INTD0112 Introduction to Linguistics

Lecture #4
Sept 16th , 2009

Questions?

Any questions on homework 1?

Mr. D. Advocate walks in, but let's pretend we didn't notice.

Summary of discussion so far

- Human language is qualitatively different from other communication systems.
- One explanation for this is Chomsky's proposal that we are born with a species-specific language faculty.
- One piece of evidence for this comes from the so-called "poverty of the stimulus" argument: "We just seem to know so much even though the evidence is so little."

Mr. D. Advocate has a question:

- Today, we continue the same discussion providing further evidence in support of the innateness hypothesis.
- One other argument …
- "Excuse me, Mr. Linguist!"
- Well, I think Mr. D. Advocate has a question:

Mr. D. Advocate has a question:

- Mr. D. Advocate: "*Yes, I do. I think I understand Chomsky's poverty of the stimulus argument, but why would that entail that language is a module in the mind? Why can't our ability to learn language be part of our general intelligence as human beings?*"
- Excellent question. But there seems to be good evidence that language actually exists as a separate module in the human mind/brain.

Language and intelligence

- The main argument against language being part of our general intelligence is the so-called "*double dissociation*" argument.
- Put simply, there are cases where general intelligence is affected but language ability remains intact. And there are cases where linguistic ability is affected, but other cognitive abilities remain intact.

Language and intelligence

- *Turner's Syndrome* and *Williams Syndrome*.
- *Specific language impairments.*

Uniformity of language acquisition

- On the other hand, in acquiring their native language, children go through the same stages, with very slight differences, e.g., consider the acquisition of negation in English:

  no Fraser drink all tea

  He no bite you.

  I can't catch you.

Uniformity of language acquisition

- More interesting still is that children go through the same stages across different languages: babbling, one-word stage, two-word stage, telegraphic speech, until they eventually converge on the "adult" grammar.

Uniformity of language acquisition

- Children also overgeneralize, again showing they're trying to figure out a "mental" grammar:

  comed, goed, bringed,

  mans, foots
- Notice that these forms do not occur in the linguistic environment of the child. Contrary to behaviorism, then, language learning cannot be a process of habit formation, in a response-to-stimulus fashion, coupled with reinforcement.

Reinforcement goes by unnoticed

- Even worse for the behaviorist approach is that it predicts that children should actually respond positively to correction of their utterances. But there is good evidence to the contrary: children typically resist correction of their language.
- Let's look at a couple of famous anecdotal child-parent exchanges:

"Incorrigible" children

- ***Exchange #1 (from Braime 1971):***
  Child: Want other one spoon, daddy.
  Parent: You mean, you want the other spoon.
  Child: Yes, I want other one spoon, please Daddy.
  Parent: Can you say 'the other spoon'?
  Child: Other…one…spoon
  Parent: Say 'other'
  Child: Other
  Parent: 'Spoon'
  Child: Spoon
  Parent: 'Other spoon'
  Child: Other…spoon. Now give me other one spoon.

"Incorrigible" children

- ***Exchange #2 (from McNeill 1966):***

  Child: Nobody don't like me.

  Parent: No, say 'nobody likes me.'

  Child: Nobody don't like me.

  [*repeats eight times*]

  Parent: No, now listen carefully; say 'nobody likes me.'

  Child: Oh! Nobody don't likes me.

And, there's also a critical period for language acquisition

- Ever wondered why you're having hard time learning a foreign language, even though you had no trouble whatsoever learning your first language?
- Well, if language is a biological system, we have an answer: Certain biological abilities follow a timetable and then get "turned off" or at least "degrade" considerably, as Eric Lenneberg suggested for language in 1967.

And, there's also a critical period for language acquisition

- The cases of "wild children".
- **Isabelle** discovered at the age of 6 with no language skills, but within a year she learned to speak and was able to function normally in school.
- **Genie** discovered at the age of 13, but her language development never matched what normal children do.
- **Chelsea** misdiagnosed as mentally ill, fitted with hearing aids at 31, but after 12 years of training her language level remained that of a 2 and ½ year old.

Language and the brain

- Finally, we also know from neuroscience studies that language is neurophysiologically represented in the brain.
- For one thing, for most right-handed individuals, language is represented in the left cerebral hemisphere of the brain.

Language and the brain

- Of course since we cannot operate on the brain directly, we look for opportunities when this becomes possible (e.g., language impairment due to head injury), or make use of technology that allows us access to how the brain functions when it comes to language (measuring blood flow, electric or magnetic fields associated with certain language tasks).

Aphasia

- Aphasia is a language impairment that results from damage to the brain, due to a stroke, trauma to the head, brain infection, etc.
- There are several cases of aphasia, depending on where the trauma takes place.

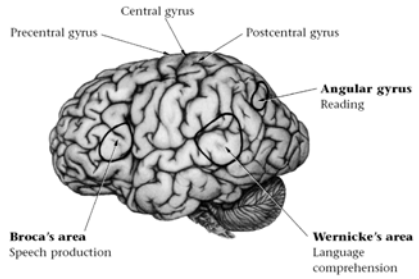

Figure 14.4 Language processes in the left hemisphere. Damage to Broca's area is usually associated with nonfluent speech and difficulty processing complex syntactic patterns. Damage to Wernicke's area (see Section 3.2) is usually associated with comprehension disturbances. Damage to the area around the angular gyrus results in reading impairment.

From O'Grady et al, 2005.

