

Introduction to the Study of Language

Language

- Linguistics
 - One question about language
 - What do linguists do??

Outline

- Administrative
- Why are we interested in language?
 - Is human language special?
 - Innateness hypothesis
- Prescriptive vs. descriptive approaches to language, language & thought

Why study language?

- To learn more about yourself!
 - There are so many things you don't know that you know...
Huh?
 - Famous quote from D. Rumsfeld
(<http://www.youtube.com/watch?v=Sq5mQLArjmo>)
“There are known knowns. These are things we know that we know. There are known unknowns. That is to say, there are things that we know we don't know. But there are also unknown unknowns. There are things we don't know we don't know.”
 - So what is it we don't know that we know (= 4th logical possibility)?

Introspection

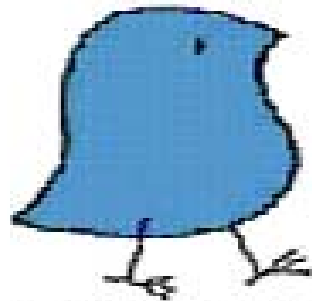
- brána vs. bránka
- steep vs. street

English plural

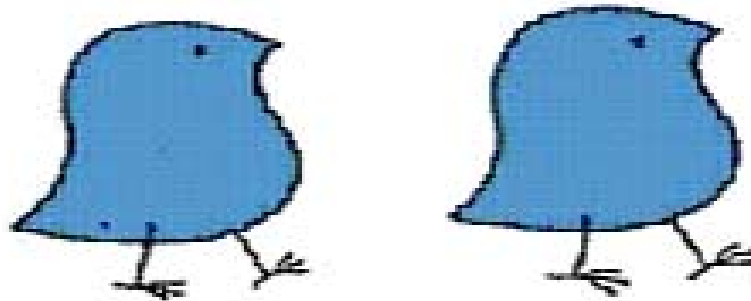
- What do we know about plural formation in English?
- The alternation [s]/[z]/[əz] is **systematic** because the realization of plural morpheme can be predicted by the context: when a preceding sound is produced with vocal fold vibration (such as the [g] in *dog*) the plural ending is [z]; otherwise, it is [s].
- 4-year olds consistently pronounce the plural ending in *cats* and *dogs* as [s] and [z] respectively. Why?

Wug test

(Berko-Gleason 1957)



This is a wug.



Now there is another one.
There are two of them.
There are two ____.

Other words tested

- Plural/possesive: lun, bik, tor, tass, gutch,...
- Past tense: blinged, ricked, mott,...
- Results: children productively reproduce the morphological alternations in words they have never heard.
- When tested, they call two toys named *glick*, as *glick[s]*, and two instances of a *wug*, as *wug[z]*.
- For other patterns, see the paper (Berko-Gleason, J. 1957. "The Child's Learning of English Morphology," *Word* 14:150-77.

Why is this interesting?

- The consistency in the wug-data can't be the result of memorizing the plural forms of the words themselves.
- Rather, the plural is formed in a rule-like fashion depending on phonetic properties of the final sounds in the stem.
- We know this and small kids know this too without anybody telling them!

Words

- system, un, atic, al, ly
- unsystematically
- Why not: systemunlyatical, unsystemlyalatic, aticalsystemun?
- Ambiguity
 - Unlockable

Sentences

- student John exam his a was flunked who
 - 8 words = $8!$ (=40320) potential sentences!!
 - Do you think kids try out producing any of them?
- L. Carol's: Jabberwocky (Through the Looking Glass)

Tw'as brillig, and the slithy toves
Did gyre and gimble in the wabe:
All mimsy were the borogoves,
And the mome raths outgrabe.
- Bilinguals
 - I šmyked myself.
 - Uteká mi nos

Sentences (cont'd)

- Creativity in sentence construction
 - This is the house.
 - This is the house that Jack built.
 - This is the mouse that lives in the house that Jack built.
 - This is the old mouse that lives in the house that Jack built.
 - This is the very old mouse that lives in the house that Jack built.
- Ambiguity
 - I saw a man with the telescope

Okay

- Many potential functions
 - A: *Okay*, you wanna take the mime [Cue beginning]
 - B: *Okay* [Backchannel]
 - A: and put it directly above the owl.
 - B: *Okay* [Acknowledgement]
 - Start a new segment
 - Acknowledge received information
 - Stall for time
 - Backchannel
 - Interrupt other speaker
 - ...
- How do we disambiguate?

