduction:

Human language is distinct in terms of compositionality from other languages. It can be called as a set of verbal and non-verbal conventions that we use to communicate with each other. To express our need we use words, while talking we might even make faces to express certain feelings. Animals express their feelings differently with the help of signs such as a dog might wag its tail when it's excited or a dog might growl or show an aggressive stance to show its aggression. But the question is can this be considered as language?

It is observable that animals communicate with each other by using a variety of signs such as signs, body posture, or movements. Animals perform these signs with a will of their own and to express themselves and these signs seem to be relatively arbitrary. If the inventory of these signs is large then these signs are complex enough to be considered as a language. Thus animal language can be called a form of non-human animal communication with similarities to human language.

Animal language can be considered as a model of human language in non-human animal systems. Although the animal language is complex in its own way, it is not as complex or expressive as human language. Many researchers suggested that there are significant differences between animal and human language even at the most complex level.

Human language is compositional unlike other forms of languages, so a human can express their thoughts in sentences comprising subjects, verbs, and objects and also recognizing past, present, or future in tenses. By this, human language can be used to generate a limitless number of sentences by combining different words. However, there is no indication of compositionality in animal language; instead it is primarily restricted to repetitive acts directed towards a specific, thus lacking any form of grammatical structure, and often explainable in terms of behaviors or simple associative learning.

This suggests that although both humans and animals use their different languages to communicate and express themselves, animals lack a key feature of human language, which is the creation of new signs or patterns under different circumstances.

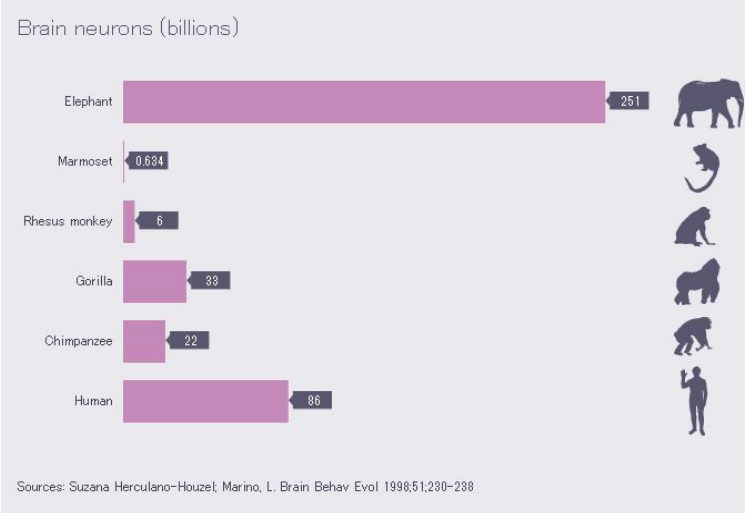
The following attributes of human language make them unique:

1. **Arbitrariness:** there is usually no rational relationship between a sound or sign and its meaning. For example, there is nothing intrinsically house-like about the word "house".
2. **Discreteness:** language consists of little, repeatable components (discrete units) that are utilized in combination to form which means.
3. **Displacement:** Ideas about things that are not in the immediate vicinity can be communicated with language.
4. **Duality of patterning:** the smallest meaningful units (words, morphemes) consist of sequences of units without meaning. This is also referred to as double articulation.
5. **Productivity:** By understanding, users can create an indefinitely large number of utterances.
6. **Semanticity:** specific signals have specific meanings.

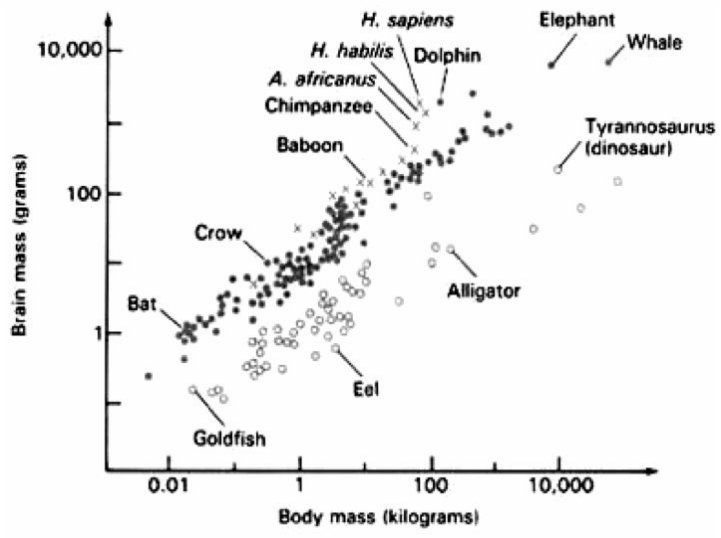
The difference in human and animal languages may come from the fact that animals and humans have different levels of intelligence as language is a cognitive feature. Various researches have been conducted to compare the intelligence level of animals and humans.

