

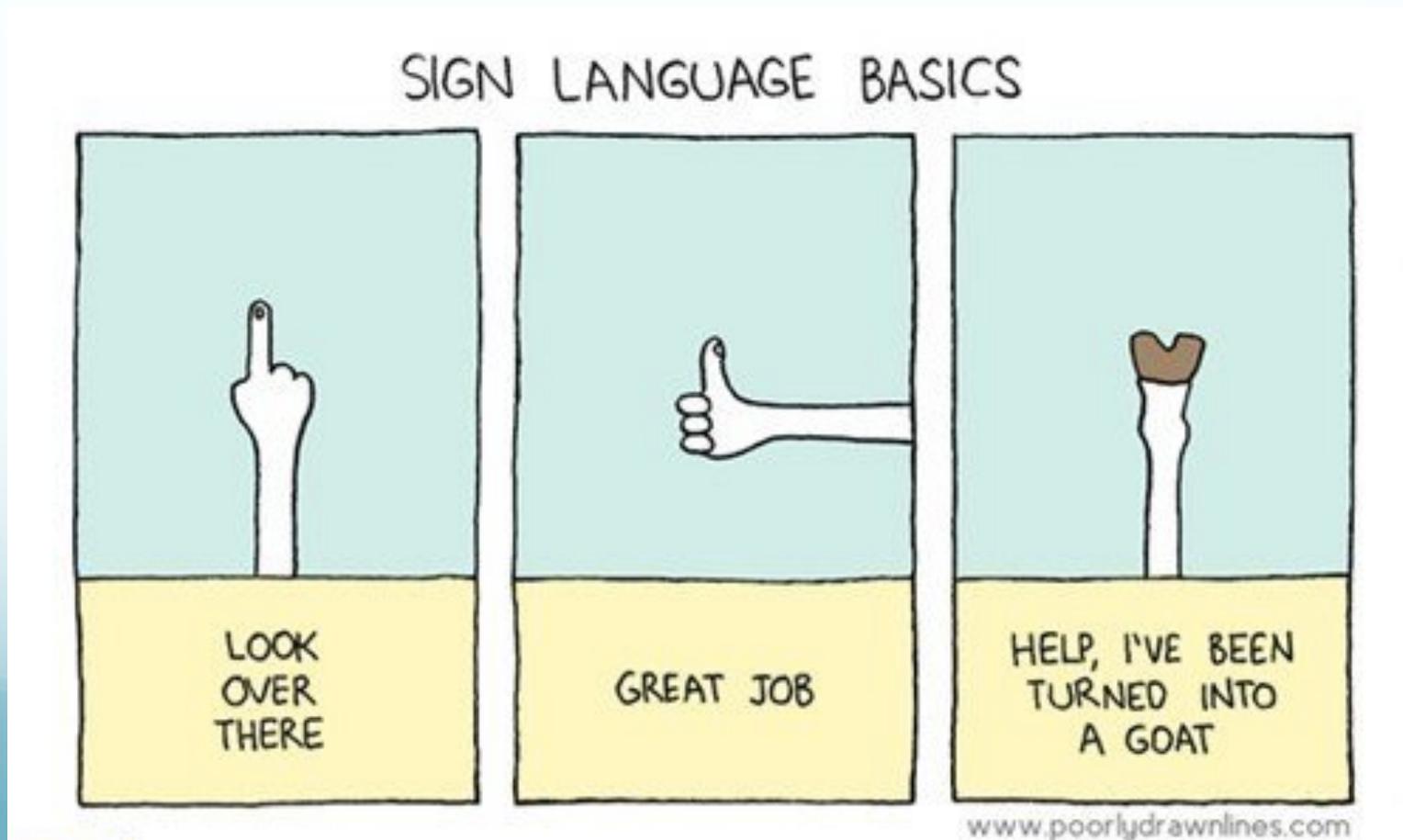
# AP PSYCH Unit 7B.3

## Language, Thinking & Language

- What is language?
- What are the structural components of a language?
- What are the milestones in language development?
- How do we learn language?



