Overview of Chapter 7

- The Power of Language
- Keys to the World of Language
- The Basic Domains of Language Acquisition
- Explanations of Language Acquisition
- Reconsidering the Keys to Language

Overview of This Week

- Language is a Code, on 4 different levels
- To crack the code of language, key questions must be asked
- Children’s answers to these questions show a common pattern

Four Levels of Language

(1) Sounds
(2) Words
(3) Sentences
(4) Utterances
video:
- illustrations of these levels of language
- introduction to Noam Chomsky

Four Levels of Language

(1) Sounds
(2) Words
(3) Sentences
(4) Utterances

1: Sounds (Phonetics)
- What are the basic units of sound?
2. Words (Semantics)
- What are the basic units of meaning?

Grammatical morphemes
- Units that create meaning by showing relations between other elements within sentence
  - -ing, -ed, -s, in, on, by

The Problem of Reference
How do children discover what words mean?

“Smotri sinochik! Tam sidit ptitsa.”

“How, son! There sits a ptitsa.”
The Problem of Reference

“Look, Sarah! That’s a gabagi!”

2. Words (Semantics)

Semantic Hierarchies

3. Sentences (grammar)

- How to speak grammatically?
Chomsky’s analysis of grammar

- “John is willing to please”
- “John is easy to please”
- “John is willing to please Bill”
- “John is easy to please Bill”
- The sentences have similar **surface structure**, but very different **deep structure**

**Grammar**: Rules of a given language for the sequencing of words in a sentence and the ordering of parts of words

**4. Uses of Language (Pragmatics)**
- How to do things with words?
Four Levels of Language

(1) Sounds
(2) Words
(3) Sentences
(4) Uses of Language

How the Child Answers These Questions

Cracking the Code of Language

video: an Overview of Language Acquisition

- symbolic play (representational play)
- sign language - language need not be oral
- one little girl's linguistic development
- talk around the dinner table
1: Sounds

- **Phonemes**: Basic sounds in a language
- **Newborn**: Shows preference for language over other kinds of sounds;
- Can distinguish the sound of their native language from those of a foreign language
- Can perceive the differences between the phonemes of all language
- **6 months**: will cease to differentiate sounds that are not relevant to their native language (Japanese: /l/ and /y/; Spanish: /b/ and /v/)

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**video: Vocal Games in Early Infancy**

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**Producing language sounds:**

- **2½ months**: cooing →
- **4 m**: babbling →
- **9 m**: jargoning → words by 1 year old

**2 y: simplifying phonological strategies**

- ‘baby talk’
- “panpapes!”

**6 y: still learning accent, stress**

- green house; greenhouse
**video: “Panpapes!”**

2: Words

- **Growth of vocabulary...**
  - 14 months: 10 words
  - 18 months: 50 words
  - 24 months: 300 words

- **Receptive vocabulary**
  - (i.e., words the child can understand but not speak) is much larger:
  - 14 months: 100 words

**Vocabulary Development**

![Graph showing vocabulary growth for Child 1, Child 2, and Child 3 over time.](image)
Genuine words appear around first birthday.
They are mostly nouns (closely linked to the actions the child accomplishes, or things that change and move).
By 24 months, nouns account for less than half of the child’s vocabulary.

2: Words

The Problem of Reference can be seen:
- **Overextensions**: Applying a verbal label too broadly (e.g., “Daddy” to all men)
- **Underextensions**: Applying the label too narrowly (e.g., “cat” only to the family’s cat)

### Typical Overextensions in the Speech of Young Children

<table>
<thead>
<tr>
<th>Child's Word</th>
<th>First Referent</th>
<th>Extensions</th>
<th>Possible Common Property</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dog</td>
<td>Dogs</td>
<td>Dogs, lambs, cats, wolves, cows</td>
<td>Four-legged animal</td>
</tr>
<tr>
<td>&quot;peca&quot;</td>
<td>Wound</td>
<td>Cuts, wounds, Scotch tape, spots on fabric, balloon</td>
<td>Uncertain, partially defect or injury of some kind</td>
</tr>
<tr>
<td>Kick</td>
<td>Kicking ball</td>
<td>Cartoon turtles doing cancan, pushing chest against mirror, watching a butterfly</td>
<td>Common movement pattern</td>
</tr>
<tr>
<td>&quot;flik&quot;</td>
<td>Handbag</td>
<td>Folders, nylon bags, plastic sacks, box, hat upside down, pockets</td>
<td>Containing object</td>
</tr>
</tbody>
</table>

(Source: Drahm, 1999)

- **Levels of abstraction**: Children between ages of 2 and 4 seem to label all sets of objects at the same intermediate level of generality…
Levels of Abstraction

The structure of vocabulary

- For a young child, word meanings are dominated by the contexts of action in which the words have played a role.
- As the child acquires formal conceptual categories of language, the structure of word meanings changes accordingly.
- Assessed by “What kind of thing is a _____?”

3. Sentences

- What does the child have to be doing before we can study their sentences?

Two-Word Utterances

- This is a milestone at end of infancy (age 2 years):
  - “Want do,” “More sing,” “Water off,” “Mail come”
  - Children can vary the order of words to create different meanings (showing they have an understanding of grammar)
    - “Chase Daddy” vs. “Daddy chase”
  - Increasing complexity...
    - Measured in number of morphemes (units of meaning): MLU (mean length of utterance)
    - “Boys aren’t playing” = 3 words, but 6 morphemes (boy, s, are, not, play, ing)
Holophrases - words or sentences?

