

# Department of Philosophy TCD

## Is Physicalism the True Philosophy?

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- Philosophy?
- Casual usage
- Love of wisdom
- Set of propositions
  - Some structure
  - Spinoza – geometric system: axioms and theorems

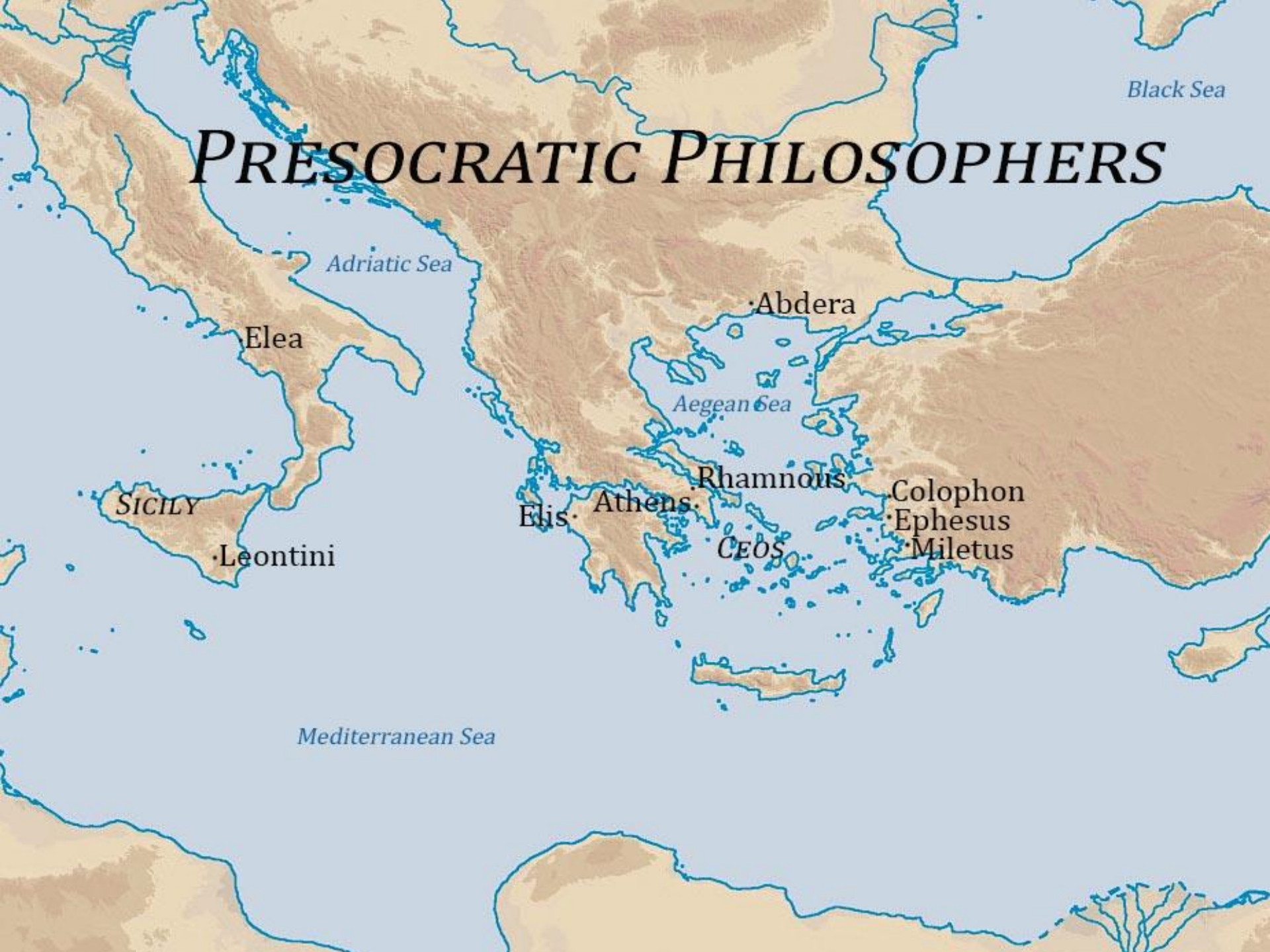
# Arguments and Isms

- Premise 1
  - Premise 2
  - ..
  - Conclusion
- 
- ‘...ism’ - what is the actual content?

# Philosophy and History of Philosophy

- Comparison with science re. history
- Attitudes/ intellectual tendencies
- Underlie the argumentative structure
- Philosophy: uncovering (hidden) assumptions
- Assumptions part of our intellectual make-up
- Hard to recognize
  - Like unconscious bias

# PRESOCRATIC PHILOSOPHERS



Black Sea

Adriatic Sea

Aegean Sea

Mediterranean Sea

Elea

SICILY

Leontini

Abdera

Elis

Athens

Rhamnous

CEOS

Colophon

Ephesus

Miletus



*Black Sea*

**Thracia**

● **Troy**

● **Smyrna**

● **Sardis**

● **Ephesus**

● **Miletus**

**Lydia**

**Cilicia**

**Medo**







**Samos Island**

**Heraion**

**Troglion Islands**

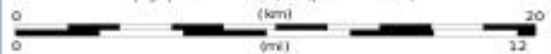
**Aegean Sea**

**Tragia Island**

**Evolution of silting in Miletus Bay due to Maeander River during Antiquity**

- Balat modern city or town
- Miletus polis or sanctuary
- Lade island
- current shoreline
- ▨ approximate antique shoreline

UTM projection - WGS84 datum  
 Topographic scale: 1:372,000 (precision: 93 m)



**MOUNT MYCALE**

**MOUNT THORAX**

**MOUNT LATMOS**

**MOUNT GRION**





# Milesian School

- Physicists
  - Physis = nature
- Thales (water)
- Anaximander (the indefinite)
- Anaximenes (air)
- Heraclitus (fire)

# Physicalist outlook

Rejection of supernatural explanation

Everything to be explained in terms of some natural process

Unification (parsimony, Occam's razor)

What underlies diverse appearances?