- Should sign language count as a foreign language for HS or Uni credit? Why or why not?



# AP PSYCH Unit 7B.3

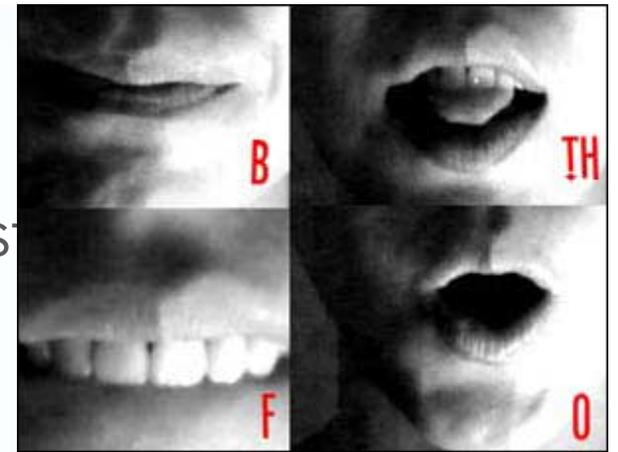
## Language, Thinking & Language

- **Language** – our spoken, written, or signed words and the ways we combine them as we think and communicate
- Unique to humans, jewel in the crown of cognition
- Your brain makes your mouth make noises, sending air waves to another person's ear, they hear it, process it – language
- Transfer meaning from one mind to another – language
- Reading text on paper and decoding the information - language



# Language Structure

**1 - Phonemes** – set of basic sounds, smallest distinct sound unit

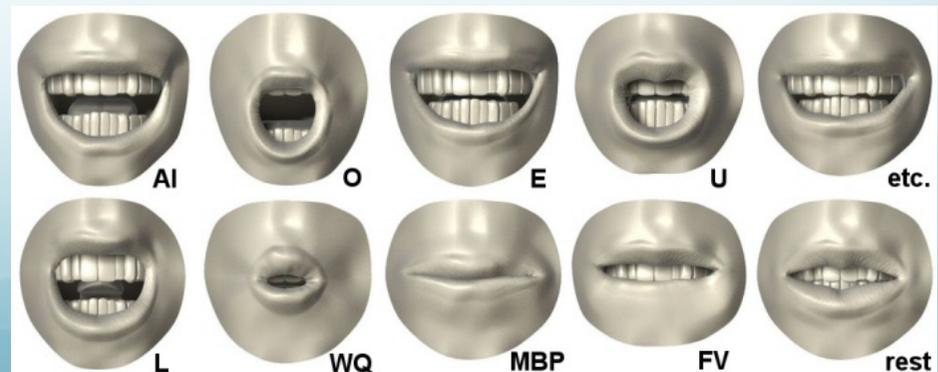


- EX: bat = b, a, t
- Of 500 languages, 869 different phonemes in human speech, no one language uses them all
  - What are some we know?
- English uses 40, others half or double that
- Changes in phonemes produce changes in meaning
  - EX: b\_\_t (bat, but, bait, etc...)
- Number of phonemes in world's languages varies from 13 (Hawaiian) to over 60 (Hindi) – English has 40
  - » Same letter can represent multiple phonemes
    - (i.e. letter “a” in cake vs. cat)

# Language Structure

## 1 - Phonemes continued:

- Consonants have more info than vowels
  - EX: The treth ef thes stetemnt shed be evedent frem thes demenstetien
- If you grow up only learning 1 language, you have trouble learning phonemes of other languages
  1. What English sounds do you have trouble making if you grew up speaking Korean?
  2. What Korean sounds do you have trouble making if you grew up speaking English?
- Same happens with different sign languages and different hand gestures



