

# PHI 1500: Major Issues in Philosophy

## **Session 17**

November 4th, 2015



Philosophy of Mind: Patricia Churchland

➤ Let's recap the three proposed answers to *the mind-body problem* we've studied:

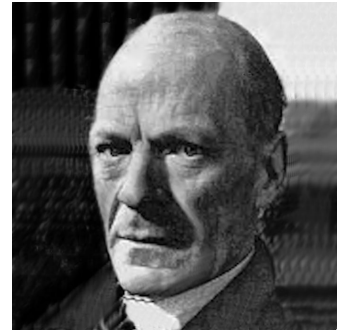
**Descartes** defended *substance dualism*,

- the view that the mind is so distinct from the body that they must be made of different substances,
  - one physical (*res extensa*) and one non-physical (*res cogitans*)



**Ryle** argued in favor of *behaviorism*,

- a type of physicalism which says that minds are part of the physical world,
  - specifically, the part of human behavior that sets us apart from robots & philosophical zombies.



**Jackson** argued for *property dualism*,

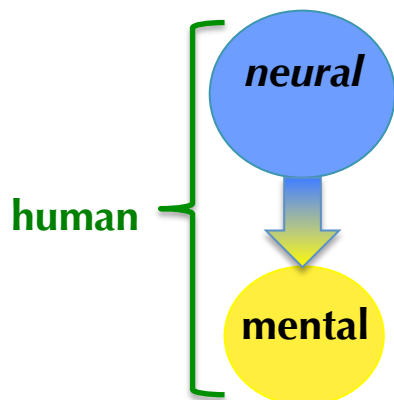
- a view that distinguishes the mind & body by their properties, rather than as distinct substances.
  - His “knowledge argument” aimed to show physicalism is false,
  - because it is hard to imagine that science will be able to explain *qualia* – *what it is like* to experience things.
    - He thought a scientific approach to the mind would not be able to grasp this crucial qualitative aspect of experience.





**Patricia Churchland** applies her *naturalist* approach to philosophy to the mind-body problem.

- Her project of ‘naturalizing the mind’ involves appealing to contemporary science & the philosophy of science to shape her perspective.
  - Against Jackson, she argues that **contemporary science supports the truth of physicalism,**

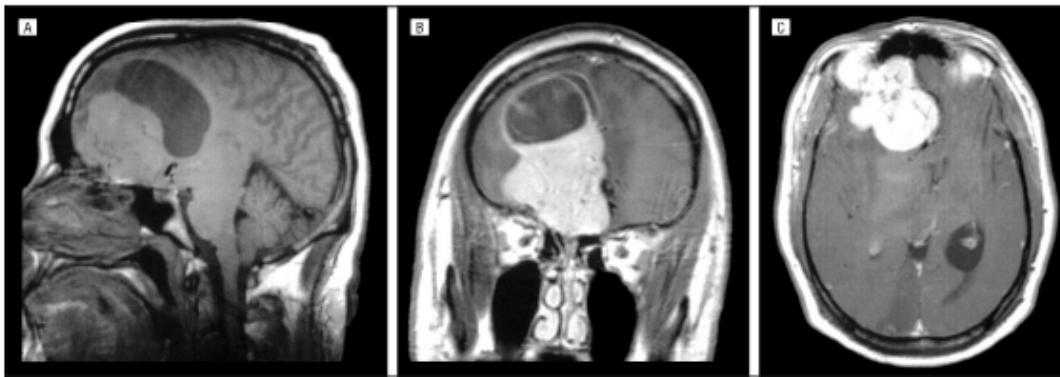


- and that **neuroscience will eventually be able to explain everything we want to know about minds.**
  - This belief is based on an examination of the history of science,
  - which contains many examples of scientific breakthroughs that led to ‘**conceptual revolutions**’:
    - » the overhaul of old ways of explaining phenomena in the world by newer, better accounts.
- Another term for these, popularized by Thomas Kuhn, is a ‘**paradigm shifts**’.

Churchland's case of the *Virginia man* whose tumor temporarily turned him into a pedophile is a prime example of **evidence for physicalism**.

