

Study Questions for Final Examination

Neo-positivism and Early Critiques of Logical Empiricism

1. Contrast Hempel's satisfaction criterion of confirmation with the Nicod criterion. How serious a challenge is posed to each by the paradox of the ravens?
2. What is Goodman's "New Riddle of Induction" and why does it represent a challenge to logical empiricism? What is Goodman's own solution to the "New Riddle"?
3. Is it possible to answer the argument in Goodman's "New Riddle of Induction" without resorting to some kind of naturalism? If so, how? If not, why not?
4. Sketch Quine's critique of the analytic/synthetic distinction as developed in "Two Dogmas of Empiricism." According to Quine, what view of the nature and interpretation of theories draws support from the rejection of the analytic/synthetic distinction?
5. How might a defender of analyticity respond to Quine's critique in "Two Dogmas of Empiricism"?
6. Describe Quine's conception of a naturalized epistemology and outline his argument for this position.

Kuhn's Structure of Scientific Revolutions and the Critical Reaction to It

7. What, according to Kuhn, are the chief characteristics of the pre-paradigm stage in the development of a science? Would it be fair to say that sociology is still in the pre-paradigm stage of development? Can you think of another "science" that might be held to be in the pre-paradigm stage?
8. What are Kuhn's reasons for maintaining that the paradigm disputes typical of revolutionary science are not wholly rational? Are there any shared beliefs or values to which the advocates of competing paradigms can retreat in trying to settle their differences?
9. Explain, briefly, why Kuhn's model of the development of science constitutes a fundamental challenge to some of the basic assumptions that underlie the logical empiricist picture of both the nature of science and the task of the philosophy of science.
10. Toulmin criticizes Kuhn for his allegedly uncritical appropriation of the metaphor of political revolution to describe paradigm conflict in science. Why does Toulmin think that the revolution metaphor is inappropriate, and what alternative metaphor does he propose?
11. In response to the prodding of his critics, Kuhn has developed a view of the nature of paradigms that is more refined than that presented in the first edition of *The Structure of Scientific Revolutions*. First, explain why he now thinks that we need a straightforwardly sociological criterion of membership in a scientific community, and summarize his proposal for such a criterion. Second, explain what he means by the concept of a "disciplinary matrix," the concept that Kuhn would now use in place of the paradigm concept.
12. Compare and contrast Kuhn's model of scientific change with Popper's.

Realism and Anti-realism

13. Why is it so important for instrumentalists to defend a strong theory/ observation distinction? You might want to use the Craig elimination theorem in explaining your answer.
14. Explain Maxwell's "continuum of size" and "continuum of observational means" arguments. What are they supposed to establish?
15. Explain McMullin's argument for "structural realism" and Hacking's argument for "entity realism."
16. Give a brief characterization of van Fraassen's "constructive empiricism" (remember to define carefully the concept of "empirical adequacy") and then explain how it differs from both instrumentalism and realism.
17. What is the so-called "ultimate argument" for scientific realism? What is van Fraassen's main criticism of it?
18. What is Fine's "Natural Ontological Attitude" program? How does it differ from both realism and instrumentalism?

Do Some Philosophy

19. State and defend a point of view regarding scientific realism.
20. In your opinion, are competing scientific paradigms incommensurable? If so, why, and do you think that such incommensurability is a threat to scientific objectivity? If you do not take competing paradigms to be incommensurable, what do you take to be the grounds for the rational adjudication of intertheoretical disputes?
21. Is scientific realism compatible with the view that theory choice is underdetermined by evidence?
22. Do scientific realism and metaphysical realism necessarily go hand-in-hand? (Be sure to define your terms carefully.)
23. Some contemporary philosophers of science would have us believe that naturalism constitutes a successor paradigm to logical empiricism. Critically evaluate that claim.
24. Looking back over developments in the philosophy of science in the twentieth century, what do you take to be the prospects for a normative philosophy of science?