PSYC2500 – November 8/13
Elements of Language

3 dimensions of language:
- form,
- content,
- function

Form:
Phonology (aka sound structure)
- there are combinations in English that are allowable, others that are not
- phonology: referring to the smallest unit of sound that we can discern or discriminate (aka phoneme)
- in the English language, there are about 44 phonemes / sound units we can discriminate
- in an alphabetic language, a phoneme corresponds to a letter
- R and L are not valid as part of the sound system of Japanese (not adults, anyway; babies can when at 6 months, though at 12 months, no longer)

Morphology (combination of units of speech)
- parts of words and how we put parts of words together
- a morpheme is the smallest part of a word that has psychological meaning
- the word "cat" is a single morpheme; "cats" is two morphemes (S marks the plural)
- the addition of "ing" for something that's ongoing is another rule to demark a certain tense of a verb; "ing", "ed" are morphemes; "danced" by itself is a morpheme
- also an example: the word "possible" and saying "that's impossible" -- "possible" as one morpheme, and "impossible" as two morphemes -- "im" is an affix we can append to words to change their meaning
- **children more aware of the morphemes of their language seem to be better at other things, ie Chinese children good at recognizing morphemes seem to be better readers**
- morpheme develops as vocabulary develops

Syntax (rules to combine words w/in sentences)
- the rules of languages that tell us where to put qualifiers / subject of the verb
- in English, qualifiers go before the noun; in French, before the noun

*morphology & syntax are grammar

Content: semantics
- the meaning of words
- experience & environment & richness of both determine the richness of representations of what words mean

Function: pragmatics
- ex: turn-taking in the Western culture
- ex: if you change your voice/language when speaking to adults/babies/professors

Perceiving Speech:
- 6 month olds are universal language learners; by 12 months, this is lost, as children have been specialized in their own language
- babies start to piece together what is redundant (ex: what sounds are at the beginning of a word, what

sounds do not come at the beginning of the world)
- ex: the sound 'st' at the beginning of words
- but 'sd' is never used

Joint Attention:
- Meltzoff
- when the baby is looking at something, the parent will label something
- increasing the odds that the baby will map onto that thing what the parent intents; babies tend to pick up on nouns and verbs of sentences
- children notice the redundancy of speech

- when we interact w/infants, we change the way we speak; might emphasize the difference between words – **called "Parantese"**
- infant-directed speech is for infants; the use of "baba" for bottle might be appropriate for babies, prior to age 1, but after age 1, might want to use "bottle" because the child understands what "bottle" is

Milestones of Language
- oral language: babies start making vocal sounds by the second month
- from birth to 6 months, use vowel sounds (cooing)
- this is the first stage

Cooing:
- babies quickly learn turn-taking
- Piaget noted around 6 months of age, children can imitate (called mutual imitation); children continue doing the things they do; parents encourage language despite cooing back
- up to 6 months, children make vowel sounds

- from 6-12 months, called the consonants...
called babbling – combination of consonant and vowel sound
- initially repeat the same sound: ex -- "bababa"
- by 8 months of age, use **intonation**
    - vary the sounds they make, not only repeat syllables they make
- the first word occurs around 12 months of age
- babbling does not disappear w/the first word; it continues
- first word demonstrates that they understand that words are symbols that stand for something

What accounts for the naming explosion?
- children don't know all the words that they name
- they're learning lots of new words for new things they did not know before
- researchers have spent a lot of time thinking of how best to explain the naming explosion
- by 2-3 yrs of age, the average child should be able to speak 900 words
- at 2-3 years, able to **use telegraphic speech: 2-word combinations, like "more milk"**
- the older you get, the longer your telegraphic speech will get
- **in the span of 5 years, the child will have essentially mastered the form of the language**
- in terms of phonology, for a 3-year-old, there are certain sounds that are more difficult to make
- at age 3, in the English language, the sound of the letter R is very difficult to make. 90% of 3-year-olds will say it incorrectly (using W)
- quickly disappears, but for some children, it's more than 1 sound they will have trouble making
- 3-y/os will misarticulate most often

