Questions for Exam 2

Philosophy 471

October 16, 2006

1. Woodward says that claims like "Being female causes one to be discriminated against in hiring" are unclear. What are his reasons for saying this? How can such claims be clarified?

2. A review of Woodward's book said that on Woodward's view "genotype is not ... even a remote cause of an individual's treatment by others" because "there are no interventions on [genotype] with suitable invariance" (Clark Glymour, *British Journal for the Philosophy of Science*, 2004). Is this correct? Justify your answer.

3. Woodward uses counterfactuals to analyze causal concepts, but some philosophers have said that counterfactuals are so vague and context-dependent that they are not suitable for eluci- dating any concept of scientific interest. What is Woodward's response to this criticism?

4. Woodward's definitions of total cause, direct cause, etc., all refer to *possible interventions*. What does "possible" mean here? What are some things it does not mean?

5. If an intervention is physically impossible, does it follow that we cannot know what the effect of such an intervention would be? Justify your answer.

6. What is a DN argument? What is an IS argument?

7. Describe a counterexample to the claim that every DN argument is an explanation.

8. Describe an alleged counterexample to the claim that every IS argument is an explanation.

9. What did Scriven claim that his paresis example showed? How did Hempel argue that it doesn't show this?

10. What did Scriven claim that his ink bottle example showed? How did Hempel argue that it doesn't show this?

11. Hempel said that causal claims imply that some underlying law is true. What is Woodward's argument against this?

12. On a manipulationist account of causation, do causal claims imply that some underlying law is true? Justify your answer.

13. It has been claimed that ordinary causal statements are explanatory because they convey some information about an ideal DN or IS argument. State two arguments Woodward gives against this view.

14. State two reasons Woodward gives for saying that the distinction between laws and acciden- tal generalizations is unclear. How it this relevant to theories of explanation, according to Woodward?

15. According to Woodward's (EXP), if we want to explain why a variable Y has the value y, what should the explanans say? What conditions must it satisfy to be a genuine explanation?

16. According to Woodward's (EXP), can the height of a flagpole be used to explain the length of its shadow? Can the length of its shadow be used to explain the height of the pole? Justify your answers.

17. The following are two statements made by Lange. For each, say whether Woodward would agree, and justify your answer.

    (a) *We might explain why a certain powder burns with green flames, rather than with flames of any other color, by noting that the powder is a copper salt and that it is a law of nature that all copper salts, when ignited, burn with green flames.*

    (b) *A given car's maximum speed on a dry, flat road could be explained by the distance of its gas pedal from the floor and the relation between this distance and the maximum speed. This relation is accidental (since it depends on how the car happens to be constructed.)*

18. Woodward said:

    The fact that in situations in which other causes are absent, singular-causal claims uncontroversially imply not-not counterfactuals is sufficient to show why such claims are explanatory, given the account of explanation sketched above.

    Show that this is inconsistent with (a) his account of causation and (b) his account of explanation.

19. When Al drops by Burt's office and invites him to go for coffee, Burt sometimes but not always accepts. Al would never wear a shirt covered with obscene slogans but, if he did, Burt would refuse to join him for coffee. (a) Why is this example a problem for Woodward's account of explanation? (b) What is Woodward's response? (c) Does his response solve the problem? Why, or why not?.

20. Suppose a flagpole is on flat ground and let H be its height, L the length of its shadow, and θ the angle of the sun above the horizon. These variables are related by a generalization G, namely $L = H/\tan\theta$. (a) Give an example of a change under which G is invariant, and a change under which it is not invariant. (b) Is G explanatory? Justify your answer.

21. If you want to use Boyle's law to explain the increase in pressure of a gas, do you need to know the conditions under which Boyle's law is and isn't accurate? Justify your answer.

22. What is a scientific law, according to Woodward? State two respects in which Woodward's view differs from Lange's.

23. Does Woodward's view imply that all laws are explanatory generalizations? Justify your answer.

24. According to Carnap, what does it mean to say a law is empirical, and how are empirical laws confirmed? Give an example of something he regards as an empirical law.

25. According to Carnap, what does it mean to say a law is theoretical, and how are theoretical laws confirmed? Give an example of something he regards as a theoretical law.

26. What does Carnap mean by "correspondence rules"? Why does he believe they are needed? Give an example of something he regards as a correspondence rule.

27. What does Carnap mean by "L-true" and "A-true"? Give an example that shows the difference between these concepts.

28. What is the connection between A-truth and A-postulates for an artificial language?

29. Explain what the Ramsey sentence for a theory is.

30. Let TC be the conjunction of the theoretical postulates and correspondence rules for a theory. According to Carnap, what is the part of TC that specifies meanings of the theoretical terms, and hence can be taken as an A-postulate? What reasons does Carnap have to justify this choice?

31. Carnap thought the language of science can be divided into two parts: (1) An observation language, which contains only logical and observation terms, and whose sentences can be tested directly by observation. (2) A theoretical language, whose sentences contain theoretical terms and can't be tested directly by observation. Is this correct? Justify your answer.

32. What does Lewis mean by a "T-term" and an "O-term"?

33. How does Lewis write a theory T so as to show its T-terms? What is a realization of T?

34. Use the concept of a realization to explain in English what the Ramsey and Carnap sentences of a theory T say.

35. Let T be the "theory" that all electrons have the same electric charge. Suppose "electron" is a T-term and "electric charge" is an O-term. Describe (a) two different realizations of T and (b) something that isn't a realization of T (according to currently accepted science).

36. Does Lewis agree that the Carnap sentence of a theory T gives the meaning of its T-terms? If not, why not?

37. State Lewis's definition of the T-terms of a theory. Does this definition specify the meaning of the T-terms, or does it merely say what they designate? Justify your answer to the latter question.

38. When Lewis considers what happens when a theory T is modified, he considers two possibilities:

    (a) The T-terms are defined using the revised version of T.
    (b) The T-terms are defined using the original version of T.

    Explain why neither solution is attractive.

39. What is the causal theory of reference? What are Papineau's objections to this theory?

40. What are the advantages of Papineau's approach to defining theoretical terms, as compared with Lewis's?

41. (a) What does Papineau mean by T_y, T_p, and T_n? (b) What problem is he trying to solve by introducing T_p? (c) What is needed for a theoretical term have an unambiguous reference, on Papineau's account?

42. Suppose that T_p contains "All F are ϕ." What is a claim about F that has indeterminate truth value, even if F has a determinate reference? According to Papineau, is indeterminacy of this kind something to worry about? Why, or why not?

43. Describe two circumstances that would make it indeterminate whether a theoretical term refers to something or not, on Papineau's account. What should be done when this happens, according to Papineau?

44. When the reference of a theoretical term is indeterminate, what are two ways in which this can be rectified? If the decision about which way to choose is influenced by sociological factors, does that undermine science's claim to be getting at the truth? Why, or why not?