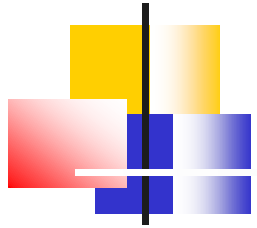




Language



# Language

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## ■ **Pragmatics**

- Knowing what to say, how to say it, and when
- Being able to ‘read’ the discourse of a conversation or intentions of the speaker
- Respond to gestures and non-verbal language



# Language

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## ■ **Pragmatics**

- *Using language* to greet, demand, request, inform
- *Changing language* to adapt across contexts of work, school, play
- *Following language rules* to establish pace, take turns speaking/writing, establish non-verbal cues



# Language

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## ■ Pragmatics

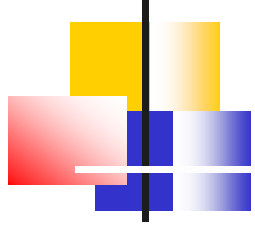
- Use of meta-cognition to disentangle ambiguity
- Ex: “**You have a green light.**”
  - It could mean you have a green light while driving
  - It could mean you have green light in your team space
  - It could mean you have permission to continue at work
  - It could mean you are glowing (and/or radioactive)



# Linguistic Relativity

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# Linguistic Relativity

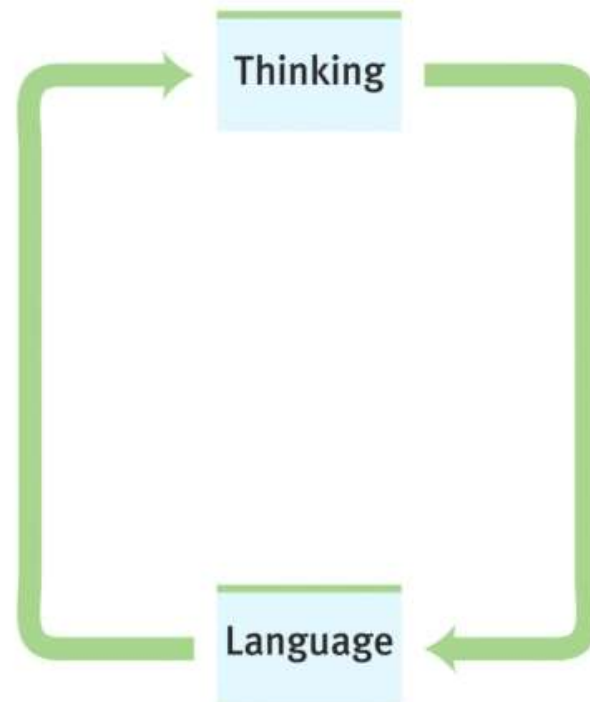
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- **Sapir-Whorf Hypothesis**

- Language determines the way we think
- Milder interpretation – thoughts and behavior are *influenced* by language



Traffic runs both ways between language and thinking





# Thinking influences language

What does this say?

I cdnuolt blveiee taht I cluod aulacly uesdnatnrd  
waht I was rdanieg. The phaonmneal pweor of  
the hmuan mnid. Aoccdrnig to rscheearch at  
Cmabrigde Uinervtisy, it deson't mttar in waht  
oredr the ltteers in a wrod are, the olny iprmoatnt  
tihng is taht the frist and lsat ltteer be in the rghit  
pclae. The rset can be a taotl mses and you can  
sitll raed it wouthit a porbelm. Tihs is bcusease  
the huamn mnid deos not raed ervey lteter by  
istlef, but the wrod as a wlohe.

# Eye movements during reading

When a person is reading a sentence silently, the eye movements show that not every word is fixated. Every once in a while a regression (an eye movement that goes back in the text) is made to re-examine a word that may have not been fully understood the first time. This only happens with about 10% of the fixations, depending on how difficult the text is. The more difficult the higher the likelihood that regressions are made.