# Language Structure

**2 - Morpheme** – smallest unit of language that carries meaning, may be a word or a part of a word

- I, plural s ending = a phoneme that is also a morpheme
- But most morphemes are combinations of 2 or more phonemes
- Can be a prefix or suffix
  - Pre- or –ed have meanings



ers<sup>est</sup>ing<sup>tio</sup>ons  
and the  
ter<sup>ention</sup>

Rerun  
has 2 morphemes:  
re / run

Overreact  
has 3 morphemes:  
over / re / act

# Language Structure

**3 - Grammar** – systems of rules that enables us to communicate with and understand others; the set of rules that define the semantics and syntax

- **Semantics** – set of rules we use to derive meaning from morphemes, words, and even sentences
  - EX: add -ed to end of verb means it is past tense
- **Syntax** – rules for combining words into grammatically sensible sentences in a given language, rules we use to order words into sentences
  - EX: adjectives before nouns in English – we say white house instead of house white
  - What about saying white house in Spanish? Korean?



verb  
adverb  
noun  
pronoun  
adjective  
vowel  
consonant

# Language Structure



## 3 – Grammar continued:

- 6000 languages exist
- Linguists believe that underdeveloped or less educated people don't speak with a simple or grammatically incorrect language, they speak different dialects
  - Linguists believe that “ain't got none” means the same thing as “doesn't have any”- same syntax, same meaning, therefore not less intelligent
    - Do you agree with linguists?
- English → 40 phonemes → 100,000 morphemes → 616,500 word forms → infinite number of original sentences

# Language Structure

## 3 – Grammar conversation:

1. Do you use correct grammar all day?
  - Me & my girlfriend went to the beach.  
–grammatically incorrect
    - What are some other common ways we incorrectly speak everyday?
2. Do you use words in the opposite or wrong way?
3. What are popular slang words these days?
4. What nouns or adjectives have become verbs or taken on new meanings?



# Language Development



- Between birth and HS graduation – you learn 60,000 words (average 10 per day)
- You spoke in original and grammatically meaningful sentences before you could add  $2+2$
- As a preschooler learning your first language, you probably made sentences that were more grammatically correct than the 2<sup>nd</sup> language you learn now
- Do you organize the order of a sentence before you say it, or does it just flow out as you think and talk at the same time?
- We can even listen while we talk, think about where to stand in relation to others, use our bodies, etc...

# When Do We Learn Language?

- *In fantis* – without language (born with none)
- By 4 months – babies can discriminate speech sound, can read lips and faces, can see the shape of a mouth when we make AH or EE sounds
- **Receptive language** – baby's ability to comprehend speech
- By 7 months – babies can segment sounds into individual words – which you and I struggle with when listening to other languages





# When Do We Learn Language?

**Productive Language** – ability to produce words, matures after receptive language

- **Babbling Stage** – 4 months, spontaneously utters various sounds at first unrelated to the household language, not imitating household language, actually sounds from a variety of languages
  - EX of some babbling sounds? (consonant-vowel pairs)
- Deaf infants babble with their hands if they have deaf parents
- Listening to babbling alone, we can't name the baby's nationality
- By 10 months, an expert can name the nationality
- Then babies become deaf to some foreign phonemes, following us into adulthood (why I can't make certain Korean sounds)





# When Do We Learn Language?

- **One-Word Stage** – from 1 to 2 – baby speaks mostly in single words
  - Can look at a fish when someone says fish because of training
  - “Ma” means mom, “da” means dad, “doggy” means look at that doggy over there!



# When Do We Learn Language?

- **Two-Word Stage** – around age 2 – child speaks mostly 2-word statements
- **Telegraphic Speech** – early speech stage in which child speaks like an old timey telegram (“send money”)
  - EX: “go car”, “want juice” – 1 noun, 1 verb
  - Follows rules of syntax, English babies put adjectives in front of nouns, “Big doggy”, not “doggy big”
- After this stage, children speak in longer phrases and then sentences, then they got older, and that’s when your memories of life kick in, you probably can only remember back to ever speaking in simple sentences, not 1 or 2 word speech.... Right?
- By early elementary school, you even get puns and language-based jokes, and have witnessed most grammatical rules

# Telegraphic Speech

- Turn to your partner and tell a story about your life or what you did yesterday – ONLY in telegraphic speech



- Was it hard to do?

