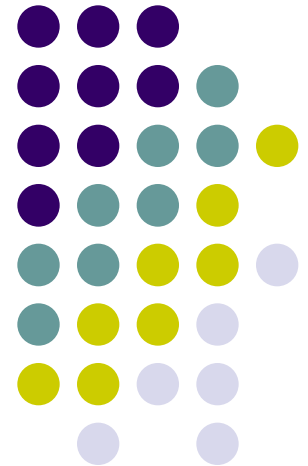


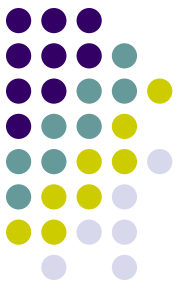
LANE 321 – Introduction to Linguistics

# Chapter 2: Animal & Human Language

Lecture 2

Lecturer: Haifa Alroqi

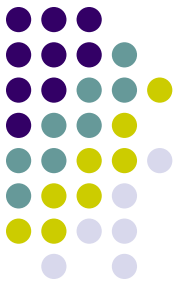




# Things to remember

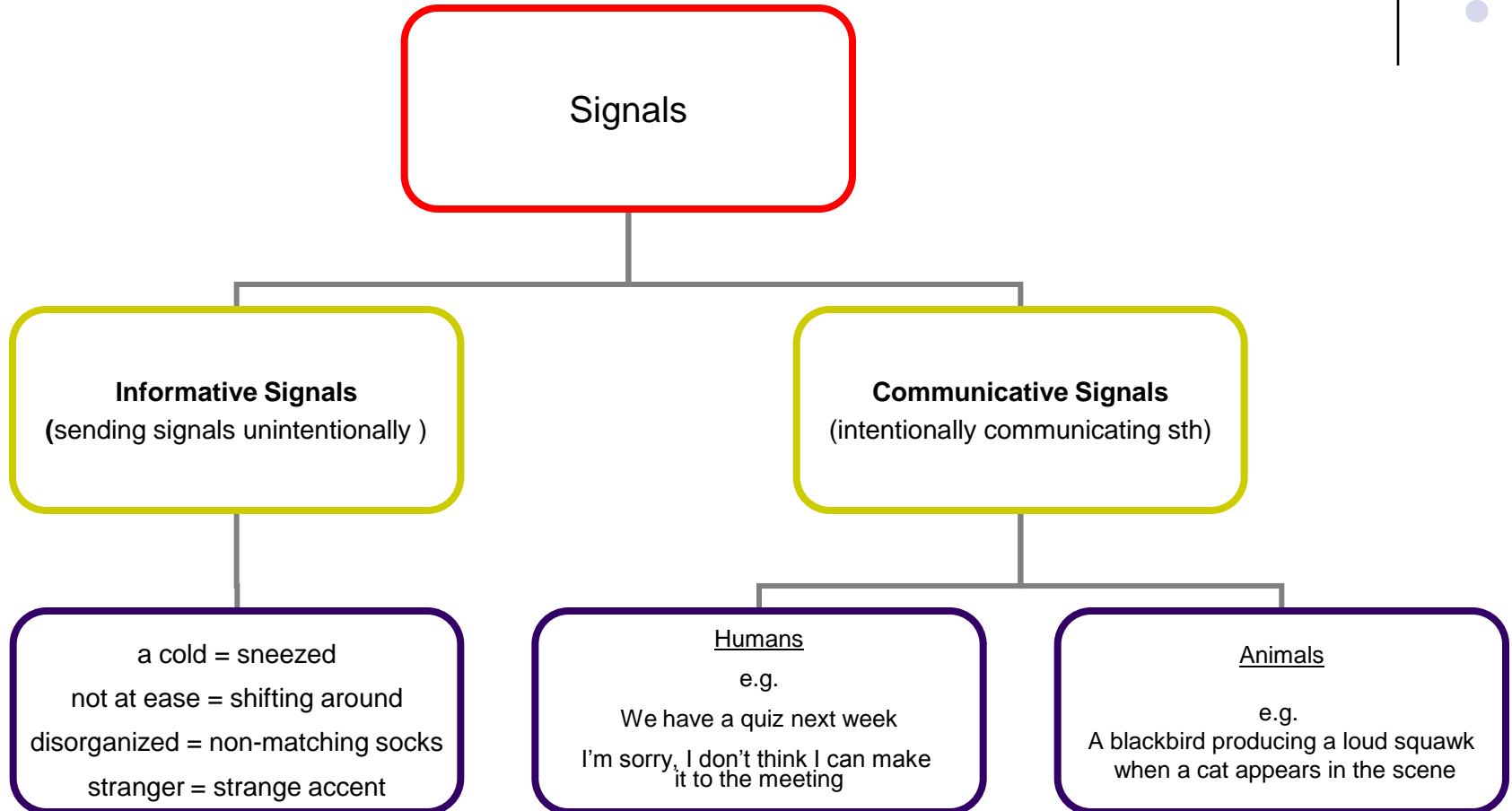
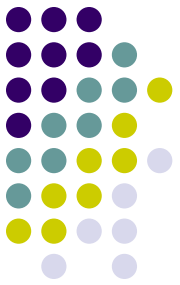
- Linguistics is the scientific study of language- what we know when we know a language.
- Main areas: phonetics, phonology, morphology, syntax, semantics, pragmatics.
- Other areas: sociolinguistics, applied linguistics, historical linguistics, language acquisition, psycholinguistics, computational linguistics.

