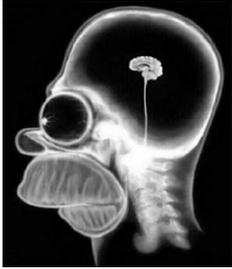


PHIL 255  
**Week 3: Mind=Brain**  
 Paul Thagard

Please turn off and put away all electronics.  
 Please avoid the last 2 rows.  
 Arguments for and against mind-brain identity.



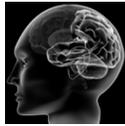
1

## Mind-Brain Identity

“Mind=brain” is short for: **All mental processes are brain processes.**

Includes:

- perception (e.g. vision, pain)
- memory
- inference, reasoning, learning
- language
- emotion
- consciousness

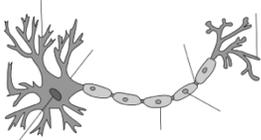
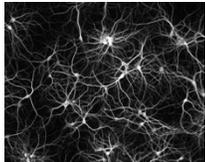


2

## Mind=Brain: Neurons

Brains consist of neurons: cells connected to other cells that build up electrical charges and then fire.

Neurons are connected to other neurons by synapses and fire by chemicals called neurotransmitters.

3

## Mind=Brain: Representation

Groups of neurons (populations, assemblies) can represent the world by their firing patterns.

Concepts (and other mental representations) are patterns of firing in neural groups.




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## Mind=Brain: Binding

Building up complex representations requires binding combination of simpler ones:

- Bind taste and smell and color of coffee.
- Bind subject and verb and object into sentence.

Convolution: activity of neural populations becomes “twisted together”: convolve. Representations are braided together.

Chris Eliasmith has shown how neural populations can perform convolution.




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## Super Argument for Mind=Brain



Mind=brain explains mental processes, including sensation, imagery, problem solving, learning, language, etc.

Mind=brain is a better explanation than alternative theories like dualism.

- Simpler: only assumes matter/energy, not soul.
- No problem with interaction.

Therefore, mental processes are brain processes.

6

### Discussion Question

Do you find it plausible that mental processes are brain processes? Why or why not?

7

### Objections to Mind=Brain



Arguments for dualism based on conceivability:  
Zombie, Mary, etc.  
Mind=brain fails to explain after-death experiences.  
Mind=brain fails to explain consciousness.

8

### Multiple Realizability

Mental states are not just brain states because:

1. Different kinds of brains have mental states, e.g. birds, squid.
2. Computers are on their way to having mental states, using silicon chips not brains.
3. There may be beings in the universe that have mental states using very different organs than brains.

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### Discussion Question

What do you think is the strongest criticism of the mind-brain identity theory? Does it succeed?

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