



# Language

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# Language

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- Words have little meaning unless we understand their associations
- **Denotative meanings**
  - Literal meaning/definition
- **Connotative meanings**
  - Implied or affective associative meanings

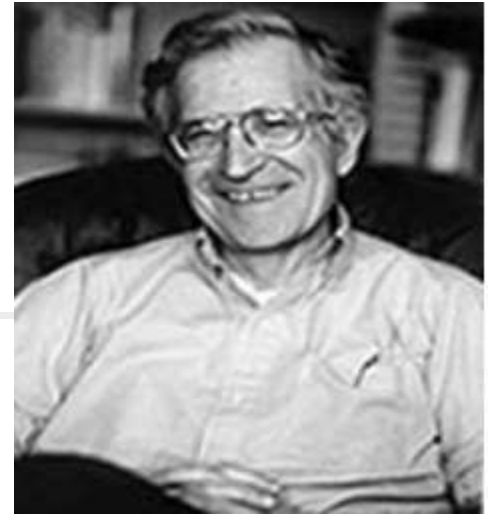






# Language

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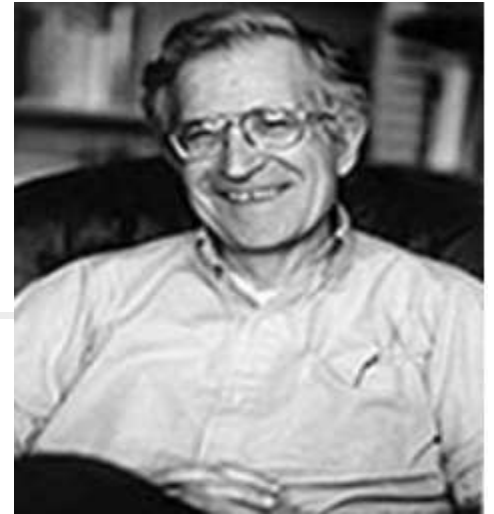


- What is it?
  - (a) **Semantics** – arbitrary units of meaning
  - (b) **Syntax** – words organized through rules
- Chomsky: It is syntax that is innately human, and we use language to express thought



# Language

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- What is it?
  - (a) **Semantics** – arbitrary units of meaning
  - (b) **Syntax** – words organized through rules
- Chomsky: “Colorless green ideas sleep furiously.”

# Language Theory

(1) **Behaviorists:** conditioning, reinforcers, modeling



# Language Theory

(1) **Behaviorists:** conditioning, reinforcers, modeling





# Language Theory

## (2) Chomsky (“generative linguistics”)

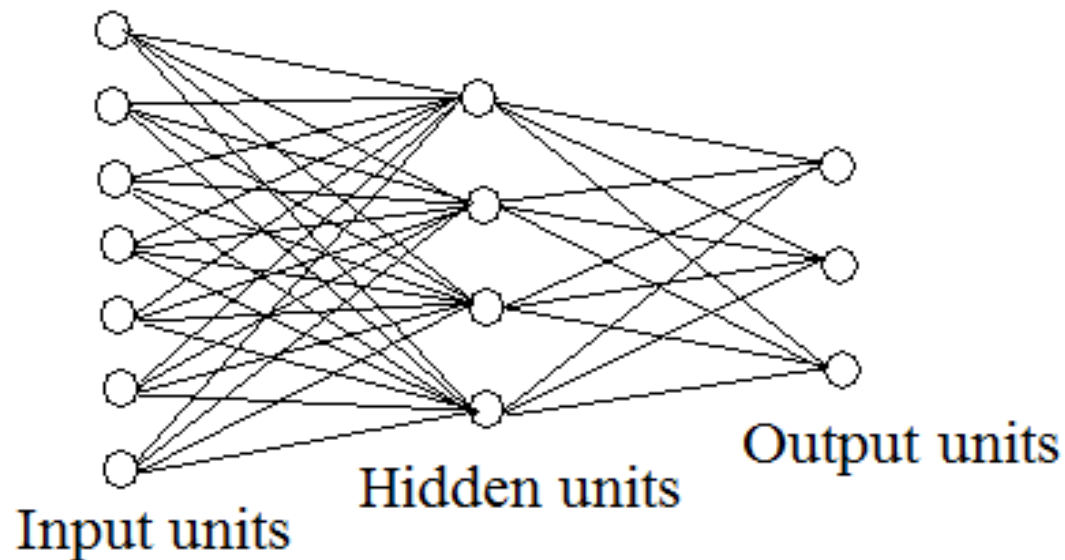
- No reinforcement needed
- Children have innate tendency to babble



