

COGS 105

Research Methods for Cognitive Scientists



Week 2, Classes 1 & 2:
Philosophy, Science, and Philosophy of Science

Logistics and Such

- Labs start this week
- You'll start very simple: Introductions, and playing with bots; **submit a very short 100-word response on CROPS.**
- Over the next few weeks, in class and lab, we'll get deeper into designing experiments and exploring behavioral *and* computational methodologies.

Last Thursday

- Representation and computation
- History of cognitive science
- Role of Turing Test and reaction time
- Theories of cognitive science: serial vs. parallel
- Word superiority effect

Today: Philosophy

- Arguments and thought experiments.
- Experimental (!) philosophy.



Thought Experiment

- Fancy term, often used in physics:
Gedankenexperiment.
- Types: Constructive vs. destructive.
 - Constructive: Used positively to argue for or develop a thesis.
 - Destructive: To show that an idea or person (and their idea) is really absurd and shouldn't be invited to the party.

Destructive Types

- [i] Show a contradiction.
- [ii] Show a bizarreness (e.g., Jackson's Mary)
- [iii] Explore the effect of conceptual distinctions.
- [iv] Counter thought experiments.

Negative Types

- [i] Show a contradiction.
- **[ii] Show a bizarreness (e.g., Jackson's Mary)**
- [iii] Explore the effect of conceptual distinctions.
- [iv] Counter thought experiments.



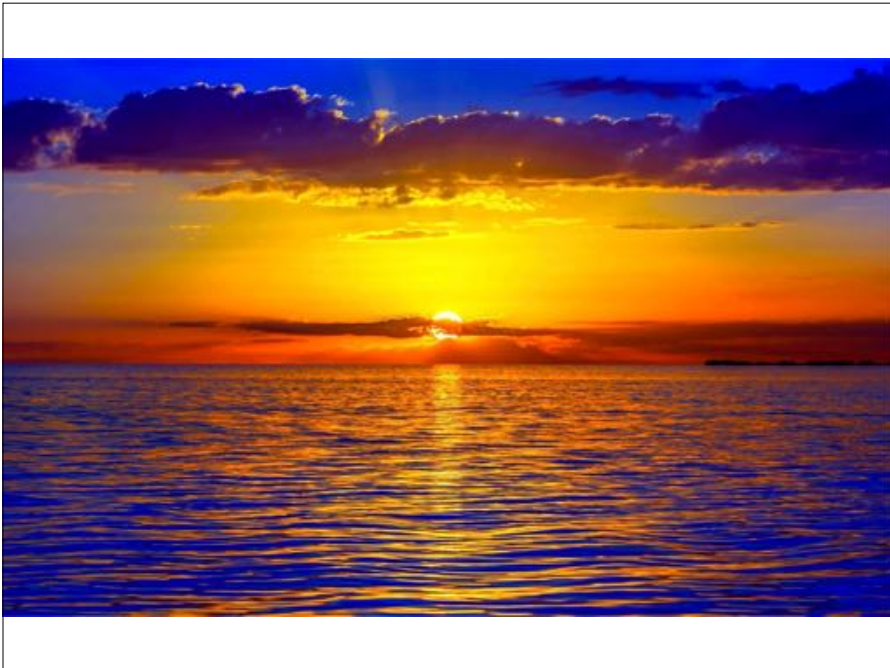
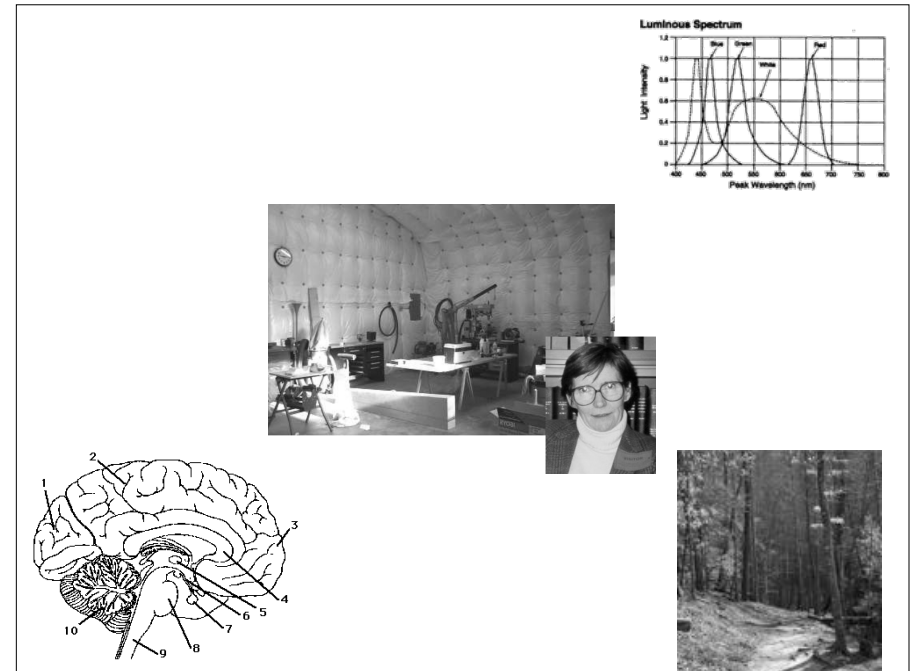
~1980's

