Four levels of language

• phonology -- surface form of language
  – segments

• semantics – meaning
  – lexicon

• syntax
  – grammar

• pragmatics
  – function
Language is Special

Innate

independent language organ

independent course of development

not traditional perception and learning theory

Noam Chomsky
Univ. of Maryland, Jan. 26, 2012
Linguistic Nativism

• Most of the acquisition of natural languages by human beings depends on un-acquired (or acquired but unlearned) linguistic knowledge or language specialized cognitive mechanisms.
Critique: Language is Special

• Poverty of the Stimulus
  – positive evidence is actually enough to learn the various patterns that linguists claim are un-learnable by positive evidence alone.
  – brain's mechanisms of statistical pattern recognition could solve many of the imagined difficulties.
Critique

- Nativism discourages reductionist analysis by precluding (black-boxing) inquiry about significant causal factors
Linguistic Non-Nativism

• Very little of the acquisition of natural languages by human beings depends on un-acquired (or acquired but unlearned) linguistic knowledge or language specialized cognitive mechanisms
stochastic learning theory

• holds that language learning is based on complex, higher-order properties of stochastic patterns in sensory experience, not a mere tabulation of frequency of patterns.
What’s Needed for Spoken Language Acquisition?

- Sensory Input
- Signal analysis
- Category Learning
- Syllabification
- Recombining Syllables
What’s Not Needed for Spoken Language Acquisition?

Unencumbered by the Thought Process
Speech is MultiSensory

Baby imitations--15 seconds in
http://www.youtube.com/watch?v=cJ3Ec70Mnqw

Tongue protrusion--25-50 seconds
http://www.youtube.com/watch?v=l0N6mIpoN3M&NR=1
Baby imitation in 15 seconds

http://www.youtube.com/watch?v=cJ3Ec70Mnqw
Language and Speech Perception

http://www.youtube.com/watch?v=Q-B_ONJIEcE

http://www.youtube.com/watch?v=USlgsFgzwww

http://www.youtube.com/watch?v=mZAuZ--Yebo

http://www.youtube.com/watch?v=G2XB1kHW954
Figure 1. The intermodal preferential looking paradigm.
Infants Have the Wetware for Spoken Language

http://www.youtube.com/watch?v=Ew5-xbc1HMk

Infants Perceive Subtle Distinctions in Speech
Infants Perceive Categories and When They Occur

http://www.youtube.com/watch?v=dAU5CAI1U6M
American Sign Language (ASL)
American Sign Language (ASL)
Sign with me
Communicate
Even Before Your Baby Can Talk!

Bath
Bed
Cookie
Daddy
Eat
Frog
Gentle
Hear
Help
Horse
Hot
I Love You
Milk
Mommy
More
No Touch
Potty
Shoes
Telephone
Thank You
Where

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www.signwithme.com
SpeechReading