📘 CHAPTER TWO: Animals and Human Language

✍️ *Summary by Batool.A.Alshawi*

🗣️ Can Animals Talk Like Humans?

You've probably heard stories of parrots speaking words, or dolphins that seem to understand hand signals. But can animals actually use language like we do? That's the question this chapter explores.

It starts with a fun story: a man walking by the Boston Aquarium hears someone yelling "Hey! Hey you!" He looks around and finds… not a person, but a seal making the sound. The seal isn't really "talking." It's just copying a human voice it's heard before. That moment leads to the big question: What makes human language special—and is it truly unique to us?

📡 What Counts as Communication?

All living things communicate. Dogs bark, cats meow, birds sing. But not all of these signals are intentional. For example: • If you sneeze, someone might figure out you have a cold. But you didn't mean to tell them that.

• If a bird screams when it sees a cat, that's a clear signal meant to warn others.

What we're really talking about here is intentional communication—sending messages on purpose. And that's where human language goes far beyond animal signals. (Communicative signals vs. those which may be unintentionally informative signals.)

🌟 What Makes Human Language Special?

There are six big features that make human language different from the way animals communicate:

1️⃣ Reflexivity

We can talk about language itself.

Humans don't just use language—we can think about it, discuss it, even complain about it. No dog has ever barked about barking. That ability to reflect on language is called reflexivity, and animals don't seem to have it.

2 Displacement

We can talk about things that aren't here right now.

Animals mostly talk about what's happening right now. A dog growls to say "I'm angry right now." But humans can say, "Yesterday I saw a weird snake," or "Tomorrow I'm going to the beach." This ability to talk about the past, future, or even imaginary things (like Santa or unicorns) is called displacement.

Bees come close—they can "tell" other bees where to find food using a dance. But even that has limits. They can't "talk" about food they found last week or might find next year.

3 Arbitrariness

Words don't look or sound like what they mean.

There's nothing about the sound *dog* that makes it naturally mean a dog. That's arbitrary—we just agree that it means that. In Arabic, the word is *kalb*, and it works just the same. A few words (like *buzz*, *crash*, *meow*) sound like the thing they describe, but most don't. Animal signals, on the other hand, usually have a clear and natural link to the thing they mean.

4 Productivity

We can create new sentences anytime.

Humans can say things no one's ever said before. Like:

"Watch out! That snake is flying a drone!"

You've probably never heard that before, but it makes sense.

Animals don't do this. Bees, for instance, can describe where food is—but only if it's in a way they already "know how" to describe. In one study, bees couldn't "say" that food was up high—because their communication system doesn't include that idea. They have no "word" for *up*.

That's called *fixed reference*—their signals don't change or combine in new ways.

5 Cultural Transmission

We learn language from the people around us—not from our DNA.

A baby born in Korea but raised in the U.S. by English speakers will speak English—not Korean.

That's *cultural transmission*. We learn the language we hear growing up.

Animals, on the other hand, mostly follow instinct. A kitten will meow even if raised by dogs.

Some birds can learn songs by listening to others, but their range is limited. Humans need a cultural environment to develop real language.

6️⃣ Duality

We build meaning from meaningless parts.

The sounds *b*, *i*, and *n* don't mean anything on their own. But when you put them together—*bin*—they create a word. If you change the order—*nib*—you get a different word. That's *duality*: we combine small meaningless sounds to make meaningful words. Most animals don't do this. Their signals are simple and whole—not built from smaller parts.

🐾 So… Can Animals Learn Language?

They can learn a few signals. Some can even learn symbols or signs. But they don't seem to truly use language in the human sense. They can't reflect on it, stretch it, remix it, or pass it down in new forms.

Humans have a deep, flexible, creative system that lets us talk about anything—real or imaginary, present or distant. No animal system does all that.

🧠 Final Thought

Animals do communicate. They can send signals, give warnings, and even share information. But they don't use language the way humans do—not with reflection, creativity, learning, and layers of meaning. That's what makes human language truly different.

🐶 Talking to Animals

🎙️ Can Animals Understand or Use Human Language?

1️⃣ Do animals understand us when we talk to them?

Sometimes it seems like they do.

You say "Sit", and your dog sits.

You say "Whoa", and the horse stops.

But here's the thing: they're not understanding language the way we do. They're reacting to sound cues—just like how you might press a button when you hear a beep.

So no, this isn't real language understanding. It's more like trained responses.

2️⃣ Can animals learn to speak like us?