# Important questions



- Is it possible that a creature may learn to communicate with humans using language?
- Does human language have special properties that make it unique and different than any other communication systems found in nature?

# Communicative & informative signals



# Properties of human language



## 1. Displacement

- Animal communication is designed for the immediate place and time (here and now)
- Humans can use language to refer to the past, present and future  
*e.g. last night, now, next week*
- We can even talk about things and places *whose existence we cannot be sure of.*  
*e.g. angels, fairies, Superman, Santa Claus, heaven, hell*

# Properties of human language



## Displacements:

Displacement is the property of human language that allows language users to talk about things and events not present in the immediate moment.

\* Animal communication is generally considered to lack this property

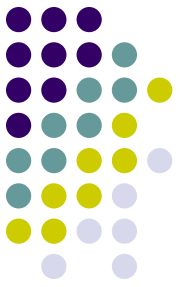
# Properties of human language



## 2. Arbitrariness (in human language)

- ▣ Generally, there is no 'natural' connection between a linguistic form and its meaning.
- ▣ The relation between linguistic forms and the objects they refer to is **arbitrary**
- ▣ *Dog* in English and *كلب* in Arabic.
- ▣ There are some words (onomatopoeic) in language with sounds that seems to 'echo' the sounds of objects or actions (less arbitrary)
- ▣ **Onomatopoeia**: the use of words that sound like the thing they are describing, (e.g. 'hiss' or 'boom')
- ▣ Onomatopoeic words are relatively rare in human language.

# Properties of human language



Arbitrariness (in animal communication)

- ▣ there is a connection between the conveyed message and the signal used to convey it.
- ▣ Consists of a fixed and limited set of vocal or gestural forms. (many are only used in specific situations or at particular times)

# Properties of human language



## 3. Productivity

### **Productivity** (creativity/ open-endedness):

The capability of humans to continually create new expressions and utterances to describe new objects and situations

- The number of utterance in any human language is **infinite**.

### Animals:

- have limited set of signals to choose from (*fixed reference*)
- cannot produce any new signals to describe novel experiences.

# Properties of human language



## 4. Cultural transmission (in humans)

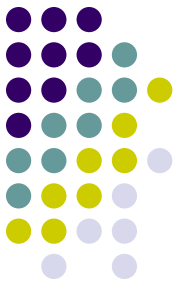
- Humans inherit physical features from their parents but not language.
- We acquire a language in a culture with other speakers (not from parental genes)

### Cultural transmission

The process whereby a language is passed on from one generation to the next.

- We are born with a predisposition to acquire language (but not with the ability to produce utterances in a specific language)
- We acquire our 1<sup>st</sup> language as children in a culture.

# Properties of human language



## Cultural transmission (in animals)

- Animal are born with a set of specific signals that are produced **instinctively**.
- Human infants, growing up in isolation, produce no 'instinctive' language.
- So, cultural transmission of a specific language is crucial in the human language acquisition process.

