Announcements

Quiz 2 results: Good! Avg: 9.8 out of 11
Homework 2 due today
Homework 3 assigned today, due next Tuesday (4/29/08)
Quiz 3 on Thursday (4/24/08)
In-class assignment today
Note for people who have added the class late: missing HWs and quizzes? (See me/Email me)

In-Class Assignment

Contributing to linguistic research: adult knowledge state (Tayopa)
The Child Word Learner

Perceptual system plays a significant role: perceptual units change throughout word learning— the more specific information the child has about the phonemes of the language, the more learning of words is facilitated.

Important ability: "bootstrapping" = using existing knowledge to facilitate acquisition

(use existing perceptual knowledge to learn words)

Timeline of Word Form Learning

Discrimination of novel word forms

Phonetic sensitivity at 8-9 months
Stager & Werker 1997: biv/dih
Jusczyk & Aslin 1995: cup/tup

Emotional affect distinguishes words at 9 months
Singh et al. 2004: cup (happy) vs. cup (normal)

Speaker identity distinguishes words at 9 months
Houston & Jusczyk 2003: cup (speaker 1) vs. cup (speaker 2)

Timeline of Word Form Learning

10-12 months: Use of phonetic information to distinguish words depends on perceptual salience

Task is easier when critical phonemic detail is emphasized (stress)
Vihman et al 2004:

Dinner vs. Didder  
Dinner vs. Ninner
Timeline of Word Form Learning

Discrimination of novel word forms

10-12 months: Use of phonetic information to distinguish words depends on perceptual salience

Task is easier when critical phonemic detail is emphasized (stress)

Halle & de Boysson-Bardies 1996:

- bonJOUR vs. ponJOUR ×
- bonJOUR vs. ponGOUR √

Timeline of Word Form Learning

Discrimination of novel word forms

10-12 months: Use of phonetic information to distinguish words depends on perceptual salience

Task is easier when critical phonemic detail is emphasized (word-initial)

Swingley 2005:

- paart (horse) vs. paarp ×
- paart (horse) vs. daart √

Timeline of Word Form Learning

Word-object pairings

14 months: Can learn novel pairings, but not if phonetically similar (Stager & Werker 1997) unless the task is made easier

Fennell & Werker 2003: word forms are familiar

- ball vs. doll √

Ballem & Plunkett 2005: preferential looking task (instead of switch task)

- tuk vs. duk √
Timeline of Word Form Learning

Word-object pairings

17 months: Can learn novel pairings, even if phonetically similar and task is not made easier

Pater et al. 2004: pin vs. din ✓
Werker et al. 2002: bih vs. dih ✓

Children’s Brains

Another look at children’s knowledge

Neurological Data: Brain Activity at 14 months

N400 effect in adults: An event-related potential (ERP) component typically elicited by unexpected linguistic stimuli

I like my coffee with cream and…

![Graph showing N400 effect with labels sugar and goblins]
Another look at children’s knowledge

Neurological Data: Brain Activity at 14 months

N400-like effect in 14 month olds when hearing an incongruous (mispronounced) familiar word paired with a familiar picture (Friedrich & Friederici 2005)

Familiar word: “cup”
Incongruous word: “tup”

The child’s brain responds as if the child has detailed phonetic information stored about familiar words.

N200-N400 effect in adults: An event-related potential (ERP) component typically elicited by word recognition
Another look at children’s knowledge

Neurological Data: Brain Activity at 14 months

Mills et al. 2004: auditory presentation of word (no picture)


cup
tup

14 months: brains respond as if they don’t notice the difference in phonetic detail (cup = tup response)
Another look at children’s knowledge

Neurological Data: Brain Activity at 14 months

Mills et al. 2004: auditory presentation of word

20 months: brains respond as if they do notice the difference in phonetic detail (cup ≠ tup response)

Another look at children’s knowledge

Neurological Data: Brain Activity at 14 months - why the difference?

N400-like effect when hearing an incongruous (mispronounced) familiar word paired with a familiar picture
(Friedrich & Friederici 2005)

No noticeable distinction between correct and mispronounced familiar words with auditory presentation of word alone
(Mills et al. 2004)

Speculation: Difference because recognizing the word form alone without link to real world object (meaning) is harder?

Question: Do infants need the whole word to recognize it, or can they recognize it from partial information?

Whole word: “baby”
Partial information: “ba...”

Adults can do this (incremental processing of a word).

We can test when children can do this by seeing if infants can recognize a word (and its meaning/referent in the world) before they hear the whole word.
Swingley et al. 1999
Eyetracking with 2 year olds

"Where's the do…"

"Where's the dog?"

Looks to dog increase after crucial informative sound “g”
Incremental Processing of Word Forms
Swingley et al. 1999
Eyetracking with 2 year olds

"Where’s the do…"

Looks to dog increase as soon as initial part of word is recognized

Eyetracking with 2 year olds: with non-overlapping distractor (tree)
2 years olds process words as the sound information is available - they don't have to wait till the end of the word to recognize it. This is how adults process language, too.

Time course: 2 yrs until incremental processing

Evidence for incremental processing even at this age. Equally fast reaction times for whole word vs. part-word reaction.
Incremental Processing of Word Forms
Swingley et al. 1999
Eyetracking with 18 & 21 month olds
Evidence for incremental processing even at this age.

Time course: By 18 months old, children process words incrementally, just like adults.

Questions on Homework/Quizzes?