

## March 4, 2013:

Human Language- an open and symbolic communication system that has rules of grammar and allows its users to express abstract and distant ideas

- Words are organized by the rules of syntax and grammar

Protolanguage- evidence suggests complex language arose only in our species (150-250,000 years ago)

- Complexity of the human brain and the ability to use language may have co-evolved

Language Development- ability to understand words develops before ability to produce them (babies can point their nose)

- Language areas in left hemisphere (Broca's area- speech formation/Wernicke's area- speech understanding)

### Stages of language development

1. Cooing- first sounds humans make (other than crying) (First 6 months)
2. Babbling- sounds made as a result of the infant's experimentation with a complex range of phonemes (5-6 months)
3. One word utterances- single words, such as "mama", "dada", "no" (around 12 months) (Children tend to acquire words from the ends of sentences first)
4. Two word utterances- phrases children put together (start around 18 months)
5. Sentence Phase- stage when children begin speaking in fully grammatical sentences (around 2 ½ to 3 years old)

Sensitivity period- time when a child needs to be exposed to human language to fully develop (1-12 years old) (Associated with period of increased neural pruning and wiring)

- Evidence comes from case studies of those who suffered severe neglect ( Genie- never learned to speak during sensitivity period)

### Theories of language acquisition

1. Sociocultural theories- language is learned from the people around us, many different types of environmental influences, heavily reliance on imitation of family members (Social Learning Theory & Child directed speech)
2. Conditioning and learning theory- Idea that language is like any other behavior and exists because it is reinforced and shaped (B.F. Skinner) Limitations: Little reinforcement occurs consistently for syntax and grammar rules
3. Nativist view of language- the idea that we discover language rather than learn it
4. Language acquisition device- an innate, biologically based capacity to acquire language (Chomsky 1972, 1986)

Chomsky- a single, universal grammar underlies all human languages (Translate to any language). Any child can learn any language with equal ease. Specific languages have different limits.

### Nature, Nurture, and language learning

- Acquiring language involves natural abilities modified by the language learner's environment called **innately guided learning**
- Grammar is more innate and genetically influenced than vocabulary

#### **Anatomy of human language**

- Compared to chimps, humans have: reduced mouth and arched tongue, enlarged throat, lower voice box.
- Chimps can learn sign language and spoken requests

#### **Language, Culture and Thought**

- **Whorf Sapir hypothesis**- language creates thought as much as thought creates language
- **Linguistic determinism hypothesis**- language determines our way of thinking and our perceptions of the world (paraha tribe)
- **Linguistic relativism**- language influences our thinking but does not determine it (How language affects color perception, Winawer 2007)

#### **Thinking, Reasoning, and Decision Making**

- **Cognition**- mental processes involved in acquiring, processing, and storing knowledge
- **Mental representation**- a structure in our minds that stands for something else (often an idea or image that stands for something) (visual and verbal)

#### **Visual representation**

- **Visual imagery**- visual reps created by the stimulus is no longer present (successful outcomes, and creativity)
- **Mental rotation**- process of imagining an object turning in 3D space (usually takes 2.5 sec) (Gender differences related to testosterone)

#### **Verbal representation**

- **Concept**- a mental grouping of objects, events, or people (Dogs)
  1. **Concept hierarchy**- arrangement of related concepts in a particular way
  2. **Parallel distributed processing**- associations between different concepts activate many networks at the same time (trees- leaves, bark, roots)
- **Category**- a concept that organizes other concepts around what they all share in common
- **Prototype**- the best fitting example of a category (places to live- home)
- **Reasoning**- the process of drawing inferences or conclusions from principles and evidence
  1. **Deductive reasoning**- reasoning from general statements of what is known to specific conclusion (all dogs have four legs- **Premise A**) (Toto is a dog- **Premise B**) (Conclusion- Toto has four legs)

- 2. **Inductive reasoning**- reasoning to general conclusions from specific evidence (my dog is brown) (therefore all dogs are brown) (Conclusion- some dogs are brown)
- **Causal inferences**- judgments about causations of one thing by another
- **Confirmation bias**- the tendency to selectively attend to information that supports one's general beliefs while ignoring information or evidence that contradicts one's beliefs
- **(Wason, 1960)** - I give you a set of numbers (triplet) and ask you to figure out what the rule is (2,4,6), You come up with another triplet as well as a rule.
- **Critical thinking**- process by which one analyzes, evaluates, and forms ideas
- **Metacognitive thinking**- process that includes the ability first to think and then to reflect on one's own thinking.
- **Heuristics**- methods for making complex and uncertain decisions and judgments (Mental Shortcuts)

#### **Two Common types:**

- **Representativeness heuristic**- estimate the probability of one event based on how typical it is of another event (Joe- not overweight, wears glasses, reads poetry; we assume he is an English teacher not a truck driver)
- **Availability heuristic**- a device used to make decisions based on the ease with which estimates come to mind (May occur due to vividness of imagery associated with an event)
- **Conjunction fallacy**- error in logic that occurs when people say the combination of two events is more likely than either event alone (Feminist & Bank Teller)

## **Chapter 11:**

### **Motivation & Emotion:**

- **Motivation**- the urge to move toward one's goals/to accomplish tasks
  1. **Needs (Food)**
  2. **Drives (Hunger)**
  3. **Incentive (Certain GPA)**
- **Evolutionary model**- humans want those things that help them survive and reproduce, Evolution has shaped our behaviors to help us reach these goals, In most cases we are unaware that our behavior is related to our biological drives
- **Drive reduction model**- when our physiological systems are out of balance or depleted, we are driven to reduce the depleted state. (Sweating, so take clothes off)