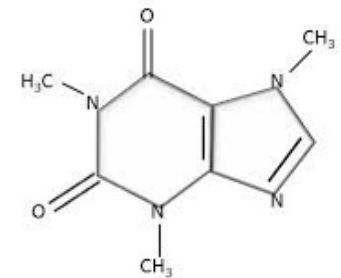


- *Damage to the brain is often accompanied by changes in mental capacities or dispositions.*



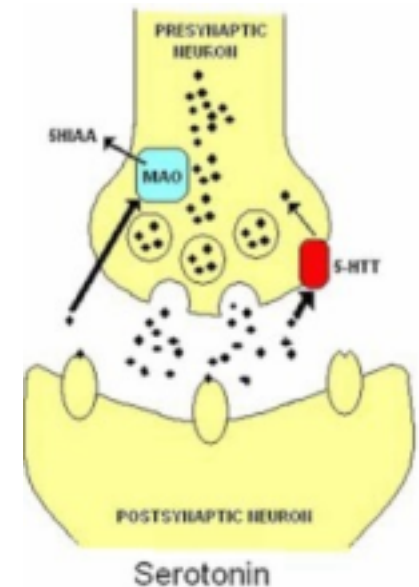
**Figure 1.** Magnetic resonance imaging scans at the time of initial neurologic evaluation: T1 sagittal (A), contrast-enhanced coronal (B), and contrast-enhanced axial (C) views. In A and B, the tumor mass extends superiorly from the olfactory groove, displacing the right orbitofrontal cortex and distorting the dorsolateral prefrontal cortex. The tumor is capped by a large cystic portion.

Caffeine Molecule



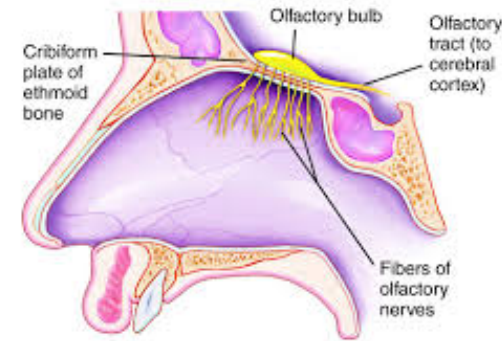
More mundane examples of evidence for physicalism:

- *ingesting psychoactive substances* (those that can impact the functioning of your brain, like caffeine, Prozac, LSD...) *impacts your mind* (alertness, mood, apparent perceptions...)
- *Interpersonal differences in brain structure & function are correlated with differences susceptibility to mental illness* (depression, schizophrenia...)



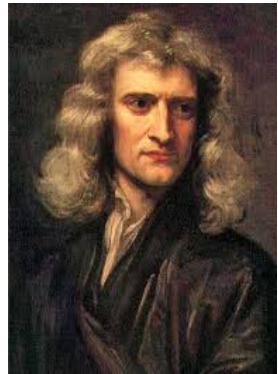
## Of course, there is plenty that we still don't know about *how* our brains produce our minds.

- *Qualia* are a big mystery.
  - E.g., we know that cilantro (a.k.a. coriander) tastes/smells delicious to some people, but gross and soapy to others.
  - People who have two copies of one variant of a particular gene (OR6A2, which encodes an odorant receptor that detects a group of molecules in cilantro called aldehydes), are more likely to perceive cilantro as tasting/smelling soapy.
- So we seem to know why different people associate different qualia with cilantro (**video**: [bit.ly/1Q9TjpG](https://bit.ly/1Q9TjpG))
  - but we don't know why a subtle variation in a few odorant receptors should produce *that particular difference in qualia* (soapy vs. not)
  - or why the activity of those odorant receptors produces those qualia at all, rather than any others (e.g., minty, floral, sour...)
- **...but Churchland is nevertheless confident that these mysteries will get solved by neuroscience.**



## Churchland's optimistic outlook is motivated by the *history of science*.

- Scientific discoveries have been, and continue to be, responsible for drastically reshaping the concepts we use in everyday life.



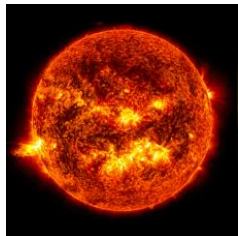
- » She explains how *folk-physics* turned out to be wrong, and was revised thanks to discoveries made by physicists (like Isaac Newton).
- » ***folk-psychology*** = ordinary talk about how our minds work,
  - e.g., we seem to think that acquiring factual knowledge, gaining skills, & grasping new meaning have something in common that makes them all *learning*.



