Re. the previous lecture

- Sorry about keeping you late!
- Andrew Meltzoff was the name I was trying to remember
  - Meltzoff's discovery, that newborns will stick out their tongues to imitate adults, demonstrated a connection between self and other from the moment of birth. "We're a role model for babies from the moment they look up at us and begin to sculpt their own activities according to what they see in the culture around them," Meltzoff says.
What characterizes a “fast” baby?

And so…what does IP research reveal?

- Relationship between information processing efficiency and cognitive abilities
  - Correlate moderately well with later measures of intelligence
  - More efficient information processing during the 6 months following birth is related to higher intelligence scores between 2 and 12 years of age and other measures of cognitive competence
Assessing the IP Approach

**PROS**
- Often uses more precise measures of cognitive ability
- Critical in providing information about infant cognition

**CONS**
- Precision makes it more difficult to get overall sense of cognitive development
From Research to Practice

Taking the Einstein Out of Baby Einstein

• Kaiser Family Foundation Report
  – Marketing of educational media for infants far outpaces research on its effectiveness
  – Correlational studies
  – Company reluctance to test claims

The study's authors, Drs. Frederick Zimmerman, Dimitri Christakis, and Andrew Meltzoff, concluded that, among infants aged 8 to 16 months, exposure to "baby DVDs/videos" — such as Baby Einstein and Brainy Baby — was strongly associated with lower scores on a standard language development test. This result was specific to baby-oriented educational videos and did not hold for other types of media, and was not related to shared parental viewing.

– Among toddlers aged 17 to 24 months, the study found no significant effects, either negative or positive, for any of the forms of media that were viewed.
– Daily reading and storytelling, however, were found to be associated with somewhat higher language scores, especially for toddlers
– They said it's possible heavy watching of the videos hurt children's language development but also proposed other possibilities — that some parents of children with poor language skills expose them to more videos or that some parents leave their children watching the videos by themselves.
Beyond (or creating) Teletubbies!

What does the research reveal?

- Effect on language learning
  - Infants do not learn language from rote repetition; social interaction and context are needed

THE ROOTS OF LANGUAGE
From Sounds to Symbols

Fundamentals of Language

- Phonetics
- Phonology
- Syntax
- Semantics
- Comprehension and production

Another Look – Comprehension Precedes Production

Uses first pronouns, phrases, sentences
Uses two words in combination
Says five words or more
Says first word
Two syllables with repetitions of first: "ma-ma," "da-da"
Clear vocalization of several syllables
Bubbling
Cooing
One syllable

Understands two prepositions: "on," "under"
Repeats things said
Names a picture in a book: "dog"
Understands a simple question
Understands a prohibition
Responds to simple commands
Understands gestures and responds to "bye-bye"
Discriminates between friendly and angry talking
Visualizes to assist stimulation
Responds and attends to speaking voice

(Source: Adapted from "Infant Language," 1982)
Early Sounds and Communication
Prelinguistic Communication

- Babbling
  - Universal
  - Repetition of sounds

See what I say…

Infants with hearing impairments
- Babble with hands instead of voices
- Gestural and verbal babbling activate same neural centers
Baby Sign

- “Symbolic gestures” (or "Baby Signs," as they are known more colloquially)
  - can function as words for infants, opening up another channel of communication with those around them
  - In 1996 this research culminated in a book for parents, by Linda Acredolo & Susan Goodwyn, entitled *Baby Signs: How to Talk With Your Baby Before Your Baby Can Talk*

What comes after “ba-ba-ba-ba”?

Progression from Simple to Complex

- Exposure to speech sounds of particular language initially do not influence babbling
  - At 6 months babbling reflects of language of culture
  - Distinguishable from other language babbling

- Combinations of sounds and gestures used to communicate
First Words

- Increase at rapid rate
  - 10 to 14 months = first word
  - 15 months = 10 words
  - 18 months = one-word stage ends
  - 16 to 24 months = language explosion equally
    50 to 400 words

First Sentences

- First sentences created around 8 to 12 months
  after first words
- Indicate understanding of labels and
  relationships between these
- Often observations rather than demands
- Use order similar to adult speech with missing
  words
  - Telegraphic speech
Telegraphic Speech Revealed

