

# Philosophy 101

## The Problem with Induction

June 5, 2014

# Review

## Quiz

- ① T/F: Epistemic foundationalism is the thesis that all knowledge comes from experience
- ② T/F: The third stage of doubt is that our senses may sometimes deceive us
- ③ T/F: Descartes thinks that the only knowledge that survives radical doubt is the knowledge that there is a hand
- ④ T/F: According to the Cartesian skeptic, you cannot know that you are not radically deceived
- ⑤ T/F: According to Moore, you can know that you are not radically deceived

# The Problem of Cartesian Skepticism

- ① If I do not know that I am not being radically deceived, then I cannot know that  $h$  (where  $h$  is some commonsensically true proposition concerning the physical world)
- ② I do not know that I am not being radically deceived
- ③  $\therefore$  I do not know that  $h$

# Moore's Proof of the External World

- ① Here is a hand
- ② Here is another hand
- ③  $\therefore$  At this moment, two human hands exist
- ④  $\therefore$  I know an external world (a world outside my mind) exists

# Epistemic Closure

- We can extend our knowledge by recognizing, and thereby accepting, things that follow deductively from our knowledge

**Closure Principle:** Knowledge is “closed under entailment”—  
If, while knowing  $p$ ,  $S$  believes  $q$  because  $S$  knows  
that  $p$  entails  $q$ , then  $S$  knows  $q$

# Closure and Skepticism

## The Cartesian Argument

- ① If I know that here is a hand ( $h$ ), then I know that I am not being radically deceived (by dreams, an evil demon, etc.)
- ② I don't know that I'm not radically deceived
- ③  $\therefore$  I don't know  $h$

## Closure & Skepticism

- ① Closure is true
- ②  $h \rightarrow$  I know I am *not radically deceived* (*NRD*)
- ③  $\therefore$  If I know  $h$  and believe *NRD* on the basis of  $h$  then I know *NRD* (by 1, 2)
- ④ I don't know *NRD*
- ⑤  $\therefore$  I don't know that  $h$



# Closure & Moore's Argument

- ① Closure is true
- ②  $h \rightarrow$  I know I am *not radically deceived* (NRD)
- ③  $\therefore$  If I know  $h$  and believe NRD on the basis of  $h$  then I know NRD (by 1, 2)
- ④ I know  $h$
- ⑤  $\therefore$  I know NRD

# Moore's (And Our) Awkward Position

## Two Problems

- ① Moore's proof assumes that we know  $h$  but cannot prove it, and this notion of knowledge without proof runs counter to our epistemic practices
- ② If we accept closure, then we must accept either the skeptic's or Moore's conclusion, and both seem counter-intuitive

# Induction and Deduction

## Deductive Inference

- Inference in which the truth of the premises *entails/necessitates* the truth of the conclusion
- ① If I know that here is a hand then I know I am not radically deceived
  - ② I do not know that I am radically deceived
  - ③  $\therefore$  I do not know that here is a hand

## Inductive Inference

- Inference in which the truth of the premises *increases the probability* of the truth of the conclusion
  - the greater the probability of the conclusion, given the premises, the *stronger* the inductive argument
- Unlike deductive inference, the conclusion of an inductive inference may be false even when the premises are true

# An Example of Induction

- ① This swan is white
- ② The 1000 swans that I have seen are white
- ③  $\therefore$  (Probably) All swans are white

# An Example of Induction



# Induction & Justification

- Inductive inference justifies our beliefs in several ways:
  - beliefs concerning unobserved entities
  - beliefs concerning the future
  - beliefs concerning probability



# Induction & Knowledge

- Inductive inference not only *justifies* our beliefs, it often seems to provide *knowledge*
  - Commonsense knowledge about the future, the unobserved, or probability all rely on induction
  - scientific methodology employs induction to generate its conclusions

# Skepticism about Induction

## Experience and Expectation

*Experience has shown us that, hitherto, the frequent repetition of some uniform succession or coexistence has been a cause of our expecting the same succession or coexistence on the next occasion. (62)*

# Experience and Expectation

*We have therefore to distinguish the fact that past uniformities cause expectations as to the future, from the question whether there is any reasonable ground for giving weight to such expectations after the question of their validity has been raised. (63)*

## Experience and Expectation

- Things that are experienced together tend to be associated with each other
- Association leads to expectation about how things will be in the future, or how things are with respect to unobserved instances
  - expectation of same cause – same effect
- The fact that experience leads to such expectations doesn't mean that we are *justified* in having these expectations

# Experience and Expectation

*The experience of uniformity causes particular kinds of psychological associations to form, but does it provide any justification for our beliefs concerning unobserved instances, future events, or probabilities?*

## A Sample Inference

Suppose we have a gumball machine full of gumballs. After several samplings, we notice that all the black gumballs taste like licorice. We then infer that all the black gumballs in the machine must taste like licorice.