- **Single-word** utterances that stand for entire phrases or sentences (9m+)
  - "Up," "Bottle," "panpapes!"
- They are almost always accompanied by nonverbal elements (e.g., gestures, distinctive facial expressions)
  - Consequently, single word in conjunction with gestures and facial expressions is equivalent of a whole sentence

video: Syntax at 28m
Overgeneralization of Grammatical Rules

- Adults: “I fish” (present); “I fished” (past)
  - i.e. rule: add -ed to form past tense
  - but: “I run” and “I ran” - an exception
- Children show three stages:
  - “I ran”
  - “I runned”
  - “I ran”
- 3 steps:
  - learn each form individually
  - learn the rule (+ed) and generalize it
  - learn the exceptions to the rule

Grammatical morphemes: these indicate the child’s understanding of syntax
- they are acquired in a common order:
  - Present progressive (-ing) is first to appear
  - Followed by location, number, possession, past tense

Complex constructions between 2y and 6y
- Tag questions: Words added to the end of a sentence to turn it into a question → “You will come, won’t you?”
- Children acquire grammatical rules that even most adults can’t explain → evidence of high level of abstraction
- They come to understand grammatical differences that are due to deep structure differences
4: Uses of Language

Developments in Non-verbal Communication

- **3 months**: Match behavior to that of another person (primary intersubjectivity)
- **9 months**: Social referencing and pointing at an object (evidence of secondary intersubjectivity)
- **18 months**: Will not point unless caregiver is present

At what age are the first words?
Conversational acts

- “panpapes!”
- **Proto-imperatives (12m)**: Engage another person to achieve a desired objective (e.g., “More”)
- **Proto-declaratives (12m)**: Initiate/maintain dialogue with another person (e.g., point and “Doggie”; giving)
- 24m: indirect requests are understood
- 30m: indirect requests are produced

Uses of Language

- **Taking the listener into account**
  - 3½ years: Provide more information to someone who is blindfolded; use simpler language with younger child or a baby doll (but not a grown-up doll)
- **Use of metaphors (creative process)**
  - Beginning of metaphorical language coincides with the onset of symbolic play (e.g., yellow bat becomes an ear of “corn”)
  - In middle childhood, still have difficulty with metaphors that link physical terms to people (e.g., “That kid is a bulldozer”)

**video: Pragmatics at 30m**
## Progress of Language Development

<table>
<thead>
<tr>
<th>Age</th>
<th>Typical Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth</td>
<td>Phoneme perception; crying</td>
</tr>
<tr>
<td>3 months</td>
<td>Cooing</td>
</tr>
<tr>
<td>6 months</td>
<td>Babbling; lose discrim. non-native phonemes</td>
</tr>
<tr>
<td>9 months</td>
<td>First words; holophrases</td>
</tr>
<tr>
<td>12 months</td>
<td>Use of words to attract adults' attention</td>
</tr>
<tr>
<td>18 months</td>
<td>Vocabulary spurt; telegraphic speech (2-word)</td>
</tr>
<tr>
<td>24 months</td>
<td>Response to indirect request (&quot;Is door shut?&quot;)</td>
</tr>
<tr>
<td>30 months</td>
<td>Create indirect request; take listener account</td>
</tr>
<tr>
<td>Early</td>
<td>Increase grammatical complex. (overgeneral.)</td>
</tr>
<tr>
<td>Middle</td>
<td>Understand passive forms; acquire written</td>
</tr>
<tr>
<td>Adolescence</td>
<td>Acquire specialized language functions</td>
</tr>
</tbody>
</table>

## Explanations of Language Acquisition

**Learning-Theory Explanation**
- **Major causal factor**
  - Environment (nurture)
- **Mechanisms**
  - Conditioning: Classical (sum of all experiences) & operant (parental enthusiasm over closer approximations to correct sound of the word)
  - Imitation: Abstract modeling (Bandura) for grammar
- **Major phenomenon explained**
  - Word meaning
Nativist Explanation

- **Major causal factor**
  - Heredity (nature): Innate ability (Chomsky)

- **Mechanism**
  - Triggering: via Language Acquisition Device (LAD) programmed to recognize the *deep structures* that underlie any particular language that the child may hear

- **Major phenomenon explained**
  - Syntax

Interactionist Explanation

- **Major causal factor**
  - Cognitive hypothesis (derived from Piaget’s constructivism): Interaction of social and biological factors
  - Cultural-context approach (based on Bruner’s formats – peekaboo & routines): Cultural mediation of social-biological interaction

- **Mechanisms**
  - Cognitive hypothesis: Assimilation-accommodation
  - Cultural-context approach: Cultural scripts – Language Acquisition Support System (LASS)

- **Major phenomenon explained**
  - Language-thought relationships

Requirements for Language

1. **Biologically programmed** sensitivity to language present at birth, which develops as the child matures (Nativist view)
2. Ability to learn from and imitate the language of others (Environmental-learning view)
3. **Acquisition of basic cognitive capacities** – schemas for actions with objects, ability to represent the world mentally, presence of lexical principles (Interactionist view – Constructivist version)
4. Inclusion of children in familiar routines in which language is one of many forms of interaction (Interactionist view – Cultural-context version)

Relation of Language & Thought
Vygotsky: Language becomes an intellectual function, while thinking becomes verbal.

Outline a chapter, in either 'mind-map' format or 'indented' format. (Double credit possible)

One-page paper

- Outline a chapter, in either 'mind-map' format or 'indented' format. (Double credit possible)
Next week’s exam

- Thirty multiple-choice questions
- You will complete it individually
- Then get into small groups (your choice of members), and complete it again
- If the group score is higher than the highest individual score, everyone in the group gets a bonus equal to this difference
- E.g., group score 29, individual scores 23, 25, 27, 27. Bonus = 2