Jackson's Mary

- Example: Frank Jackson vs. Daniel Dennett
- Jackson doesn't like physicalism.
 - *Physicalism: The thesis that all mental experience and activity can be reduced to physical states of the brain.*
- Dennett likes physicalism.
- Jackson made up a famous story of "Mary the Color Scientist" to show that physicalism can't be true of conscious experience. Here's how it goes...



Mary the color expert



Mary

- Mary has a complete description of the neurophysiology of color
- She understands the physical properties of the spectrum
- She understands from receptors all the way into the visual system for recognizing colors
- She is the world's expert on color perception

But...



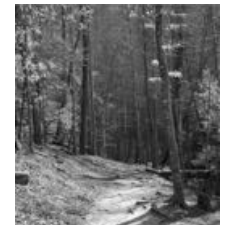
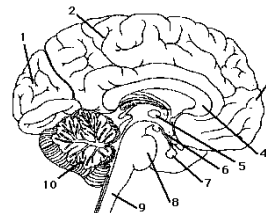
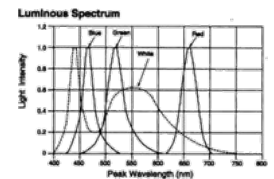
- She's raised in a black and white room
- Does her **initial experience** of real color perception add to her understanding of color?
- Frank Jackson says heck yes, man!
- So, it cannot simply be reduced to a perfect understanding of the physical properties of color experience.

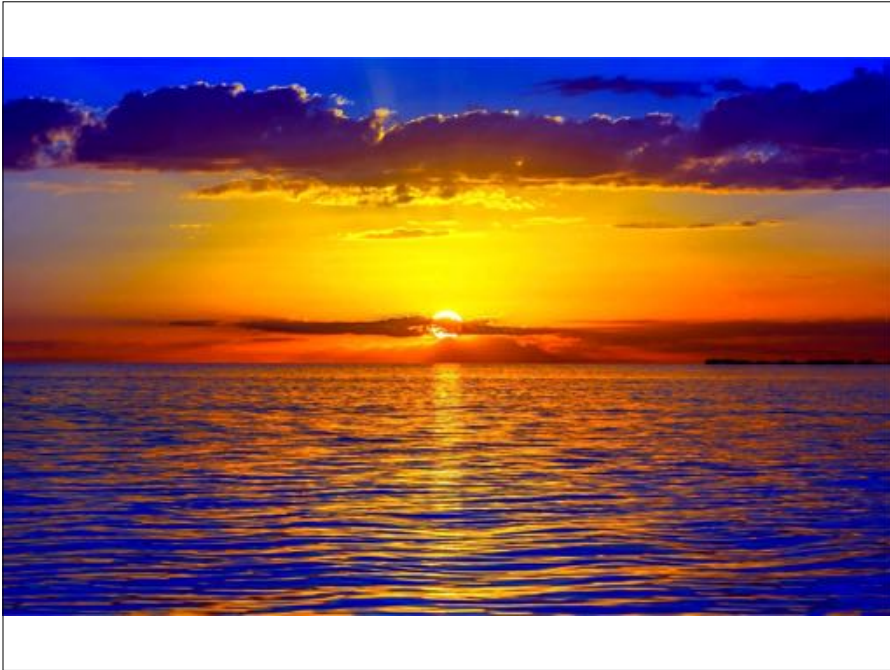
Negative Types

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Negative Types

- [i] Show a contradiction.
- **[ii] Show a bizarreness (e.g., Jackson's Mary)**
- [iii] Explore the effect of conceptual distinctions.
- **[iv] Counter thought experiments (Dennett).**





just as i thought!

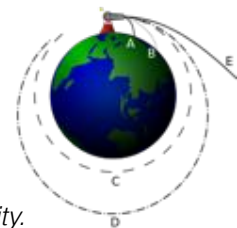
Counter Thought Experiment

Dennett replied to this thought experiment with one of his own. It begins like Jackson's, but when Mary leaves the lab, she says "Ah, colour perception is just as I thought it would be." Like Mach, Dennett denies the phenomenon of the original thought experiment. And like Mach, his counter thought experiment is effective in undermining Jackson's in so far as it seems similarly plausible.

from the readings...