# Language Theory

## (3) **Connectionism** (computational metaphor)

- Language processing through massive neural networks and processing units



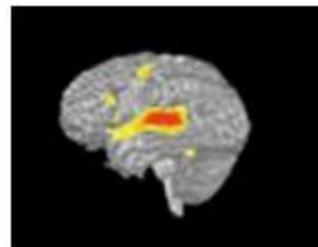


# Language Theory

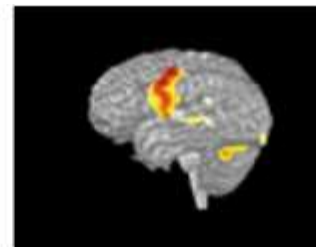
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## (4) **Cognitive Neuroscience** (“functional specialization”)

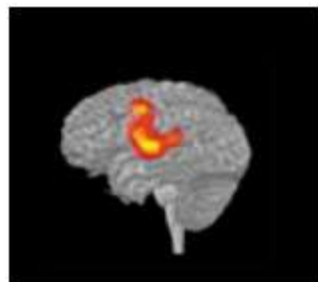
- Language and cognition at the biological level



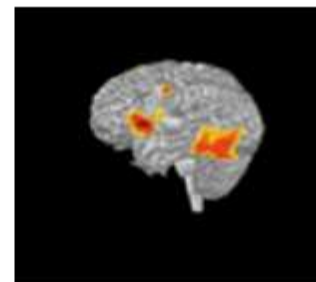
**Hearing  
words**



**Seeing  
words**



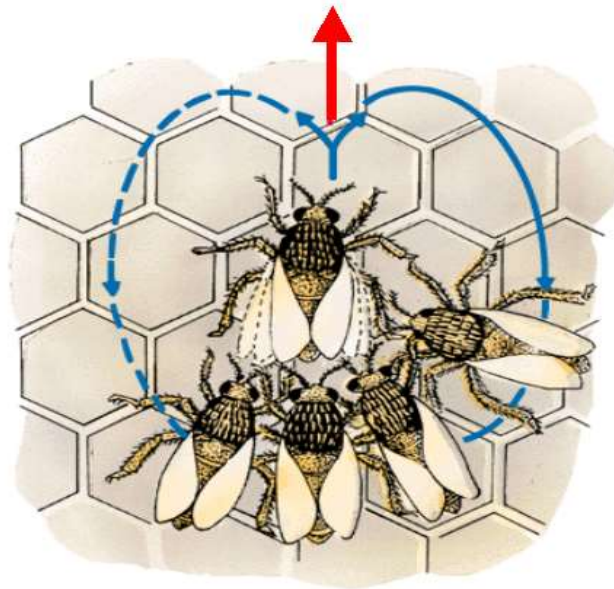
**Speaking  
words**



**Thinking  
about words**

# Language

Do animals have “language”?



Honey bees communicate by dancing. The dance moves clearly indicate the direction of the nectar.

# Der Kluge Hans – Clever Hans (1907)



# Language

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- Vervet monkeys
  - Different alarm calls and shouts for:
    - Eagle - hide/find cover
    - Snake - look under feet
    - Leopard- run up tree



# Language

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- Vervet monkeys

- Accommodation of language acquisition

- Want to get rid of bigger male?

- Want to hide that food?

- (.....same solution: just give the leopard cry)





# Gua (1933)

Raised as a family member





Emotional reactions



Feeding



"Where is your nose?"



