Early Language Development & Perception

Phonology & Bilingualism.
Segmentation & ID Speech
Semantics & Frequency.
Grammar & Recasting.

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Language Acquisition: Sebastien's Story

- At twelve months, Sebastien said his first word.
- Eight months later he was learning over nine new words a day and produced hundreds of words on a daily basis!
- He was stringing words together in ways that make sense!

The Challenge

- Finding clever ways to test infants, who may understand much more than they say.
- To explain how it is that we can learn a language at all.

Language: It's Easy, Right?

Sounds --> words --> sentences --> meaning

To a native speaker, language is reflexive, automatic…

In the words of Nike…

Just do it.

Language: It's Hard, Right?

Sounds --> words --> sentences --> meaning

To a **non-native** speaker, language goes against natural tendencies and is anything but reflexive, automatic…

In the words of Bonnie Raitt…

"a little mystery to figure out."

Learning a Language...

Phonology

Segmentation

Semantics

Grammar

Babies know a lot!

We now think that babies know phonology, segmentation, semantics, & even grammar before age 2

"So how come it took you so long to figure out how brilliant I am?"

Because we lacked methodologies to allow us to "get into" babies' heads!

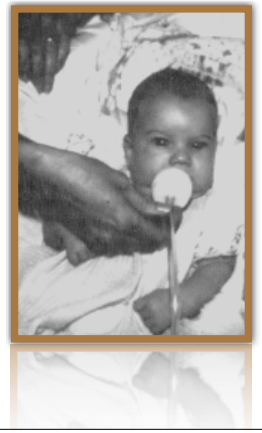
Several methods have made all the difference in what we know about babies' linguistic capabilities under age two:

- **The sucking paradigm**
- **The headturn preference procedure**
- **The preferential looking paradigm**

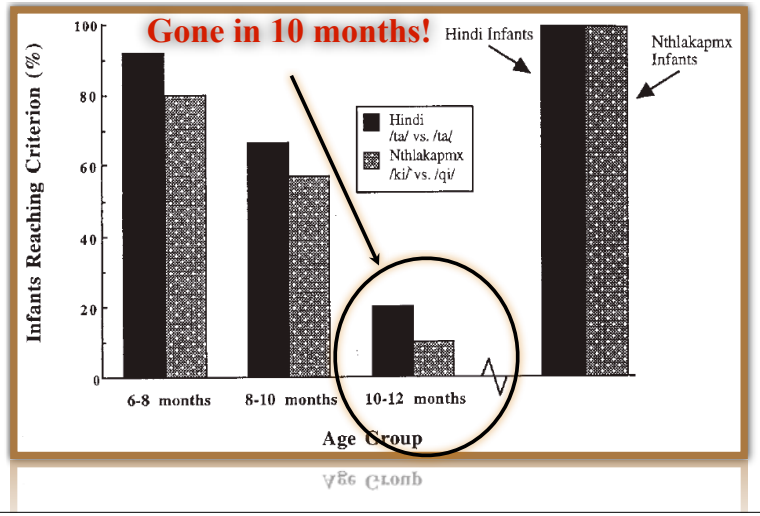
Today, I will show how these procedures help us to know what infants know

What do infants know about Phonology?

- They suck!
- Literally!
- Ba, ba, ba, ba,… PA!
- Or Ba, ba ba, ba,… Ba!
- Even newborn get the diff!
- They can even hear phonemes they will never use!



Infants hear sounds we can't!



NEWSFLASH: Early exposure is better!

- Children exposed to a foreign language when young,
  - learn it better!
  - have no accent!
  - learn two languages as fast as one!

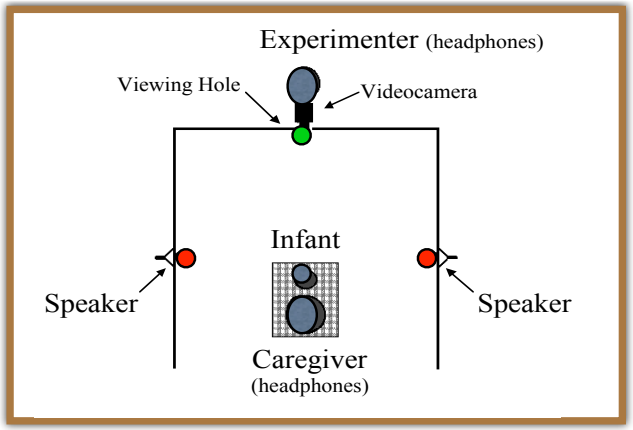
Helping Phonology

- Nursery Rhymes
- Alliteration
- Exposure to foreign language

What do infants know about Segmentation?