- If folk-physics could be revised by scientific progress, then it seems possible that folk-psychology could be revised by advances in neuroscience.
- E.g., neuroscience suggests that there are *several subtypes of learning*, supported by different structures & processes:
  - *knowledge how* (to do skills) & *knowledge that* (of facts) seem to be enabled by separate learning processes,
    - since patients with anterograde amnesia can lose their *knowledge that*, but retain *knowledge how*.<sup>6</sup>

For example, the folk concept (everyday understanding) of **fire** in the medieval era included many distinct phenomena:

- **the sun, comets, burning wood, lightning, northern lights, fireflies...**



- » All of these *seemed* to share the common property of emitting light and/or heat,
- » so *they were thought to belong to a single 'family'.*



Churchland explains:

- ***“The reality behind what was supposed to be observably obvious turned out to be surprising:***



- the items in the list are fundamentally different from each other
- and are subsumed by very different scientific subfields.

- The heat and light from the sun is the result not of oxidation, but of nuclear fusion;
- lightning is actually thermal emission;
- the fireflies' display is based on biophosphorescence;
- comets are balls of ice reflecting sunlight;
- northern lights are the result of spectral emission.



- *These items are not part of the same family at all.”* (2005: 287)

Churchland notes:

- “From the vantage point of 21<sup>st</sup> century science, the medieval categorization [of fire] might seem a bit foolish.
- Because we learn contemporary science as children, that current science becomes second nature to us — it seems dead obvious.
  - [However,] the medieval category was *not* owed to foolishness but merely to *ignorance*.
    - When you do not really understand the nature of a phenomenon, you try to do justice to what you think is observably obvious.” (287)

IGNORANCE IS  
A TEMPORARY  
AFFLICTION,  
REMEDIED ONLY  
BY ASKING THE  
RIGHT QUESTIONS.

-COLIN WRIGHT  
enlightenstyle.com

Her point is that **our *current* conception of the mind using *folk-psychology* could turn out to seem just as “*foolish*” as the medieval conception of fire,**  
➤ **in comparison to a rich *neuroscientific* account for those phenomena.**



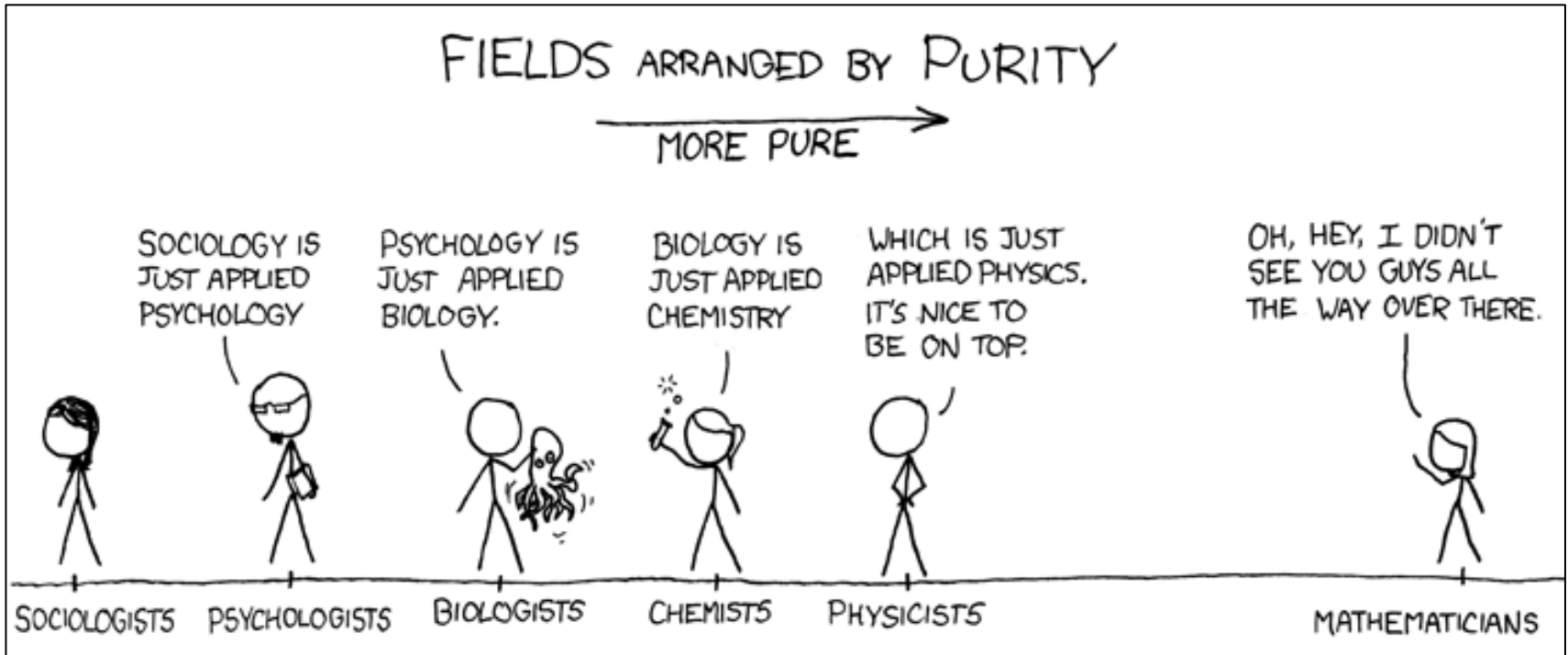
The history of science shows us that new findings can (and often do) completely overhaul the old way of thinking about things.

