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PHILOSOPHY TRIPOS Part IA

PRELIMINARY EXAMINATION FOR PART IB OF THE PHILOSOPHY TRIPOS

Tuesday 30 May 2000 9 to 12

Paper 3

LOGIC

Answer **four** *questions only.*

Write the number of the question at the beginning of each answer. If you are answering an either/or question, indicate the letter as well.

1 **Either** *(a)* Are there any necessary truths that can only be known a posteriori?

Or *(b)* How successful is Quine's assault on the analytic/synthetic distinction?

2 What is Russell's Theory of Descriptions? Does it solve the problems that it purports to solve?

3 Why does Frege hold that a proper name must have sense as well as reference? Is he right?

4 What are the paradoxes of material implication? Can they be resolved?

5 'Different sentences can express the same proposition.' So what are propositions?

6 Use the tableaux method (the tree test) to determine which of the following arguments are valid:

(a) P, (P ¬Q), (Q R) hence R

(b) (¬R (P S)), ¬ (¬P & R) hence ¬ (R S)

(c) (¬P R) hence (¬R ¬(P & Q))

(d) ¬ R, (P R), (¬ P S), ¬(S & Q) hence ¬(Q R)

(e) ¬ (P (Q & R)), (S ¬R), ¬(Q & ¬¬ R) hence ¬ (S P)

[TURN OVER for continuation of question 6]

Also translate and test the following arguments:

(f) If Jo goes to the party and Sam goes to the party, there will be a row. So either there will be a row if Jo goes, or there will be a row if Sam goes.

(g) We won't buy a ticket. If our number comes up if we buy a ticket, then we will win the lottery. Hence we will win the lottery.

Comment on your last two verdicts.

7 Translate the following sentences into the language of the predicate calculus with identity, explaining the translation scheme that you use.

(a) No student is a logician if Jo is not a logician.
(b) Some students who are logicians are not philosophers.
(c) Only if Jo is a philosopher is every student who is a logician a philosopher too.
(d) Some students like all logicians who like themselves.
(e) Whomever Jo likes likes some philosopher.
(f) Some logician other than Jo likes every student.
(g) Jo is a philosopher and likes only other philosophers.
(h) Only a student admires another student.
(i) The student Jo likes is not a philosopher who likes her.
(j) Exactly three students like Jo.
(k) The only logician who likes Jo likes the only student who is a philosopher.

8 Show the following arguments are valid by translating them into the language of the predicate calculus with identity and using predicate tableaux.

(a) Some cricketers admire anyone who has played cricket for England. Fred is a cricketer with no admirers. So Fred has not played cricket for England.
(b) Angharad and Bethan, and they alone, love Caradoc. Someone who loves Caradoc kissed him. So either Angharad or Bethan kissed Caradoc.
(c) Any true philosopher admires some logician. Some students admire only existentialists. No existentialists are logicians. Hence not all students are true philosophers.
(d) All logicians are philosophers; hence any logician's car is a philosopher's car.
(e) The King of France is bald. Bald men are sexy. Hence the King of France is sexy.

9 Outline the semantics for a suitable language for Predicate Logic. What is it for an argument framed in this language to be semantically valid?

10 Show that a Sentential argument is valid according to the tableau method (i.e. by the 'tree test') if, and only if, it is tautologically valid.

END OF PAPER