



Today

- Video on Kuhl effect
- How do children acquire language?
- Innateness
- Critical period
- Stages of acquisition
 - Order
 - Characteristics



Language acquisition

- How do children learn language?



Imitation?

Observation: Children of French-speaking parents speak French

Conclusion: Children must learn language by imitating their parents

BUT...



Sometimes language is not imitated

□ Children say things parents never say

■ Phonological: [fɪs] ‘fish’, [gɑgi] ‘doggie’

■ Morphological: *goed*, *runned*, *mouses*

■ Syntactic: “I am cute, *amn’t* I?”

= **Overgeneralizations:** when learned rules are applied incorrectly (via hypothesis testing) to irregular forms

(clip from Human Language: “childerror”)



Teaching/reinforcement?

- Maybe children are *taught* rules that are reinforced when applied correctly, and are corrected when applied in error

BUT...



Sometimes language is not taught

- We know many rules of language that we were not taught



Phonological rules

□ Past tense of:

- walk
- jog
- lift

→ Add [-t], [-d], or [-əd]

□ Plural of:

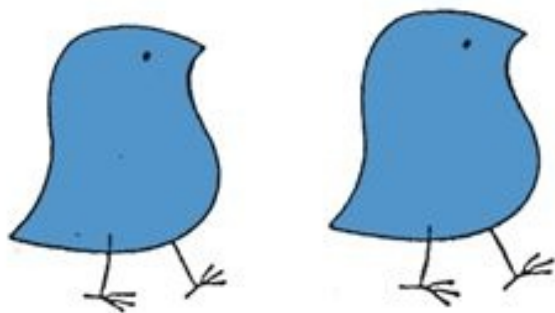
- cat
- dog
- fish

→ Add [-s], [-z], or [-əz]

The Wug Test



This is a wug.



Now there is another one.
There are two of them.
There are two —.



Morphological rules

- Expletive infixation:
 - Insert expletive (e.g., ‘bloody’, ‘freakin’, ‘f*ckin’...) into a word for emphasis

e.g., fan-*bloody*-tastic
abso-*freakin'*-lutely
guaran-*dam**-tee
ri-*goshdarn*-diculous

→ Oklahoma, California, Texas? Iowa?



Sometimes language can't be taught

Child: Nobody don't like me.


Adult: No, say "Nobody likes me."

Child: Nobody don't like me.

(dialogue repeated eight times)

Adult: Now, listen carefully. Say, "Nobody likes me."

Child: Oh, nobody don't *likes* me.

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- (Watch Human Language clip: “acquisition”)



How do we acquire language?

The Problem:

- Rules of grammar are unconscious
- Language learning process is unconscious



Solution: Innateness

- Humans are *genetically predisposed* to acquire language
- Humans draw upon innate knowledge when learning language
- Such innate knowledge is known as **Universal Grammar**



Evidence for innateness

□ **Critical Period**

- Eric Lenneberg (1960s)
- There is a critical period of time (from birth until about puberty) when language must be acquired; after this period, normal language acquisition cannot take place



Support for critical period

- **Brain plasticity:** children, but not adults, can recover from severe left hemisphere damage
 - Younger children recover more completely than older children



Support for critical period

- ‘Wild Children’ = feral children
 - Children with little or no exposure to language due to unfortunate circumstances

Genie



- Discovered in 1970, 13½ yrs. old
- She was never spoken to or allowed to speak
- After intervention, began to learn language, though slowly
- But she never learned language normally (level of 2½ yr. old)



'Wild children'

- Isabelle (1937)
 - Deaf mother
 - Isolated from language until age 6
 - Within 2 years, learned language normally

e.g., 'Why does the paste come out if one upsets the jar?'



'Wild children'

□ Chelsea

- Born deaf, misdiagnosed as retarded
- Fitted with hearing aids at age 31
- After 9 yrs., had syntax of 2 ½ yr. old

e.g., 'The small a the hat.'