- This should give us *hope* that neuroscience *could* give us a completely new way of understanding our minds. 8

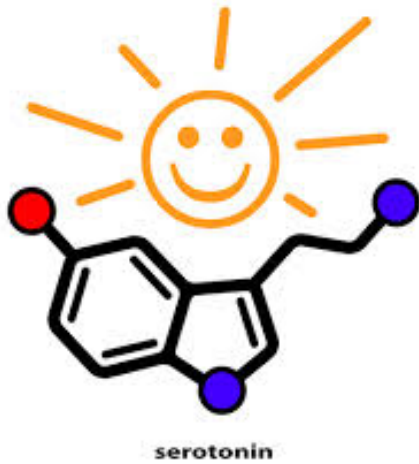


## One way that a paradigm shift can occur is when

- explanations at one level of scientific explanation (e.g., biology) are *reduced* to explanations at a more fundamental level (e.g., physics).
  - (This assumes that the sciences can be ordered into a *hierarchy* by 'purity' or 'fundamentality', where each level above the foundational field applies principles established by the fields below it.)



- **reductionism** = the practice of explaining phenomena at a higher level of the hierarchy in terms of phenomena at one of the lower levels.



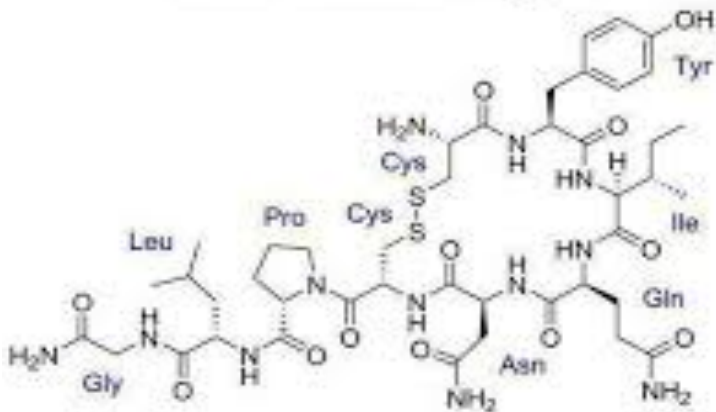
- » Churchland believes that everything we can describe in **psychological** terms, like:
- *emotions* (joy, sadness, anger, fear, disgust...)
  - short-term & long-term *memory*,
  - *cognition* (thinking, reasoning)
  - *decision-making*
  - *learning*
  - *attention*

What People Think of Love



- » ...will eventually be describable in terms of **neurobiological** processes, when neuroscience progresses far enough.

What Love Actually is



- In other words, **psychology will eventually be reduced to neuroscience:**

- Everything explained in psychological theories would also be explained by neuroscientific theories (in terms of neurons, brain circuitry, neurochemicals, etc.)