Human And Animal Intelligence:

Up until the 19th century, most western cultures like Christianity assumed that the human mind had nothing to do with animals and considered human beings as a superior creature whereas other eastern cultures like Buddhism believed that humans and animals share the same essence of nature and go through the cycle of birth and rebirth. But all these beliefs changed as researchers went through interesting findings in the 19th and 20th century and came to the conclusion that the difference between animal and the human mind is one of degree and not of kind.
Scientists tried to figure out the human brain and attempted to figure out its unique features over other animals. One research found that humans have a lot of neurons (over 80 billion), four times that of a chimpanzee and over ten times that of a monkey. But then Elephants were found to have three times as many neurons.



Other researchers found that humans have the highest brain-to-body ratio. Other animals like Elephants, Dolphins, Whales also tend to have a high brain-to-body ratio which leads researchers to believe that these animals may show some superior cognitive behavior and the research tends to be mostly on them.



So Many researchers then begin to look at indicators or markers to classify intelligence in animals with respect to human intelligence.

1. **Social Intelligence:** Human beings are social animals and tend to form communities and live in complicated social structures. Other animals like Chimps, ants also show this behavior but on a much smaller scale.
2. **Use of tools for benefit:** Humans use a variety of tools to solve their problems. We used to believe that we are unique in possessing this ability but research showed that certain birds can use sticks to dig food and such using, making, and modification of tools was also found to be common among many animals.
3. **Planning for the future:** We do not just live for present survival but we also plan ahead in time and this behavior was supposed to be absent in animals until the study of the bird Clark's Nutcracker. This special bird, before migration, buries and hides thousands of pine seeds (a food source it relies on throughout the winter) in clusters throughout the forest and remarkably finds them again months later. And I can't even remember where my wallet is!

4. **Culture:** We share this notion of culture which is a shared intellectual responsibility for our kind. Many animals like whales have been found to have cultures. The Humpback whales are known for their songs as these songs show striking similarities to human musical traditions. Research conducted in 2009 even showed an exchange of this “song” culture when two communities of whales (with only one group singing this song) met at a feeding spot resulting in the other group returning singing this song!
5. **Self Awareness:** We have a sense of self awareness as we have the ability to focus on ourselves. This was tested by the famous mirror self-recognition test, where the subject was made to stand in front of a mirror with a red mark on their face. The subject was considered passed if it could recognize that the mark was in its own face. Chimps were the first to pass this test but surprisingly some monkeys(which are considered as widely intelligent) and dogs couldn’t pass the test!

But the most striking feature about humans is the fact that they have thousands of words at their disposal, which strung together could communicate an infinite number of thoughts and ideas. That made humans such unique creatures. Throughout the 20th century scientists and researchers made repeated attempts to understand whether other animals could also acquire such ability.

Case Study: Language and Communication in Primates:

Chimpanzees were among the first species to be studied by scientists for traits matching human intelligence, in large part because of the similarities in our behaviours and social structures. Chimpanzees are our closest surviving evolutionary relatives and hence the promise of exciting discoveries in their use of communication similar to ours was great.

Experiments on language use had been performed on captive chimpanzees since the late 19th century with little in the way of groundbreaking discoveries led scientists to eventually become interested in seeing if chimpanzees raised in similar environments as human babies would demonstrate increased dexterity with language.

Two scientists, in the first part of the nineteenth century, reported on their experience of raising an infant chimpanzee together with their baby son. The chimpanzee, called Gua, was able to understand about a hundred words. Later, a chimpanzee named Viki was brought up by another scientist couple (Catherine and Keith Hayes) in their own home, exactly like a human child. These foster parents spent five years trying to get Viki to pronounce words using her mouth as humans do but to no avail. Viki eventually was able to very poorly articulate basic words like “mama” and “papa”. Knowing now that non-human primates do not actually have a physically structured vocal tract which is suitable for articulating the sounds used in speech, this was a remarkable achievement. Apes and gorillas can, like chimpanzees, communicate with a wide range of vocal calls, but they are just not biologically equipped to make human speech sounds.