- Another of the phonological tasks faced by an infant is to discover the words in the speech stream.
- Speech is not punctuated with spaces, commas, or periods.
- Less than 7% of the speech directed at infants consists of isolated words.

Headturn Preference Procedure

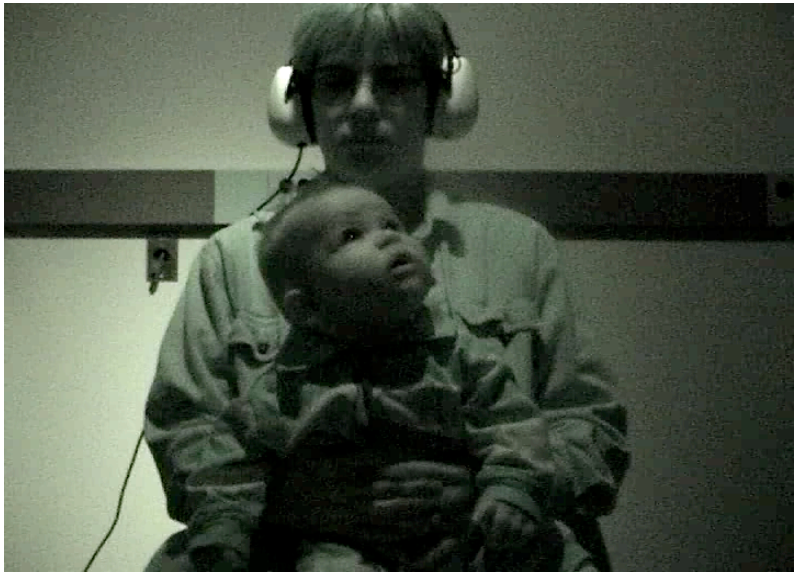


Sample Passage.

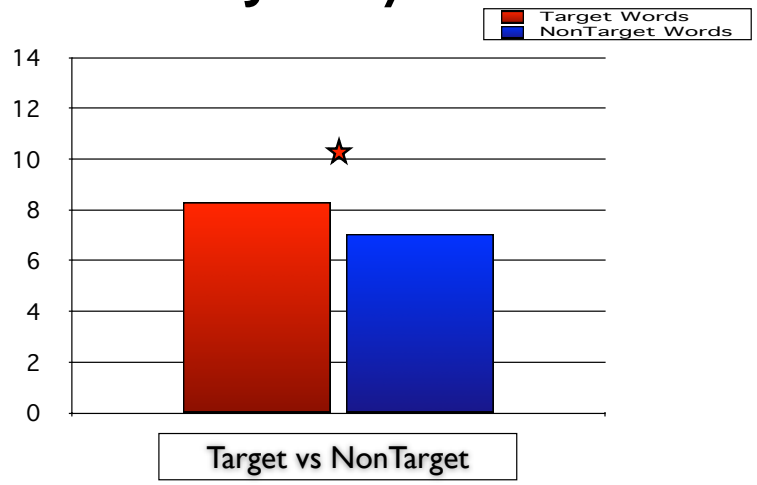
Feet

The **feet** were all different sizes. This girl has very big **feet**. Even the toes on her **feet** are large. The shoes gave the man red **feet**. His **feet** get sore from standing all day. The doctor wants your **feet** to be clean.

Can infants pull the word **feet** from this passage?



Results: Jusczyk & Aslin



Infant-Directed Speech

- We talk funny to infants.
- Infant find this utterly fasinatig, and...
- Infant-directed speech helps children segment. (Theissen, Hill, & Saffran, 2005).

Sensory Integration
Intersensory Redundancy

Helping Segmentation

- Use Stress cues by speaking clearly and using Infant-Directed Speech.
- Use Intersensory Redundancy & Motionese

Emma's First Word

- What's wrong with this "word"?
- How would we know a "real" word?
- How could we tell if Emma really understood before she spoke?