In spite of all this, Gua

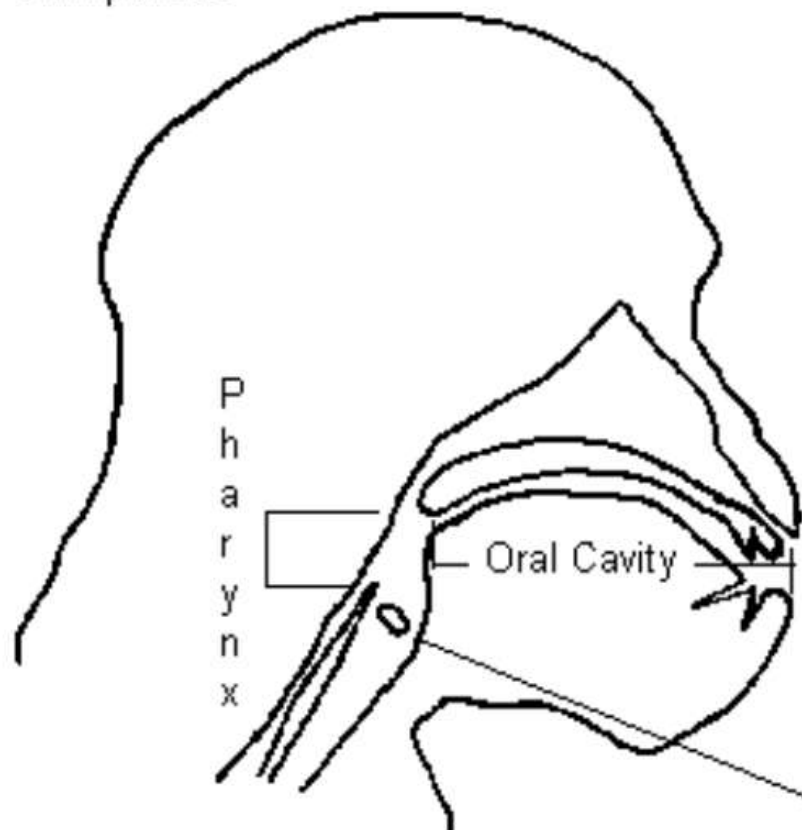
- Never produced intelligible words
- Only understood few