Neuroscientists have already made considerable progress in showing how **psychological phenomena reduce to neurological processes.**

- E.g., the psychological trait of *preferring monogamous relationships* seems to reduce to a brain trait:
  - in voles, the concentration of receptors for the hormone *oxytocin* in a particular area of the brain correlates with pair-bonding behavior,
  - and *pair-bonding can be induced experimentally*, by increasing the concentration of receptors in the voles' brains.
- **videos:** [bit.ly/1xmE95Y](http://bit.ly/1xmE95Y), [on.cc.com/1swrVDB](http://on.cc.com/1swrVDB),



Sometimes scientific progress even helps us to discover that phenomena we took for granted *simply don't exist*.

- Two examples are:
  - ***spontaneous generation***:
    - Until the mid-19<sup>th</sup> century, people believed that vermin (mice, fleas, flies, etc.) could arise from inanimate matter, and not just by descent from parent organisms.



- ***phlogiston***:
  - proposed to explain for how things change when they get burned
    - all combustible (burn-able) things contain something called phlogiston,
    - and when things burn, the phlogiston escapes into the air, leaving all the other materials behind as ash.

Today is a good day I think to talk about phlogiston!

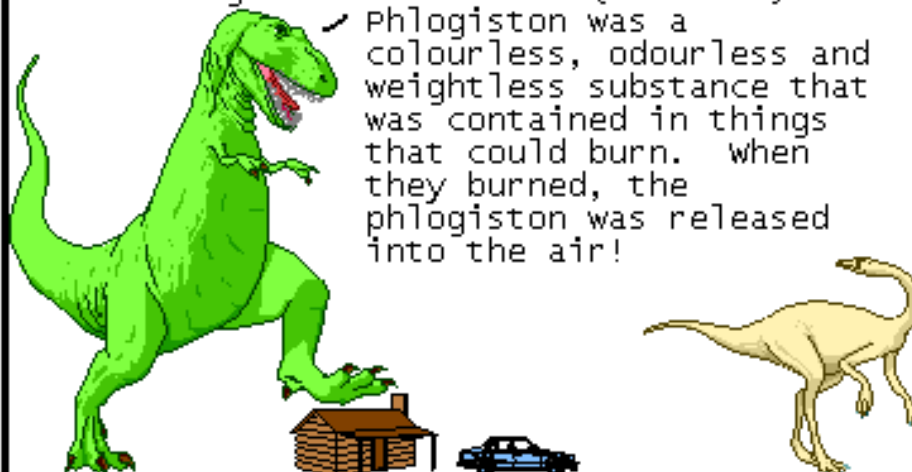


That's right! Phlogiston, bitches!



Phlogiston was proposed as a scientific explanation for combustion! It was clear that some things burned (like wood), while other things would not burn (like ash).

Phlogiston was a colourless, odourless and weightless substance that was contained in things that could burn. When they burned, the phlogiston was released into the air!



That's a pretty crazy theory!

Yeah, but it totally worked for a while!



It explained why if you burned things in a jar, they would go out: the air can only hold so much phlogiston! But it started to fall apart when people discovered that

some things, like magnesium, actually gained mass when burned.

so phlogiston would have to have a negative mass!



Yeah! That seemed a little TOO crazy. But it's actually pretty close to what we now believe, only backwards!

(we believe materials are deoxygenated and become oxygenated when burning!)

Man! I know it!!



Churchland writes:

- “Such merit as there is in the complaints [against neurophilosophy] probably comes merely to this:
  - given the current state of neuroscience,
  - it is very hard to predict what the explanation of phenomena [like *qualia*] will look like...



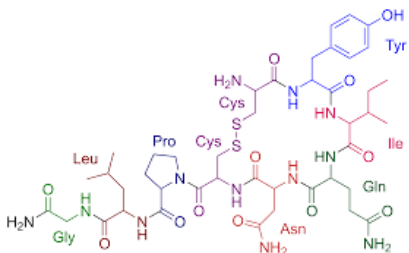
- But so what? It is always hard to predict the course of a science,
  - and especially hard to predict what an immature science will look like when it matures.” (290)