# Physicalism (Naturalism/ Materialism)

- Dewey: No gulf between nature and man
- Carnap: Unified science
  - Psychology can be reduced to physics
- Quine: Physics gives a complete theory of the world
  - If anything eludes physics the theory is regarded as incomplete and has to be modified or extended
- Armstrong: Every entity is located in a single spatiotemporal system

# The Divine Disease

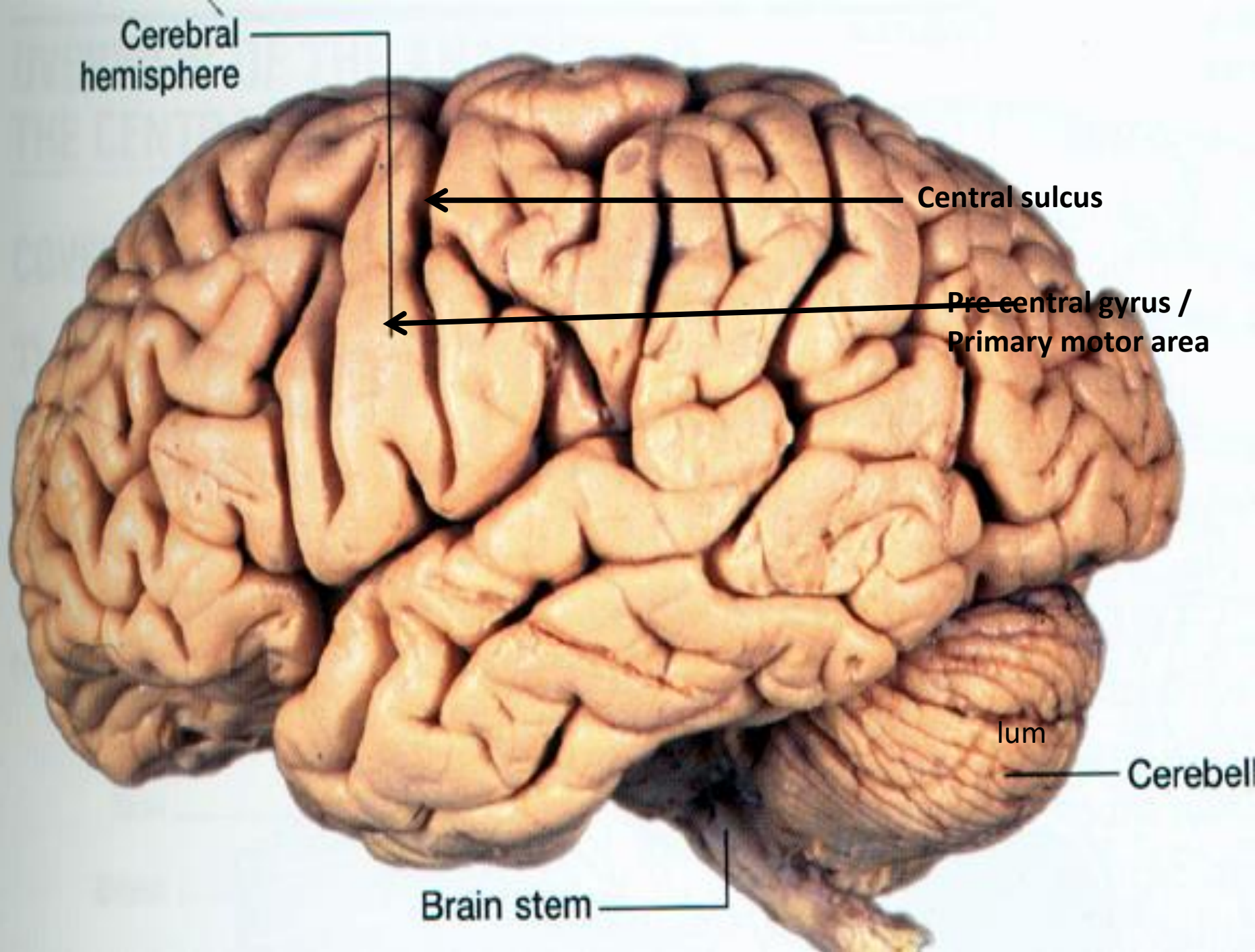
- Shivering
  - Loss of speech
  - Trouble breathing
  - Collapse
  - Excretion of the phlegm
- 
- Aura



# Hippocrates (Physician)

And men ought to know that from nothing else but from the brain come joys, delights, laughter and sports, and sorrows, griefs, despondency, and lamentations. And by this we acquire wisdom and knowledge, and see and hear, and know what are foul and what are fair, what are bad and what are good, what are sweet, and what unsavoury... And by the same organ we become mad and delirious, and fears and terrors assail us... All these things we endure from the brain, when it is not healthy... In these ways I am of the opinion that the brain exercises the greatest power in man.

- In short –
- - all mental activity depends on the brain
- ? depends on
- *Whatever theory we accept – Most agreed it necessary to retain the notion of human action:  
– How can the mind exert its causal powers in the physical world?*