The overwhelming majority of experiments were on chimpanzees reared in human environments with the specific intent of teaching them to communicate with us. But a fascinating case was observed with Kanzi, a bonobo whose mother was being trained by scientist Sue Savage-Rumbaugh to use the symbols of Yerkish, an artificial language developed for use by non-human primates. Although his mother did not do very well, Kanzi, who was always with her, spontaneously started using the symbol system with great ease. The interesting thing here is that Kanzi had learnt a language system that he had not been taught but instead been exposed to around him. Kanzi would eventually go on to develop a large vocabulary of over 250 symbols. By the time he was eight, he was able to associate symbols with spoken words and demonstrated understanding of spoken English at a level comparable to that of a two-and-a-half-year-old human child. It was also reported that he was using a consistently distinct set of “gentle noises” as words to refer to things such as juice, bananas and grapes. He had also become capable of using his symbol system to ask to watch his favorite movies, Quest for Fire (about primitive humans) and Greystoke (about the Tarzan legend).

Kanzi's case highlights an interesting aspect of human language in that most of the language we learn is based on what we explore on our own instead of what is taught to us. Thus the majority of our vocabulary is what we learn from people around us and what we read.

So what can we conclude from the case study?

Our continuous effort to study how we might teach other animals to communicate so that humans might understand them has taught us some valuable things about ourselves and how human language is unique. We have also succeeded in answering some questions in this regard.Were these primate test subjects capable of learning and communicating with us in a symbol system developed by humans and not primates? The answer is clearly "Yes." Did they go on to perform linguistically on a level comparable to a human child about to begin pre-school? The answer is just as clearly "No." In arriving at these answers, we have also had to face the fact that, even with our list of key properties, we still don't seem to have a non-controversial definition of what counts as "using language."

One solution is to stop picturing language as a discrete thing that a species either can or cannot have. We might posit that there are, at least, two ways of thinking about "language". Broadly, language serves as a kind of communication system that can be looked at in a variety of different situations. In one situation, we observe the behavior of a human infant interacting with a caregiver as an example of "using language" in the broad sense. Very similarly, we observe chimpanzees and bonobos when they are interacting with humans they know. It has to be fair to say that, in both cases, we observe the participants "using language." However, the difference here is that, underlying the two-year-old's communicative activity is the capacity to develop a highly complex system of sounds and structures, plus a set of computational procedures, that will allow the child to produce extended discourse containing a potentially infinite number of novel utterances. It is in the fundamental sense that we say that language is uniquely human that no other species has ever been observed to be "using language" as just discussed.

Main differences in animal communication and human languages:

Ability to be made permanent
Human language is perhaps the only form of communication among all species that can be written down and made permanent. This has the massive advantage of enabling our culture to be passed down through generations directly in preserved form rather than by word of mouth. For example, because we have books from our ancestors and even cave paintings from the earliest humans, we have the unique resource among all species to gauge our progress through history and have the tools to know what mistakes might have threatened our ancestors' existence and avoid repeating them.

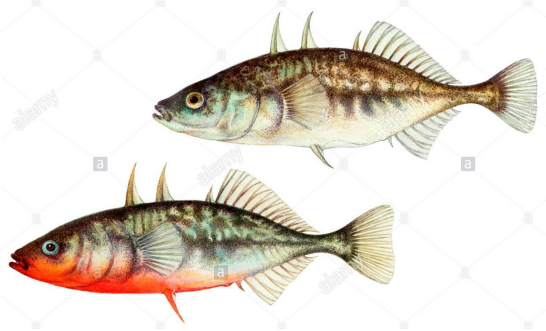
Displacement
Human language is unique in the fact that we can communicate ideas that are displaced, both in space and in time. For example, a speaker might describe an entirely made up situation involving imaginary people in a fictitious world and his audience will still grasp what

he's saying. In sharp contrast to this, other animals communicate only about things in the "here and now'. For example, a bee might dance to inform its colony of a food source present nearby but not of one in the past or one very far away.

Broadcast in direction
When a message from a human(Speaker) is passed then it has a predefined destination which can be either a hearer, a sign-viewer, or a reader. The message sent by humans is tight-beam transmission i.e they have a defined recipient. While in the case of animals it is usually radiant like in the case of bird cries or territorial markings by a dog piss, there is generally no defined recipient. Of course, with technological progress, the advent of mass communication has enabled human language to be broadcast generally, so this is an exception.