➤ **She advocates for a view called *eliminative materialism*,**

– a version of **physicalism** which predicts that

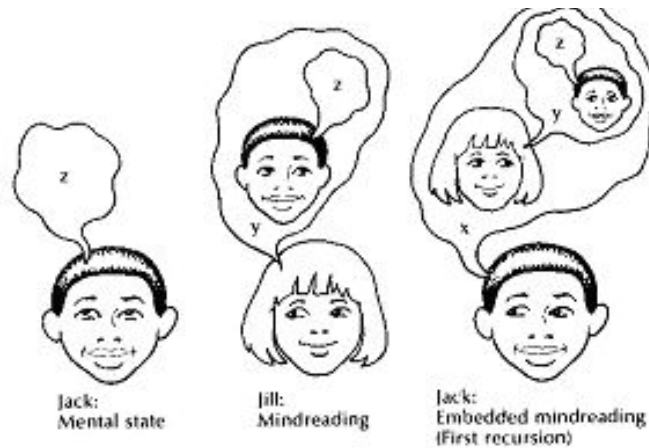
- **our *folk psychological* terms for the mental phenomena** (like *thoughts, beliefs, desires, dreams, memories*) **will all eventually be replaced by more precise explanations in *neuroscientific* terms.**

- » E.g., we will eventually realize that it is more accurate to talk about *how active someone’s oxytocin receptors are*,
- » instead of just calling them *monogamous or unfaithful*.



## Some immediate *objections* to eliminative materialism:

- Folk-psychology actually works pretty well for us, so we won't have any need to replace it with a more accurate, scientific perspective.



- Think about Ryle's point against Descartes, about how good we are at *social cognition*.
- Everything we can currently say about other people's minds is in folk-psychological terms, and that seems to be plenty adequate.

- Eliminative materialism is incoherent (makes no sense), because it depends on the language of folk-psychology to make its claims.

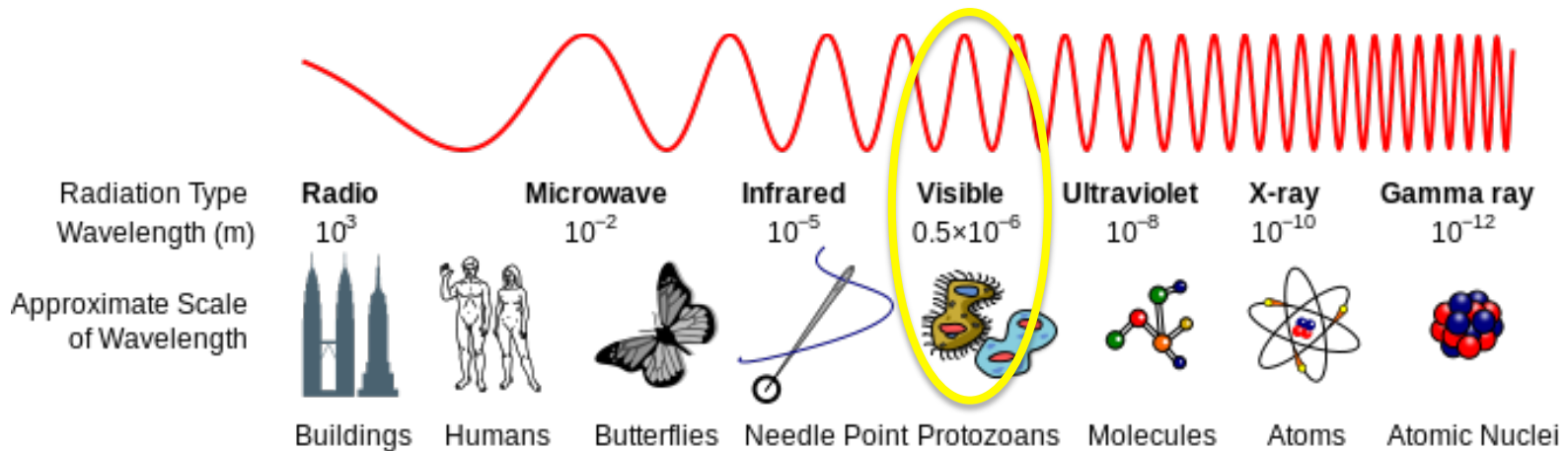
– E.g., it says that our concepts, beliefs, and understanding of the mind will be different in the future.

» But aren't concepts, beliefs, & understanding *part of folk-psychology*?

- If so, then we won't have any of these at all once all the neuroscience has been done,
- let alone neuroscientifically-informed versions of them.

