Early Communication

◗ Crying (Birth - ?)
  - Universal
  - Intentional vs Unintentional
  - Communicative Function

Cooing

◗ Around 1 month
◗ "uh" sound
◗ Consists of all possible phones
◗ Universal: All cultures, deaf babies too!

Babbling

Babababababa

◗ Around 6 months
◗ Consonant and vowel sounds
◗ Preference for native language sounds
◗ Speech-like intonations
◗ Deaf babies don't verbally babble

Babbling or first words?

One-word Utterances

- Around 1 yr of age
- Usually concrete nouns (English Speakers)
- Selective - choose most informative word

Ball!

Telegraphic Speech

- 1 - 3 yr
- Omit non-essential words (a, the, etc)
- Overextensions & Underextensions
- Basic grammar - word order
- Pronunciation difficulties

Learning to Talk

- Father: Say "jump"
- Son: dup.
- Father: No, "jump."
- Son: Dup.
- Father: No. "Jummmp."
- Son: Only Daddy can say "Dup!"

(Smith, 1973, p 10)

How do we acquire language?

Nature vs Nurture

Theories of Language Development

- Nurture
  - Theories
    - Imitation
    - Conditioning
  - Problems
    - Systematic errors
    - Novel Production
    - Universal Characteristics

Words for Mother and Father in different languages

English	mama	dada
German	mama	Papa
Hebrew	eema	Aba
Hungarian	anya	Apa
Navajo	ama	Ataa
South Chinese	umma	baba
Taiwanese	amma	aba

Theories of Language Acquisition

◗ Nature (Innate)
- Language Acquisition Device (Chomsky)
  - Assumptions
    - Innate knowledge of Universal Grammar
    - Language learning = tuning
  - Problems
    - Very distinct grammars
      - Example: "a" and "the" in English, African languages determined by tone patterns; Japanese & Chinese determined context determined

Distinct Grammatical Forms

English	"The" and "a"
Finnish	En attached to front or back of noun
Hungarian	Verb-direct object order
Some African Languages	Tonal Properties
Japanese & Chinese	Context

- Special Acquisition Mechanism
  - Evidence
    - Several physiological structures just for language
    - Desire to learn language fundamental
    - Self-motivating
    - Robust
    - Brain Specialization
      - Damage to left harms language more than right (not just verbal)
      - Damage to Broca vs Wernicke's Area
      - Language areas generally absent in non-humans

- Problems with Nature Argument
  - Critical Periods
    - Window of opportunity for full acquisition of language skills
      - Cooing and babbling stages critical for discriminating and producing phonemes
      - Syntax Acquisition - ASL & second language learning data
      - Isolated children - Genie, Wild Boy of Avrignon

Integration of Nature and Nurture

- Hypothesis Theory
  - Patterns of change in the form of words
  - Morphemic inflections that change meaning
  - Sequences of morphemes and word order
- Newport's Selective Attention Model
  - Focus on perceptually salient properties
  - Abstract patterns

Meaning: Early words and word meanings

◗ Overextensions
  • One name to extended to multiple objects
◗ Underextensions ***
  • Bottle only refers to baby's bottle, not Coke bottle or water bottle
◗ Overlap
  • "Umbrella" refers to umbrella only when open but also refers to kite, leaf used to block rain in story, etc

Example of overextension: After learning "doggie" child uses "doggie" to refer to other small, furry, 4-legged animals.

Vocabulary Acquisition

◗ Strategies (Constraining Possibilities)
  • Taxonomic Constraint
    – Infer that word refers to basic class of objects
    – Special markers
      • indicate lower or higher category level
      • Use known concept to define new.
  • Mutual Exclusivity
    – Infer that words refer to non-overlapping sets.
    – Acquired at 2 1/2 yrs

This is a Skib

Example of Taxonomic Constraint. Child assumes that the word refers to the entire object and it is a basic category descriptor.

This is yarc. He's a skib

Use of special markers to indicate that the word does not refer to a basic category but to an instance of the category.

Show me the wuz

Example of mutual exclusivity: will assign the new word to the unknown referent.

Summary

◗ Children's early use of words can be overextended or underextended.

◗ Strategies that constrain possible word meanings help children to rapidly acquire new vocabulary.

◗ Parents/adults often provide cues to help children map the referent to the word

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How do children learn to comprehend verbal input?

Verbal Comprehension

◗ Development of Comprehension Monitoring

• Contradictory Messages

• <u>Procedure</u>: Subjects read a passage that contains an internal contradiction. (Baked Alaska passage)

• Results:

– Over half of 8 year olds fail to detect the contradiction.

– This is despite being warned about possible inconsistencies

Baked Alaska

To make it they put the ice cream in a very hot oven. The ice cream in Baked Alaska melts when it gets that hot. Then they take the ice cream out of the oven And serve it right away. When they make Baked Alaska The ice cream stays firm and does not melt.