Not really. Here's why: • Animals can't physically make human speech sounds. Their vocal systems just aren't built for it. • Even if you raise a chimp and a baby together, like some scientists did, the baby will grow up speaking, but the chimp won't.

(One chimp named Viki tried and could barely say *mama*, *papa*, and *cup*, and that took years.)

3️⃣ What if we teach animals a different kind of language—like signs or symbols? That works a little better. Here are some examples:

🙊 **Washoe the Chimp**

• Scientists used American Sign Language with her.

• She learned over 100 signs (like *more*, *tickle*, *banana*).

• She even made simple "sentences" like *more fruit* and invented new signs like *water bird* for swan.

• She could answer questions and combine ideas—which is a big deal.

🙉 **Sarah the Chimp**

• Instead of signs, she used plastic shapes as words.

• For example, a blue triangle meant *apple*.

• She could make word combinations like *Mary give chocolate Sarah* and understand conditions like *if red goes on green, give chocolate*.

• But she had to be trained with rewards (like food), so some scientists think she was just doing tricks for treats.

💻 **Lana the Chimp**

• She used a keyboard with symbols linked to a computer.

• She could press the right symbols to say things like *please machine give water*.

• Again, some say it's more like pushing vending machine buttons than real communication.

🤔 **Was any of this real language?**

Here's the controversy: • Some scientists say these chimps were just copying signs to get rewards. No true understanding. No grammar. No real conversation.

• Others argue that at least some chimps, like Washoe, used language creatively and meaningfully—especially when there were no rewards involved.
Washoe even used signs when no humans were around, and taught signs to other chimps.

👨 Then came Kanzi…

This bonobo chimp learned language in a totally different way: just by watching.
• While scientists were trying to teach his mom Matata how to use symbols, Kanzi quietly picked it up on his own—without being trained.
• He learned to understand spoken English and used over 250 symbols.
• By age 8, he could understand language like a 2½-year-old child.
• He also made his own sounds for things he liked, like *banana* or *grapes*.
• And yes, he asked to watch his favorite movies.
(One was *Tarzan*. Not joking.)

🧩 Using Language

❓ So, Can Animals Actually Use Language?

Chimpanzees like Washoe and bonobos like Kanzi can communicate with humans. They can use signs or symbols that humans give them. So the answer to that part is: ✅ Yes—they can interact using symbol systems.

But here's the catch:
🚫 No, they do not use language at the same level as a human child—even a child just starting school.
Even the smartest chimps don't come close to using language the way a 3-year-old does. They can't create long sentences, tell stories, ask complex questions, or invent endless new ideas with words.

⚠️ What's the Real Problem?

The problem is this: We still don't all agree on what "using language" really means.
So maybe we need to stop thinking of language as one single thing you either "have" or "don't have."

🔍 **Two Ways to Look at It:**

1️⃣ **The Broad View: Using Language = Communicating with Symbols**

In this view:

• A toddler using simple words to talk to a parent is using language.

• A chimp using hand signs to ask for food is also using language.

✅ So yes—both are using language, kind of.

2️⃣ **The Deep View: Using Language = Having the Full Human Ability**

This is different.

Here we're talking about:

• A brain that can build endless sentences.

• The power to tell stories, ask abstract questions, and reflect on language itself.

• A system that keeps growing, learning, and adapting.

And in this sense, no animal—not even close—has shown that kind of ability.