Cerebral hemisphere

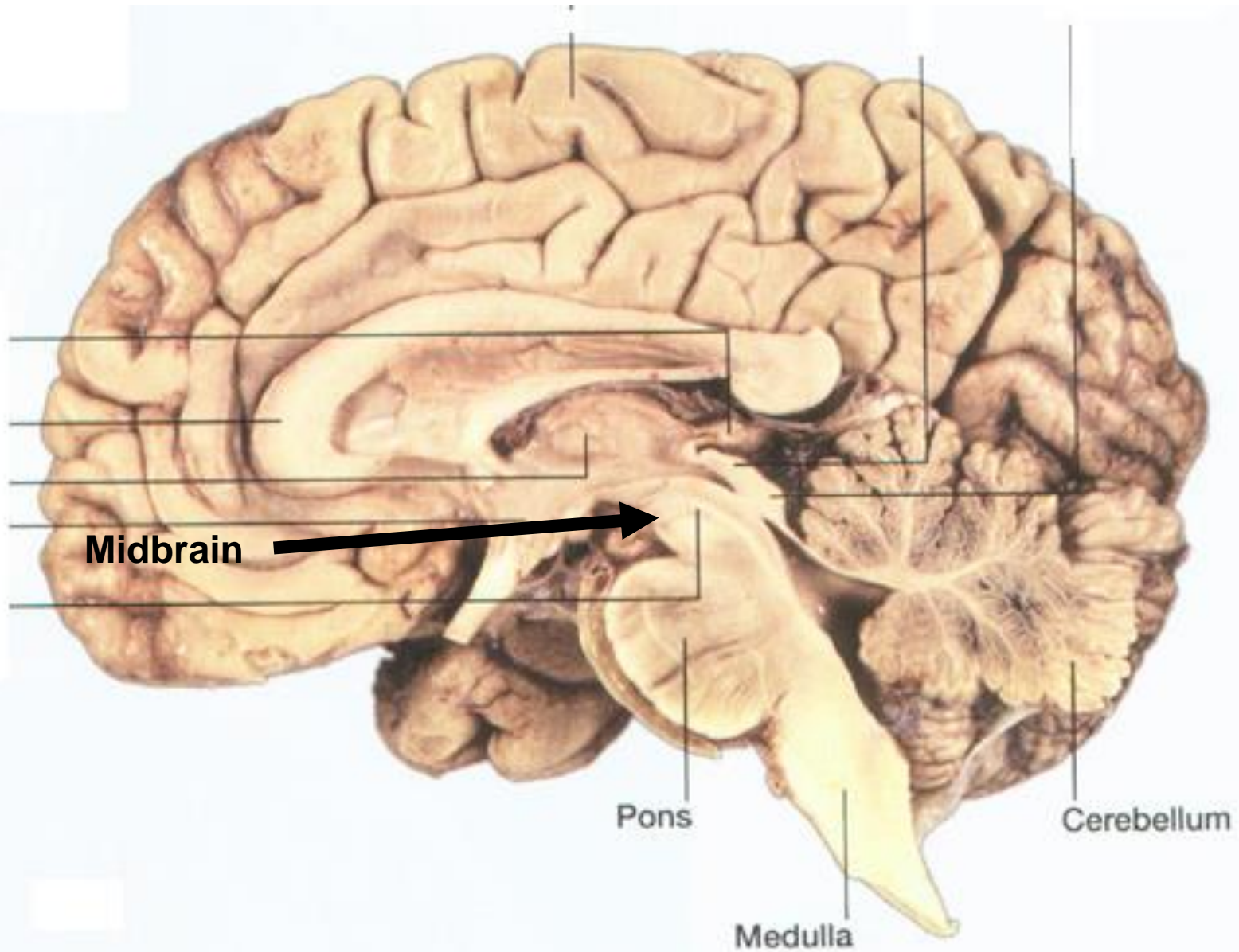
Central sulcus

Pre-central gyrus /  
Primary motor area

lum

Cerebellum

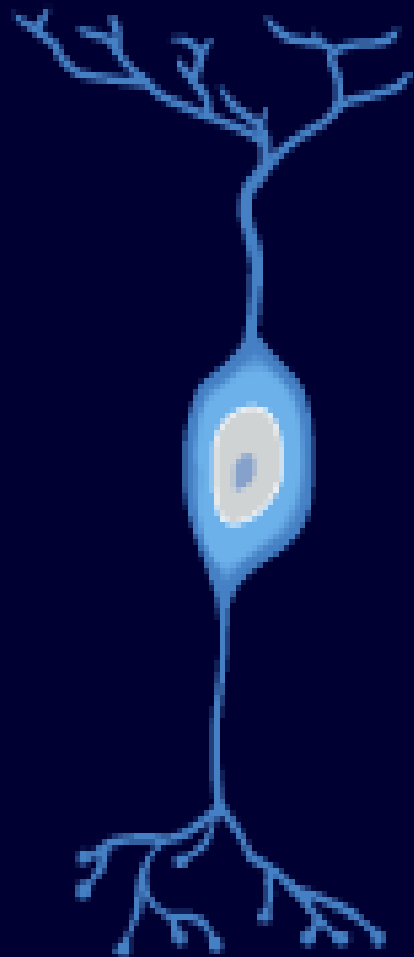
Brain stem



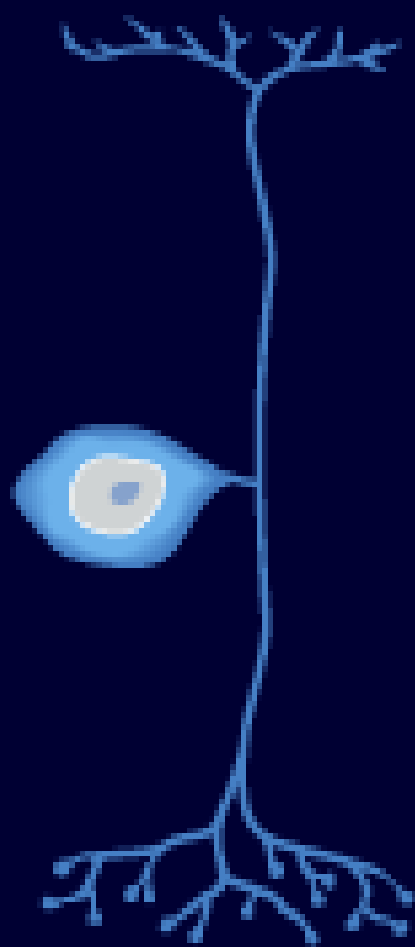


# Basic Neuron Types

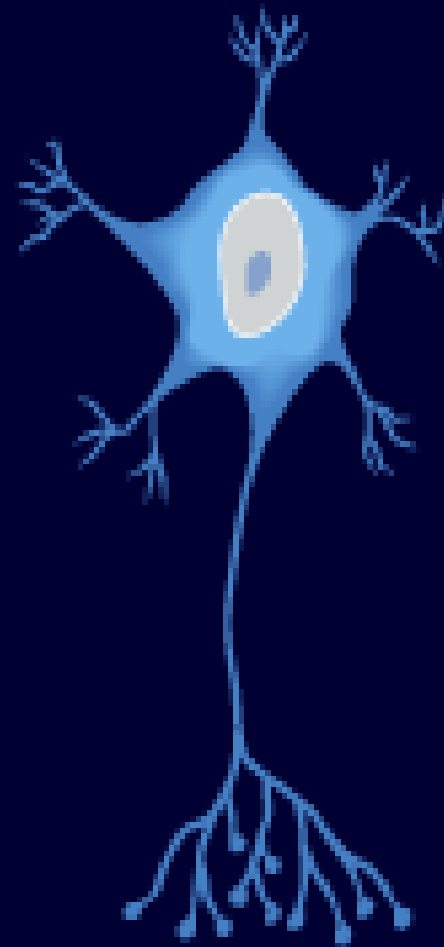
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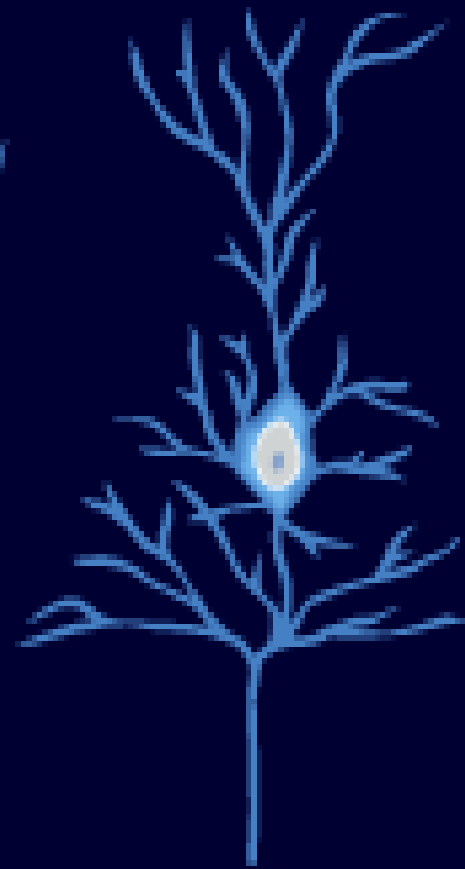
**Bipolar**  
(Interneuron)