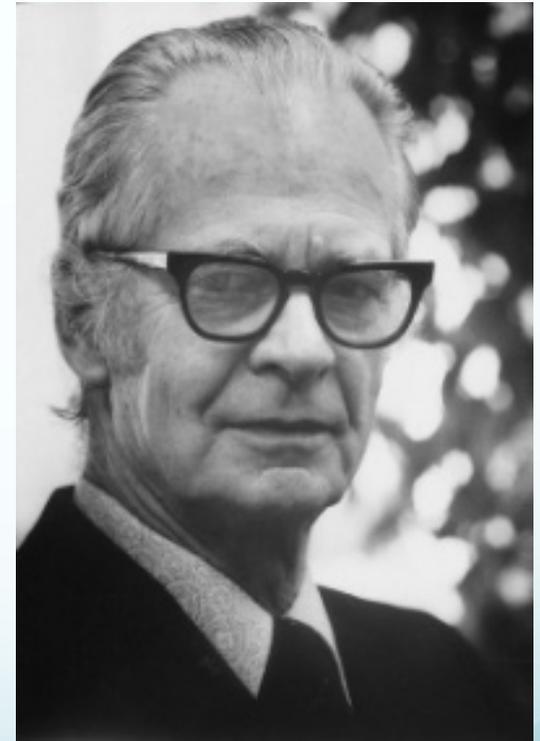
## SUMMARY OF LANGUAGE DEVELOPMENT

Month (approximate)	Stage
4	Babbles many speech sounds.
10	Babbling resembles household language.
12	One-word stage.
24	Two-word, telegraphic speech.
24+	Language develops rapidly into complete sentences.

- Keep in mind these are not set in stone

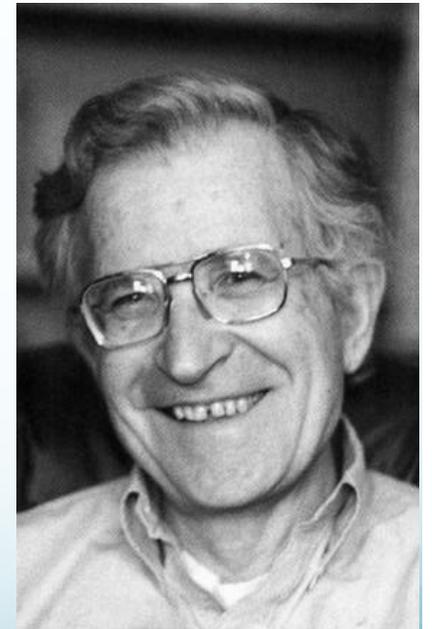
# Explaining Language Development

- Operant Conditioning (Skinner)
  - Association, imitation, reinforcement (nurture)
  - Learning comes from reinforcement and modeling
    - But, it seems not all language behavior in children could be explain by this – learn too much, too fast and many phrases that are never conditioned/modeled