🐾 **MCQ Test: Animals and Human Language** 🗣️

1. Why do some researchers argue that trained animal responses do not qualify as language?

A. Because animals lack intelligence

B. Because animals cannot hear human sounds clearly

C. Because the responses are tied to rewards, not understanding

D. Because animals dislike verbal communication

2. What best explains why Washoe's use of "water bird" is significant?

A. It shows she loved swimming

B. It suggests she could combine familiar signs in creative ways

C. It means she could name all animals

D. It was a mistake caused by mimicry

3. What key limitation did Viki face in trying to speak English?

A. Poor memory

B. Limited social exposure

C. Inability to make human speech sounds

D. Lack of reward-based training

4. The phrase “trained responses” in animal language studies implies:

A. Spontaneous thought

B. Conditioned behavior based on cues

C. Free will in communication

D. Emotional understanding of language

5. Why is Kanzi’s learning considered more impressive than other apes’?

A. He used gestures instead of symbols

B. He was never trained directly—he picked it up by watching

C. He outlived other apes

D. He could write

6. When researchers claim that language is “uniquely human,” they usually refer to:

A. Humans’ larger brains

B. The use of writing systems

C. The capacity for infinite sentence creation

D. The use of body language

7. What does the term “symbol system” refer to in the context of animal language studies?

A. Animal body language

B. Human gestures used to calm animals

C. Signs or icons representing words or meanings

D. DNA sequencing

8. Why is Sarah’s ability to understand "if-then" conditions important?

A. It shows logical reasoning, not just mimicry

B. It proves she could speak English

C. It shows she understood ethics

D. It confirms animals understand humor

9. Why might Lana's communication be considered more like using a vending machine than real language?

A. She liked candy

B. Her symbols were only understood by her trainer

C. She used symbols to get specific things without grammar

D. She used music to communicate

10. What was one major criticism of early animal language studies?

A. Animals didn't like humans

B. Researchers expected too little

C. The studies lacked ethical approval

D. Communication was shaped by rewards, not meaning

11. What is a likely reason why language researchers stopped trying to teach chimps to speak?

A. Chimps refused

B. Vocal systems in chimps can't produce human sounds

C. Humans became bored

D. It was unethical

12. Which aspect of Kanzi's learning challenges the idea that training is necessary for symbolic communication?

A. He only learned negative commands

B. He mimicked his trainer

C. He acquired language naturally by observation

D. He used grunts instead of signs

13. In what way is a 2-year-old child's language ability superior to any known ape's?

A. It is based on copying

B. It allows infinite novel utterances

C. It depends on physical strength

D. It uses fewer gestures

14. Why might the phrase “using language” need two definitions, according to the passage?

A. So scientists and the public can agree

B. To sell more textbooks

C. Because different creatures show different levels of language ability

D. To simplify grammar rules

15. How does Kanzi’s behavior question the importance of formal teaching in language acquisition?

A. He used humor to communicate

B. He learned by watching, not by training

C. He ignored all input

D. He failed to produce results

16. Why do critics argue that Washoe’s signing might not prove language use?

A. Her signs were limited to emotions

B. She never interacted with humans

C. The signs might have been learned through imitation and rewards

D. She used too many signs

17. What distinguishes human language from other communication systems?

A. Vocalization

B. Reward-seeking behavior

C. Infinite productivity and abstract thought

D. The use of hands and gestures

18. If an animal uses a sign only when food is present, what does that suggest about its language use?

A. It understands abstract reference

B. It uses language symbolically

C. It may be responding to immediate cues, not using language

D. It shows empathy

19. Which feature of human language is least likely found in animal communication systems?

A. Requests

B. Emotional expression

C. Grammar

D. Body movement

20. If a chimpanzee can combine two signs like “water” and “bird,” but never uses grammar rules, what does this suggest?

A. It is using deep linguistic structure

B. It might show basic symbolic combination without true syntax

C. It understands metaphor

D. It mimics human poetry

21. How does the difference between Washoe and a human toddler highlight the uniqueness of human language?

A. Toddlers have more emotional needs

B. Toddlers are stronger

C. Toddlers develop grammar and narrative

D. Washoe had less food motivation

22. What best supports the argument that animals can "use language" in a broad sense?

A. They obey commands

B. They imitate humans

C. They engage in meaningful interaction using symbols

D. They memorize lists

23. Why might researchers be hesitant to say that apes have “language”?

A. Fear of media attention

B. Difficulty observing signs

C. Lack of evidence for complex grammar or recursion

D. The signs are private

24. What makes Kanzi's case more compelling than earlier experiments?

A. He liked movies

B. He learned passively and understood spoken language

C. He could write words

D. He trained other chimps

25. The idea that only humans can produce "an infinite number of novel utterances" is tied to:

A. Vocal fold length

B. Syntax and generativity

C. Social dominance

D. Food preferences

26. Why is it important to distinguish between "communication" and "language"?

A. To avoid legal issues

B. To clarify what makes human cognition special

C. To define species by diet

D. To improve sign language

27. How does the chimpanzee Matata help us understand Kanzi's learning?

A. She taught him directly

B. She failed to learn, but he succeeded by observing

C. She opposed training

D. She used grammar

28. What is implied by saying language is not "a single thing that one can either have or not have"?

