

Instructions: Write name legibly. Explain so that smart people who have not taken our class will understand.

Using an example, explain what a thought experiment is.

For each thought experiment, report your judgment and explain what it is supposed to reveal.

(a) Suppose one were to drop an object from the mast of a moving ship. Will the object land as close to the mast as it was when it was dropped? (Galileo)

(b) Suppose I toss a marble straight above my hand while on a moving train. Will the marble land in my hand (if I keep my hand where it was when I first tossed it)?

(c) Imagine dropping two objects of differing weights – e.g., a musket-ball and a cannonball – from a tower. Does one object fall faster than the other? (Galileo)

Would the objects fall faster or slower if they were connected by a short, stiff rod? (Galileo)

(d) During freefall, do you feel your body weight (like you do when you are sitting/standing in this room)? (Einstein)

Explain what ‘a priori’ means (based on how it is used in the reading). Use a dictionary only as a last resort.

What is empiricism? Explain.

Using an example, explain how we learn about the world, according to empiricism.

How might thought experiments pose a challenge to empiricism? Explain.

Classify arguments as Platonist/Apriorist, Empiricist, or neither Platonist/Apriorist nor Empiricist.

Not all truths are known via observation or experiment. "...although the world is full of physical stuff, occupying space and persisting over time, some truths about the physical world have a very un-physical flavour. They resemble mathematical truths, seeming to exist outside of space and time. These truths, ... can be intuited a priori, without the need for observation or experiment." (Falk, "Armchair Science").

Platonism/Apriorism

Empiricism

Neither

Look, I know that it seems like you know certain mathematical and other truths without experimentation, but in fact you know these truths via experience. So, for example, you know that $2 + 2 = 4$ because every time you have added two things to another two things, you end up with 4 things. That and you were simply told over and over again (probably by your teachers) how math works. In other words, you learned mathematical and similar truths via experience and experimentation. So, even if we can intuit math-like truths without observation or experimentation, we also seem to be able to learn them via experience.

Platonism/Apriorism

Empiricism

Neither

Consider a thought experiment: *Imagine that I throw a bowling ball down a bowling alley, it hits a pin, and the pin falls. This thought experiment shows that the ball (and not something else) caused the pin to fall.*

(A) How would the Platonist explain your knowledge that the ball caused the pin to fall?

(B) How would the Empiricist explain your knowledge that the ball caused the pin to fall?

Identify the following claims as either more likely to be empiricist (E) or more likely to be Platonist (P).

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|---|---|---|
| E | P | <i>We don't need to run an experiment to find out if murder is wrong. We just know it's wrong.</i> |
| E | P | <i>Scientists might teach us a lot about the world, but we can learn logical truths without them.</i> |
| E | P | <i>You need to believe in magic to think that thought experiments teach us about the world.</i> |
| E | P | <i>Science can't explain why it is, in fact, morally wrong to hurt someone for no reason.</i> |
| E | P | <i>We can know about the world via philosophers' armchair reflection—not just science.</i> |
| E | P | <i>Einstein discovered the principle of equivalence via imagination—not an experiment.</i> |
| E | P | <i>Einstein discovered the principle of equivalence by drawing on his own experience.</i> |
| E | P | <i>Science gives us knowledge about most knowable things, but not all knowable things.</i> |
| E | P | <i>Science can't explain why the square root of two is, in fact, an irrational number.</i> |