'I Wanda be drive come.'

'Breakfast eating girl.'





Innateness

- Language acquisition is a biologically-controlled behavior
 - Has a critical period for acquisition
 - Has a regular sequence of ‘milestones’ during development



Stages of acquisition

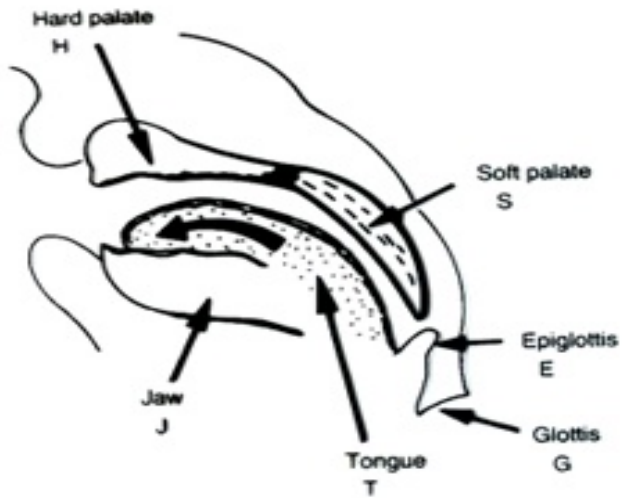
- All (normal) children go through same stages of acquisition in same order
- Age at which they reach stage and rate of progression through the stages can vary greatly



Stages of acquisition

- **Crying** (0-1 month)
 - cries, burps, grunts
- **Cooing** (2-3 months)
 - vowel-like, *coo/goo*, gurgling
- **Vocal play** (3-6 months)
 - raspberries, squeals, yells

<http://www.vocaldevelopment.com/>



Baby's vocal tract



Adult vocal tract



Babbling

- Babbling (6-12 months):
 - CV monosyllables: (e.g., *ma, pa, da, di*)
 - Canonical babbling: repeated CVCV... (e.g., *mamama, papapa, dididi*)
 - Variiegated babbling: different CV syllables (e.g., *badigu, potaki, tamami*)
 - Jargon babbling: meaningless word-like units w/ intonation

<http://www.vocaldevelopment.com/>



Functions of babbling

- Provides motor practice
- Stimulates adult-infant interactions



Is babbling linguistic or biological?

- All babies babble same sounds up to 6-10 mos., then focus on native sounds
- Hearing children of deaf parents babble
- Deaf babies orally babble until ~6 mos., then only 'babble' with hands



babbling



smiling



non-babbling

<http://www.sciencemag.org/cgi/content/full/297/5586/1515/DC1>

- Babies open their mouths...
 - wider on right than on left when *babbling*
 - wider on left than on right when *smiling*
 - equally on both sides when making other sounds



One-word stage

- 1 - 1 ½ years:
 - Lexicon < 50 words (avg. ~ 15)
 - At first, words for people, objects and things (*mommy, doggie, bottle*)
 - Later, verbs and other useful words (*go, mine, no*), and **holophrases** (one-word phrases, e.g., *gimme, whassat, allgone*)
 - Simplified phonology (but rule-governed)



Two-word stage

- 1 ½ - 2 years:
 - Lexicon > 50 words
 - 2-word combinations indicate semantic rather than syntactic relations, e.g.,
 - Noun + verb (*baby sleep*)
 - Verb + object (*kick ball*)
 - Noun + preposition (*baby up*)
 - Possessor + possession (*Mommy book*)
 - No inflections



Telegraphic stage

- 2+ years:
 - Can combine *more than 2* words
 - Speech contains primarily *content* words w/ no *function* morphemes
 - Syntactically organized



Word inflections

- 2+ years:
 - Progressive *-ing* (*eating*)
 - Plural *-s* (*blankets*)
 - Possessive *-s* (*baby's bottle*)
 - 3rd person singular *-s* (*Daddy walks*)
 - Past tense (*Mommy walked*)
 - Negatives