“Unknown knowns”

- Knowing a language means to have a complex but systematic mental knowledge at various levels (sounds, groups of sounds, words, sentences, turns,...)
- Some knowledge is available to introspection, some is not. But that does not make it any less real, just more difficult to explain.
- All of you are able to catch a ball, but can you explain how you do it?

Why study language? (cont'd)

- In addition to peeking into our minds through the window called language...
- Learn & use methods for standard scientific approach
- Relation to other disciplines
 - Signal processing, TTS, speech understanding, dialogue systems
 - <http://www.manifestation.com/neurotoys/eliza.php3>
 - <http://www.research.att.com/~ttsweb/tts/demo.php>
 - tutoring
 - Pragmatics, discourse
- to understand why students have trouble learning a foreign language
- ...

Written vs. Spoken

- Why spoken and not written language?
 - Spoken language is primary
 - Historically
 - Socially
 - biologically

Poverty of the stimulus

- Children know things that they never heard, could not memorize, were not taught to know
- Imagine what kind of language input the kids hear
- Crucially, kids hear some *positive* input (i.e. how things should be said) but they don't hear negative input (i.e. things should not be said)

Language instruction

But surely, parents must TEACH language to their children...

Child: My teacher holded the baby rabbits and we patted them

Adult: Did you say your teacher held the baby rabbits?

Child: Yes

Adult: What did you say she did?

Child: She holded the baby rabbits and we patted them.

Adult: Did you say she held them tightly?

Child: No, she holded them loosely.

Child: Want other one spoon, Daddy.

Father: You mean, you want "the other spoon"

Child: Yes, I want other one spoon, please, Daddy.

Father: Can you say "the other spoon"?

Child: Other ... one ... spoon.

Father: Say ... "other"

Child: Other.

Father: Spoon.

Child: Spoon.

Father: Other ... spoon.

Child: Other ... spoon. Now give me other one spoon?

Characteristics of language

- Complexity
- Systematicity (on various levels)
- Variation (often unconscious)
- Common properties of languages despite huge differences
- Spontaneous acquisition
- Creativity/productivity
- Displacement
- Arbitrariness
- Discreteness

Is language uniquely human?

- Many forms of animal communication
 - Bird calls, parrots, monkeys,...
- More interestingly: are animal communication systems like human linguistic knowledge that we just talked about?

Animal communication (cont'd)

- Parrots imitate human sounds but do not decompose them
- Birds or monkeys communicate a limited set of signals such as “danger”, “food”,...
 - E.g. bees signal the location and quality of food
 - Experiment: make the bee to “walk” to the source, it communicates the food source much farther than it is.
 - Hence: no creativity
- Some birds are able to learn new features or ‘dialects’
 - Sparrow songs
- Snowball (<http://www.youtube.com/watch?v=Vgp6gP2kUm0>)
- Dolphins (<http://www.youtube.com/watch?v=jz3sQsTE5tA>)

Monkeys

- Wide-spread claims that monkeys are able to use human-like language
 - Especially after changing from speech to signing
- But...
 - These efforts are typically not scientific (e.g. Koko)
 - Nim Chimpsky:
 - Hearing vs. deaf observers
 - Nim's sentences: Nim eat Nim eat, Dring eat me Nim, Tickle me nim play, Me banana you banana me you give, Give orange me give eat orange me eat orange give me eat orange give me you,...
 - Apart from all other problems, this was achieved after LONG training, compare with a 3-year old

So far...

