

AFTER THAT DAY I KNEW: I WAS A . . . LOGICIAN!  
MARY CARMAN

M.SC. PHILOSOPHY OF THE SOCIAL SCIENCES

**Review.** *Logicomix: An Epic Search For Truth*. By Apostolos Doxiadis and Christos H. Papadimitriou, with art by Alecos Papadatos and Annie Di Donna. London: Bloomsbury, 2009.

“THE point of philosophy,” the real Bertrand Russell wrote in 1935, “is to start with something so simple as to seem not worth stating, and to end with something so paradoxical that no one will believe it.”

*Logicomix: An Epic Search For Truth* mirrors this statement. It starts with a comic book format and a basic quest story: this is something so simple. Out of this simplicity arise the paradoxes, lying in the (in)compatibility of superheroes and logicians, in the themes of self-reference and the connection between logic and insanity. But like philosophy, there is a point to doing this. The point is to engage in a mental workout to figure out the paradoxes, the story, and just why a story of a logician can actually be entertaining. And as paradoxes go, it is easily resolved. The strange fact is that logicians make good superheroes, self-reference is a useful tool, logicians are mad, and it’s all just damn fun.

Bertrand Russell is the hero of the story. His quest: to find the foundations of mathematics. He is up against some terrible foes, like paradoxes and incompleteness and Henri Poincaré, and has some hardworking sidekicks, like Alfred Whitehead and Ludwig Wittgenstein. There's love interest; there's conflict. Logic covers it all. "From Donald Duck to Bertrand Russell, via Superman!" Yes, a philosopher/mathematician obsessed with logic is a strange choice of hero. It is this obsession with logic that leads to the human elements in the story and is his potential Achilles' Heel.

"*Most humans behave irrationally. All the more reason to pursue the study of logic,*" writes a youthful Russell in his secret diary. Russell is introduced to us in the context of the Second World War. He is arriving at an unnamed American university to give a talk on "The Role of Logic in Human Affairs". Russell's talk, with its aim to encourage people to behave rationally in time of war, is part of an epic quest to find logic where there is none. If he truly believes that most people behave irrationally, is his appeal to the use of logic in human affairs itself rational? Russell is telling the story of his life and his epic search for the foundations of mathematics, trying to introduce logic into all aspects of human affairs. His failure to acknowledge the role of "irrationality" and his desire to find logic everywhere: these are explored in the two layers of Russell's life as he sees it, and Russell's life as it is presented to the reader via the talk.

Apostolos Doxiadis, a mathematician, and Christos Papadimitriou, a computer scientist, are the authors of *Logicomix*. They are also characters in the book. A third layer of the story is of the writing of the book, with inputs from artists Alecos Papadatos and Annie Di Donna. *Logicomix*, as a result, refers to itself. By letting it do so, the authors, both as characters in the story but also as the unseen creators, give themselves a platform to provide commentary on Russell's quest for foundations. *Logicomix* explores the very nature of self-reference, something that haunts the hero.

Addressing the issue of self-reference, Russell asks his audience—the war-time and current ones—"Does the set of all sets which do not contain themselves contain itself?" Suppose that there is a town with one

male barber and where each man either shaves himself or is shaved by the barber, but not both. The barber too is clean-shaven. Does he shave himself or is he shaved by the barber? If it is the first option, then he is shaved by the barber; but, if it is the second, then he shaves himself. To which group, or set, does the barber belong? This is Russell's Paradox, which arises out of self-reference and almost destroys the hero. Through following rationality to its limits, Russell comes close to his downfall.

Russell's Paradox undermines the progress that Russell, Gottlob Frege and others were making in discovering the foundations of mathematics. The problem it poses is not merely mentioned in *Logicomix*, it is mirrored in it. *Logicomix* has as some of its key characters its own creators; their epic quest, the production of a comic book about logic. Figure it out. Annie thinks until she gets it, and in her thought bubble Annie is thinking of Annie thinking of Annie thinking . . .

But this is not a problem. Allowing the authors to refer to themselves and to interrupt Russell to provide explanations and commentary gives novel solutions to potential problems. For example, Papadimitriou interrupts the story to explain bits of logic which a lay-person might not know. Sticking to the straight-and-narrow would needlessly ignore a whole aspect of what it is to tell a story. Using the power of explicit commentary, *Logicomix* also suggests that Russell is closing off a similar range of options with his insistence on capturing everything with logic. Wittgenstein, Russell's young student, scolds Russell for not realising the implications of his paradox: "Logic is vacuous . . . it cannot speak reality!"

