

## PAPER TOPICS PHIL SCIENCE

*Due Dates* March 5th, April 2nd, April 30th, at 9.30 AM.

Late papers will be penalized one grade increment (e.g., from an A- to a B+, or from a B to a B-), for every day or part thereof that they are late.

*Length* Papers should be 1800 to 2000 words long (about six pages with lines one-and-a-half spaced)

*Formatting* Left and right margins should be at least 1.5 inches wide. Use one-and-a-half spacing. No tiny font sizes, please. (Times at 12 pt or Palatino at 11 pt are about the right size.) It is OK to use double-sided printing.

*Plagiarism* All work submitted for this class should be your own. Any words quoted from other sources should be attributed explicitly to those sources. If you are unsure whether your use of someone else's work is legitimate, please ask me. The penalties for plagiarism include failing the class and worse.

*Guideline* You should spend about half your time presenting the relevant material and about half your time in critique, that is, evaluating both sides of whatever question is on the table. In some cases, the presentation might be shorter (the DN account of explanation can, for example, be described very compactly).

*Topics* Answer one of the following questions. Don't go past the due date for the paper. But earlier topics remain on the table: for example, for the third paper you can answer any of these questions at all.

1. From the observation up to the present day of large numbers of emeralds, all green, is it just as rational to infer that all emeralds are grue as to infer that all emeralds are green? (An emerald is grue if it is green and first observed before the year 2050 or green and not observed before the year 2050.)

2. Why, according to Popper, is a single observation typically not sufficient to falsify a hypothesis? What does he mean when he says that falsification requires a "reproducible effect"? Having explained Popper's views on this matter, critique or defend them.
3. Is Popper's "corroboration" just a lightly disguised version of inductive support? Consider arguments both for and against.
4. According to Kuhn, what role is played by a paradigm (in the broad sense) during normal science? In answering this question, discuss two important functions of the paradigm. To what extent is it important that scientists are incapable of thinking outside the paradigm?
5. During periods of normal science, Kuhn says, there can be only one paradigm. What are his motivations for saying this? Is he right?
6. In revolutionary times, can there be good reasons for a scientist to make the leap from the old paradigm to the new paradigm? Explain Kuhn's answer to this question, and discuss.
7. In what ways is it possible to say that a move from one paradigm to another constitutes scientific progress, according to Kuhn? Is his view plausible?
8. To what extent are the results of observations in science determined by outputs of parts of the brain that work the same way in all normal humans, regardless of beliefs, culture, and so on?
9. Contrast Lakatos's and Laudan's post-Kuhnian visions of science, focusing on one aspect where they differ. Which (if either) seems more promising? (We will read Laudan in class, but you will need to find some Lakatos on your own.)

*Stop here for March 5th paper* <

10. Can a principled distinction be drawn between what's observable and what's not? If so, does the distinction have any methodological significance? (You could write your whole paper on the first part of the question. Or you could treat it fairly quickly and devote almost all of the paper to the second part of the question. Or you could give equal time to each.)
11. Why on earth would you want to be a constructive empiricist? (In the course of answering this question, explain the view and give arguments for and against it.)
12. What is the pessimistic meta-induction? To what extent does it militate against our believing our best scientific theories? Is there a compromise position a realist can take, acknowledging that some things our theories

say about the unobservable world shouldn't be taken too seriously, while maintaining that others should?

13. What is a law of nature? Discuss two possible answers to this question; evaluate the merits of each.
14. Explain how Lewis's theory of causation works. Present a problem for the theory. Can the problem be resolved?
15. What is right and wrong about Hempel's deductive-nomological theory of explanation? (If you like, you can focus entirely on the wrongs. But don't forget to explain clearly how the theory works.)
16. Give an argument in favor of the causal account of explanation. Then give an argument against the causal account. Critically discuss one of these arguments. (So: present two arguments, then pick one of the two and discuss whether or not it works.)

*Stop here for April 2nd paper* <

17. What is the unification account of explanation? Can it handle the case of the flagpole and shadow?
18. Describe Hempel's instantialist theory of confirmation. What is one problem that Hempel's account solves? What is one difficulty that Hempel's account faces?
19. What is Hempel's "raven paradox"? Explain one way that the paradox might be resolved. Is the resolution successful?
20. Explain how Glymour's "bootstrapping" account of confirmation solves one problem (you choose which one) with Hempel's account of confirmation. Is the solution successful?
21. Does Bayesian confirmation theory solve the problem of induction?
22. Why do some philosophers think that the Bayesian theory of confirmation is "too subjective"? Explain how convergence results might help to defuse this objection. Consider one or two weaknesses of this use of convergence; are the weaknesses fatal?