

# Minds and Machines

## Lecture 17

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# Previously

- The mind and mental states
- Dualism, materialism
- Identity theory, functionalism

# Pop Quiz

- Put away devices
- Use a blank sheet of paper
- At the top, write your name and your TA's name (Dana Grabelsky, Sydney Harvey, Richard Roth).

# Pop Quiz

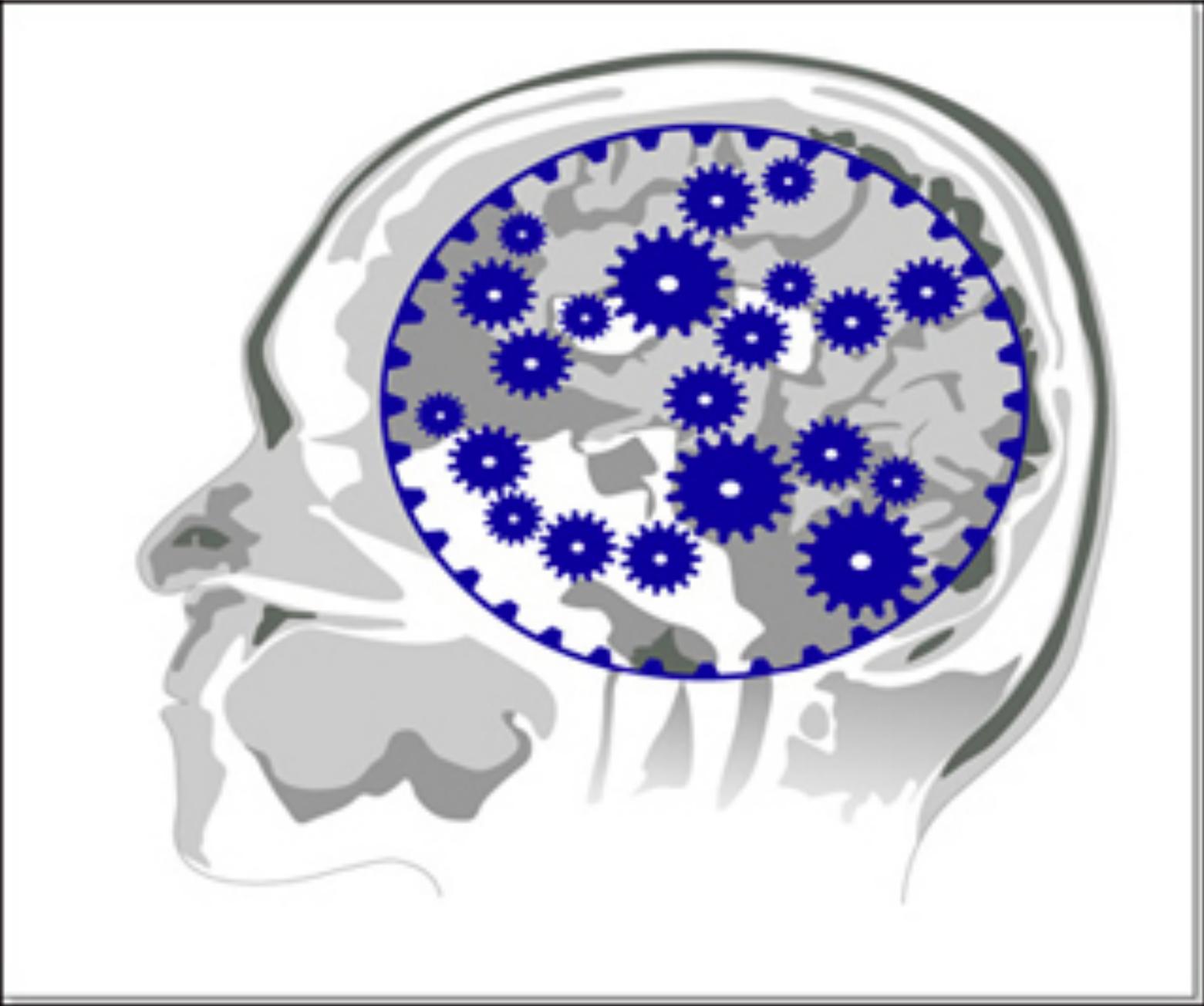
- What is the it-from-bit hypothesis?
- What is utilitarianism?
- What is the interaction problem for dualism?
- Who formulated the interaction problem?
- What is the mind/brain identity theory?