Churchland responds to the incoherence objection by replying that:

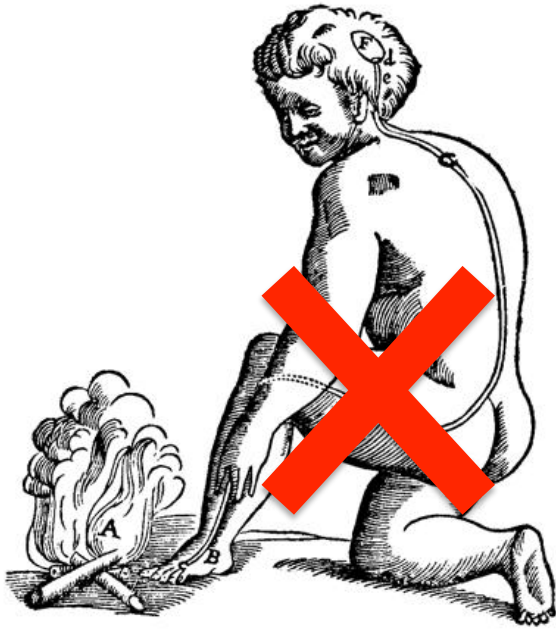
- a neuroscientific understanding of the mind will *not* make it impossible for us to think, feel, believe, know, remember, etc. just like we do now, with our folk-psychological understanding of the mind.
  - E.g., we will not cease to love one another, just because we recognize that love is made possible by hormones & receptors.



She draws an *analogy* to the contemporary understanding of *light*:

- we now know that visible light is not a distinct element of the universe,
- but rather just a small part of the spectrum of electromagnetic radiation, which also includes radio waves, microwaves, and X-rays.
  - But this doesn't mean that we stop talking about light in everyday contexts;
  - we just put it into a broader context when we speak about it scientifically. <sup>16</sup>





**Only terms that turn out not to refer to anything that really exists will be fully eliminated, according to eliminative materialism.**

- E.g., the scientific postulate of '*phlogiston*' has been eliminated from our vocabularies, because it is no longer empirically tenable.
- Same with the idea of '*animal spirits*', a substance Descartes thought flowed through our nerves from our brain to our muscles to produce movement.

**Among ideas that are currently popular in folk-psychology,**

➤ **the 'soul' seems a particularly strong candidate for elimination,**

- since (as Montero pointed out), there is no scientific evidence for its existence.
- But since Churchland is a naturalist, she would have to accept that any empirical evidence for a soul gathered in the future must be taken seriously.



➤ Let's compare the four answers we've seen to the mind-body problem:

## Dualists

Substance Dualism

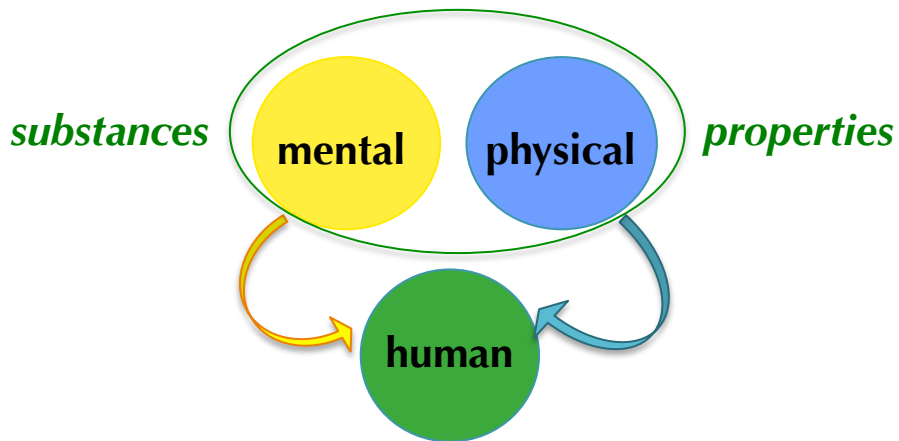
Property Dualism



Descartes



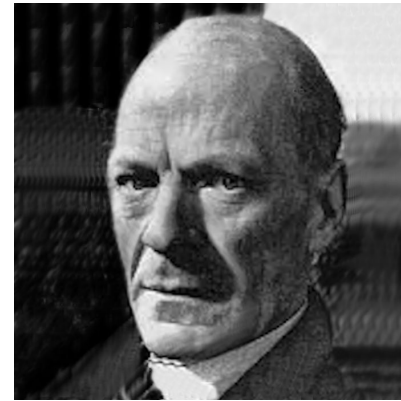
Jackson



## Physicalists

Behaviorism

Eliminative Materialism



Ryle



Churchland