- also will seem to stutter; to get going, will repeat words (not actually stuttering)
- by 6, misarticulation drops to about 3%
- **see a rapid mastery of the language**

Learning the Meanings of Words
- words as symbols: babies understand that nonverbally, babies can be taught words like "eat"; gestures as meaning
- fast mapping: children using context to map onto a word the label that they heard and doing so accurately
- "fast mapping is a hypothesized process by which a new concept is learned based on only a single exposure to a given unit of information"
- but babies will overgeneralize
Individual differences – some babies at 22 months have not yet experienced their verbal spurt yet, and this is okay
- the milestones are cross-cultural; babies picking up language at relatively same age universally

How do children acquire grammar?
- if you have a plural word, add an S
- if talking about the past, typically add 'ed'
- if ongoing, add 'ing'
- in the 50s, Skinner, the behaviourist, said that grammar and all of language is learned thru imitation
- **learning from the outside in, Skinner said**
- nonbehaviourists' rebuttal: **children create new sentences all the time; so cannot be imitation**

Chomsky – said we have a neuro predisposition to learn grammar; the grammatical rules
- inherited as a result of evolution; hardwired to pick up cues from environment that helps us learn language
- education cannot fully account for children's language acquisition
- hardwired feature of the human cortex; how our brain works

Broca's area: for spoken language; area of the brain that is most activated when we speak
- located just beside the motor cortex
- the area closest to Broca's area = the area of the motor cortex responsible for movement of our tongues, lips, mouths

Areas of the brain specialized for language:
- do those areas of the brain become specialized due to experience, or are they in a way hardwired?
- seems to be expecting experience; if we don't get it, we might not learn as much
- after 12, your mastery of grammar will never match that of a 6-year-old; **the critical period for learning grammar is between 6-12**
- all contingent on the amount of exposure you get, effort you put into learning a 2nd language

With vision, there is a critical period; there is also one for language
- in favour of Chomsky's proposition

English grammar & French vocabulary – the correlation is weak/nonexistent
- means brain specializes into language structures; that specialization is language-specific
- Chomsky might take this as evidence that we're specializing our brain, but the brain is expecting language

- the specializing of the brain is true for all populations

Ex: "wug" stimuli – children are very good at extracting rules from their environments
- shown a bird labelled with the non-word, "wug"

The explanation that children use their existing cognitive processes to learn about grammar – they use context, use short term memory, phonological memories (cognitive processes separate from Chomsky's approach)

Using Language to Communicate
- taking turns
- speaking effectively

Encouraging Language Development:
- talk with children
- shared book reading: dialogic reading

- we know that there is huge variability in the language that is spoken to children; this variability varies w/risk factors
    - for ex: in poor families, there is much less language addressed to the children
    - those children will have more limited vocabularies than working class families & professional families
    - **Hart and Risley (language development)** study shows that by age 3, children from professional families had heard 30 million more words than children from children in the poorest echelons; working class families spoke less, but not to the same degree as the other gap

Preparedness: vocabularies one of the best predictors of reading comprehension
- we know teenage mothers speak less to their children (due to having lots else to do)

Hargrave & Senechal
- book reading intervention using dialogic reading
- found another childcare that catered to adults w/children who were also doing their high school
- pretested the children, found a 13-month delay for their age in oral vocabulary
- control daycare and dialogic daycare – one behind, one 'normal'; in both daycares, read books to the children, had circle time
    - provided books for the 2 daycares
    - in the centre for the teenage mothers, caregivers trained to engage in dialogic reading
    - in most cases, read the books w/very little interactions (the story and not engaging in dialogue w/children)
    - @ midpoint during the study, for 5 days/week, provided books and told the caregivers to read book 5 times each