# Today

- The problem of consciousness

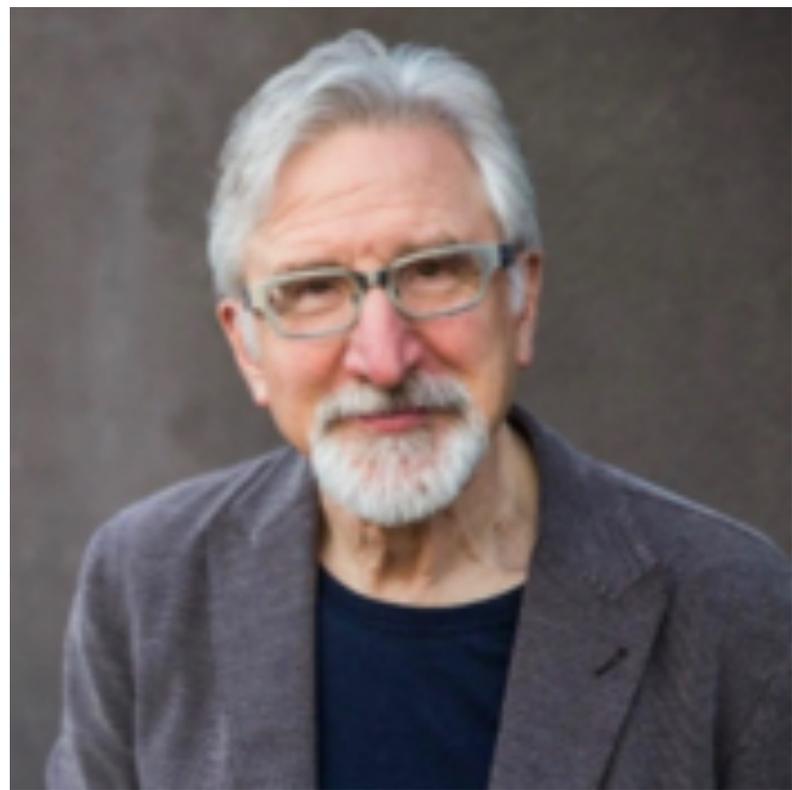
# Functionalism

- Functionalism: mental states are functional states.
- Functional states are higher-level physical states, not tied to any specific biology, like the states of a computer.



# Liberalism

- Worry: where the identity theory was too chauvinistic, functionalism is too *liberal*: it ascribes pain to systems that lack it.



# Nation-Brain Argument

1. If functionalism is correct, the population (as a whole) will experience pain.
2. The population (as a whole) will not experience pain.
3. Functionalism is incorrect.

# Consciousness

- Consciousness: The subjective experience of mind and world.

**consciousness**



**that annoying time  
between naps**

# What It is Like

- An entity is conscious when there's *something it is like* to be that entity.
- Most humans are conscious.
- Dogs and bats are arguably conscious.
- Plants? Computers? Tables? Atoms?

# ‘What is it like to be a bat?’

“... imagine that one has webbing on one’s arms, which enables one to fly around at dusk and dawn catching insects in one’s mouth; that one has very poor vision, and perceives the surrounding world by a system of reflected high-frequency sound signals; and that one spends the day hanging upside down by one’s feet in an attic. In so far as I can imagine this (which is not very far), it tells me only what it would be like for me to behave as a bat behaves. But that is not the question. I want to know what it is like for a *bat* to be a bat.”



Thomas Nagel, ‘What is it like to be a bat?’ (1974)

# Conscious States

- A mental state is conscious when there's something it is like to be in that state.
- Pain is conscious: there's something it is like to be in pain.
- Seeing is usually conscious: there's something it is like to see.

# Unconscious Mental States

- Some mental states are unconscious: there's nothing it is like to have them (no subjective experience).
- Unconscious beliefs and desires (Freud)
- Unconscious language processing
- Unconscious learning

# Some Conscious States

- Perception: Seeing, hearing, tasting, smelling.
- Bodily sensation: Feeling pain, hunger, thirst, itches.
- Emotion: Happiness, sadness, anger, joy.
- Thinking?: Believing, calculating, imagining, remembering
- Desiring?: Wanting, preferring, hoping
- Action?: Deciding, intending, acting

# Consciousness as Inner Movie

- Consciousness is like the inner movie playing in the mind?
- Or better: like the inner virtual reality?