# Language

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- **Reading preferences**

- Visual reading
- Auditory reading
- Mental reading (subvocalization)



# Language

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- **Speed reading**

- Average rate is 300 wpm
- Comprehension may suffer
- Practice and large vocabulary have an impact



# Language

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- Speed reading
  - **Skimming and scanning**
    - Visual search of sentences for partial cues
    - Faster rate per minute (700) vs. reading (300)  
but worse comprehension and retention



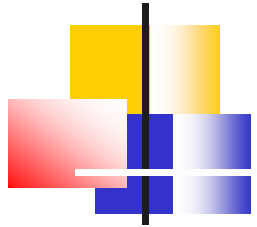
# Language

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- Speed reading

- **Meta-guiding**

- Use of object or finger to visually guide eye across presented words
    - Activates visual cortex to broaden visual span across larger horizontal visual line(s)

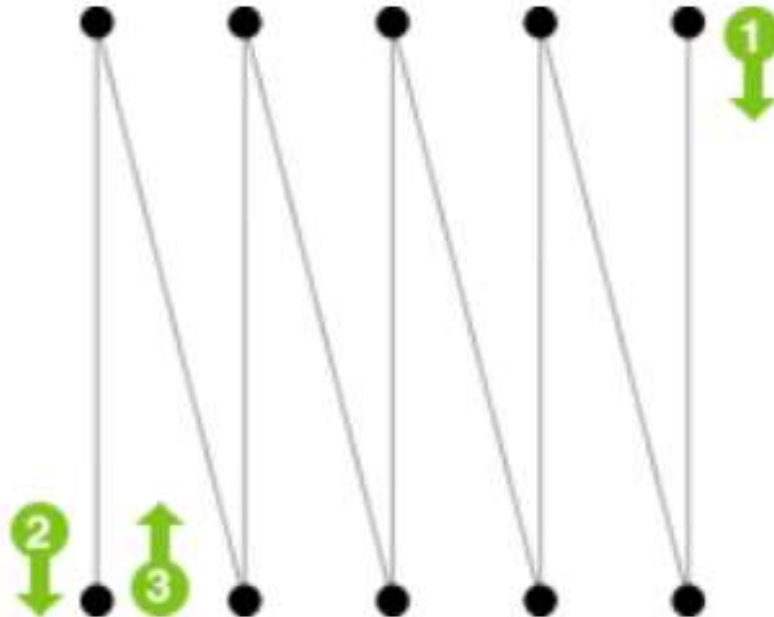


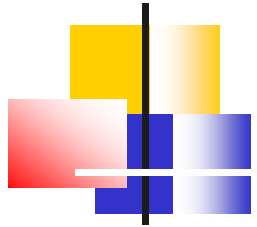
# Language

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## Eye Training

(increases visual field acuity – up/down)



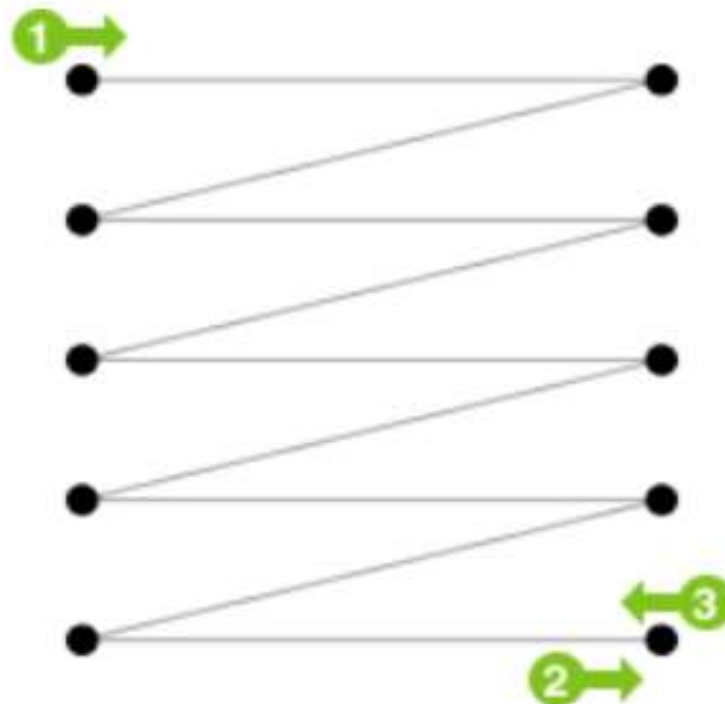


# Language

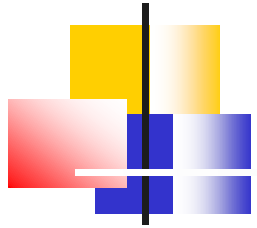
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## Eye Training