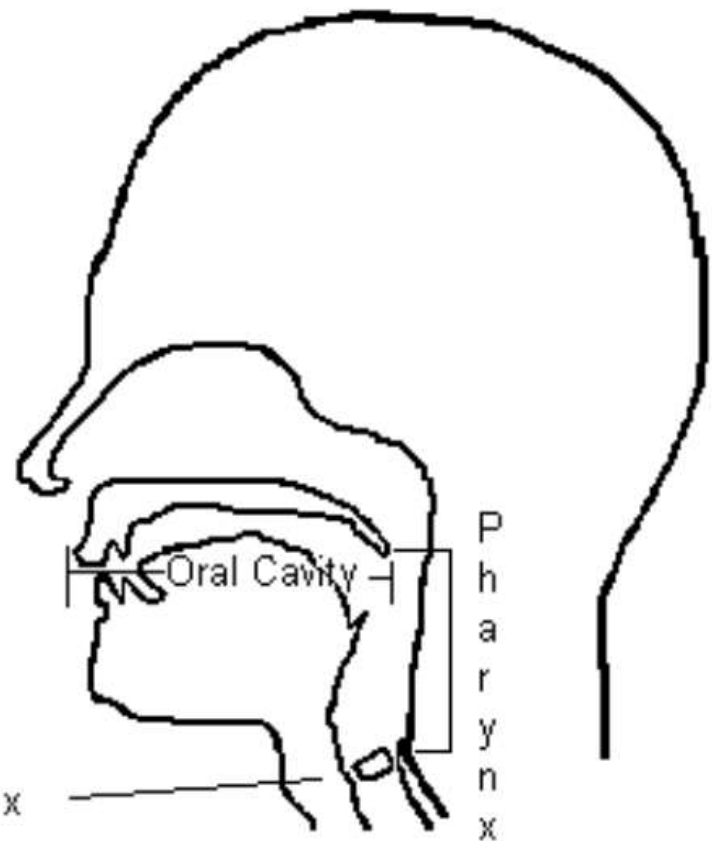
## Different physiology

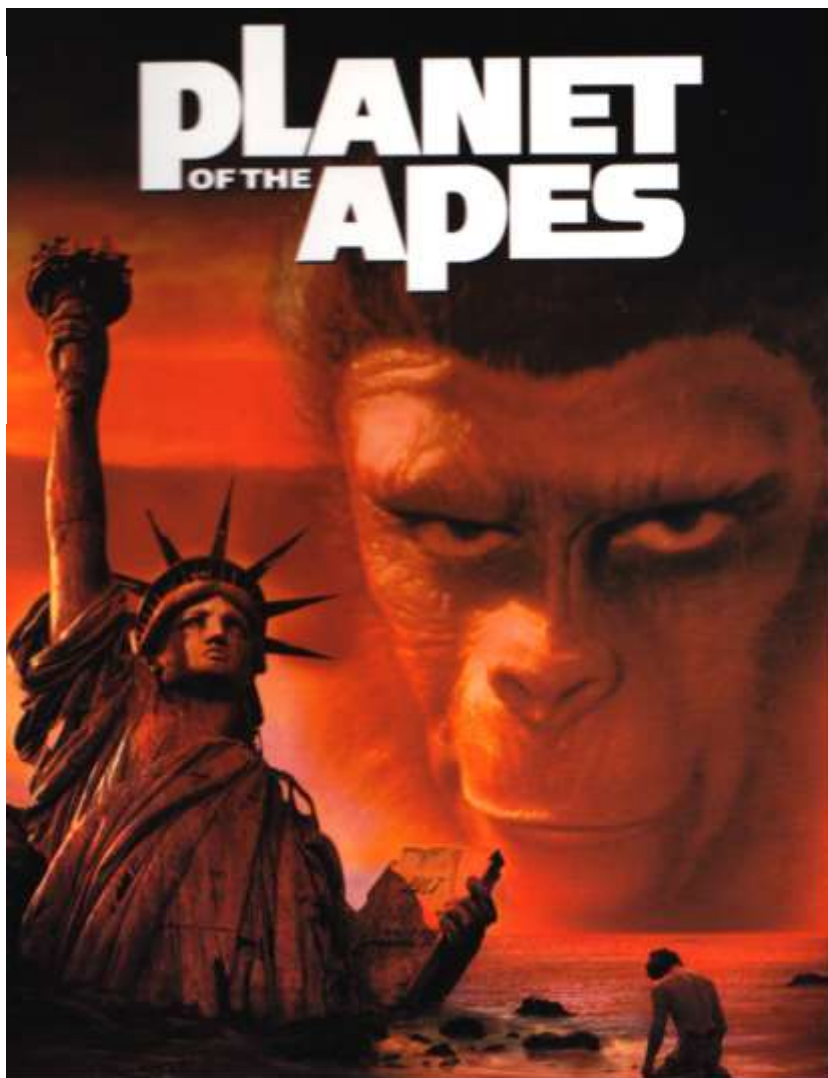
Larynx higher -> smaller pharynx and nasal cavity