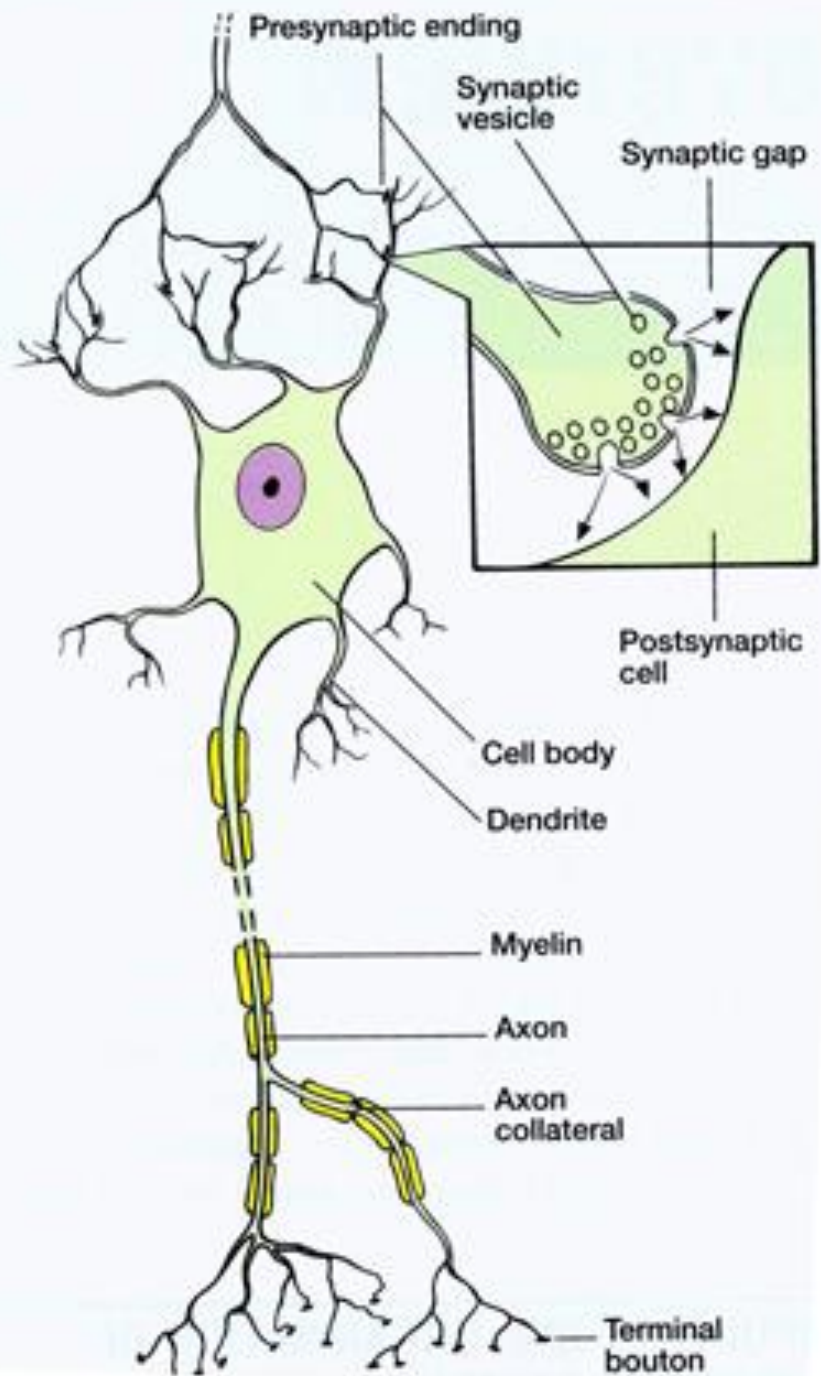
**Unipolar**  
(Sensory Neuron)



**Multipolar**  
(Motoneuron)



**Pyramidal  
Cell**



# Leibniz - Monadology

**17**

It has to be acknowledged that perception can't be explained by mechanical principles, that is by shapes and motions, and thus that nothing that depends on perception can be explained in that way either. Suppose this were wrong. Imagine there were a machine whose structure produced thought, feeling, and perception; we can conceive of its being enlarged while maintaining the same relative proportions among its parts, so that we could walk into it as we can walk into a mill.

Suppose we do walk into it; all we would find there are cogs and levers and so on pushing one another, and never anything to account for a perception.

# Descartes

- Body vs soul – many functions left to body (growth, reproduction, nutrition etc)
- Mind concerned with thought, consciousness
- Physical – extended
- Mental – no material properties (solidity, extension etc)



# Problems with Dualism

- Mind-Body Interaction (2 substances completely different)
- Conservation of Momentum
- Cannot account for causation (either on a body or on another mind)

# Causality

- ? Some quality of cause transferred to effect  
(e.g: motion of billiard balls)
- Hume
  - Constant conjunction
  - Temporal succession
  - Spatial contiguity

# Causation

GUN

A



PERSON

FRED

B



JOHN

THOUGHT

ACTION

FRED  
(DISEMBODIED) → ?

