

# Functionalism

Ned Block, “What is Functionalism?”

# Functionalism

- Carburetor – function: mix fuel and air in combustion engine
- Kidney – a role in filtering toxins from blood
- Pain - ...
  
- Functionalism = mental states are constituted by their causal relations to one another (their function) and to sensory inputs and behavioral outputs

- X has pain = X is in a state that is typically caused by bodily injury or disturbances, which causes avoidance behavior and the belief that one is in pain, and the desire to eliminate the pain

# Mind as a Computer

- Parity Detecting Machine: A machine designed to tell us whether a number given has an odd or even number of 1s
- Being in S1 = being in the first of two states that are related to one another and to inputs and outputs as follows: being in one of the states and getting a '1' input results in going into the second state and emitting 'odd'; and being in the second of the two states and getting a '1' input results in going into the first and emitting 'even'

# Properties of Mental States

- They are states realized by states of the brain but not identical to them
- What determines the identity of a mental state is not its material composition (brain state), but its relation to other mental states
- Nature of mental states is the same as nature of computer states [only the interrelations between inputs, outputs, and states is much more complicated]
- The same task can be performed with different algorithms
  - Two different systems can do the same task in very different ways
- The same algorithm can be implemented with different hardware

# Cognitive Science

- Cognitive science = a scientific study of the mind with special emphasis on the use, acquisition and processing of information
- Cognitive science adopts the functionalist model of the mind
- Inter-disciplinary effort to study the mind
  - Psychology – cognitive psychology, developmental psychology ...
  - Linguistics – syntax, semantics, phonology ...
  - Neuroscience – brain structures, localization ...
  - Computer science – AI, computer models ...
  - Philosophy – theoretical foundations ...

# Three Levels of Description

- A complete understanding of a computational system has to involve three levels :
- An account of Inputs/Outputs
  - What is computed and why.
  - What the system is capable of doing
- An account of internal relations: the algorithm or software
  - What program is used.
  - What are the symbols and how are they processed.
- An account of the hardware / implementation
  - Where in the brain?
  - What kind of neurons and how are they connected?

# Application: linguistic understanding

- **Task**

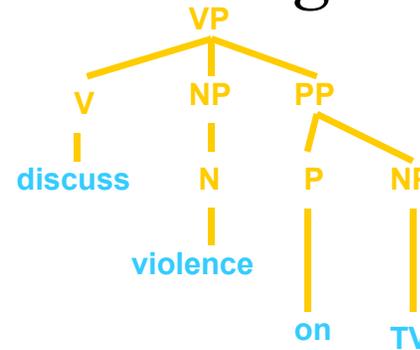
- Identify syntax and meaning corresponding to speech sounds.

- **Algorithm**

- What kind of computation and mental representations?

- **Implementation**

- Which part of the brain?



# Can Computers Think?

- If we have a symbol manipulation device (a computer), can it have mental properties – can it think? In other words, can computers think?
- According to functionalism computers can think, not all, but those that have the right program: As long as they produce the right outputs, based on right inputs, and the internal states are appropriately related, then the computer can think! They can have as rich a mental life as humans do.

# Qualia

- Does functionalism provide an account of qualia?
- If it did it would have to be a causal mechanism in the brain, that related states and produced outputs
- It is difficult to see how we would get an account of consciousness, or qualia.
- Consciousness remains a problem, and many think it is the deepest problem about the mind