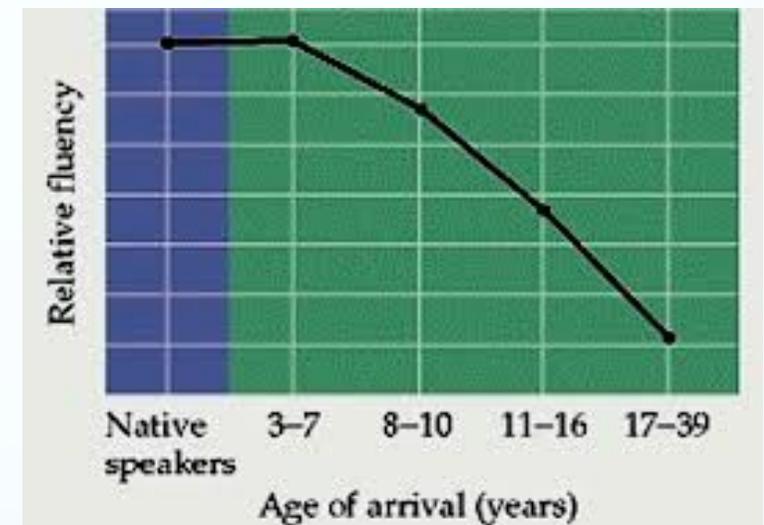
# Explaining Language Development

- Inborn Universal Grammar (Chomsky)
  - We all come “pre-wired” (nature) with a “*language acquisition device*” to use language (all languages in world are variations of similar components) – exposure allows it to develop (nurture)
  - They generate many sentences they have never heard
  - They generalize grammatical rules and make simple mistakes
  - *Universal grammar* – all languages have same grammatical building blocks, nouns & verbs, etc
  - We naturally start speaking in nouns
  - Nature AND Nurture



# Statistical Learning & Critical Periods

- This is how we might hear foreign languages, the syllables might all run together or we might break them into words the wrong way:
  - United Nations = Youneye Tednay Shuns