ARM RAISES

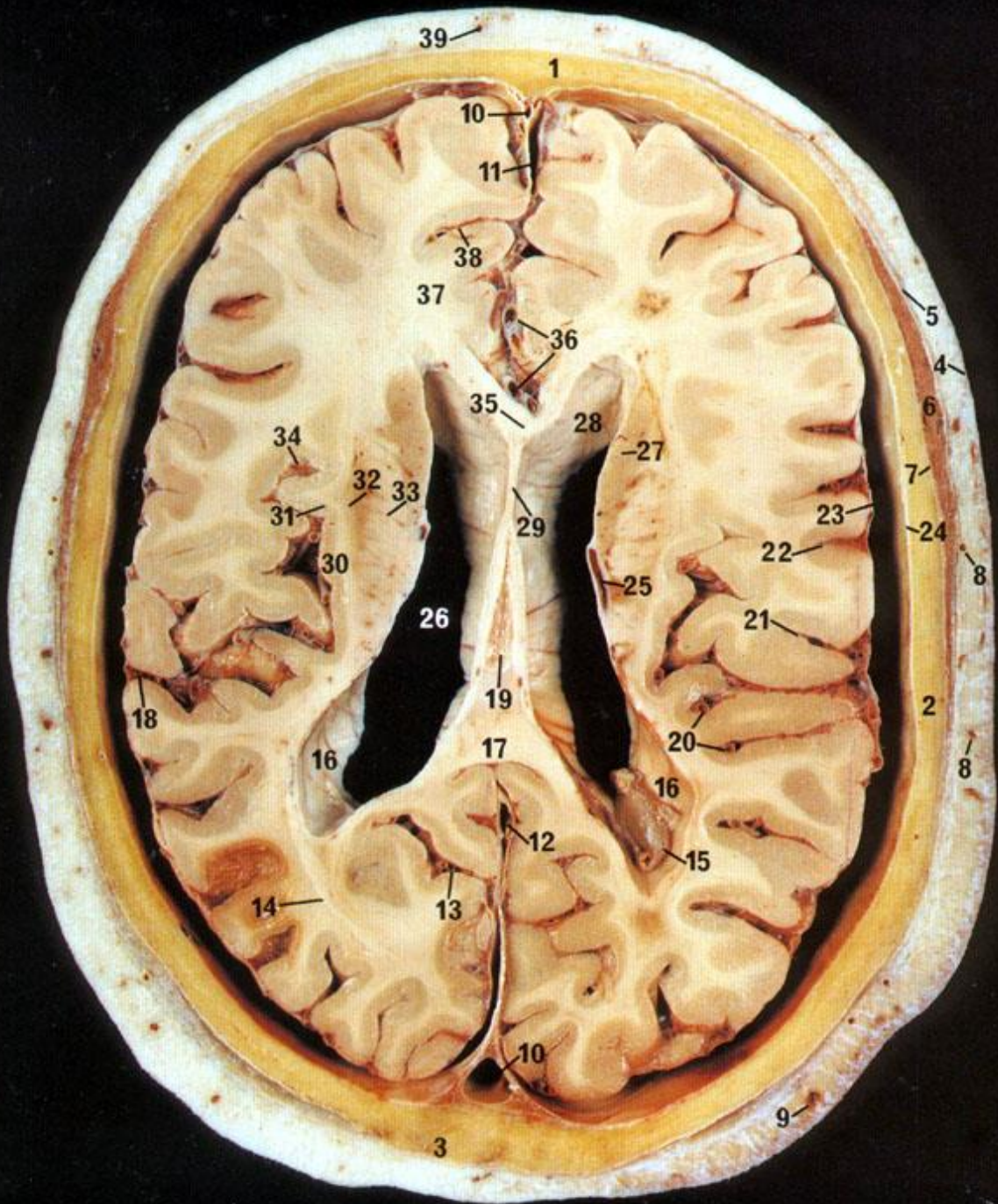
JOHN  
(DISEMBODIED) → ?

ARM RAISES

? PINEAL GLAND

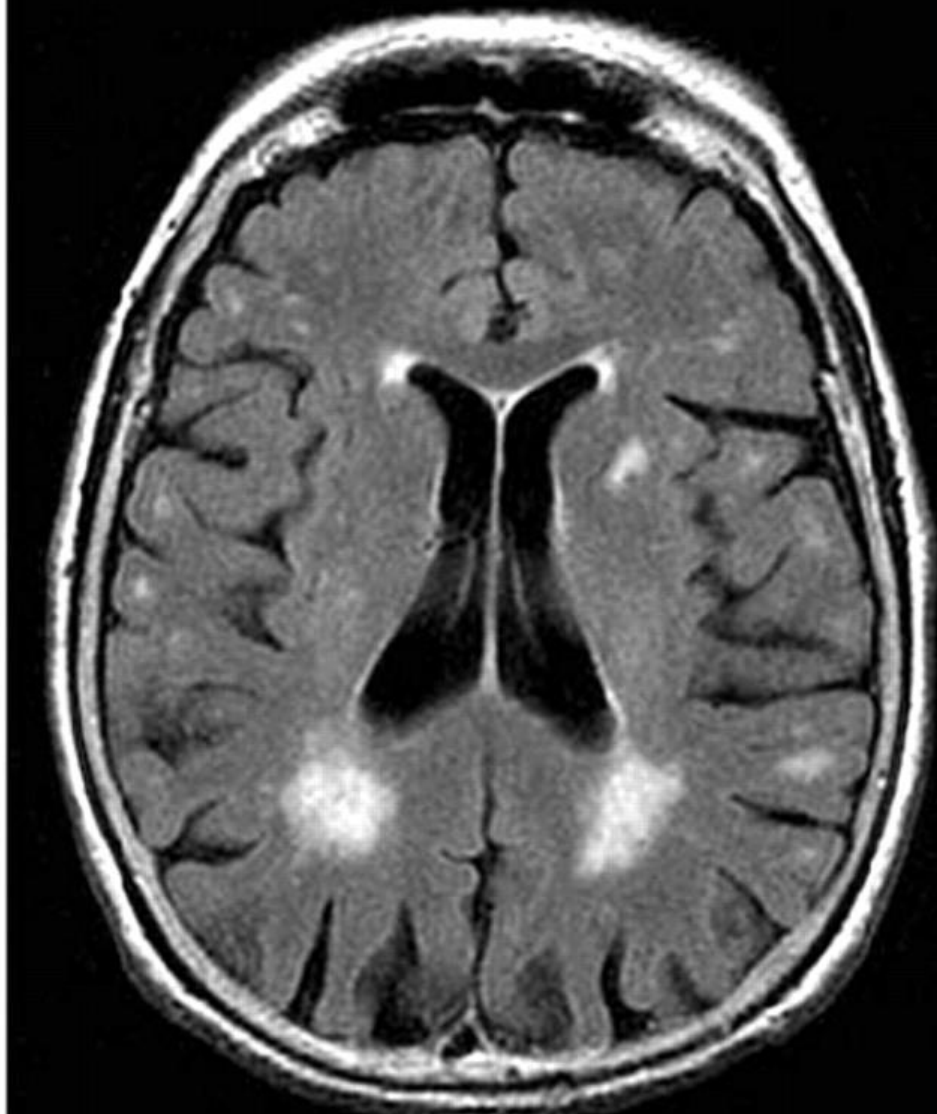
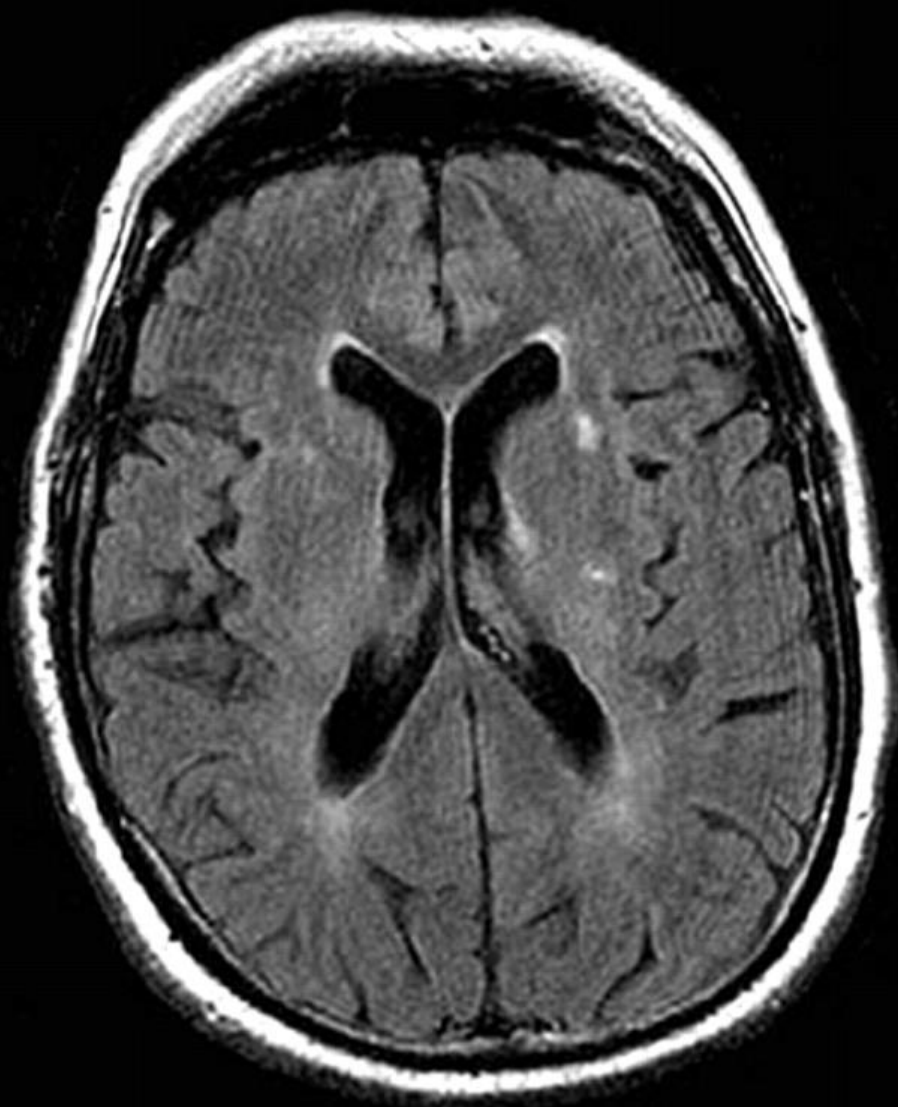
# Developments in Neuroscience