Russell desires rationality and fears madness. Against a backdrop of dark skies, slashes of lightning and "KAAABOOOMS" of thunder, young Russell hears mysterious sounds while staying with his grandparents and fears that he is hallucinating. While this fear of the irrational drives Russell to the ultimate form of clear thinking—logic—madness is scattered throughout his life. From his uncle to Frege to the mob calling for peace, Russell is surrounded by madness of different kinds. Frege, a small frantic man, is consumed by his logic to the extent that he cannot entertain the simplest everyday solution to the mystery of the fate of his missing cookie. It is Russell's desire to avoid madness that brings him into

contact with it. This is a second paradox explored in *Logicomix*.

As the theme of logic and madness develops, the reader is forced to question whether logic really is something entirely rational. Using the power of self-reference again, the reader is confronted directly with the link: says Alecos, commenting on the development of the story, “Here Russell seems to imply that madness comes from logic, and not the other way round, as you say.” The conclusion that is hinted at is opposite to what Russell proclaims. Rationality, thought, ideas. These are only part of reality. The passions, the emotions: these too drive people and these are no less important than thought and rationality. Favouring one over the other, whichever way you go, perhaps leads to the same outcome of madness.

The tragedy of Russell is that he seems unable to realise this. “*Most humans behave irrationally. All the more reason to pursue the study of logic*” is pitted against “The Role of Logic in Human Affairs”. The different layers of the story allow the reader to question whether Russell is correct to propose logic as a solution to human irrationality, and to seriously consider that The Role of Logic in Human Affairs is not major. Russell’s epic quest in his mathematical life leads to paradoxes; his quest in his human life, dogged by irrational humans, is bound to lead to problems of its own. Young Russell realises that the role of rationality and logic in human affairs is not absolute, and yet he carries on believing wholeheartedly in logic’s power and importance. Paradoxically, it is Russell’s own idea of what the truth must be that prevents him from finding it. Logic by itself is vacuous, it cannot speak reality.

And perhaps this is where the power of the comic book format comes in. It’s a story, ultimately. The medium allows for ways of telling a story which are not available for only words. Boolean algebra explained in a maze. A statement like “I’m tired, man” carrying Russell’s exhaustion and despair through being said against a backdrop of a desolate, bleak square, with Russell and Whitehead tiny inconsequential figures. Russell’s inscrutable eyes opposed to Wittgenstein’s enthusiastic circles—who is seeing more?

This is a story that is being told, not a factual history of Russell’s life. “Comic license” is practised freely throughout—something which the

(self-referential) creators comment on themselves. If this were a philosophical treatise, then perhaps insoluble paradoxes would arise. It is not, however, and pure rationality and logic without the pretty pictures and human interest just does not cut it for a story. Logic cannot speak reality, but perhaps there is a limit to words as well.

“Well, we focus on the people! Their ideas interest us only to the extent that they spring from their passions.” *Logicomix* is an exploration in both ideas and passions, through paradoxes, madness and unlikely heroes. The role of logic in human affairs, it seems, is only partial. With this message, the paradoxes of a logician superhero, of self-reference, of logic and insanity, and of a comic book format for a story about mathematics and philosophy are all solved.

## ABOUT LSE

The London School of Economics and Political Science is one of the world's leading research and teaching centres in the social sciences. Situated in the heart of London, its location and academic reputation make it a most exciting place to study.

### THE DEPARTMENT OF PHILOSOPHY, LOGIC AND SCIENTIFIC METHOD AT LSE

Karl Popper, the founder of the Department of Philosophy, Logic and Scientific Method, moved to the LSE after publishing *The Logic of Scientific Discovery* (1935), *The Poverty of Historicism* (1944) and *The Open Society and its Enemies* (1945). Popper was one of the foremost defenders of democratic liberalism in political philosophy, which made the London School of Economics and Political Science a natural home for him. Rational criticism was the cornerstone not only of his political philosophy but also of his views on the nature and practice of the natural and the social sciences. It was through Popper's efforts that falsificationism entered public consciousness as the defining criterion of the nature of science. Both he and his successor Imre Lakatos, who joined the department in 1960, were instrumental in shaping 20<sup>th</sup> century philosophy of science.

The Department's longstanding reputation in the philosophy of natural science is now matched by its strength in the philosophy of economics and social science, most notably in methodology and rational choice theory and philosophy of public policy. We are committed to

teaching and research that makes a significant difference not only in philosophy and the philosophies of the various sciences, but also in the practice of the sciences themselves—from economics and political science to physics, biology and medicine.

