LNGT0101
Introduction to Linguistics

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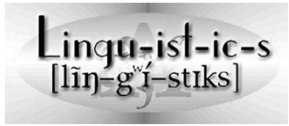
Lecture #2
Sept 12th, 2012

Announcements

- If you're in class for the first time today and you want to add the course, please do talk to me after the class.
- When you access the syllabus page online, your computer may have stored a cached version of the syllabus page, so it's a good idea to always press Refresh (F5) to make sure you see the most updated version of the syllabus.

Summary of last class

- Linguistics is the scientific study of human language.
- Language is a communication system of signs.
- Signs can be iconic or symbolic.
- But is the sign system of human language different from other communication systems, and if so, how?
- Let's take a look.

Communication systems

- All communication systems have some design features in common:
- A mode of communication: vocal-auditory (humans and most animals), gestural (apes), tactile (bees), or even chemical (moths).
- Semanticity: Signals have meaning.
- Pragmatic function: Signals have a purpose, e.g., helping the species survive or influencing others' behavior.

Spiders

- For instance, spiders use a complex system of gestures for courtship, but the system is invariant. Link

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Fiddler crabs

- The same is true of fiddler crabs' "claw-waving" movement. Link
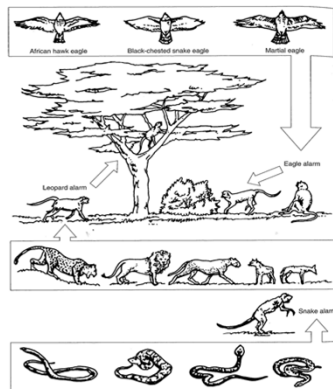
Vervet monkeys

Figure 17.7 Response of vervet monkeys to specific predators

Charles Hockett's Design features

- The linguist Charles Hockett described human language in terms of a set of design features, some of which are shared by some animal communication systems, while some seem to be human-language-specific.
- We discuss each type in turn.

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Interchangeability

- Interchangeability: Humans can both send and receive messages.
- Many animals do as well, but it is not always the case, though, e.g., *bombyx mori* (silkworm) moth uses a chemical communication system that is available only to females, but not to males.

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Cultural transmission

- Cultural transmission: For humans to learn language, they have to be exposed to it. No exposure means no language will be learned.
- For most organisms, by contrast, the actual signal code itself is innate or genetically programmed.

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Arbitrariness

- The relationship between form and meaning is largely arbitrary in human language (What do you call the inner core of a peach? Can you guess what 'suur' means in Arabic?), but largely iconic in animal communication systems (dogs baring teeth, lizards puffing out their necks).

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Discreteness (and duality of patterning)

- Signs in human language can be decomposed into discrete "meaningless" units, which in turn can be recombined to create new signs with different meanings.
  spot   [s-p-o-t]
  tops   opts   pots
- This is not the case with signals in animal communication systems, which typically convey indivisible messages.

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Design features specific to human language

- In addition, there seem to be at least three design features that set human language apart from other communication systems (at least as far as we know).

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Displacement

- Humans can use language to talk about things not present in space or time.
- Animal communication systems are tied to "the here and now."

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Creativity/Productivity

- Creativity: Humans are creative with language. We can always add new words and expressions, e.g., *e-mail, youtubification, ridic.*
- We are also able to produce and understand an infinite number of sentences.
- Well, how many of the sentences on these slides have you seen before? How many of them have you been able to understand?

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Discrete infinity

- Human language exhibits the property of discrete infinity (aka *recursiveness*): In theory, we can have signals of an infinite length.
  > *John loves Mary.*
  > *Bill says that John loves Mary.*
  > *Sue believes that Bill says that John loves Mary.*
  > *Harry claims that …*
- Where do we stop?