- But infants have the ability to learn statistical aspects of human speech
  - They can discern word breaks and statistically analyze which syllables go together.
  - They can detect the differences between syllable patterns
  - Babies come with a built-in readiness to learn grammar



# Statistical Learning & Critical Periods

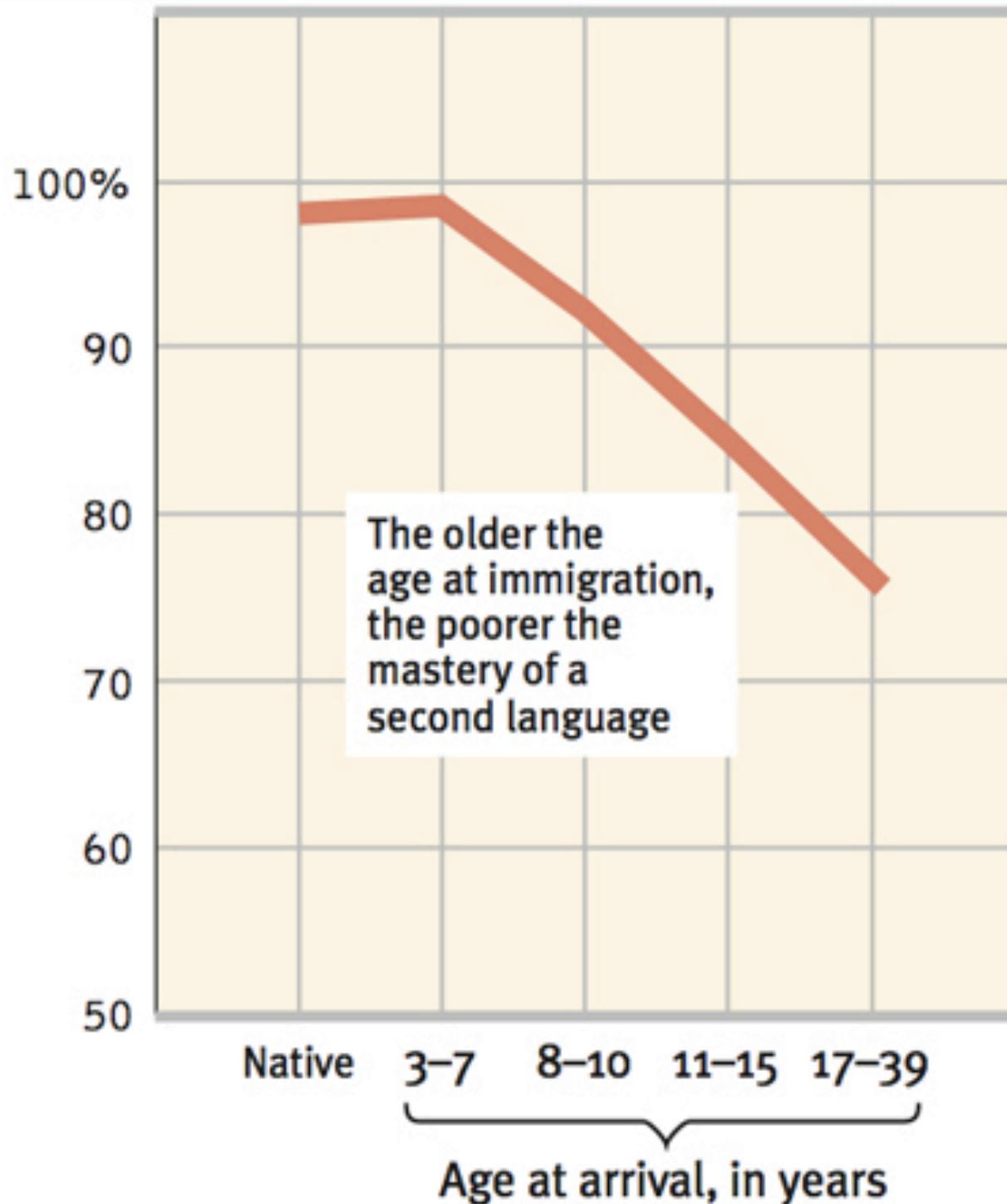
- **Critical Period** – children can't perform that same statistical analysis and intense language acquisition through our whole life
- There is a critical or sensitive period of of childhood to master certain aspects of language
  - EX: deaf children that get cochlear implants at age 2 develop oral speech better than if gotten at 4
- If children have not been exposed to enough language after this period, they can't master a language