## A Sample Inference

- ① Some black gumballs from the gumball machine have been observed
- ② All observed black gumballs from the machine are licorice-flavored
- ③  $\therefore$  All the black gumballs in the machine are licorice-flavored



## A Sample Inference

③  $\therefore$  All the black gumballs in the machine are licorice-flavored

- ③ is the result of an *enumerative induction* — we infer that all the members of a particular class/kind (including members we haven't observed) will be similar to those members of the kind which we have observed

## A Good Inference?

**Question:** Is the truth of (3) guaranteed by the truth of (1) and (2)?

- No — it is possible for (3) to be false even though (1) and (2) are true
  - The inference from (2) to (3) is not *deductive*
- But presumably (3) nevertheless has at least *some* support — it's not a terrible inference — in some sense it seems *justified*

## A Good Inference?

- ① Some black gumballs from the gumball machine have been observed
  - ② All observed black gumballs from the machine are licorice-flavored
  - ③  $\therefore$  All the black gumballs in the machine are licorice-flavored
- What is the justification for concluding (3) on the basis of (1) and (2)?
    - How do we explain that (1) & (2) seem to support (make probable) the conclusion?

# The Uniformity Premise

We can justify inferring (3) from (1) and (2) if we grant the following:

**Uniformity:** Nature is uniform in that similar effects always follow from similar causes according to an exceptionless general law

# The Uniformity Premise

- What justifies Uniformity?
  - Not *deductively* justified
  - Not *inductively* justified
    - Uniformity is meant to justify induction, so justifying Uniformity via induction would be viciously *circular*

# The Skeptical Conclusion

- There is no justification of inductive inference
- Beliefs based on induction are not justified/rationally held
- Since knowledge requires justification, inductive inference cannot provide us with knowledge

# The Skeptical Conclusion

*If the principle [of induction] is unsound, we have no reason to expect the sun to rise tomorrow, to expect bread to be more nourishing than a stone, or to expect that if we throw ourselves off the roof we shall fall...All our conduct is based upon associations which have worked in the past, and which we therefore regard as likely to work in the future; and this likelihood is dependent for its validity upon the inductive principle (69)*

# Induction and Human Nature

- Inductive inference isn't rationally justified, but we nevertheless do it all the time
- What causes us to reason inductively?
  - Our nature: inductive inference is a *natural* mechanism by which we form beliefs, not a *rational* mechanism



# Exam Review

# Format

- ① Argument extraction (2, 10 pts)
- ② Definitions (4, 3 pts)
- ③ Multiple choice (14, 2 pts)
- ④ Short essay (2, 20 pts)

## Argument Extraction (Pick 2 of 3)

- ① What's the conclusion of the argument?
- ② What support does the conclusion have?
- ③ What material is essential to the argument and what is extraneous?
- ④ Is the argument valid?
- ⑤ Is the argument sound?

## Argument Extraction (Pick 2 of 3)

*We see that some things lacking cognition, viz., natural bodies, act for the sake of an end. This is apparent from the fact that they always or very frequently act in the same way in order to bring about that which is best, and from this it is clear that it is not by chance, but by design, that they attain the end. But things lacking cognition tend toward an end only if they are directed by something that has cognition and intelligence, in the way that an arrow is directed by an archer. Therefore, there is something intelligent by which all natural things are ordered to an end – and this we call God. (Aquinas, "The Fifth Way")*

## Argument Extraction (Pick 2 of 3)

- ① If something always or mostly acts for the best, then it acts for an end.
- ② Natural beings always or mostly act in the same way in order to bring about the best.
- ③  $\therefore$  Natural beings act for an end (modus ponens, 1, 2).
- ④ If natural beings act for an end, then they are directed by something that has cognition and intelligence.
- ⑤  $\therefore$  Natural beings are directed by something that has cognition and intelligence (modus ponens, 3, 4).
- ⑥ We call the director of natural beings "God" (definition).

## Definitions (Pick 4 of 5)

**Physicalism:** Everything that could exist is either physical or depends on the physical

**Inductive Inference:** Inference in which the truth of the premises makes probable the truth of the conclusion

## Multiple Choice (14 questions)

- Mackie's error theory
- Camus & Nagel on absurdity of life
- Cartesian skepticism & Moore's Proof
- Skepticism about induction

## Short Essay (Pick 2 of 3)

- Mackie's error theory
  - difference between ethics & meta-ethics
  - error theory
  - two arguments for the error theory
  - replies to Mackie's arguments