◁

- Ambiguous Messages
  - Procedure: Subjects given ambiguous instructions for playing a game, then a series of probes.
  - Results:
    - 1st graders need more prompts before they recognize the ambiguity than 2nd or 3rd graders.
    - Need to repeat or implement the instructions before recognizing the ambiguity.

Ambiguous Instructions

We each put our cards in a pile. We both turn over the top card in our pile. We look at the cards to see who has the special card. Then we turn over the next card in our pile to see who has the special card this time. In the end the person with the most cards wins the game.

◁

What affects verbal comprehension?

◗ Strategy Use
  • Superficial processing - not constructive.
  • Failure to mentally step-through the instructions/procedure as it is presented.
    • Can detect problems when asked to repeat or enact them.
    • Reduction in comprehension failure when instructions are accompanied by a demonstration. (off-loads the processing demands)

Verbal Fluency

◗ Various word production tasks
  • Initial-letter Task
  • Attribute Task
  • Rhyming Task
  • Feature Task
◗ General Findings
  • Older children better than younger
  • Girls perform better than boys
  • Systematic strategy use led to better performance

Summary

◗ Children acquire strategies that aid in vocabulary development, verbal comprehension and verbal fluency.
◗ As strategies become more systematic, performance improves.

Semantics - Acquiring Meaning

◗ Componential Theory of Meaning
- Concepts are made up of defining characteristics
- All the defining characteristics are necessary and sufficient for defining the concept.
  - Example: Husband - adult, male, married

◗ Problems
- Lack of defining features
  - What are the defining features of "game"
- Violations of defining features acceptable.
  - Cat without fur, bird that can't fly, etc
- Some category members "better" than others
  - Typicality ratings vary for different members

◗ Prototype Theory
- Meaning based on characteristic features
- Characteristic features common, not necessary.
- Family resemblance - number of characteristic features an item has indicates its typicality.
- Exemplars: Multiple prototypes

◗ Two types of Concepts
  • Classical: Artificial or man-made: Can have a set of defining features (e.g., odd numbers)
  • Natural (Fuzzy): Lack a set of defining features. Better described by prototypes, typicality.

A Synthesis: Componential and Prototype Theories

◗ Concepts have both core (defining, must have) and prototype (typical but not necessary) features
◗ Acquisition of concepts move from reliance on prototypical features to defining features.

Talking in Sentences

◗ Three types of rules of Grammar
  • Syntactic - rule order and inflection
  • Semantic - meaning of sentences
  • Phonological - sound structure of sentences

Grammar: Using language in acceptable ways

◗ Syntax
- Rule-based way to combine words to form meaningful phrases or sentences.
  - The girls hits the boys.
  - Did hit the girl the boys?
  - The boys were hit the girl.

◗ Which are violations of Syntactic Rules?
- The girls hits the boys.
- Did hit the girl the boys?
- The boy was hit by the girls.
- The girl hit a boys.
- The boy who was hit by the girl cried.
- The boys were hit the girl.

◗ Semantics - meaning of sentences.
- Example: Semantic violations but syntactically acceptable.
  - Colorless green ideas sleep furiously.
  - Sincerity frightened the cat.
  - The table chased the bland moral stiffly.

- Phonology - sound structure of sentences. Sentences can be syntactically and semanticallly correct but mispronounced.

Summary

- Language is productive and regular.
- Grammar is a system of rules that acounts for productivity and regularity of language.
- We often have an implicit understanding of the rules.
- We generate language in coherent phrase structures.

Language in a Social Context

- Pragmatics - study of how people use language
  - Speech Acts
    - Categories of Speech Acts
    - Indirect Speech Acts
  - Conversational Postulates

Speech Acts

◗ What can speech accomplish?
- Categories of Speech Acts
  - Representative - Statement of belief
  - Directive - Get listener to perform an act
  - Commissive - Committing to future action
  - Expressive - Reference to psychological state
  - Declarative - causes a new state of affairs

◗ Indirect Speech Acts
- Abilities
  - "Honey, is it the night to take out the garbage?"
- Desire
  - " I'd really love it if you took out the garbage"
- Future Action
  - "Would you take out the garbage?"
- Reasons
  - "The garbage needs to go out tonight."

Conversational Postulates

◗ Four Maxims of Conversation
- Quantity: Be as informative as needed.
- Quality: Truthfulness, say what you believe.
- Relation: Relevant
- Manner: Be clear

Gender and Language

- Content & Topics
  - Men: political views, accomplishments, etc
  - Women: feelings towards significant others, etc
- Personal Disclosure
- Goals
  - Men: Negotiate Status, Maintain independence,Avoid failure, inform
  - Women: Establish rapport, support & confirm, consensus-reaching, consult