# Statistical Learning & Critical Periods

- After critical period closes, learning a 2<sup>nd</sup> language is also difficult
- Children learn a 2<sup>nd</sup> language much better than adults
- Children have no accent or less of an accent when learning a 2<sup>nd</sup> language than adults do
- If the 2<sup>nd</sup> language is learned earlier, those people score better on grammar tests
- Later-in-life 2<sup>nd</sup> language learners can master basic words and word order, but never become as fluent as native speakers with subtle grammatical rules
- Is it good that we teach Spanish in elementary school now at BFS? Should we do that with other 2<sup>nd</sup> languages?

Percentage correct on grammar test



# Thinking & Language

1. What came first, the chicken or the egg?
  - That's the same as asking if we get ideas first or we wait for language and words to name those ideas!
2. Do we talk to ourselves with words to make our thoughts?
3. Do we think in pictures before words?
4. Do you have any secret, made-up words or gestures that only your friends or family understand?



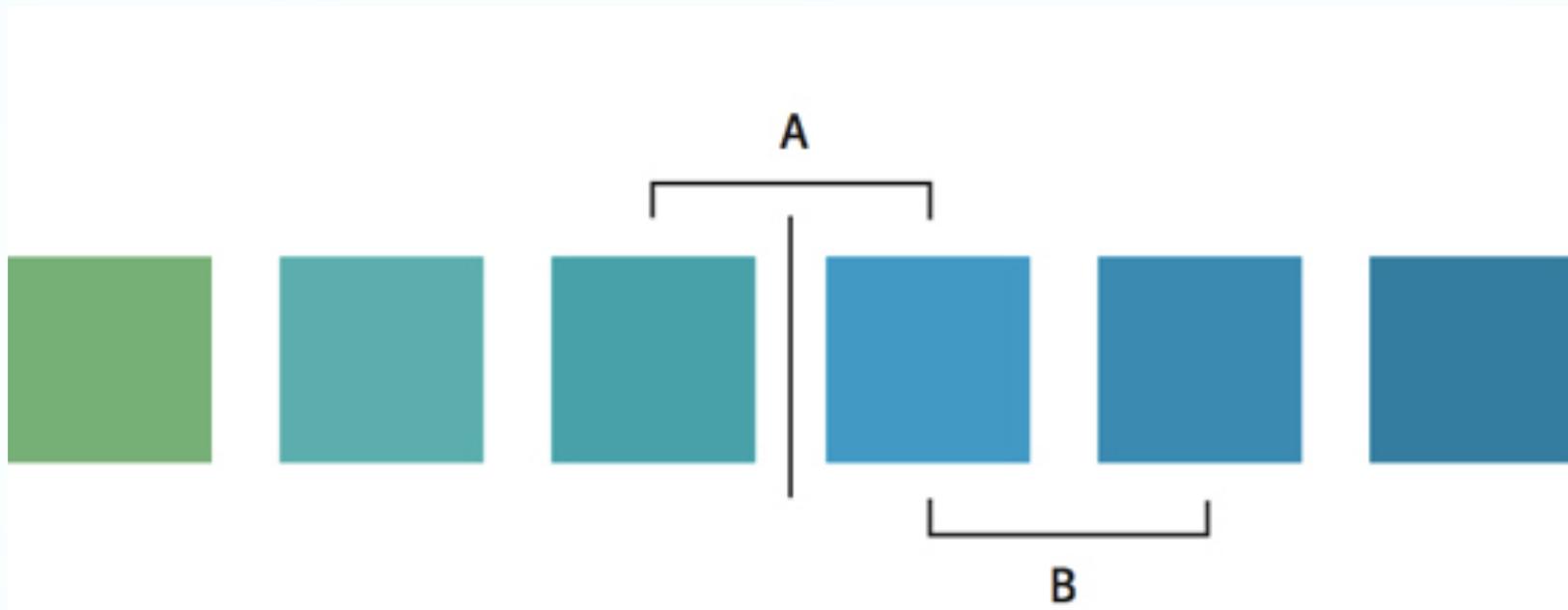
# Language Influences Thinking

- **Linguistic determinism** – (Linguist Benjamin Lee Whorf) – language determines the way we think
  - Language shapes our ideas
  - We think differently in different languages
  - The idea of *self* has different words and meanings in English than it does in Japanese or Korean
    - But is that really just a cultural difference?



# Language Influences Thinking

- Our words may not *determine* what we think, but they do *influence* our thinking
- Words influence our thinking about colors
  - We use our native language to *classify* and *remember* colors
  - Look at the following color spectrum – greens and blues fade into each other on the spectrum, but once we draw the line and classify green or blue, we are more likely to perceive the colors with different names as different, even though they may be more similar



- By assigning the name green to the colors on the left and blue to the colors on the right, we might perceive group B to be more similar to group A, even though they are equally similar
  - This is the subtle influence of words and language on our thinking!

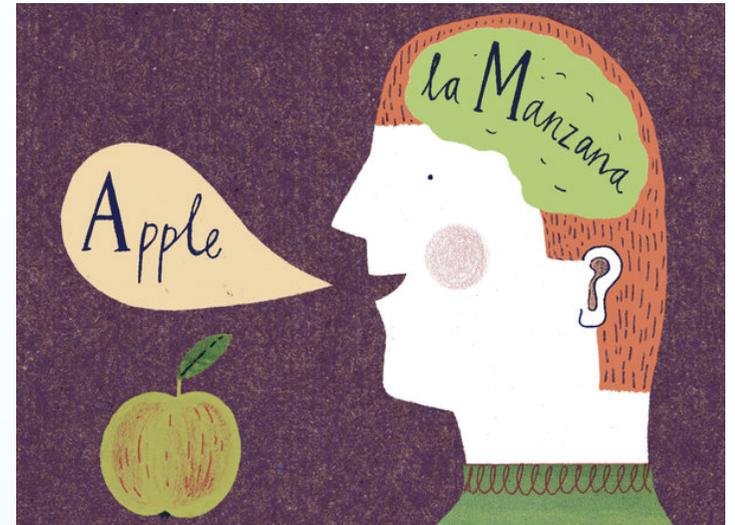
# Language Influences Thinking

- We choose our words carefully
- Is the term “The artist and his work” or “A child interacts with his caregivers” gender neutral?
- “Man, like other mammals, nurses his young” – weird sentence or no?