Chimpanzee



Human







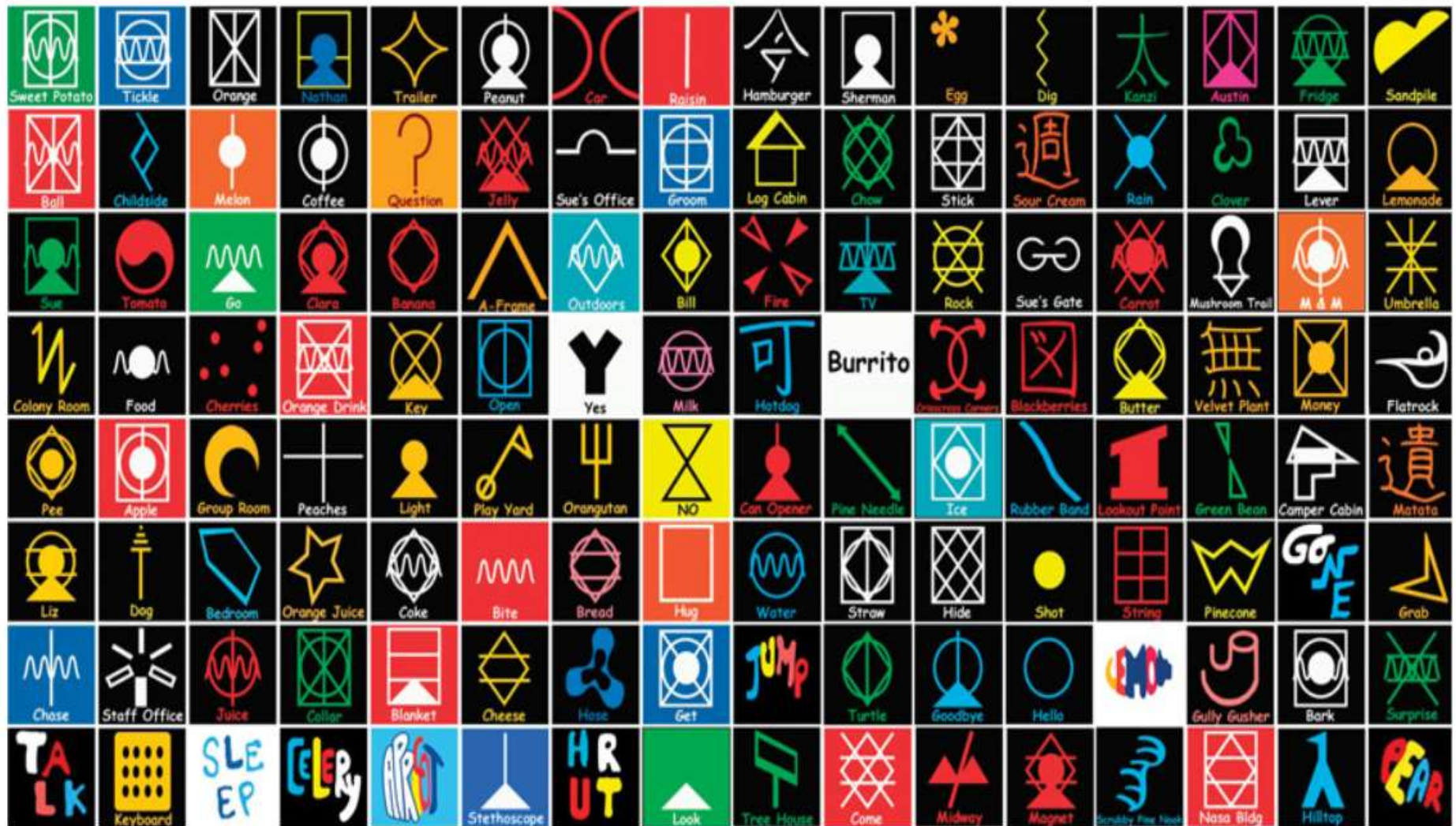
# Language

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- **Primate communication**

- Sophisticated cognition with simplistic proto-language
- 3 known methods to communicate thinking:
  - (a) Natural speech sounds
  - (b) ASL
  - (c) Lexigram signs







Kanzi, a 31 year-old bonobo converses with humans by selecting Lexigram symbols on his Motorola Xoom tablet









# Language

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- Cultural context
  - **Linguistic determination**
    - Language influences the cognitive perception of (and interaction with) surrounding environment



# Language

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- Cultural context
  - **High-context cultures** utilize indirect language and rely heavily on contextual cues
  - Japan, Korea, China, many African and Latin American cultures
  - Expressions not always conveyed through language alone – often a function of social context (“norms”)



# Language

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- Cultural context
  - **Low-context cultures** utilize more direct language
  - U.S., Canada, Australia, some European cultures
  - Great value placed on expressing individuality
  - Thoughts directly stated with less reliance on social context

# Language

"Jumper"



Britain



U.S.

# Language

"Bog"



U.S.



Britain

# Language

"Football"



U.S.



Britain