A. Language is a spectrum with degrees of complexity

B. Language doesn't exist

C. Language depends only on sounds

D. All species have equal language

29. What do we learn by comparing a human child's language development with a chimp's symbolic learning?

A. Both can reach full fluency

B. Both use language for the same purposes

C. The human child's system is deeper, more generative

D. Chimps are more consistent

30. If we define "language" strictly by human standards, what risk do we face?

A. Undermining scientific neutrality

B. Forgetting about animals

C. Ignoring communication that doesn't look human

D. Denying that humans use gestures

31. In what way does the design feature of "displacement" distinguish human language from animal systems?

A. It allows reference to things not present in space/time

B. It reduces memory load

C. It increases emotional range

D. It enhances mimicry

32. Which example best illustrates the design feature of "productivity"?

A. A bee dance repeating a fixed signal

B. A chimp combining familiar signs in new ways

C. A parrot mimicking human speech

D. A dog responding to a bell

33. If Kanzi understands spoken commands without ever being trained, what theory does this support?

A. Only trained behavior leads to comprehension

B. Natural observation can result in language acquisition

C. Vocal production is unnecessary

D. Grammar doesn't matter

34. Why is it problematic to judge animal language ability by human standards alone?

A. It makes comparison easier

B. It respects human uniqueness

C. It risks ignoring alternative communication systems

D. It improves scientific methods

35. What might researchers learn by analyzing the errors animals make while using symbols?

A. Whether they prefer food or praise

B. Whether symbols are memorized or understood

C. Whether they can write

D. Whether their hearing is impaired

36. If Washoe signs “open” when she wants a door unlocked, what is ambiguous about this act?

A. She might mean “close”

B. She might not know what she’s saying

C. It could be a repeated habit, not a creative act

D. It shows she can’t spell

37. Why does understanding word order matter in distinguishing human language from trained animal behavior?

A. Animals never care about grammar

B. Syntax indicates underlying structure beyond symbols

C. Word order confuses animals

D. Grammar doesn’t relate to meaning

38. Which of the following is an example of arbitrariness in language?

A. The sign for “banana” resembles a banana

B. The word “dog” has no natural connection to the animal

C. Animal cries are based on emotion

D. All languages use the same words for fire

39. Which point about animal sign systems makes them different from human language?

A. They are often instinctive, not learned

B. They rely on body movements

C. They are always creative

D. They are written

40. If a chimp only uses a symbol when food is present, what does this suggest about the function of the symbol?

A. It represents abstract ideas

B. It is tied to context, not symbolic meaning

C. It follows grammatical rules

D. It is emotionally neutral

41. What would be a strong argument against calling Kanzi's communication "language"?

A. He understood cause-effect logic

B. He lacked consistent syntax and recursive ability

C. He used speech instead of symbols

D. He was too old to learn

42. Why might it be important to analyze how children acquire language to understand animal studies?

A. It helps develop better training methods

B. It shows how motivation affects learning

C. It reveals which design features animals lack

D. It proves children mimic more

43. How does observing spontaneous symbol use (like Kanzi's) differ from observing trained use (like Lana's)?

A. Trained use is easier

B. Spontaneous use may show internal language-like competence

C. Spontaneous use is less reliable

D. Training provides deeper insight

44. If a bird imitates human phrases without understanding, what does this imply about mimicry?

A. Mimicry is superior to language

B. Mimicry proves comprehension

C. Mimicry alone doesn't equal language use

D. Mimicry reveals deep grammar

45. What does it mean to say human language is "generative"?

A. It has an emotional basis

B. It recycles symbols

C. It can produce limitless new combinations

D. It is always changing

46. Why might productivity and displacement be seen as core elements of human language?

A. They separate language from basic signaling systems

B. They rely on vocal tone

C. They reduce errors

D. They help animals bond with humans

47. What is a major flaw in concluding animals understand grammar from correct symbol use?

A. Grammar must be spoken

B. Correct use may be memorized, not creatively generated

C. Symbol use must be written

D. Animals can't distinguish parts of speech

48. When a chimp uses symbols only in front of a trainer, what might this suggest?

A. It understands cultural context

B. It performs to seek approval or reward

C. It can't distinguish meanings

D. It invents language rules

49. How might researchers avoid bias when studying animal communication?

A. Only test when animals are hungry

B. Eliminate all social interaction

C. Separate conditioned behavior from spontaneous symbolic use

D. Only study birds and dolphins

50. Ultimately, what is the key philosophical question raised by these studies?

A. Can animals read books?

B. Do animals enjoy human company?

C. What exactly qualifies as “language,” and who gets to decide?

D. Should animals be given more toys?

Answer Key:

Q no	Answer	Q no	Answer	Q no	Answer	Q n0	Answer
1	C	14	C	27	A	40	B
2	B	15	B	28	A	41	B
3	D	16	A	29	B	42	C
4	B	17	B	30	A	43	B
5	A	18	D	31	A	44	C
6	B	19	C	32	B	45	C
7	D	20	C	33	B	46	A
8	B	21	C	34	C	47	B
9	A	22	C	35	B	48	B
10	B	23	B	36	C	49	C
11	C	24	A	37	B	50	C
12	B	25	C	38	B		
13	A	26	D	39	A		

Study Questions

1. **Why is reflexivity considered a special property of human language?**
   Reflexivity means language can be used to talk about language itself. Humans can reflect on, analyze, and describe their own language, which animals' communication systems don't do. This meta-level ability is unique and foundational to human language.

