

# 432018 PHILOSOPHY OF PHYSICS (Spring 2002)

## Essays II: Relativity Theory

The following essay titles are concerned with the second part of the course and a list of suggested readings is provided. (Note: your readings for the lectures and seminars is relevant too!) Your essay should be about 2,000 words long (but *certainly* no longer than 2,500 words) and should be handed in at the beginning of your seminar in Week 10 (i.e. on Thursday 14th of March).

**Note:** I will mark these essays in the first week of the Easter holidays and then I will return them to Jane Monroe, the Philosophy Department Administrator. **If** you go and see her prior to the end of term and write your name on an envelope, she will **post** your essay back to you when she receives it. **Or**, you can just go to the Philosophy Department Office to collect your essay at an appropriate time.

### 1. Is there a good argument for absolute space?

- H. G. Alexander (ed.), *The Leibniz-Clarke Correspondence* (Manchester University Press, 1956)
- L. Sklar, *Space, Time and Spacetime* (University of California Press, 1977), Ch. 3.
- J. Earman, *World Enough and Space-Time* (MIT Press, 1989) (OUP, 1987), Chs. 1-4.
- J. Earman, *Who's Afraid of Absolute Space?* in the Australasian Journal of Philosophy (1970).
- R. Laymon, *Newton's Bucket Experiment* in the Journal of the History of Philosophy (1968).

### 2. How do we know the true geometry of the world?

- L. Sklar, *Space, Time and Spacetime* (University of California Press, 1977), pp. 53-69.
- G. Nerlich, *The Shape of Space* (University of California Press, 1976), Ch. 3.
- H. Reichenbach, *The Philosophy of Space and Time* (Dover, 1958), esp. Ch. 1.
- C. Glymour, *The Epistemology of Geometry* in Noûs (1977).

### 3. "...I must say that I find it utterly naive to think that the verb 'to be' as applied to space-time structure, whose elements possess identity up to an automorphism and can never be met in person but only through their blurred, evanescent corporeal manifestations, can mean the same as the verb 'to be' applied to the tree in the quad ... It follows from this that, if you share — as almost everybody does nowadays — the dreary belief that there is no better reality besides the reality we have to hand, you must look down upon the reality of space-time, which only gives food for thought, as being one of a lesser or weaker kind. But you ought not to boorishly rush to the conclusion that unless space-time can be formally reduced to such things as tables and beer mugs it is no more than a fiction ... being is meant in various ways, as Aristotle said; and within that variety there is surely enough room for the objects of sense which we enjoy and for the intelligible structures by which we seek to understand them." [From R. Torretti, *Space-Time Physics and the Philosophy of Science*, in the British Journal for the Philosophy of Science, **35** (1984), pp. 280-92.]

Discuss this quote in the context of the debate over the ontology of space-time.

- J. Earman, *World Enough and Space-Time* (MIT Press, 1989) (OUP, 1987), Ch. 6.
- H. Lacey, *The Scientific Intelligibility of Absolute Space* in the British Journal for the Philosophy of Science (1970).
- C. Hooker, *The Relational Doctrine of Space and Time* in the British Journal for the Philosophy of Science (1971).

- J. Earman, *Who's Afraid of Absolute Space?* in the Australasian Journal of Philosophy (1970).
- P. Horwich, *On the Existence of Time, Space and Space-Time* in *Noûs* (1978)
- G. Nerlich and A. Westwell-Roper, *What Ontology Can Be About: A Spacetime Example* in the Australasian Journal of Philosophy (1985).