Broca's aphasia

- Broca's aphasics typically have difficulty producing speech:

  … har eat … wit … poon

  (Intended sentence: It is hard to eat with a spoon.)
- They also typically omit function words, e.g., articles, pronouns, prepositions, auxiliary verbs, and inflectional suffixes, from the sentence. Example.

Wernicke's aphasia

- In *Wernicke's aphasia*, patients' speech sounds very good, there are no long pauses, sentence intonation is normal, function words are used, and word order is syntactically correct. The problem is that their speech rarely makes any sense:

  I could if I can help these this like you know … to make it. we are seeing for him. That is my father.
- Example.

Using technology to study language and the brain

- CT scanning
- PET
- fMRI
- MEG
- etc.

- Cf. the relevant sections in Chapter 8 in your textbook.

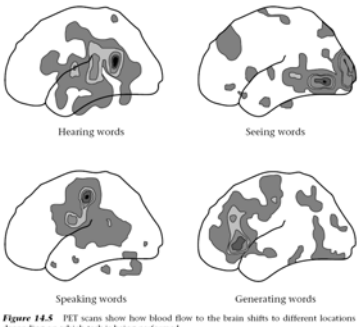

Figure 14.5 PET scans show how blood flow to the brain shifts to different locations depending on which task is being performed.

From O'Grady et al, 2005. Youtube Link

So, to sum up the evidence for the biological basis for language,

- There's poverty of the stimulus in language acquisition.
- There's dissociation between language and general intelligence.
- There's uniformity of language acquisition by children within the same language and across languages.
- There is good evidence that language learning is not a matter of habit formation.
- There is some evidence for a critical period.
- And there is good evidence that certain linguistic abilities are represented in certain parts of the brain.

Well, … if it looks like biology, then it must be biology!

BUT …

Universality

- If we are all born with the same language faculty, how is it that we come to speak dramatically different languages?
- Chomsky's answer is that the language faculty is an abstract system of principles, call it ***Universal Grammar*** (UG), that interacts with the linguistic experience to give rise to a particular language.

Universality

- Contrary to common belief, then, linguists believe that languages are fundamentally the same, and not fundamentally different. Cross-linguistic variation is all but a "surface" phenomenon.
- As the course goes on, you will see how the space of variation among human languages is very limited and is constrained by general principles of grammar in all human languages.

Generality

- Also, if language is viewed as a system of knowledge, then it makes no sense to say that a language "has no grammar." Every language has a sound system, rules for word formation, rules for sentence formation, as well as systematic meanings for words and sentences. Every language is a ***rule-governed system***.

Parity

- Notice also that if language is an internalized system of knowledge, then it does not make sense to talk about one language being "better than" or "superior to" another language.
- Linguistically, all languages are equal. Thus, there is no such thing as a "primitive language," for example.

Parity

- The same extends to dialects: There is no sense in saying that one dialect is better than another, either. All dialects are linguistically valid systems of knowledge.
- And so-called standard dialects have no linguistic merit over nonstandard dialects. The difference is actually sociopolitical than anything else.
- We will revisit this issue in detail in the second half of the term, but it is important to bear this in mind.

A different kind of linguistic knowledge

- Notice, crucially, that if our linguistic knowledge is the result of interaction between nature and nurture, then we are actually talking about a different kind of linguistic knowledge than the "***prescriptive***" rules you learned from your school teachers, like
  - "*Don't end a sentence with a preposition!*" or
  - "*Don't split the infinitive!*"

  rules that English speakers disregard on a daily basis, much to the chagrin of school teachers, but for the delectation of linguists).

Prescriptive vs. descriptive grammar

- It's important therefore to understand that linguistics is not ***prescriptive***, but ***descriptive***.
- Linguists do not concern themselves with telling people how to use the language. Rather, linguists assume that people already know their language and set out to describe the different kinds of knowledge that people have of their language.

Goals of linguistic theory

- Linguists are thus mainly concerned with two main questions:
  a. What is it that we know when we know a language?
  b. How does this knowledge arise in the mind of the native speaker?

Grammar is a "mental" entity

- The answer to the first question is to study language as a system of knowledge, or to use a familiar term, though in a rather different way, a *grammar*.
- Linguists typically break down a grammar into subcomponents and work on each:

Components of a mental grammar

- **Phonetics**: The study of the articulation and perception of speech sounds.
- **Phonology**: The study of the sound system in a language.
- **Morphology**: The study of word structure.
- **Syntax**: The study of sentence structure.
- **Semantics**: The study of meaning of words and sentences.

Other subfields within linguistics

- The answer to the second question is the study of **first language acquisition**.
- But linguists also raise questions for the mutability of linguistic knowledge, i.e., the fact that language changes over time. This is the domain for **historical linguistics**.
- Linguists also raise questions for how we come to use language in social contexts and how people's forms of speech vary (the so-called *dialects*). This is the domain for **sociolinguistics**.

Other subfields within linguistics

- **Psycholinguistics**, on the other hand, studies the cognitive processes that we engage in the production and perception of language.
- **Neurolinguistics** deals with how language is physiologically represented in the brain.
- **Computational linguistics** is concerned with ways to model natural languages so they can be used by machines.

Course plan henceforward

- We will cover most of these (check your syllabus), though you have to remember this is a course in the "formal" study of language, so all of the first half of the semester and some part of the second half will be devoted to the study of the five main components of linguistic knowledge.
- Importantly, though, understanding these is crucial to understanding other areas of linguistics as well.

Next class agenda

- Phonetics: Read the sections on Consonants, Vowels, Some Additional Features, and Prosodies.