Preferential Looking Tincoff & Jusczyk, 1999

"Where's Mommy?"

6-month-olds looked longer at mommy when asked for mommy and longer at daddy when asked for daddy.

Although most children's first words aren't until 12-months.

How do children learn words?

Frequency

Social Cues

Learned Heuristics

Frequency!

"OF COURSE HE SAID 'ARF'... WHAT DID YOU EXPECT HIS FIRST WORD TO BE?"

If a child sees…

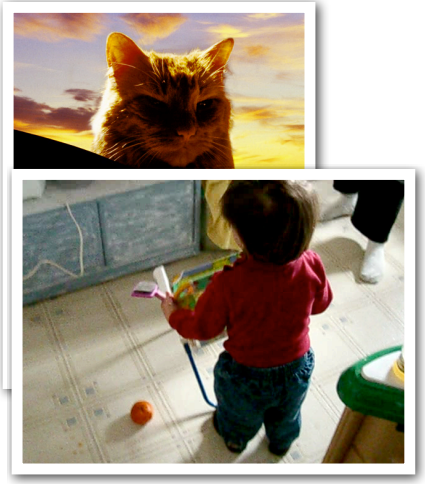
"kitty"

"kitty"

"kitty"

"kitty"

What do they make of this?



Children could

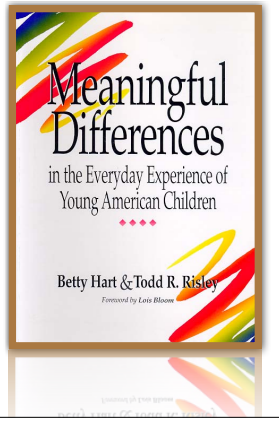
- *Overgeneralize*
  - Call a orange an apple.
- *Undergeneralize.*
  - Fail to call Garfield a Cat.
- Frequency gives them time and opportunity to figure this out.

What difference does Frequency make?

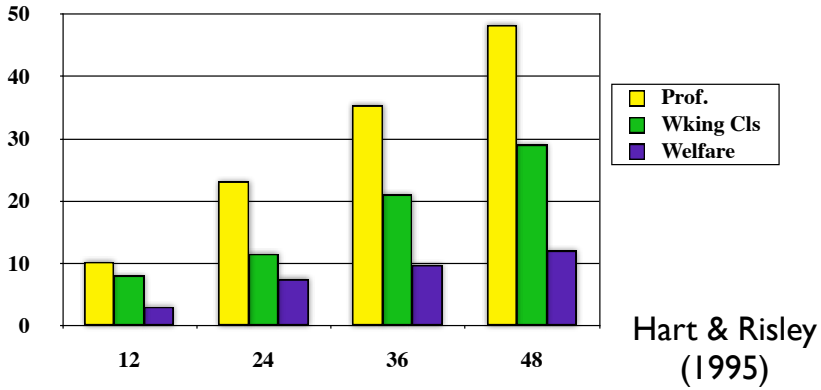
Hearing the same word used in many different contexts helps infant learn what words "really" mean.

more words = more opportunity to learn.

Children's environments differ dramatically on how much language they hear.



A 40 million word difference!



Hart & Risley (1995)

What difference does it make?

Average IQ at age 3?
Professional - 117
Working Class - 107
Welfare - 79

Recorded vocabulary size?
Professional - 1,116
Working Class - 749
Welfare - 525

Regardless of SES, greater speech in the environment was strongly correlated with vocabulary size.

Social cues ARE important

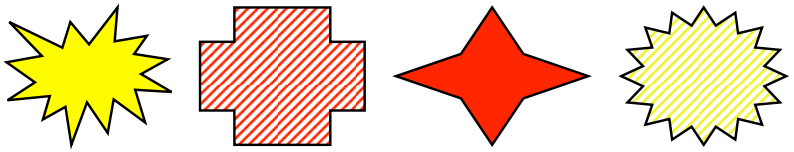
- Children of deaf parents do not learn spoken language by watching TV.
- The more difficulty infants have following eye gaze (aka Autism), the harder it is to learn a spoken language.
- Tomasello finds that infants only learn a word if speaker intended to label it.