# Some Questions

- Can there be a scientific theory of consciousness?
- Is consciousness a process in the brain?
- Can consciousness be explained in physical terms?
- What role does consciousness play?
- How can consciousness be measured?
- What creatures have consciousness?

# The Science of Consciousness

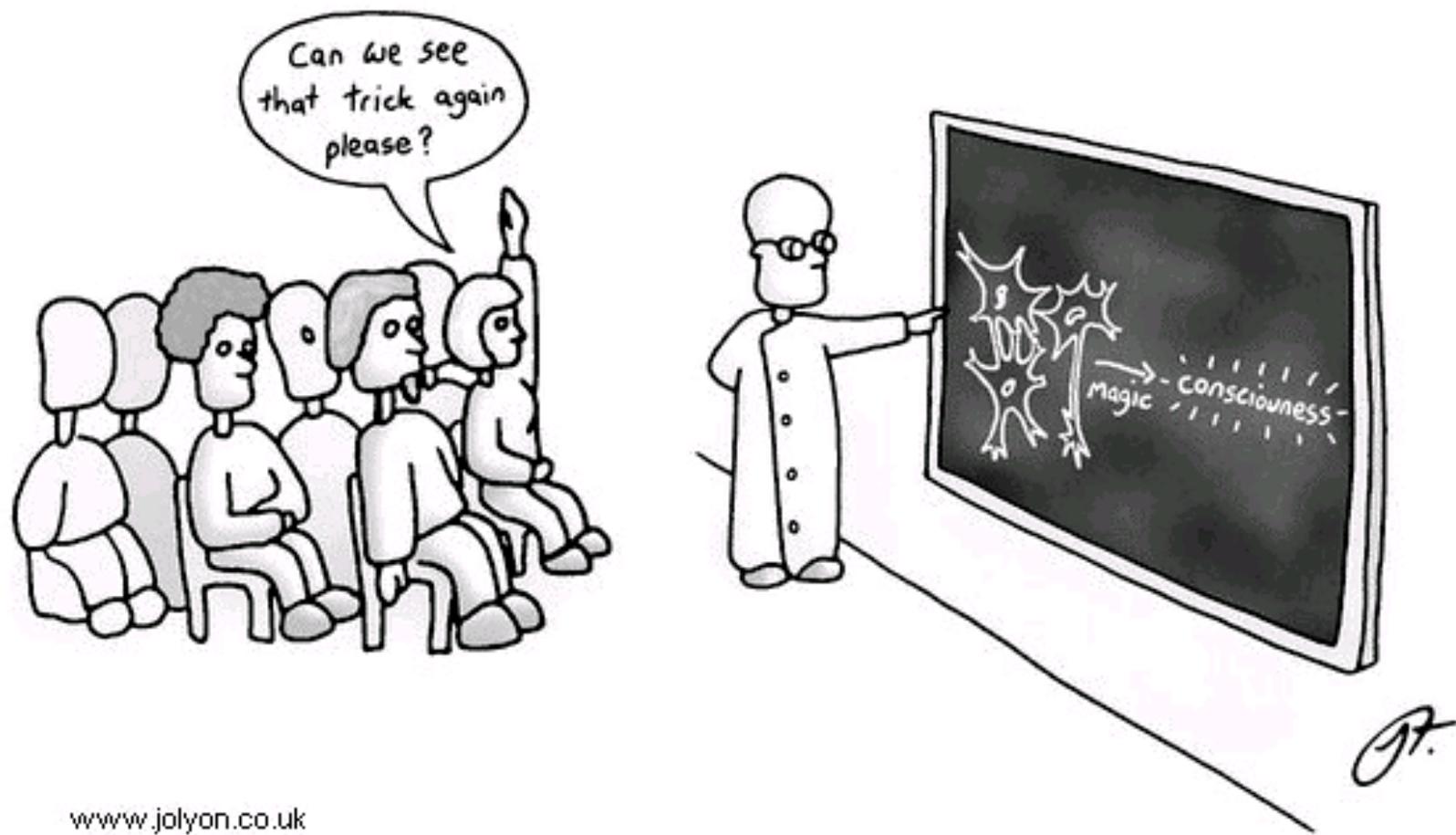
- 19th century: Psychology as science of consciousness (Fechner, Wundt, James)
- Early 20th century: Behaviorism dismisses consciousness as outside science (Watson, Skinner)
- Mid 20th century: From behavior to cognition, but not yet consciousness (Chomsky).
- 1990s: Return to consciousness (Crick, Koch, Dennett)

