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’, [gagi] ‘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

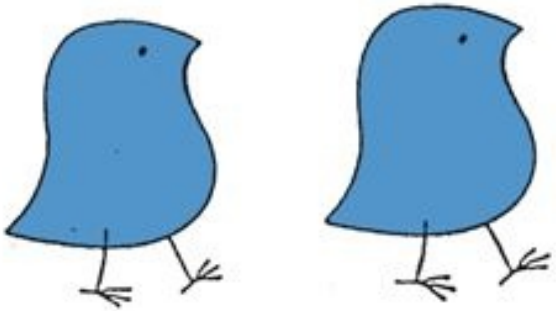
→ Add [-t], [-d], or [-əd]

- 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.

- (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

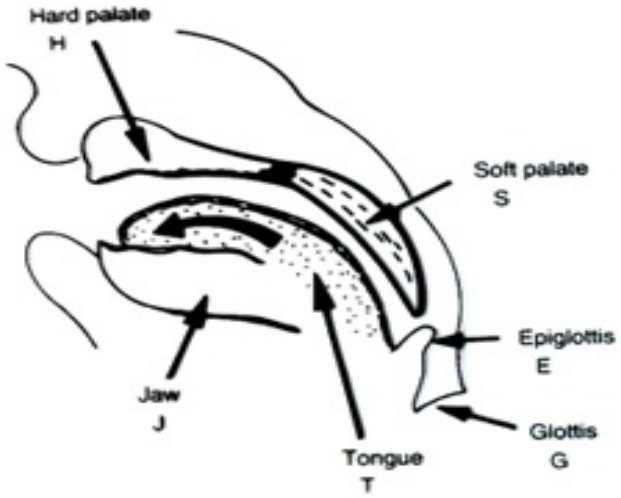
Stages of acquisition

- 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*)
  - *Variegated* 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