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Discrete infinity

- We are able to 'embed' a sign inside a sign of the same type:
  > *He's a very nice man.*
  > *He's a very, very nice man.*
  > *He's a very, very, very nice man.*
- Or this example from the textbook:
  > *This is the dog that worried the cat that killed the rat that ate the malt that lay in the house that Jack built.*

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Knowing vs. Using

- Infinity of language is true in theory, but not in practice. Why?
- Despite their interconnectedness, our 'knowledge' of a linguistic system can actually be distinguished from our 'usage' of that system at a certain level of analysis: The so-called **competence-performance** distinction.

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The dances of bees: An exception?

- Bees interact via a "dance" signaling system whereby they communicate to one another the distance, direction, and quality of a food source. <u>WATCH</u>.

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Bees

- But why is this challenging?
- Displacement?
- Or maybe not.
- For one thing, even if it does have displacement, it is definitely restricted to a particular domain. It is frozen and inflexible.

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Bees

- Also, we can represent the bees' messages in a number of ways. It could be that the signal is "*There's a food source 40 feet from the hive at a 45° angle from the sun,*" in which case it does exhibit displacement.
- But the signal could also be represented differently, as in "*Fly 45° for 2 minutes.*"

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Bees

- Does the bee dance system have creativity?
- If put under special circumstances (walk, stop several times, strong light source), a bee has no way of conveying that to other bees.
- Totally genetic? Cases of cross-breeding.

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So,

- It seems, then, that human language is qualitatively different from other communication systems, particularly with regard to displacement, creativity, and discrete infinity.

- But if this is case, then now the question becomes: "Why is this so?"

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So, why is human language different?

- The answer given by most linguists, and most notably by Noam Chomsky, to this question is: *Biology.*
- We learn and use language for the same reason birds fly and fish swim: We are genetically endowed with a species-specific ability, called "the language faculty," that allows us to do so.

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Counter-evidence?

- How can we falsify this claim?

- Get animals to learn human language and use it.

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Primate studies

- 1930s: Gua
- 1950s: Viki
- Washoe and American Sign Language: 132 signs at five years of age. Creating novel combinations, e.g., WATER BIRD (for a swan) and BABY IN MY CUP.

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Primate studies

- 1972: Koko, like Washoe, learned several hundred signs, and created new ones, e.g., FINGER BREACELET (for ring). Koko's website.

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Nim Chimpsky

- Then came Nim Chimpsky in the late 1970s. Project Nim
- Nim was trained by Herbert Terrace, and by age four, he had acquired 125 signs.
- Examination of the videotapes of chimp and trainer, however, showed many dissimilarities between Nim's and a human child's acquisition of language.

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Nim Chimpsky

- Nim never initiated signing.
- Only 12% of his signs were spontaneous, whereas 40% were mere repetitions of the trainer's signs.
- Nim's signing was typically a request for food or social reward. He never asked questions.
- Nim did not seem to know any grammar. He rarely went beyond the two-word combinations, and when he did, the additional signs added no new information:
    give orange me give eat orange me eat orange give me eat orange give me you.

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Nim Chimpsky

- Tapes of Washoe and Koko showed the same thing.
- Terrace thus concluded that these chimps never actually learned human language.
- Chimpanzee signing and symbol manipulation is more likely the result of response-reward association and/or trainers' cueing (aka ***dressage***).

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Moral of the Great Ape Debate

- Among linguists, the general belief today is that animals' communication systems, while rich, sophisticated, and subtle, are *qualitatively* different from human language.

- Biology just happened to have it this way.

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Nature + Nurture

- Notice, crucially, that the human language faculty is NOT our ability to learn a *particular* language; rather, it is our ability to learn *Language*.

- Learning a particular language is the result of interaction between nature (the language faculty) and nurture (the linguistic environment).

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But …

- Why does there have to be a separate faculty for language? Why can't that ability be part of our general intelligence as human beings?
- We discuss this and other issues related to the biological basis of language on Monday.

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Next class agenda

- More on the biological basis for language. Finish reading Chapter 1, if you haven't already.
- Language and the brain: Read Chap 2 of the textbook.

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