(increases visual field acuity – left/right)





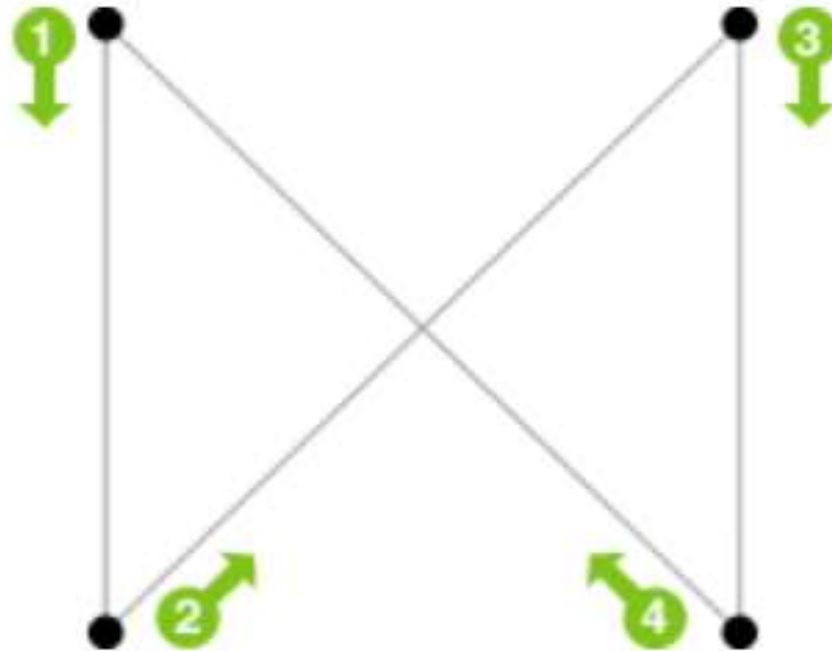


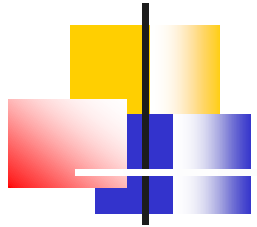
# Language

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## Eye Training

(increases visual field acuity – diagonals)