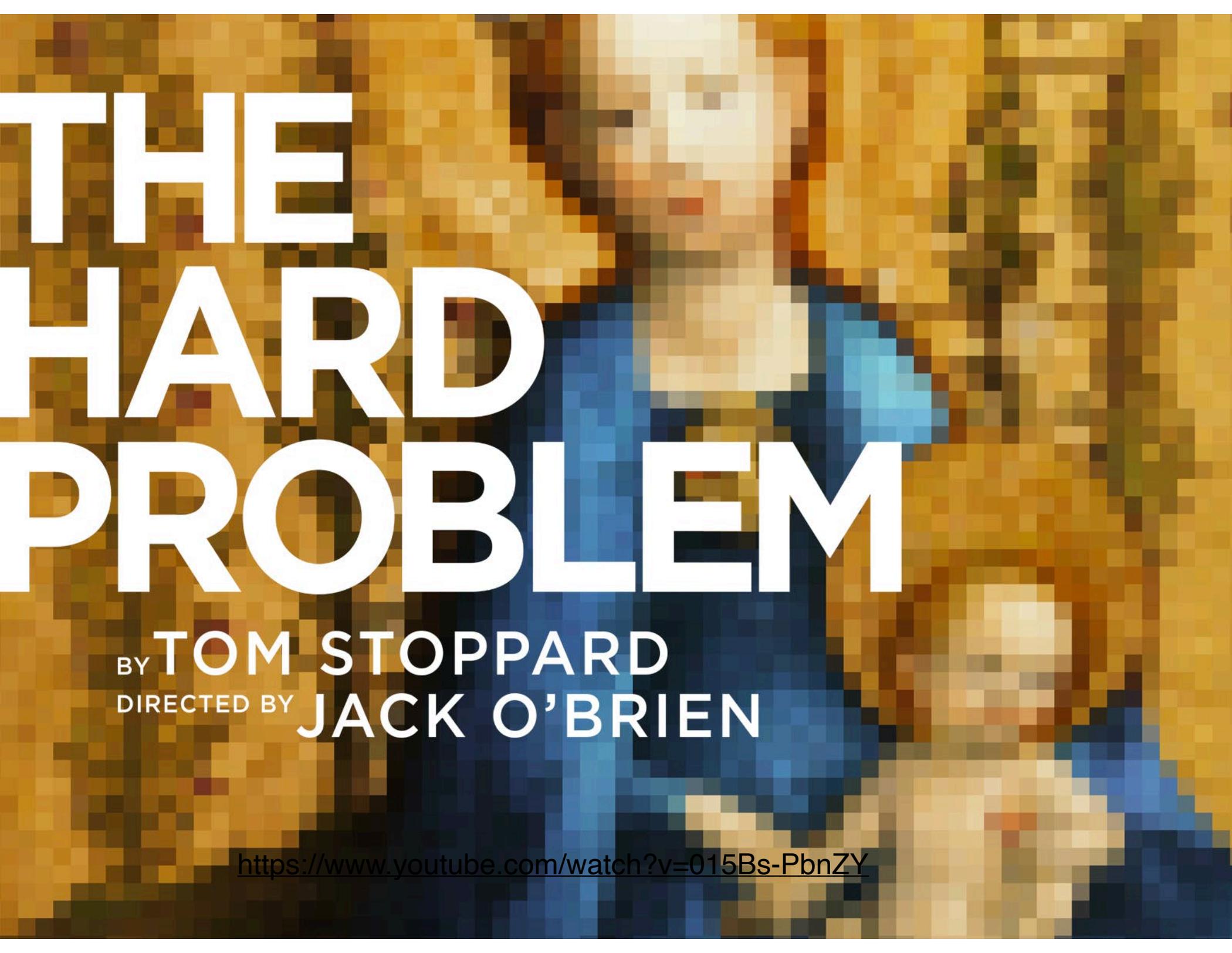
# Science and Philosophy

- The science of consciousness is now very active in neuroscience and psychology
- It has made progress in finding correlations between brain states and states of consciousness.
- But many hard questions are unanswered, e.g. how can we explain consciousness in terms of the brain?

# The Hard Problem

- The hard problem of consciousness: How do physical processes in the brain give rise to conscious experience?