The range of postgraduate masters degrees offered by the Department reflects its strengths: it offers four different MSc programmes, each dedicated to the teaching of one of its particular specialties. The MSc programmes are complemented by a PhD programme which creates an active intellectual environment with students working in philosophy of science, philosophy of physics, philosophy of economics, philosophy and public policy, rational choice and scientific methodology.

#### ACADEMIC STAFF

Dr Jason McKenzie Alexander, Professor Richard Bradley, Professor Luc Bovens, Professor Nancy Cartwright, Dr Erik Curiel (2009-10), Dr Roman Frigg, Dr Miklos Redei, Dr Rory Smead (2009-10), Dr Katie Steele, Dr Alex Voorhoeve, and Professor John Worrall. Dr Kristina Musholt, Dr Armin Schulz, and Dr Charlotte Werndl will start in September 2010.

#### EQUALITY STATEMENT

The Department and the School are committed to diversity and equality in education and employment. The Department has a number of exceptionally successful individuals from underrepresented groups, and especially seeks applications from women and minority groups for student, research and faculty positions.

#### CONTACT INFORMATION

philosophy-dept@lse.ac.uk  
[www.lse.ac.uk/collections/philosophyLogicAndScientificMethod/](http://www.lse.ac.uk/collections/philosophyLogicAndScientificMethod/)

## DEGREE PROGRAMMES

### *3-year Undergraduate Programmes:*

- BSc Philosophy, Logic and Scientific Method
- BSc Philosophy and Economics
- BSc Politics and Philosophy

### *12-month Masters Programmes:*

- MSc Philosophy and Economics
- MSc Philosophy and History of Science
- MSc Philosophy and Public Policy
- MSc Philosophy of the Social Sciences

### *MPhil and PhD programme*

## MSC DEGREES

We will consider applicants who will have finished a Bachelor degree in any discipline with sufficiently strong results (for UK applicants, Upper Second or better) in any discipline and who have a considered interest in the area covered by the MSc.

### *The MSc Philosophy and Economics*

Taught jointly by two internationally respected departments at LSE,

this degree is unique in offering students the opportunity both to further their studies in economics and to acquire a deeper understanding of the nature and significance of its methods, normative implications and conceptual foundations. The degree offers a good preparation for doctoral research in both economics and the philosophy of economics and the social sciences, as well as for employment in such fields as financial and economic journalism, consulting and policy formulation. Applicants must have a strong undergraduate training in economics.

### *The MSc Philosophy and History of Science*

Taught jointly by two internationally respected schools – LSE and King’s College, London – this degree attracts primarily two types of students: those with first degrees in a science who would like to study the methods and foundations of science, and those with first degrees in philosophy who would like to specialise more in philosophy of science. As well as further developing the virtues of clear thinking, analytical argument and appreciation of the rules of evidence that are so useful in a range of high-level

occupations, the course provides a solid foundation for doctoral work in the philosophy of science and related fields, and for employment in such fields as science administration.

### *The MSc Philosophy and Public Policy*

Taught at an institution which is a major centre for national and international public policy debates, this degree provides a foundation in the conceptual and normative questions underlying public policy formulation. It prepares you for policy-oriented careers in inter-governmental, governmental and non-governmental organisations as well as for Ph.D. work in philosophy or related disciplines. It is distinctive in three ways. First, it is resolutely interdisciplinary. We take philosophical analysis to be continuous with scientific approaches to the study of political, social and economic problems. Second, it offers a thorough background in the classics of moral and political theory, which students learn to apply to issues in public policy. Third, students have access to a wealth of courses and resources at the Philosophy Department and LSE gener-

ally that are relevant for the philosophical analysis of public policy.

### *The MSc Philosophy of the Social Sciences*

Taught by a department recognized as one of the best in the world for Philosophy of Social Science, this degree offers students the opportunity to further their study in either the philosophy of social science or the philosophy of economics, in addition to studying one course selected from the many social science offerings at the LSE. Some of the questions that will be addressed during your studies in the MSc in Philosophy of the Social Sciences: Are the social sciences truly scientific? Are they objective? What accounts for the diversity of methods in the social sciences (and lack of agreement as to which ones ought to be followed)? Do evolutionary explanations of social phenomena provide an accurate account of why societies are the way they are, or are such explanations merely unverifiable just-so stories? What relations exist among rationality, choice, action, and interpretation?