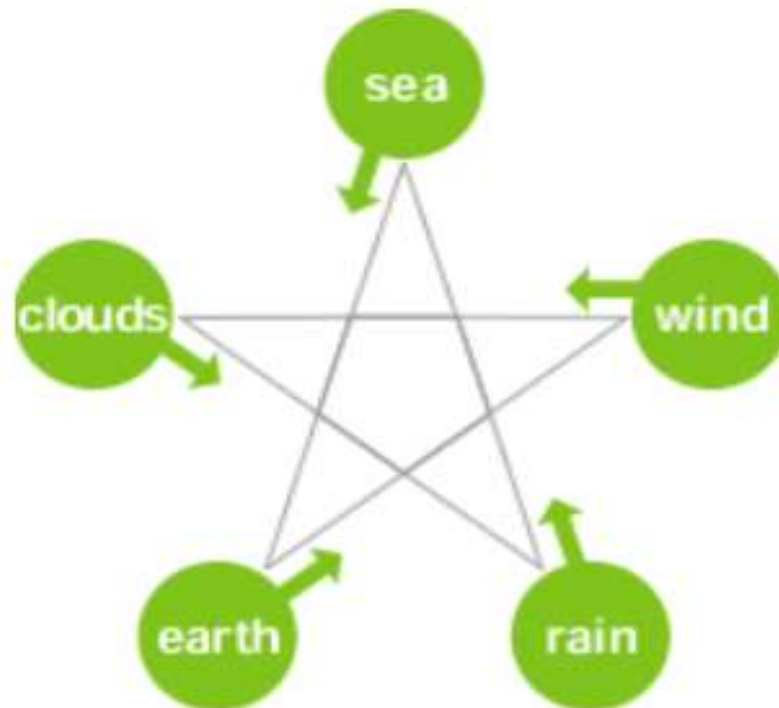


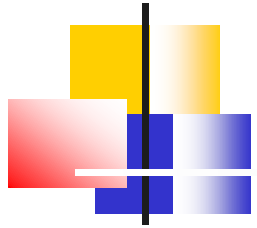
# Language

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## Eye Training

(increases visual field acuity – complex pairs)

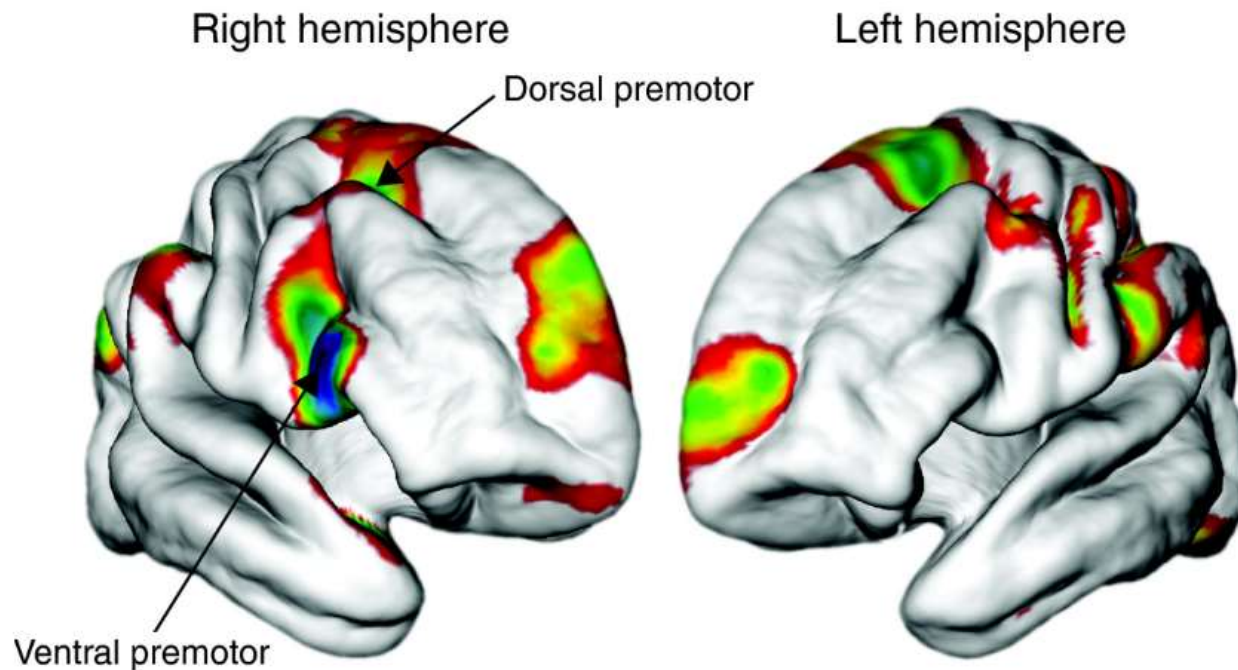




# Language and Music

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People with enhanced musical capabilities show thicker cortex in right front and right auditory brain regions