Constructive Types

- To a certain extent, **less common in philosophy of mind**; more common in the natural sciences. However, positive / more constructive thought experiments can help us clear up conceptual confusions or become more convinced of an idea.



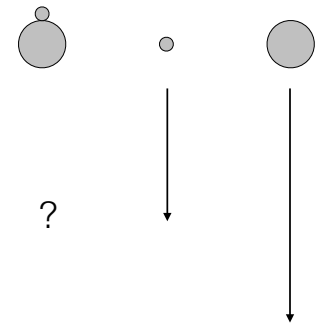
Newton's explanation of orbital gravity.

Status of Thought Experiments

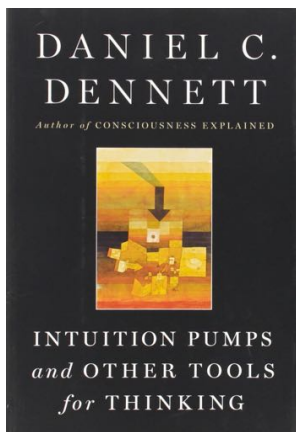
- Is a thought experiment just a well-designed argument? (Norton, discussed in reading)
- Can a thought experiment actually teach us something new about the world? (Brown, discussed in reading)
- Example provided: Galileo's attack on Aristotle's theory of gravity (heavier things fall faster)



Debunking Aristotle



Dennett, 2014



Dennett:
Thought experiments
are “intuition pumps.”

*“thinly veiled
appeals to
intuition which fail
when carefully
analyzed”*

“Conscious”

- “Conscious” has many meanings

- Wakefulness

- Coma

- Sleep

- Special awareness

- Conscious of his hair loss

- Adjective for “on purpose”

- He consciously insulted my hair loss

Because it has
historically been so
difficult to study
scientifically... the study
of consciousness has
been ripe ground for the
development of thought
experiments.

Phenomenal consciousness

- Philosophers use “conscious” and “consciousness” to refer to a special kind of philosophical and scientific problem
- The “aboutness” of mental states
 - Look out at a particular tree; you are conscious of that tree
- The “feeling” of mental states
 - Pain, love, perception: They all accompany a unique “sense” of being in these states

Qualia

- Term used to refer to the states of “feeling” or “aboutness”
- We are blessed with the ability to have qualia
- Here, have a quale...

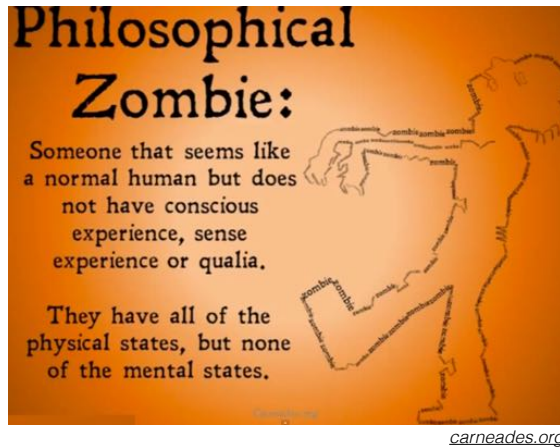


Usually, visual scenes are rich in the qualia they invoke...

“China Brain”



“Zombie Experiments”



Old Davidson is dead



Davidson's “zombie”

“Swampman”

which is possible in the absence of the others.

It is this emphasis on the holistic, and externalist, character of knowledge — and so also of content — that is expressed in Davidson's well-known “Swampman” example. In this example (in “Knowing One's own Mind”, Davidson 1987: 443–4) we are asked to imagine a situation in which a lightning strike in a swamp reduces Davidson's body to its basic elements, while simultaneously transforming a nearby dead tree into an exact replica of him. Although the resulting “Swampman” behaves exactly like the original author of “Radical Interpretation”, Davidson denies that the “Swampman” could properly be said to have thoughts or its words have meaning — and the reason is simply that the Swampman would lack the sort of causal history that is required in order to establish the right connections between itself, others and the world that underpin the attribution of thought and meaning. For all its notoriety, however, the Swampman example is not elaborated upon by Davidson, and the example has a very limited usefulness. In this respect, the attention

From Stanford Encyclopedia of Philosophy

fauxphilnews

Possibly True. Necessarily Entertaining.

Kripke resigns as report alleges he faked results of thought experiments

with 44 comments

Saul Kripke resigned yesterday from his position as Distinguished Professor of Philosophy at the CUNY Graduate Center. While similar allegations have been circulating in unpublished form for years, a team of philosophers from Oxford University has just released a damning report claiming that they were systematically unable to reproduce the results of thought experiments reported by Kripke in his groundbreaking *Naming and Necessity*. The team, led by Timothy Williamson, first became suspicious of *Naming and Necessity* after preliminary results raised questions about related work by Hilary Putnam. While the group was initially unable to confirm that water is H₂O on Twin Earth, the results turned out to be due to contaminated research materials — one of the researchers' minds had been contaminated by Chomskyan internalist semantics.



