

DEPARTMENT OF ANTHROPOLOGY,
UNIVERSITY OF LUCKNOW

HUMAN & NON-HUMAN COMMUNICATION

Definition And Differences

by
Dr. Keya Pandey

What separates humans from other animals?

- One of the first things that would probably come to mind is language.
- Language is extremely fundamental to human life
- It is hard to imagine what life would be like without it.
- In fact, the original term for language referred to it as part of the body—*language* is derived from the Latin word *lingua*, meaning *tongue*.
- Barnett highlights the inseparability of language from man when he says, “Verbal communication is a condition of the existence of human society.”

But at the same time, other animals also communicate:

- Your cat may let you know when its hungry, ants use pheromones and sounds
- to indicate social status and distress,
- Bees dance to tell one another where to find honey
- Chimpanzees can learn sign language

So when we think of language as a way of setting ourselves apart, what is it about our language that is different from how other animals communicate?

Differences at a glance

	Human	Non-Human
Duality of Patterning	Distinctive sounds, called phonemes, are arbitrary and have no meaning. But humans can string these sounds in an infinite number of ways to create meaning via words and sentences.	Other animals do not communicate by arranging arbitrary sounds, which limits the number of messages they can create.

Differences at a glance

	Human	Non-Human
Creativity	New words can be invented easily.	Animals have to evolve in order for their signs to change.
Displacement	Humans can talk about remote, abstract, or imaginary things that aren't happening in their immediate environments.	Animal communication is context driven—they react to stimuli, or indexes.

Differences at a glance

	Human	Non-Human
Interchangeability	Any gender of human can use the same languages.	Certain animal communications in the animal world can only be used by one gender of that animal.
Cultural Transmission	Humans acquire language culturally—words must be learned.	The way that animals communicate are biological, or inborn.

Differences at a glance

	Human	Non-Human
Arbitrariness	Human language is symbolic, using a set number of sounds (phonemes) and characters (alphabet), which allows ideas to be recorded and preserved.	Animal communication is not symbolic, so it cannot preserve ideas of the past.

Differences at a glance

	Human	Non-Human
Biology	On a purely biological level, the human voice box and tongue are very unique, and are required to make the sounds we recognize as language.	Other animals have different biological structures, which impact the way they make sounds.

Differences at a glance

	Human	Non-Human
Ambiguity	A word, or sign, can have several meanings.	Every sign has only one meaning.
Variety	Human language can arrange words into an infinite number of ideas, sometimes referred to as discrete infinity.	Animals only have a limited number of combinations they can use to communicate.

The Main Differences: In Depth

While many scholars may add to this list, there are seven properties that are largely unique to human language:

- Duality,
- Creativity,
- Displacement,
- Interchangeability,
- Cultural Transmission,
- Arbitrariness, And
- Biology.

Duality

Duality of patterning: Distinctive sounds, called **phonemes**, are arbitrary and have no meaning. But humans can string these sounds in an infinite number of ways to create meaning via words and sentences. The primary difference is known as duality of patterning, or structure.

- Each human language has a fixed number of sound units called phonemes.
- These phonemes are combined to make **morphemes**, the smallest unit of sound that contains meaning.

Thus, language has got two levels of patterning that are not present in other animals' communication.

Creativity

Yet another distinctive feature is creativity. Human beings use their linguistic resources to produce new expressions and sentences. They arrange and rearrange phonemes, morphemes, words, and phrases in a way that can express an infinite number of ideas. This is also called the open-endedness of language.

Animal communication is a closed system. It cannot produce new signals to communicate novel events or experiences.

Displacement

Human beings can talk of real or imaginary situations, places, or objects far removed from their present surroundings and time. Other animals, on the other hand, communicate in reaction to a stimulus in the immediate environment, such as food or danger. Because of this, human language is considered context-free, whereas animal communication is mostly context bound.

Interchangeability

Human language is interchangeable between sexes.

But certain communications in animal world are performed only by one gender. For example, bee dancing is only performed by worker bees, which are female.

Cultural Transmission

Another important difference is that human language is culturally transmitted. Human beings brought up in different cultures acquire different languages. Man can also learn other languages via the influence of other cultures. Animals lack this capacity. Their communication ability is transmitted biologically, so they are unable to learn other languages.

Arbitrariness

Human language is a symbolic system. The signs, or words, in language have no inherent connection to what they signify, or mean (that's why one object can have so many names in different languages). These signs can also be written with the symbols, or alphabet, of that language. Both verbal and written language can be passed down to future generations. Animal communication is not symbolic, which means ideas cannot be preserved for the future.

Biology

Biological differences also play a vital role in communication. Human vocal cords can produce a large number of sounds. Each human language uses a number of those sounds. Animal and birds have entirely different biological structures, which impact the way they can form sounds.

How do ants communicate?

Like most social insects, ants need to communicate with each other. If you watch ants on a trail, you will notice that they often touch each other with their antennae (long feelers on the head) when they meet. All ants can produce pheromones, which are scent chemicals used for communication and to make trails.

.....

How do bees communicate?

- Communication through dancing has been known as a common bee communication method.
- However, more recent findings showed that bee dancing is not only a way of getting all the attention in the hive when finding a good food source, as it was thought back in the day.
- Dance communication, also known as the waggle dance, is actually an accurate description of the location, type, and distance from the hive of the food source.

.....

- When doing the dance, the direction pointed by the position of the worker bee's body on the honeycomb is an actual indication on the direction the food source is in, in direct relation to the position of the sun.

- Also, how much the worker bee waggles her body while doing the dance, shows the other bees how far away this food source is. Moreover, the type of pollen and nectar the bee carries on her body upon returning into the hive will give accurate information about the type and quality of the foraging site she is pointing to through her dance.

.....

- Studies showed that this dancing behavior is genetically inherited, it is not something that a bee learns throughout her life from other worker bees. Also, it seems this type of behavior varies from species to species in terms of length, the order of the movements the bee makes, and the accuracy used to describe the foraging site.

.....

How do fish communicate?

Just like humans, fish can also communicate with one another. The most common ways they achieve this are through sound, color, bioluminescence, motion, electrical impulses and smell. These forms of communication are usually used to help navigate, call for spawning, alert predators to keep away, and while fighting.

.....

Does That Mean Animal Communication Never Displays These Properties?

It's a matter of debate. One of the most contested examples is Nim Chimpsky, a chimpanzee named after noted linguist Noam Chomsky, who was taught over 100 signs in sign language in the '70s. Turning hand gestures into meaning certainly displays arbitrariness. But Herbert Terrace, the psychologist who led the study doubted that Nim had really learned a language. He noted that Nim very rarely signed spontaneously; instead, he would react to signs his teacher was making.

.....

But Herbert Terrace, the psychologist who led the study doubted that Nim had really learned a language. He noted that Nim very rarely signed spontaneously; instead, he would react to signs his teacher was making.

This shows a contested example of when the line between human and animal communication becomes blurred.

THANKS
FOR
WATCHING!