2. **What kind of evidence supports the idea that language is culturally transmitted?**
   Evidence comes from the fact that children learn the language spoken by their community rather than genetically inheriting a specific language. Also, different human groups have distinct languages that evolve over time, showing transmission through social interaction, not biology.

3. **Difference between a communication system with productivity and one with fixed reference?**
   Productivity means the ability to create and understand new messages by combining elements in novel ways (open-ended). Fixed reference means signals are tied to specific, unchanging meanings or situations (closed, limited). Human language is productive; most animal communication is fixed.

4. **How did the Gardners show Washoe was not just repeating human signs?**
   They documented Washoe combining signs in new ways, using signs spontaneously without prompting, and applying them appropriately to different contexts, showing creativity rather than rote mimicry.

5. **If Sarah used a gray plastic shape to convey the meaning of the word red, which property does her "language" seem to have?**
   This shows **arbitrariness**, where the symbol (gray shape) is arbitrarily linked to a meaning (red), not through any natural connection but through learned association.

6. **What was the key element in Kanzi's language learning?**
   Kanzi's learning was largely through **observation and social interaction** rather than

direct training—he acquired language skills by watching humans communicate with others, showing that immersion and naturalistic exposure are critical.

Tasks

A. Clever Hans phenomenon:

Clever Hans was a horse famous for supposedly doing math and other intellectual tasks. The phenomenon refers to animals (or people) appearing to perform complex behaviors but actually responding to subtle, unintentional cues from humans. This highlights the importance of careful experimental controls to avoid misleading interpretations.

B. Communicative vs. informative signals: body language, distance zones, eye contact, eyebrow flashes:

- **Body language** is mostly **communicative**—it conveys intentions, emotions, and attitudes deliberately to others.
- **Distance zones** (personal space) signal comfort or threat levels, blending **informative** (unconscious) and communicative functions.
- **Eye contact** and **eyebrow flashes** are typically communicative signals used to regulate interaction, show attention, or express emotion.

C. Sound symbolism and arbitrariness:

Sound symbolism is when the sound of a word somehow relates to its meaning (e.g., "buzz" sounds like what it describes). This contrasts with arbitrariness, where there is no inherent connection between the form of a word and its meaning. Sound symbolism challenges the idea that all language is completely arbitrary.

D. Significance of the name given to the chimpanzee in Herbert Terrace's research:

The chimpanzee was named **Nim Chimpsky** (a nod to Noam Chomsky). Terrace's work critically challenged claims about ape language abilities by arguing Nim's signing was mostly imitation, not true language use, which sparked debate on animal language competence.

E. Can only African apes learn human communication systems? Studies on orangutans?

No, Asian great apes like orangutans have also been studied for language acquisition. For example, orangutans have been taught sign language or use symbol boards, showing some capacity for human-like communication, though research is less extensive compared to chimpanzees and bonobos.

F. Evaluating statements about chimpanzee symbol use:

1. **They create sign combinations like telegraphic speech.**
   Partially true—some studies show chimpanzees combine signs, but their complexity is far less than human telegraphic speech.

2. **They invent new sign combinations.**
   Evidence is limited but some novel combinations have been observed, suggesting basic creativity.

3. **They understand complex word order structures (conditionals).**
   Unlikely—most evidence suggests they don't grasp complex syntax or conditionals like humans.

4. **They overgeneralize sign references like young children.**
   True—apes sometimes apply signs to a broader range of objects than intended, similar to early child language.

5. **They don't use signs spontaneously, only in response to humans.**
   Mostly true; much sign use is prompted, though occasional spontaneous use is reported.

6. **They have complex concepts like time due to combinations like "time eat."**
   Overstated—such combinations don't prove abstract temporal concepts comparable to humans.

7. **They use signs to interact socially like 3-year-old children with speech.**
   Some interaction occurs, but their social use of signs is much simpler and less frequent than human toddlers.

8. **They steadily increase utterance length to a 3.0 average, matching a 3.5-year-old child.** This comparison is exaggerated; ape utterances are shorter and less syntactically complex.