Constraints on Meaning

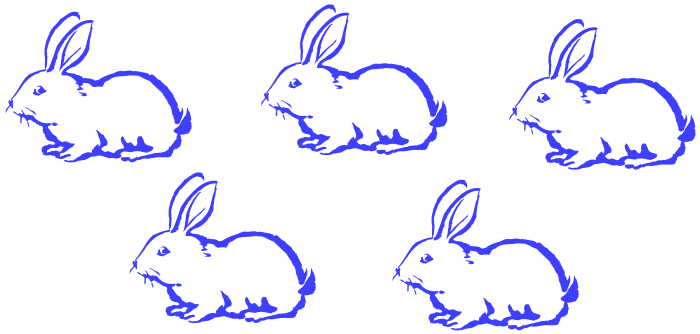
- Children develop heuristics (rules) to guess what new words might mean.
- Words generally label **objects** and their **shape**, not color (**whole object** and **shape biases**).
- ***New*** words label ***new*** objects (**mutual exclusivity**).
- ***Proper Names*** label one thing.
- Nouns label nouns, verbs/verbs, etc.

If this is Blick**ing**?

Which is also Blick?



Grammatical Morphology



"These are blickets OR "These are blickish

Helping Word Learning

- Talk to them alot!
- Get their eye gaze.
- Use every cue available!

Consider Signing

Acredolo and Goodwyn (2000) found signing babies

- understood more words
- had larger vocabularies
- more sophisticated play
- decreased frustration,
- increased communication
- enriched parent-infant bonding
- and increased interest in books
- still controversial

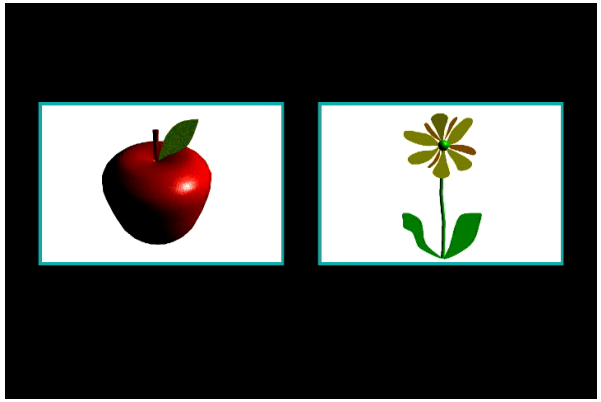
The final challenge

- Learning grammar!
- Ultimately kids have to learn how to talk and combine words to express meaning.
- This is the big one, and has been the source of enormous debate!

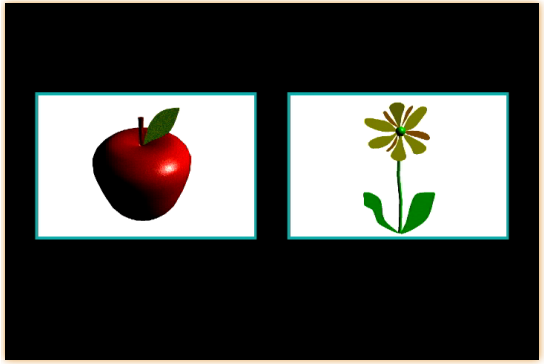
Maybe grammar is built-in.

- Like a heart or a lung… or an Elephant's trunk:
- A specific adaptation to the problem of survival.

"Blah, blah, blah... apple?



Familiarization

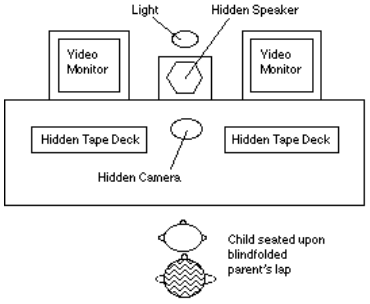


The answer is not in the question!

Subject-question: **"What hit the flower?"**

Object-question: **"What did the apple hit?"**

Hirsh-Pasek & Golinkoff



See Cookie monster and big bird bending?
See Cookie monster bending big bird?

So infants understand some grammar even before they talk