- Language is a kind of mental knowledge
- Seems to be uniquely human (S. Pinker calls this ‘language instinct’)
- So what should linguists do when they study language??
- Common perception in public: linguists decide what is a correct way of saying/writing, make rules of language.
- Do you agree?

Prescriptive approach

- There is a “correct” way of saying/writing things
- Which is correct?
 - V pátok láló. vs. V piatok lialo.
 - I didn't see nobody. vs. I saw nobody/I didn't see anybody.
- What's the difference between a standard language and a dialect?
- Languages change constantly and no language purists are going to stop them.

Alternative: descriptive approach

- Rather than describe what speakers should do, describe what they know.
- By understanding the language system, learn more about human mind
- Necessary prerequisite for teaching grammars is to be aware of the rules of the native language.

Language and thought

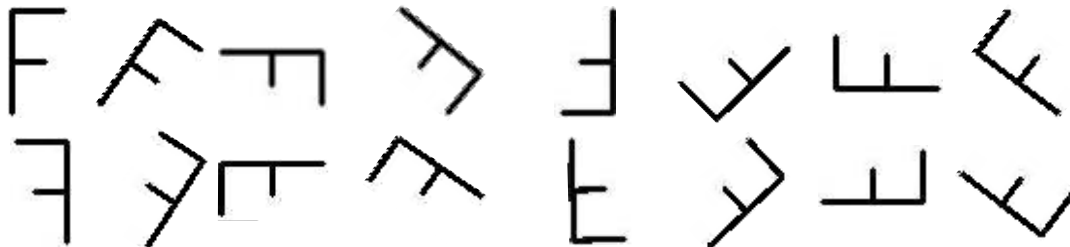
- Question: Is our thinking independent of the language we speak?
 - Some popular notions suggest that the answer is NO. That is, some people think that we ‘think in words’.
 - Eskimo words for snow
 - Arctic people have up to 40 words describing snow. Hence, their perception of world must be different from other people
 - Hopi notion of time
 - 'Hopi may be called a timeless language'. [...] It 'does not distinguish between present, past, and future of the event itself (...)’.
 - Color perception
 - codability of color affects their recognizability. Languages differ in codability, => recognizability is a function of the individual's language

Sapir-Whorf hypothesis

- Strong: Language determines thought (\approx language you speak determines the way that you will interpret the world around you)
- Weak: *some* aspects of language might determine *some* aspects of thought (\approx language merely influences your thoughts about the real world)

The 'strong' version is implausible

- Debunking popular beliefs
- Patients with Broca's aphasia or SLI
- Translation would not be possible
- Constant self-correction in language use would not make sense
- Thought w/o language
 - The case of rotating letters (Pinker, Ch3)



The weak version is still an open debate

- Spatial reasoning
- Counterfactuals
- ...

Summary

- Chomsky/Pinker view: language is universal, innate, govern by Universal Grammar
- Sapir-Whorf: some aspects of language are connected to the culture of its users

HW

- S. Pinker: Chapters 1 & 2
 - Prepare a non-trivial question from each chapter
- Food for thought:
 - “A wolf is able to express subtle gradations of emotion by different positions of the ears, the lips, and the tail. There are eleven postures of the tail that express such emotions as self-confidence, confident threat, lack of tension, uncertain threat, depression, defensiveness, active submission, and complete submission. This system seems to be complex. Suppose there were a *thousand* different emotions that the wolf could express in this way. Would you then say that a wolf had a language similar to a human's? If not, why not?" (FRH, p. 31)

One more...

- Complex system vs. sparse & inaccurate data
 - “In our endeavor to understand the reality we are somewhat like a man trying to understand the mechanism of a closed watch. He sees the face and the moving hands, even hears its ticking, but he has no way of opening the case. If he is ingenious, he may form some picture of a mechanism which could be responsible for all the things he observes, but he may never be quite sure his picture is the only one which could explain his observations. He may never be able to compare his picture with the real mechanism and he cannot even imagine the possibility of the meaning of such a comparison.” (A. Einstein & L. Infeld: The evolution of physics)