- Pathology
- Neuron tracing (fixation/staining/microscopy)
- Electrical stimulation (eg at surgery/animals)
- EEG
- Microelectrodes (eg place cells)
- Scans
- fMRI
- PET
- Psychopharmacology

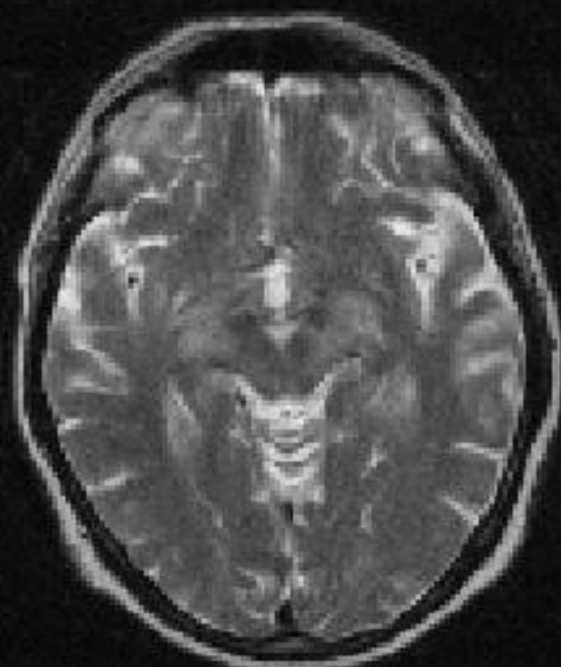
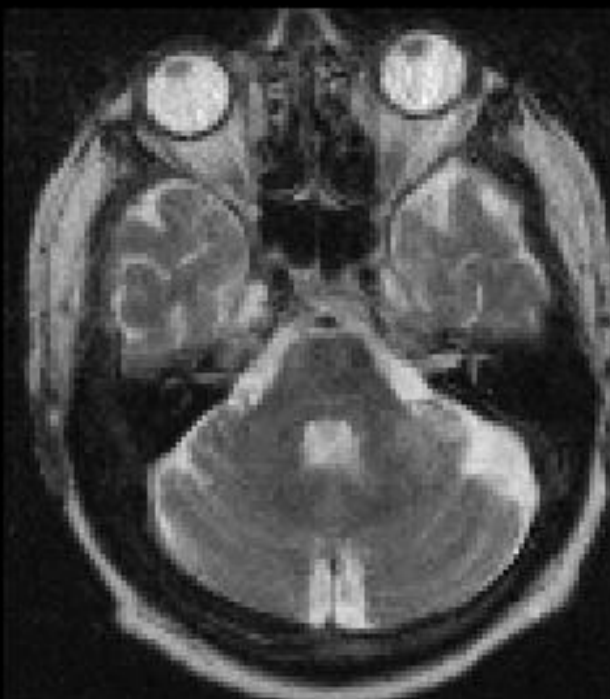