# Properties of human language



## 5. Duality (double-articulation) – in humans

In speech production:

- At a physical level, sounds (e.g. *g*, *d*, & *o*) mean nothing separately.
- At another level, they take on meaning only when they are combined together in various ways (e.g. *god*/ *dog*)

Human language is organized at 2 levels or layers simultaneously:

- At one level - **distinct sounds**
- At another level - **distinct meanings**

Duality is one of the most **economical features** of human language (with a limited set of discrete sounds, we are capable of producing a very large number of sound combinations (e.g. words))

# Properties of human language



Duality (double-articulation) – in animals

- Animals' communicative signals are fixed and cannot be broken into parts

*meow* is not *m + e + o + w*

# Properties of human language



- Vocal-auditory channel
- Specialization
- Non-directionality
- Rapid fade
- Reciprocity
- Prevarication

pp. 17-18

# Talking to animals

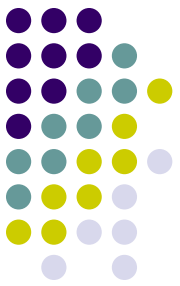


- Can animals understand our language?
- Under the impression that animals follow what is being said... (horses, pets, circus animals!)
- Is this an evidence that non-humans can understand human language?
- The standard explanation is that the animal produces a particular behavior in **response** to a particular sound-**stimulus** or 'noise', but doesn't actually *understand* what the word in the noise mean.
- Can animals of one species learn to produce the signals of another species? (horse – cows/ puppy- baby)

# Chimpanzees and language



Some researchers devoted their time to teach a chimpanzee how to use human language-  
not successful



## Luella & Winthrop Kellogg – 1930s:

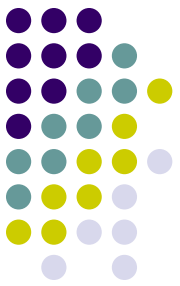
- Raised an infant chimpanzee (Gua) with their baby son.
- Gua- was able to understand 100 words but did not produce any.

# Catherine & Keith Hayes – 1940s:



- raised (Viki) as a human child.
- Spent 5 years attempting to get her to ‘say’ English words by trying to shape her mouth as she produces sounds.
- Eventually, she managed to produce poorly articulated versions of *mama*, *papa*, and *cup*.
- This was a remarkable achievement: it has become clear that non-humans don’t actually have a physically structures vocal tract which is suitable for articulating the sounds used in speech.
- Apes & gorillas, like chimpanzees, communicate with a wide range of vocal calls (but they just can’t make human speech sounds)

# Beatrix & Allen Gardner:



- raised Washoe as a human child.
- taught her to use ASL (learned by many deaf children as their natural 1<sup>st</sup> lang.)
- Sign language was always used when she's around + she was encouraged to use signs.
- In 3 ½ years, she came to use signs for more than a 100 words. (e.g. baby, banana, window, woman, you, etc)
- She was able to combine forms to produce sentences (e.g. more fruit/ open food drink)
- She invented some forms (e.g. water bird = swan) – productivity.

# Ann & David Premack



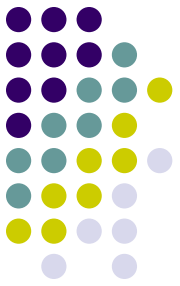
- Taught Sara to use a set of plastic shapes (represented ‘**words**’ and could be arranged in sequence to build ‘**sentences**’)
- She was systematically trained to associate these shapes with objects or actions.
- Food rewards
- She was capable of:
  - getting an apple by selecting the correct plastic shape (a **blue triangle**)
  - Producing ‘sentences’ (e.g. **Mary give chocolate Sarah**)
  - Understanding complex structures (e.g. **If Sarah put red on green, Mary give Sarah chocolate.**)

# Duane Rumbaugh



- Trained Lana using a similar training technique (artificial language – Yerkish)
- Yerkish consisted of a set of symbols on a large keyboard linked to a computer
- For water = press 4 symbols in the correct sequence = *please machine give water*
- Both Sara & Lana demonstrated an ability to use (word symbols + basic structure)

# The controversy



Can animals speak human-like languages?

Can animals perform linguistically on a level comparable to a human child at the same age?



**Thanks**

Next class: Please read Ch 4