

PHILOSOPHY TRIPOS Part IA

PRELIMINARY EXAMINATION FOR PART IB OF THE PHILOSOPHY TRIPOS

Tuesday 29 May 2001

9 to 12

Paper 3

LOGIC

*Answer **four** questions only.*

*Write the number of the question at the beginning of each answer.
Please answer **all parts** of each numbered question chosen.*

**You may not start to read the questions
printed on the subsequent pages of this
question paper until instructed that you
may do so by the Invigilator**

- 1 (a) Define tautological validity.
- (b) Which of the following arguments are tautologically valid? (Use either the truth-table or the tree test.)
- (i) $(P \supset S), \neg(S \supset \neg R) \vdash (R \supset \neg P)$
- (ii) $P, \neg(P \supset \neg Q), (\neg Q \supset R) \vdash R$
- (iii) $(\neg P \supset (\neg Q \supset R)), (Q \supset (P \supset R)) \vdash (\neg P \supset Q)$
- (iv) $(P \supset (Q \supset R)) \vdash ((P \supset Q) \supset (P \supset R))$
- (v) $(\neg P \supset Q), (Q \supset \neg R) \vdash (P \supset \neg R)$
- (vi) $(P \supset \neg R), (Q \supset R) \vdash \neg(P \supset \neg\neg Q)$
- (vii) $\neg(P \supset (Q \supset R)), (S \supset \neg Q) \vdash \neg(S \supset P)$
- (viii) $(P \supset (Q \supset R)), \neg(P \supset \neg S), (\neg Q \supset (R \supset \neg P)) \vdash (S \supset \neg P)$
- 2 Translate the following in $QL^=$, explaining the translation scheme that you use:
- (a) if Derrida is a post-modernist, but Kripke isn't, then they are different people;
- (b) only if Kripke is an analytic philosopher is he a logician;
- (c) all logicians admire either Kripke or Derrida;
- (d) no analytic philosopher who is a logician admires Derrida;
- (e) some logicians other than Kripke are analytic philosophers and not post-modernists;
- (f) there are at least three logicians if Kripke is a logician;
- (g) all post-modernists admire someone other than Derrida;
- (h) no post-modernist admires everyone admired by Kripke;
- (i) the analytic philosopher who admires Derrida is not a logician;
- (j) whoever admires the logician admired by Derrida also admires the post-modernist admired by Kripke.
- 3 (a) Show the following arguments are valid by translating them into $QL^=$ and using quantifier trees:
- (i) some philosophers are logicians. No logician writes clearly.
So some philosophers do not write clearly.
- (ii) every philosopher is a logical person. Jones keeps making argumentative blunders. No logical person keeps making argumentative blunders. All existentialists are philosophers.
So Jones is not an existentialist.
- (iii) someone opened the safe, and whoever did it knew the code.
Only Jack and Jill knew the code. So if Jack didn't open the safe, Jill did.
- (iv) all utilitarians are consequentialists. So any book written by a utilitarian is a book written by a consequentialist.

[TURN OVER for continuation of question 3]

(b) Use quantifier trees to show that:

- (i) at least one person is the King of France;
- (ii) at most one person is the King of France;
- (iii) whoever is the King of France is bald

together entail

- (iv) there is one and only one person who is a King of France and he is bald.

Show also that (iv) entails (iii).

- 4 Explain carefully what it means to say that the tree method for testing propositional arguments in ' ', ' ' and ' \neg ' for tautological validity is sound and complete. Show that it is indeed complete.
- 5 (a) 'Numerical identity is the smallest equivalence relation.' Explain.
(b) What is Leibniz's Law? Does the invalidity of 'Lanky is so-called because of his height; Jo is Lanky; hence Jo is so-called because of his height' show that Leibniz's Law has exceptions?
- 6 'So-called a priori truths are really linguistic conventions.' Are they?
- 7 Does Russell's theory of descriptions provide a good account of the meaning of phrases of the form 'the F'?
- 8 Can one defend the claim that 'if ... then ...' in English means the same as ' \rightarrow ' in the propositional calculus?
- 9 How would you distinguish sentences, statements and propositions? Why is it important to make the distinctions?
- 10 Does Quine succeed in showing that the distinction between analytic and synthetic truths is unsustainable?

END OF PAPER