

Final Examination

General Directions: This examination is divided into four sections of three questions each. You are to answer a total of four questions, choosing one from each section.

Neo-positivism: Explanation, Laws, and Confirmation

1. Give examples of (a) deductive, (b) statistical or probabilistic, (c) functional or teleological, and (d) genetic explanations. How might one argue for the claim that the deductive pattern of explanation represents the ideal toward which one should strive in all scientific domains?
2. Some would argue that scientific laws are distinguished from accidental generalizations by virtue of the fact that laws support corresponding subjunctive conditionals whereas accidental generalizations do not. Explain this argument and then outline the more important issues involved in assessing the argument.
3. 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?

Early Critiques of Logical Empiricism

4. 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"?
5. Sketch Quine's critique of the analytic/synthetic distinction as developed 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 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?
8. 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.
9. Compare and contrast Kuhn's model of scientific change with Popper's.

Realism and Anti-realism

10. 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.
11. Explain Maxwell's "continuum of size" and "continuum of observational means" arguments. What are they supposed to establish?
12. 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.