

**Human Vs. Animal  
Communication  
By Dr. Salah**

# Introduction

- We all heard about animals imitating human voices thinking that they really talk. We know that animals communicate with other members of their own species, but:
- Is it possible that any creature could talk to us in our language?
- Or does human language have properties that make it so unique that it is quite unlike any other communication system and hence cannot be learned by any other creature?

# Communicative Vs. informative signals

- **An Informative signal** is a behavior that provides information, usually unintentionally. For example (The color or the shape of the bird) or (A speaker's accent or health state) are informative unintentional signals. In **glossolalia**, or “speaking in tongues,” which is associated with the religious practices of Pentecostal Christian churches, these outpourings sound like language, but with no speaker control it is not intentional communication.
- **Communicative signal** is a behavior used intentionally to provide information for example (A bird squeaks intentionally when a danger is around) or (A person is telling his name to intentionally introduce himself) – *Hi, I am you new teacher.*
- So, when we talk about distinctions between human language and animal communication, we are considering both in terms of their potential as a means of intentional communication.

# Distinctive Features of Language

- There are several intrinsic features that distinguish human language from other communication systems.
- These intrinsic features include:
  1. Reflexivity
  2. Displacement
  3. Arbitrariness
  4. Creativity (Productivity)
  5. Cultural transmission
  6. Duality

# Reflexivity

- Reflexivity is the property of language that enables humans to use language to think and talk about language itself and does not appear to be present in any other creature's communication system.
- For example when you give a sentence about the past tense

- John arrived

In fact by giving any example about language, **you are using language to describe language** (reflecting on language).

# Displacement

- Displacement is a property of language that allows users to talk about things and events not present in the immediate environment.
- Animal communication is generally considered to lack this property (A cat spits and arches its back only when the danger is present).
- Humans can talk about things that are imaginary, present and even absent, they can also talk about things in the past, present and in the future ( we can talk about our future arrangements and past experience).

# Arbitrariness

- Arbitrariness is a property of language describing the fact that there is no natural connection between a linguistic form (a word) and its meaning. The aspect of the relationship between linguistic signs and objects in the world is described as arbitrariness.
- There are some words in language with sounds that seem to ‘**echo**’ the sounds of objects or activities and hence seem to have a less arbitrary connection (onomatopoeic words) like ***squeak and cuckoo*** .

words

Arbitrary



The world:  
Animals-humans-  
plants- imaginary  
world etc.

Tree

Arbitrary



There is no natural  
link between words  
(linguistic forms)  
and the real world  
which these words  
refer to





# Productivity (Creativity)

- Productivity is a property of language that allows users to create new expressions, also called 'creativity' or 'open-endedness'.
- **Limited (finite) number of rules = unlimited (infinite) number of sentences**
- It is linked to the fact that the potential number of utterances in any human language is infinite. Using Subject + verb = object pattern in English we can create an unlimited number of sentences.
- The communication systems of other creatures do not appear to have this type of flexibility. Nor does it seem possible for creatures to produce new signals to communicate novel (new) experiences or events.
- This limiting feature of animal communication is described in terms of **fixed reference** (a property of a communication system whereby each signal is fixed as relating to one particular object or occasion).

# Cultural transmission

- Cultural transmission is the process whereby knowledge of a language is passed from one generation to the next.
- human language is not only genetically transmitted, it is also transmitted through culture i.e. we acquire concepts through culture.
- The general pattern in animal communication is that creatures are born with a set of specific signals that are produced instinctively.

# Duality (Distinct sounds + Distinct meanings)

- Duality is a property of language whereby linguistic forms (words) have two simultaneous levels of sound production and meaning, also called 'double articulation'.
- Sounds, like *r*, *a* and *c* as individual sounds which have no meanings.
- In a particular combination such as *car*, we have another level producing a meaning that is different from the meaning of the combination in *arc*. So, at one level, we have distinct sounds, and, at another level, we have distinct meanings.

# Duality

- This duality of levels is, in fact, one of the most economical features of human language because, with a **limited** set of discrete sounds, we are capable of producing a **very large number** of sound combinations (e.g. words) which are distinct in meaning.
- Among other creatures, each communicative signal appears to be a single fixed form that cannot be broken down into separate parts

## Chimpanzees and Language

- Many attempts have been made to teach a chimpanzee to use human language.
- In the 1930s, scientists raised an infant chimpanzee together with their baby son. The chimpanzee, called Gua, and was reported to be able to understand about a hundred words, but did not “say” any of them.
- It has become clear that non-human primates do not actually have a physically structured vocal tract that is suitable for articulating the sounds used in speech.
- Apes and gorillas can, like chimpanzees, communicate with a wide range of vocal calls, but they just can't make human speech sounds.

# Teaching Sign language to Chimpanzees

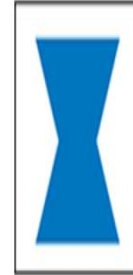
- **Washoe**, a female chimpanzee, became famous for being the first non-human to learn the American Sign Language (ASL). Raised in a human-like environment, Washoe was taught ASL as part of a groundbreaking study on animal language acquisition. Over the years, she learned around 350 signs.
- Washoe demonstrated the ability to combine signs creatively and express emotions like affection, anger, and humor. Her achievements challenged traditional views on animal intelligence and communication.

## Sarah and Lana

- Sarah, another chimpanzee was being taught to use plastic shapes to communicate. These shapes represented "words" that Sarah arranged vertically to form "sentences." Unlike Washoe, Sarah wasn't treated like a human child but was systematically trained using food rewards to associate shapes with objects or actions. She learned to use the shapes to request items, like selecting a blue triangle to get an apple, and could construct complex sentences.



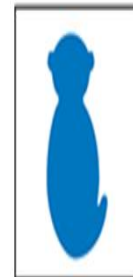
MARY



GIVE



CHOCOLATE



SARAH

Similarly, chimp named Lana was taught to use a keyboard-based artificial language called Yerkish, where Lana could request water by pressing a sequence of symbols, such as "please machine give water."



Please machine give water in Yerkish



- Attempts to teach chimpanzees like Washoe and Kanzi to use human-designed symbol systems have shown they can interact with humans using these symbols, but their linguistic abilities do not reach the level of a human child starting pre-school.

- This raises questions about what "using language" truly means. One solution is to view language as more than a single, all-or-nothing ability. In a broad sense, both human children and chimpanzees can be seen as "using language" in their interactions. However, only humans develop the complex, productive system of language capable of generating endless novel utterances, making language uniquely human in this more comprehensive sense.