Interchangeability
Humans while communicating have both transmitters and receivers at the same time (full duplex communication) that implies the conservation is having a rapid back-and-forth mechanism. For successful communication, it is often crucial that there is a response (Except in case of writing). Unlike this, some animal species have asymmetric communication, Eg In case of crickets, only male crickets make the chirping sound by rubbing the edges of their forewings together to call for female, here female doesn't chirp which implies there is no interchangeability.

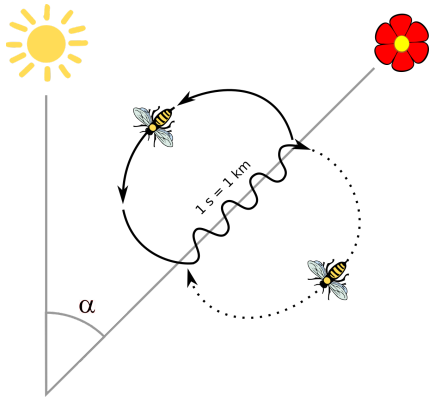
Complete Feedback
Human language transmitters hear what they are transmitting that is speakers perceive what they are producing so we humans have a feedback-loop which can be used for error correcting in our transmission whereas in case of animals there is generally no complete feedback E.g in the case of stickleback fish only the male stickleback has red belly scales through which it is communicating to female stickleback for mating but here the male does not have a complete feedback as it is not able to see its red scale.



Semanticity
The units of human language are symbolic-they stand for something other than themselves like there are associative ties between the word "Tree" and the idea or an actual tree. In short we can say linguistic forms have denotations.

Discreteness
Any utterance in a language must differ from any other utterance of the same length by at least a whole phonological feature that is the unit of human language differ categorically

from one another, like we say bad or bed there is no middle interpretation, it is either one or the other. Whereas animal communication does not have discreteness like when bees dance the speed at what they dance means something and the angle of their dance means something else.



Traditions

Traditions play a major role in language understanding of a human. The conventions of the language are passed down by learning. Each new generation learns the language spoken by the 5th older generation. There is a continual change that each generation figures out how language works their own way. Whereas animal communication is genetically inherited from germ plasm. Gene supply potentiality and probably a generalized drive, since non-human animals cannot learn a language and humans can hardly be prevented from acquiring one.

Lying

This is a design feature of language. Human language can be used to communicate ideas that don't correspond with facts like one can assert that the distance between earth and moon is 10 miles. Lying, in general, is absent from animal communication but some animals can do mocking(tactical deception) like chimpanzees can deceive others by hiding or mocking birds can imitate other species.

Reflexiveness

In language, one can communicate about communications. Human language can be used to communicate about anything, often language also like "I didn't say that!" the sentence you are reading just now contains a relative clause. Animals do not communicate about communications like Bees dance is about food and cannot be used to be the dance itself.

Learnability

Human language is the only communication system which is so diverse. Humans can learn a new language with enough effort. Whereas animals cannot acquire the communication system of another species while many have tried to make animals learn a language using reward mechanisms but after all they were not that successful like in the case of Nim chimpsky , Alex, etc.

Conclusion:

Up until now, for the majority of our studies on how other animals communicate, we've conducted studies on other species keeping how humans communicate in mind, for example teaching non-human primates to use sign language and we often disregarded the fact that animals have different evolutionary features, they perceive the world much differently than us, this has taught us that the idea of language is so abstract in many ways.However, it is truly difficult to pin down whether a form of communication could be considered advanced enough as a language. We humans have a very complex and unique ability to express our thoughts and ideas through discrete words strung together in a certain semantics. We communicate to express ourselves, co-ordinate, develop social relations and to share information. On the other hand animal communication appears to be highly in response to their physical, emotional and survival needs. However, communication for group cohesion and coordination purposes, such as in the case of bats and dolphins, cannot be ruled out completely.Although animals communicate in their own way adaptively, consciously, and with complexity it is not considered as superior as human language, this might be due the difference between human and animal cognition.Even though animals have cognition but higher order cognition in species is seen as something that is unique only to humans.This makes the human language unique as the higher level of cognition provides an eccentric complexity to to the human language which is different from the the complexity in animal language.Due to the our higher cognition and our developed ego we believe that we are superiors to other animals which is not true as animal language has its own complexity and uniqueness.

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