

HUMAN LANGUAGE VS. ANIMAL COMMUNICATION

Linguistics 101

OUTLINE

1 HUMAN LANGUAGE REVIEW

2 ANIMAL COMMUNICATION

- Honeybees
- Birds
- Dogs
- Non-human Primates

3 SUMMARY

WHAT IS HUMAN LANGUAGE?

- Human language consists of a lexicon and a grammar.
- Design features of human language:
 - Semanticity
 - Pragmatic function
 - Interchangeability
 - Cultural transmission
 - Arbitrariness
 - Discreteness
 - Displacement
 - Productivity

ANIMAL LANGUAGE?

- Animals can convey various message to each other, such as:
 - feelings (anger, fear)
 - warnings
 - desire/willingness to mate
 - location of food sources
- Nonetheless, animals lack anything like human language.

QUESTION

Which aspects/features of human language are missing in animal communication systems?

HONEYBEE DANCE

- Dance to communicate
- Dance communicates direction and distance to food source
- Not entirely arbitrary

QUESTION

- How does the dance indicate direction?
- How does the dance indicate distance?

Honeybee Dance Video

<http://www.youtube.com/watch?v=bFDGPgXtK-U>

BIRDCALLS AND BIRD SONGS

- Birdcalls (one note)
 - messages about surroundings
- Bird songs (patterns of notes)
 - territorial purposes
 - mating purposes
- European Robin's song
 - complex
 - despite complexity, only high-low alternation is important
 - indicate degree of willingness to defend territory

BIRDS AND HUMAN LANGUAGE

- Some birds can imitate human speech. Is this language?
 - cannot learn structure
 - cannot create novel utterances
 - imitate sounds regardless of source

Lyre Bird

<http://www.youtube.com/watch?v=VjE0Kdfos4Y>

DOGS AND HUMAN LANGUAGE

- Dogs learn to understand certain commands.
- Most famous dog (concerning language) is Chaser
 - learned more than 1,000 nouns (for toys)
 - performs basic actions in response to commands consisting of a verb (paw, nose, take) and a noun
 - demonstrated power of deduction when asked to find novel object

Chaser Video

http://www.youtube.com/watch?v=_6479QAJuz8, longer video at <http://video.pbs.org/video/1778564622>

(starting at 10:42)

PRIMATE COMMUNICATION

- In their native systems:
 - *calls* are species-dependent
 - lack displacement
 - lack productivity

PRIMATES AND HUMAN LANGUAGE

- Primates are physically unable to produce human speech sounds.
- Primates are known to use communicative gestures in the wild.
- For these reasons, modern studies with non-human primates rely on sign language or other visual communication systems.

PRIMATES AND HUMAN LANGUAGE

STUDIES: WASHOE AND KOKO

- learned 100-200 signs
- claims of novel utterances (generally 2-word)

STUDY: NIM CHIMPSKY

- rarely initiated conversation
- signs often simply repetition of trainer
- no evidence of grammar
- longest utterance: 'give orange me give eat orange me eat orange give me eat orange give me you'

PRIMATES AND HUMAN LANGUAGE

- Koko Video <http://www.youtube.com/watch?v=X67zBy0IQqw>

DISCUSSION

Describe the interaction between Koko and the trainer. Who initiated conversation? How much did Koko 'talk'? How accurate was Koko?

- Lana Video <http://www.youtube.com/watch?v=hAocz4m88JQ>

DISCUSSION

Why are random symbols used for Lana? How well does Lana 'speak'? What should we make of Lana's repetition?

PRIMATES AND HUMAN LANGUAGE

- Some general issues with primate studies...
 - primates need extensive training
 - training focuses on very specific templates
 - trainers sometimes add own interpretation
 - learning of grammar (e.g. syntax) is lacking
 - results are sometimes anecdotal rather than experimental
 - primates do not pass down ability to sign to their young
 - claims that primates have learned or aquired human language are greatly exaggerated

SUMMARY

- What can animals do?
 - Some can learn hundreds of signs.
 - Some can associate meaning with sign.
 - Some show understanding of simple, novel combinations.
- But...
 - Most animals merely exhibit stimulus-response behavior.
 - Ability to learn structure is lacking.
 - Novel utterances are rare.