# MRI

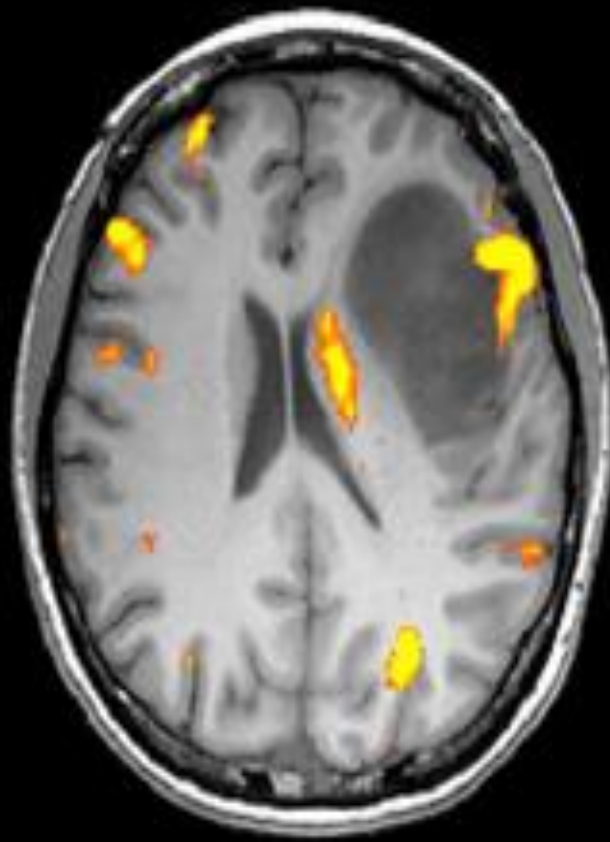




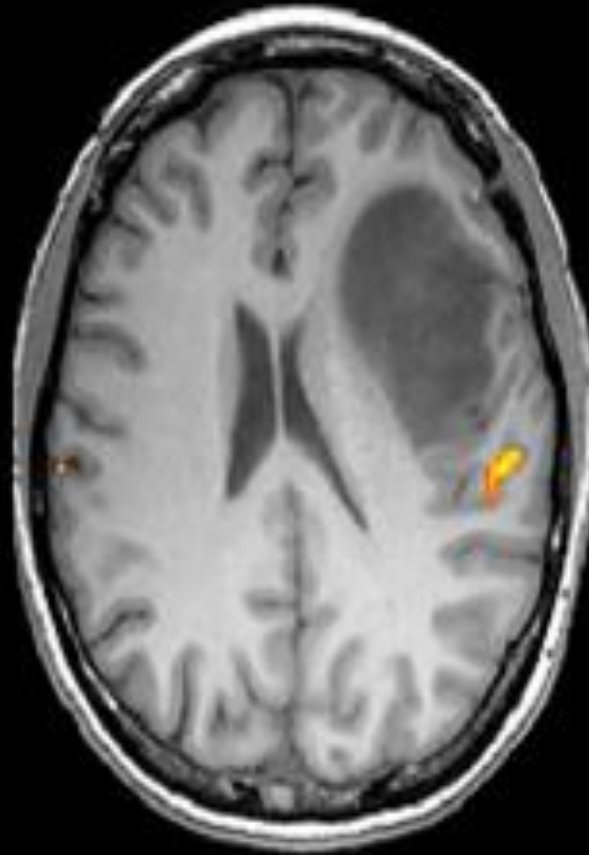




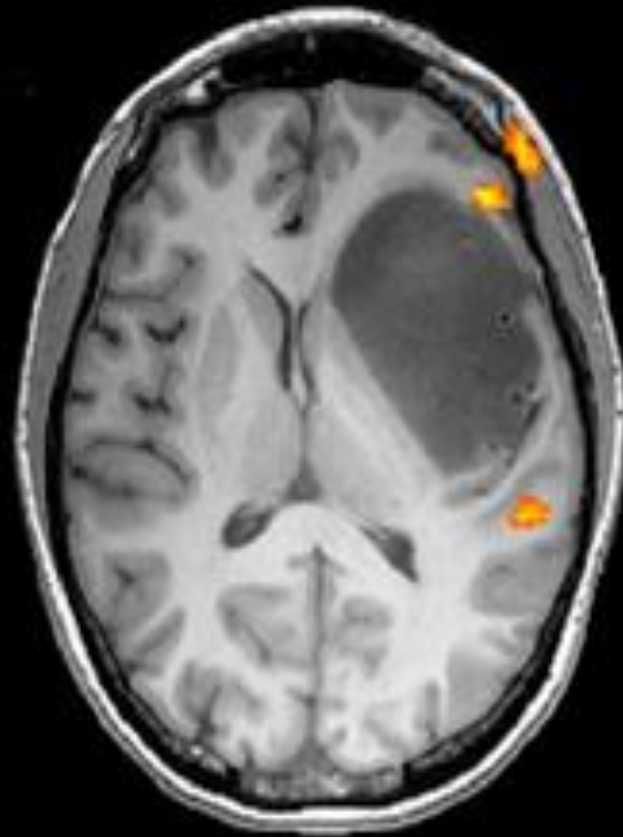
# fMRI



speech

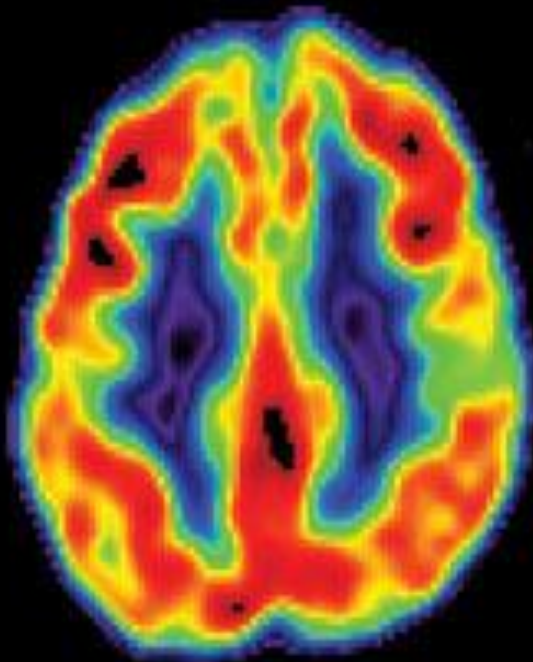


finger tap

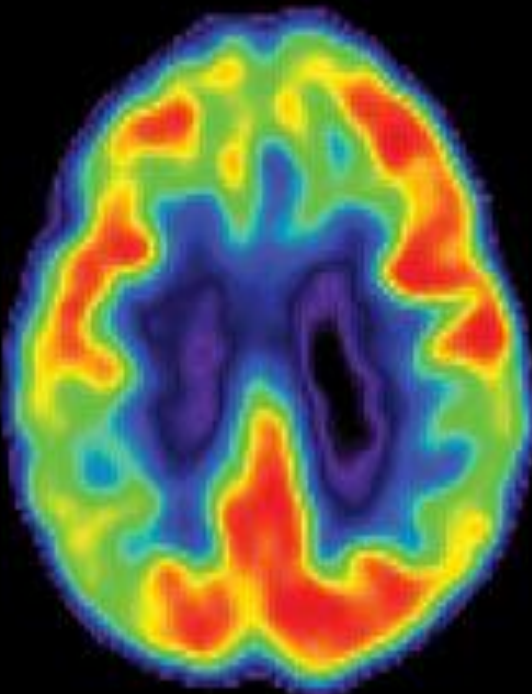


listening

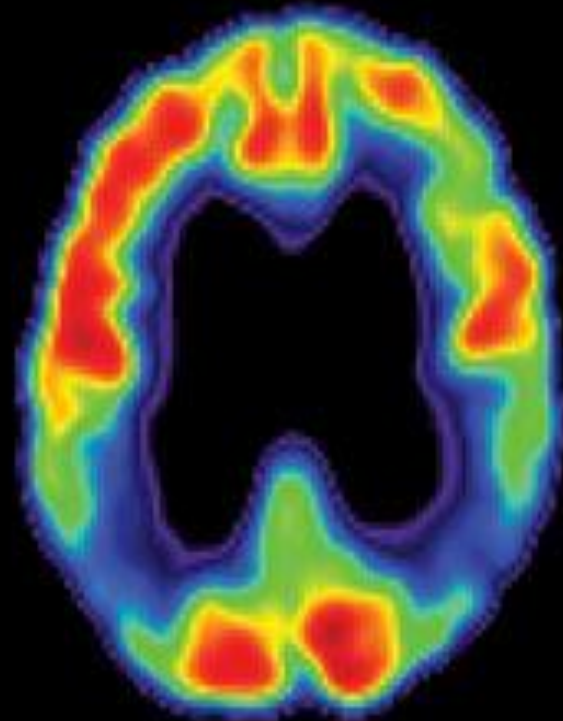
# PET



**Normal**



**Mild cognitive  
impairment**



**Alzheimer's  
disease**

# Correlations

- Correlations do not explain
  - E.g why does stimulating a certain neuron result in a feeling of pain rather than pleasure, itch, tickle?
- However as scientific picture builds up, and more correlations are established, physicalist picture becomes more plausible

# Physicalist Options

- Eliminativism
  - ‘Folk Psychology’ a theory – will be eliminated in favour of a better theory (neuroscience)
- Reductive Physicalism
  - The mental is nothing over and above the physical.
  - Mental states are identical with physical states
- Non- reductive physicalism
  - Mental states supervene on physical states, but are not identical with physical states

# Supervenience

- What happens in our mental life is wholly dependent on, and determined by, what happens with our bodily processes.