Table 2-8 CHILDREN’S IMITATION OF SENTENCES SHOWING DECLINE OF TELEGRAPHIC SPEECH

<table>
<thead>
<tr>
<th></th>
<th>Eve, 26.5 Months</th>
<th>Adam, 28.5 Months</th>
<th>Heike, 30 Months</th>
<th>Ian, 31.5 Months</th>
<th>Jeremy, 32 Months</th>
<th>June, 35.5 Months</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am very tall.</td>
<td>(My) tall.</td>
<td>I very tall.</td>
<td>I'm very tall.</td>
<td>Very tall.</td>
<td>I very tall.</td>
<td></td>
</tr>
<tr>
<td>It goes in a big box.</td>
<td>Big box.</td>
<td>Big box.</td>
<td>It goes in the box.</td>
<td>C</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>I can see a cow.</td>
<td>See cow.</td>
<td>I want see cow.</td>
<td>Cow.</td>
<td>C</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>I will not do that again.</td>
<td>Do-again.</td>
<td>I will that again.</td>
<td>I do that.</td>
<td>I again.</td>
<td>C</td>
<td></td>
</tr>
</tbody>
</table>

Correct imitation.

(Source: Adapted from R. Brown & C. Fraser, 1963.)

Other Early Language Characteristics

- Underextensions
- Overextensions
Origins of Language Development

**Learning Theory Approaches:**

*Language as a Learned Skill*

- Language acquisition follows the basic laws of reinforcement and conditioning
- Through the process of *shaping*, language becomes more and more similar to adult speech

Counter-Arguments to Learning Theory Approach

- Does not adequately explain how children readily learn rules of language
- Does not account for how children move beyond specific heard utterances to produce novel phrases, sentences and constructions
- Does not explain how young children can apply linguistic rules to nonsense words
Origins of Language Development

Nativist Approaches:
Language as an Innate Skill

- Genetically determined, innate mechanism that directs the development of language
- Children are born with innate capacity to use language, which emerges, more or less automatically, due to maturation.
  - Chomsky’s universal grammar and LAD

Assessing Chomsky’s Approach

PRO
- Specific gene related to speech production identified
- Language processing in infant brain structures similar to those in adult speech processing

CON
- Uniqueness of speech countered by primate researchers
- Even with genetic priming, language use still requires significant social experience to be used effectively
Origins of Language Development

Interactionist Approaches:

Language as a Social Device

- Specific course of language development is determined by the language to which children are exposed and reinforcement they receive for using language in particular ways
- Social factors are key to development

Chapter 2: Infancy

Module 2.3
Social and Personality Development in Infancy
Looking Ahead

- Do infants experience emotions?
- What sort of mental lives do infants have?
- What is attachment in infancy and how does it affect a person’s future social competence?
- What roles do other people play in infants’ social development?
- What individual differences distinguish one infant from another?
- How does non-parental child care impact infants?

DEVELOPING THE ROOTS OF SOCIABILITY
Who IS that strange person, anyway?

- Stranger anxiety
  - Memory develops → ability to recognize familiar people emerges → ability to anticipate and predict events increases → appearance of unknown person causes fear
  - Common around 6 months
  - Significant difference among infants and situations

Separation Anxiety

- Distress displayed by infants when a customary care provider departs

![Graph showing percentage of children who cried following departure of mother.](source)
Separation Anxiety

- Universal across cultures
- Begins about 7-8 months; peaks around 14 months
- Largely attributable to same reasons as stranger anxiety

Smiling

- Earliest smiles: little meaning
- 6 to 9 weeks:
  - Begin reliable smiling
  - Smile first relatively indiscriminate then selective
- 18 months:
  - Social smiling more frequent toward humans than nonhuman objects
- End of 2nd year:
  - Use smiling purposefully
  - Show sensitivity to emotional expressions of others
Decoding Others’ Facial and Vocal Expressions

- Imitative abilities early in life may pave way for nonverbal decoding
- Infants interpret others’ facial and vocal expressions that carry meaning
  - In first 6 to 8 weeks
  - By 4 months

If you’re happy and she knows it…

- Social referencing
  - First occurs around 8-9 months
  - Intentional search for cues
  - Aids in understanding others’ behavior in context
Do infants really know who they are?

Development of Self-Awareness

- Roots of self-awareness
  - Begin to grow around 12 months
  - Influenced by cultural upbringing
- Research
  - Rouge spot
    - Average awareness begins 17 to 24 months
  - Complicated tasks requests
    - Awareness of inabilities around 23-24 months
Just Think About That!

- Theory of mind
  - Knowledge and beliefs how mind works and influences behavior
  - Child explanations used to explain how others think

How does a theory of mind develop?

- See other people as compliant agents
- Begin to understand causality and intentionality
- Demonstrate rudiments of empathy
- Begin to use deception to fool others
FORMING RELATIONSHIPS

Understanding Attachment

- Earliest animal research suggests attachment based on biologically determined factors
  - Lorenz → imprinted goslings
  - Harlow → contact-seeking monkeys
  http://www.youtube.com/watch?v=fLrBrk9DXVk
Understanding Attachment

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