# Language Influences Thinking

- More words in your vocab = expanded abilities to think
- Thinking develops hand in hand with language
- We can't conceptualize abstract ideas without language (commitment, freedom, etc)
- **Bilingual Advantage** – can use one language and inhibit the other at that same time, know several more meanings and concepts for the same words
  - “Why is the cat barking so loudly?” – bilingual students can focus on grammar alone and tell you if this sentence was correct, but fluent English speakers might get stuck on the meaning (semantics)



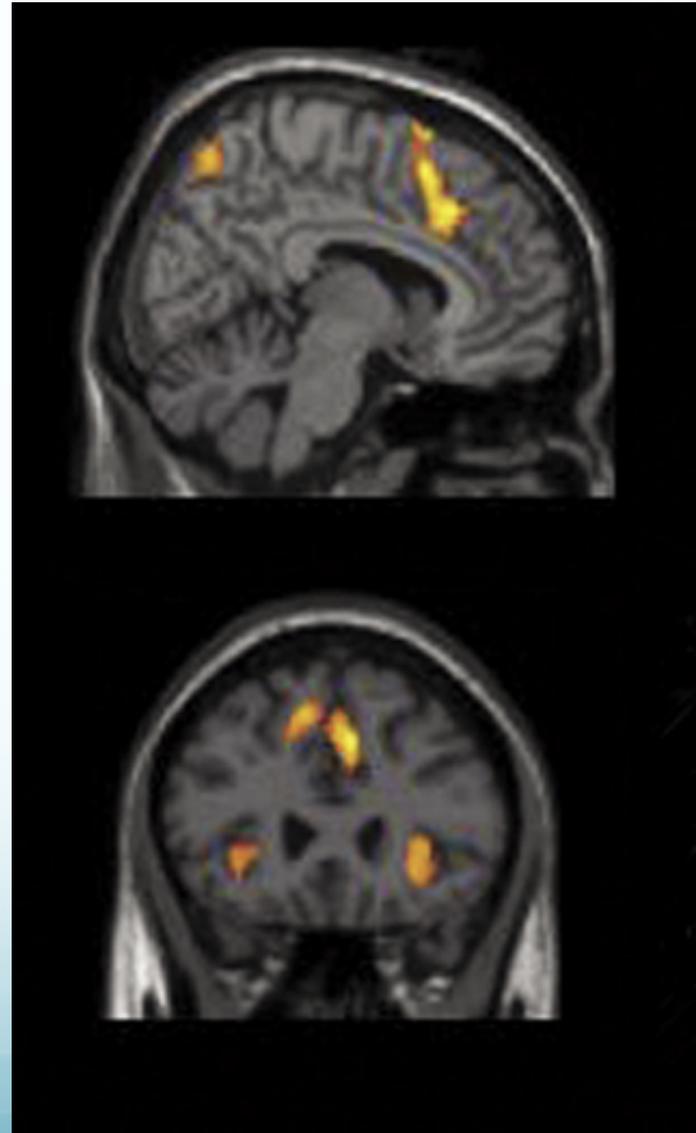
# Thinking in Images

- When you are alone and thinking, are you just simply talking to yourself?
- Do ideas precede words?
- When you go into the bathroom and turn on the faucet, are you thinking with words about which direction to turn the handle? Or do you think about it with *implicit memory* and mental pictures?
- Artists, composers, poets, mathematicians, athletes, and scientists (Einstein) all think in pictures
  - EX: jailed pianist Li Chi Kung or Beethoven



# Thinking in Images

- Imagining a physical activity triggers action in the same brain areas that are triggered when actually performing the activity





- Are you thinking in language when you play your instrument?
- Can mental practice help you keep your skills?

# Thinking in Images

- Mental Practice – repeatedly imagining achieving your goals under several different conditions
  - Planning HOW to get to your goal
  - Visualizing yourself effectively practicing, studying, etc creates better results than just visualizing an A (maybe overconfidence effect)