# THE HARD PROBLEM

BY TOM STOPPARD  
DIRECTED BY JACK O'BRIEN

<https://www.youtube.com/watch?v=015Bs-PbnZY>

# Easy Problems of Consciousness

- “Easy” problems: how can we explain *behavior* and *processing* in terms of the brain
  - perceptual discrimination
  - verbal reports
  - being awake and responsive
  - ...

# Easy Problems and Neuroscience

- The easy problems seem susceptible to the standard methods of cognitive science
  - exhibit a neural process or a computational mechanism that performs a certain task
  - doing that can explain discrimination, verbal report, etc.

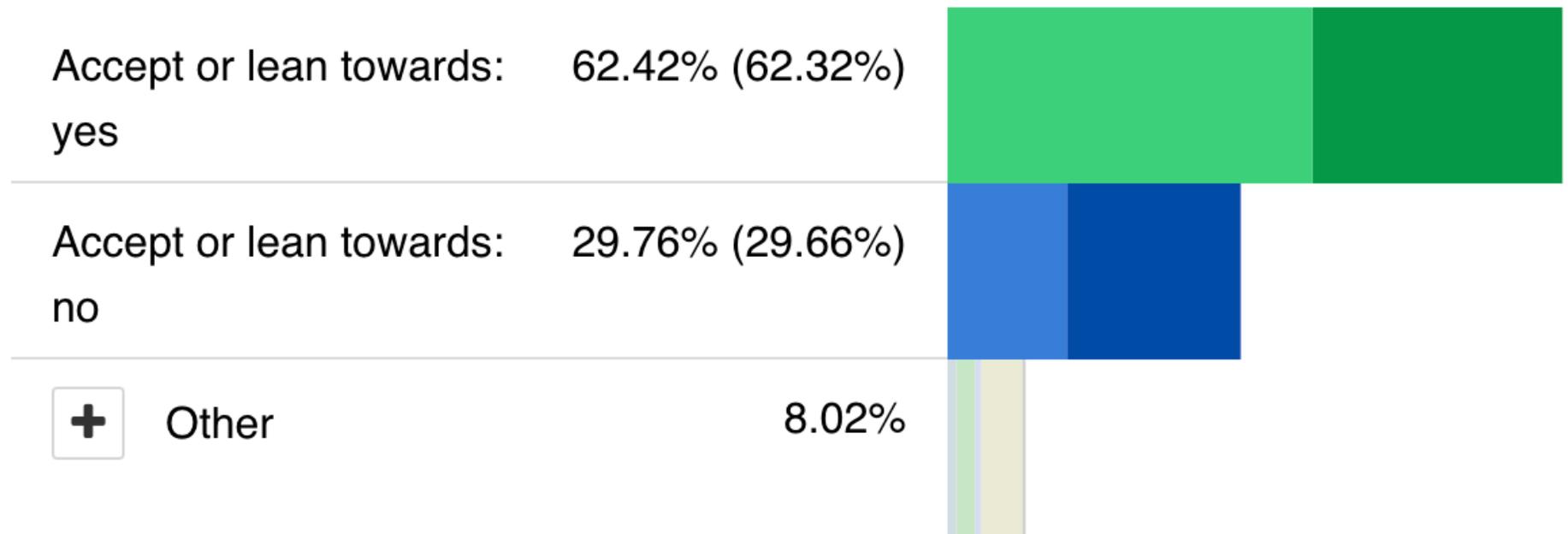
# Hard Problem and Neuroscience

- But even if you give neural mechanisms explaining how the brain accomplishes all these tasks, it seems the hard problem is a further question:
- Why is all this processing accompanied by consciousness?

# Functions

- The easy problems are all problems about how the brain performs various functions
  - Science is good at handling those!
- The hard problem is a not a problem about how the brain performs functions
  - Not so easy for science!

## Hard problem of consciousness (is there one?): yes or no?



N = 998, excluding skipped & insufficiently familiar (143 respondents)

# Hard Problem Argument

- 1. Brain processes alone explain only functions.
  - 2. Explaining functions does not explain consciousness.
- 
- 3. Brain processes alone do not explain consciousness.

# Responses to the Hard Problem

- Dualism: Consciousness is distinct from matter.
- Identity theory: Neuroscience will explain consciousness eventually.
- Illusionism: There's no consciousness and no problem
- Panpsychism: All matter is conscious.

# Next Week

- More on consciousness