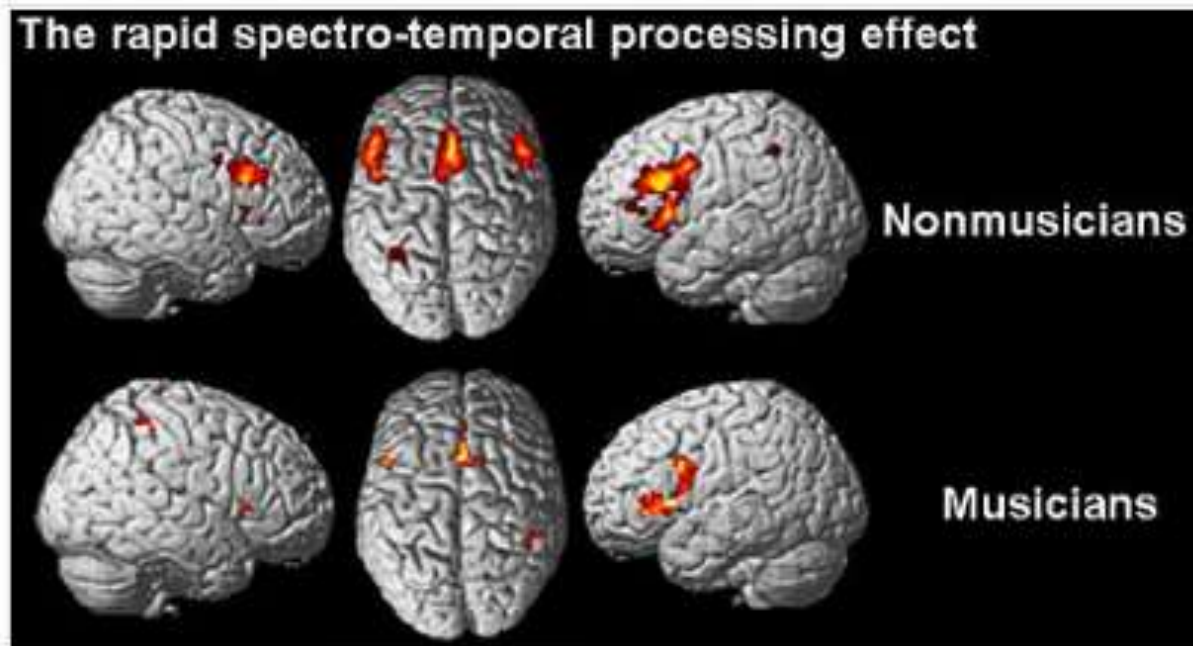




# Language and Music

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People with musical experience find it easier than non-musicians to detect small differences in word syllables





# Language and Music

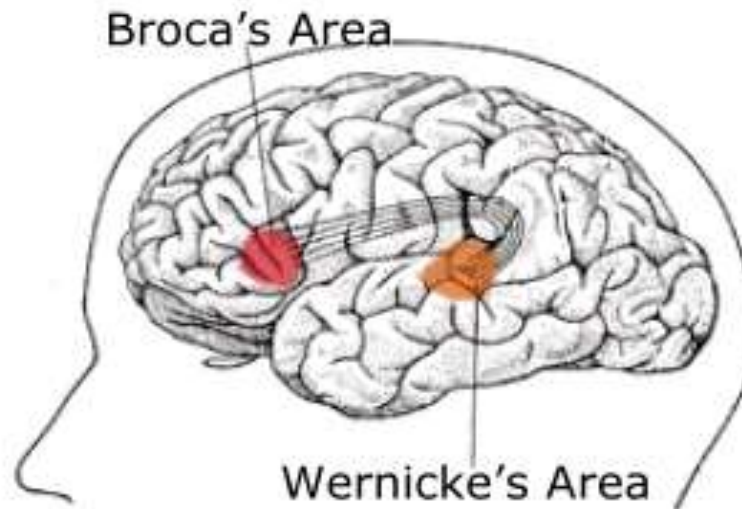
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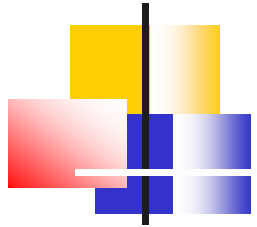
- Therapeutic elements

- Music engages cerebral regions of the brain suffering from cognitive dysfunction
  - Aphasia: music enhances ability to discriminate speech sounds and words
  - Parkinson's: music improves motor function and walking speed

# Language

- Carbon Monoxide Poisoning
  - Creates “anoxia” (loss of oxygen to brain)
    - Most common outcome is language impairment





## Laurence Peek – “Mega-savant”

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