“Did I tamper with the results? It's possible.”
Uttered by anyone else, this would be a damaging admission.

The inability to replicate Kripke's results could not be similarly explained away, however, as the researcher in question was excluded from the analysis of *Naming and Necessity*. The report, forthcoming in *Philosophical Studies*, claims that 74% of the book's thought-experimental results could not be reproduced using the standard philosophical criteria for inter-researcher agreement. A second version of the analysis, employing a generous application of the principle of charity, still left 52% of the results unverified.

Some of Kripke's erroneous results may be due to improper data storage. When they asked Kripke for full



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Kripke resigns as report alleges he faked results of thought experiments
Psychologists search philosophical mind for bullshit detector, find “friendship deterrence system” instead
Woman discovers husband is cleverly disguised mute
Advice
Monism special issue
Obama releases philosophy from structural Marxism

Experimental Philosophy

- Philosophers are now collecting their own data!
- The idea: Equip philosophical discussion and theory with data from the intuitions of everyday people or (in some cases) even philosophers themselves.
- Among other benefits, it might help notice problems with assumptions or concepts that we take for granted “in the armchair.”

Burn the armchair!



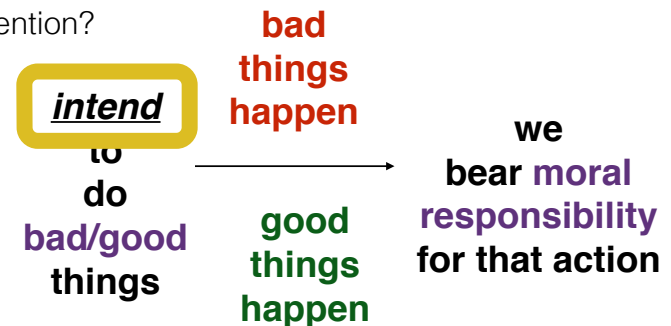
Knobe Effect

- Joshua Knobe (Yale) adapted a scenario that used to be used all the time in thought experiments.
- **Except this time:** He created experimental conditions and collected data from people about how they treat the scenario.



The Idea

- What determines *blame, moral responsibility, etc.*?
- Intention?



Knobe Effect (scenario)

Yahoo! CEO Marissa Mayer is brought a proposal for a new algorithm on Yahoo! that can make tons of cash but will result in **violation** of privacy for all who use Yahoo!

She says "The privacy issue is irrelevant. Go forth and implement the new algorithm."



Yahoo! CEO

Lo and behold privacy is violated, and everyone's credit cards are stolen for...
League of Legends upgrades...

Did she cause privacy violation intentionally?

negative scenario

Knobe Effect (scenario)

Yahoo! CEO Marissa Mayer is brought a proposal for a new algorithm on Yahoo! that can make tons of cash but will result in **improvement** of privacy for all who use Yahoo!

She says "The privacy issue is irrelevant. Go forth and implement the new algorithm."



Yahoo! CEO

Lo and behold privacy is improved, and everyone's credit cards are safe from...
League of Legends upgrades...

Did she cause privacy improvement intentionally?

positive scenario

Here's how it goes...

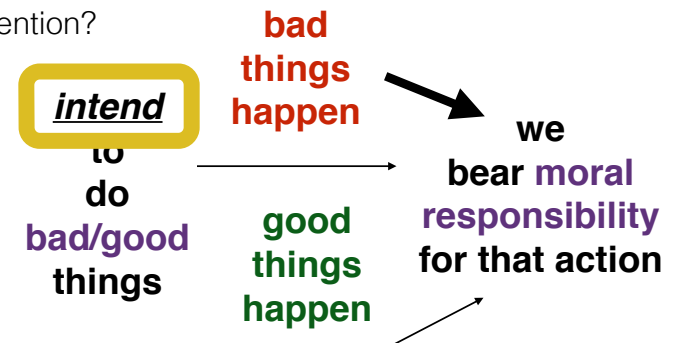
'These data show that the process is actually much more complex,' argues Knobe. Instead, the moral character of an action's consequences also seems to influence how non-moral aspects of the action – in this case, whether someone did something intentionally or not – are judged.



Wikipedia

The Idea

- What determines *blame, moral responsibility, etc.*?
- Intention?



Next week!

- Josh Knobe visits the Cognitive Science group from Yale, giving a talk on experimental philosophy in our Mind, Technology and Society seminar.
- Details: cogsci.ucmerced.edu



See you Thursday!