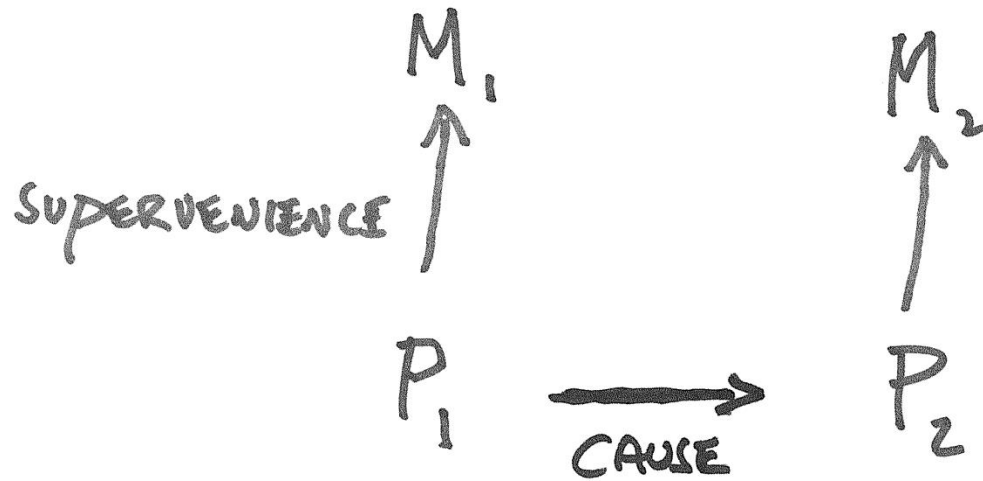
(notion originally developed in moral philosophy  
– systems that are alike in intrinsic physical  
properties must be alike in respect of their  
moral character)(ditto aesthetics, mental)

# (Strong) Supervenience

- If any system  $s$  instantiates a mental property  $M$  at  $t$ , there necessarily exists a physical property  $P$  such that  $s$  instantiates  $P$  at  $t$ , and necessarily anything instantiating  $P$  at any time instantiates  $M$  at that time.



# Epiphenomenalism



# Principle of Causal Closure

- If a physical event has a cause that occurs at  $t$ , it has a physical cause that occurs at  $t$ .

# Principle of Causal Exclusion

- If an event  $e$  has a sufficient cause  $c$  at time  $t$ , no event at  $t$  distinct from  $c$  can be a cause of  $e$  (unless this is a genuine case of causal overdetermination)
- There may occasionally be 2 sufficient causes for an event, but this is rare!

# Overall Argument

- 1 At every time at which a physical state has a cause, it has a fully sufficient physical cause
- 2 Some physical states have mental states amongst their causes
- 3 When a physical state has a mental state amongst its causes, it is rarely if ever causally overdetermined by that mental state and some other physical state

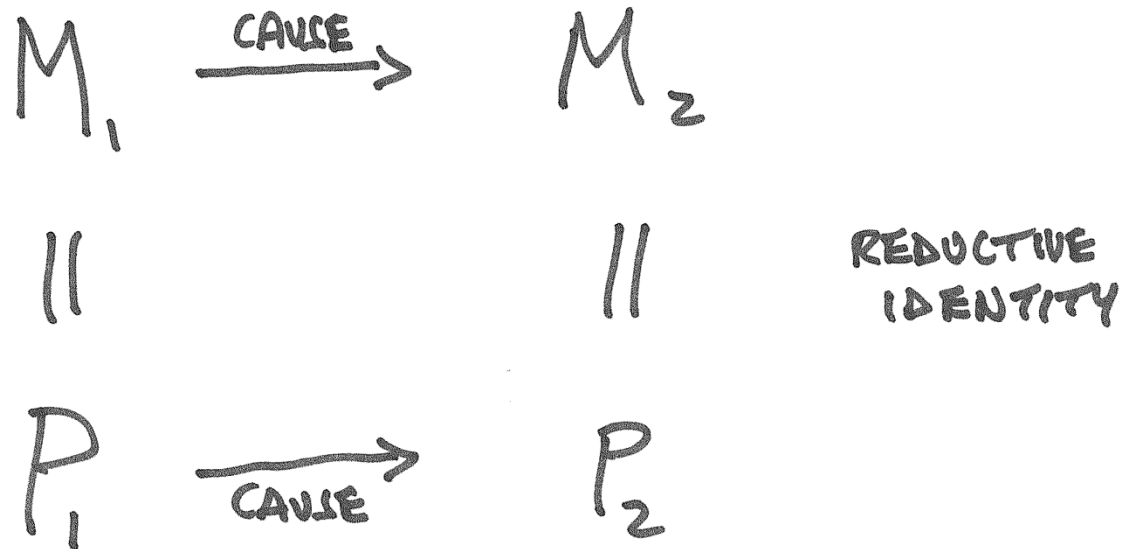
# Conclusion from 1,2 and 3

- At least some mental states are identical with some physical states

# Explanation

- At  $t$  –
- Suppose  $P_1 \dots P_x \dots P_n$  (as a set) causally sufficient for  $P$
- But also suppose  $M$  is causally sufficient for  $P$
- No overdetermination – so
- $M$  must be identical with one of  $P_1 \dots P_n$

# Conclusion :





# ? Argument valid

- Accept conclusion
- - or reject premise!
  
- Only premise which is suspect is 1 – causal closure
- Would scientists ever look outside the physical to find causes for events their theory is supposed to explain?!

# Books

- William Lyons: Matters of the Mind (Edinburgh)
- William Lyons: Modern Philosophy of Mind (Everyman)
- Jaegwon Kim: Physicalism, or Something Near Enough (Princeton)
- EJ Lowe: An Introduction to the Philosophy of Mind (Cambridge)
- Rex Welshon: Philosophy Neuroscience and Consciousness (Acumen)