



## **Routledge History of Philosophy Volume X**

Volume X of the *Routledge History of Philosophy* presents a historical survey of the central topics in twentieth-century Anglo-American philosophy. It chronicles what has been termed the 'linguistic turn' in analytic philosophy and traces the influence the study of language has had on the main problems of philosophy. Each chapter contains an extensive bibliography of the major writings in the field.

In keeping with the importance of the linguistic turn, the introduction and the first two essays in the book deal with the philosophy of language. A subsequent series of essays concentrates on the central areas of metaphysics, ethics and epistemology. The book also covers the traditional, related topics of aesthetics, political philosophy and the philosophy of religion. Then there are essays on domains that have only become prominent in this century, namely, applied ethics, feminist philosophy and the philosophy of law. One chapter is devoted to the later Wittgenstein.

The book's authors have contributed to the on-going discussions they cover, some of them prominently. All the essays present their large and complex topics in a clear and well organized way. The reader will find a helpful Chronology of major events in philosophy, logic and science in the twentieth century and an extensive Glossary of technical terms.

**John V.Canfield** lives in Toronto. He has taught philosophy at Cornell University and the University of Toronto, and is the author of *Wittgenstein: Language and World* (1981) and *The Looking-Glass Self* (1990). He is currently working on a book of essays on Wittgenstein.

# **Routledge History of Philosophy**

General Editors—G.H.R.Parkinson and S.G.Shanker

The *Routledge History of Philosophy* provides a chronological survey of the history of Western philosophy, from its beginnings in the sixth century BC to the present time. It discusses all major philosophical developments in depth. Most space is allocated to those individuals who, by common consent, are regarded as great philosophers. But lesser figures have not been neglected, and together the ten volumes of the *History* include basic and critical information about every significant philosopher of the past and present. These philosophers are clearly situated within the cultural and, in particular, the scientific context of their time.

The *History* is intended not only for the specialist, but also for the student and the general reader. Each chapter is by an acknowledged authority in the field. The chapters are written in an accessible style and a glossary of technical terms is provided in each volume.

I *From the Beginning to Plato* C.C.W.Taylor (published 1997)

II *Hellenistic and Early Medieval Philosophy* David Furley

III *Medieval Philosophy* John Marenbon

IV *The Renaissance and C17 Rationalism* G.H.R.Parkinson (published 1993)

V *British Philosophy and the Age of Enlightenment* Stuart Brown (published 1996)

VI *The Age of German Idealism* Robert Solomon and Kathleen Higgins (published 1993)

VII *The Nineteenth Century* C.L.Ten (published 1994)

VIII *Continental Philosophy in the Philosophy C20* (published 1993) Richard Kearney

IX *Philosophy of Science, Logic and Mathematics in the C20* S.G.Shanker (published 1996)

X *Philosophy of Meaning, Knowledge and Value in the C20* John V.Canfield (published 1997)

Each volume contains 10–15 chapters by different contributors

Routledge History of Philosophy  
Volume X



# Philosophy of Meaning, Knowledge and Value in the Twentieth Century



EDITED BY  
*John V. Canfield*



London and New York


First published 1997  
by Routledge  
11 New Fetter Lane, London EC4P 4EE

This edition published in the Taylor & Francis e-Library, 2005.

“To purchase your own copy of this or any of Taylor & Francis or Routledge’s collection of thousands of eBooks please go to  
[www.eBookstore.tandf.co.uk](http://www.eBookstore.tandf.co.uk).”

Simultaneously published in the USA and Canada  
by Routledge  
29 West 35th Street, New York, NY 10001

*Routledge is an International Thomson Publishing company*

selection and editorial matter © 1997 John V.Canfield   
individual chapters © 1997 the contributors

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writing from the publishers.

*British Library Cataloguing in Publication Data*  
A catalogue record for this book is available from the British Library

*Library of Congress Cataloging in Publication Data*  
The philosophy of the English speaking world in the twentieth century.

Part II, Meaning, knowledge, and value/edited by John V.Canfield.  
p. cm.—(Routledge history of philosophy; v. 10)

Part I published under the main title: Philosophy of science,  
logic and mathematics in the 20th century. 1996.

Includes bibliographical references and index.

1. Philosophy, Modern—20th century. 2. Philosophy, British. 3. Philosophy,  
American—20th century. I. Canfield, John V. II. Philosophy of science, logic, and  
mathematics in the 20th century. III. Series.

B804.P538 1996

190 9 04—dc20 96—11902

CIP

ISBN 0-203-03068-0 Master e-book ISBN

ISBN 0-203-06011-3 (Adobe eReader Format)  
ISBN 0-415-05605-5 (Print Edition)

# Contents

General editors' preface	vii
Notes on contributors	ix
Chronology	xi
 Introduction	 1
<i>John V.Canfield</i>	
1 Philosophy of language	8
<i>A.P.Martinich</i>	
2 Formally oriented work in the philosophy of language	27
<i>Nino B.Cocchiarella</i>	
3 Metaphysics I (1900–45)	51
<i>William James DeAngelis</i>	
4 Metaphysics II (1945 to the present)	72
<i>Bernard Linsky</i>	
5 Ethics I (1900–45)	89
<i>Michael Stingl</i>	
6 Ethics II (1945 to the present)	109
<i>Robert L.Arrington</i>	
7 Epistemology	133
<i>Paul K.Moser</i>	
8 Wittgenstein's later philosophy	168
<i>John V.Canfield</i>	
9 Political philosophy	194
<i>Arthur Ripstein</i>	
10 Feminist philosophy	209
<i>Sarah Lucia HoaglandMarilyn Frye</i>	
11 Philosophy of law	233
<i>Calvin G.Normore</i>	
12 Applied ethics	247
<i>Justin Oakley</i>	

13	Aesthetics <i>George Dickie</i>	269
14	Philosophy of religion <i>Edward R. Wierenga</i>	292
	Glossary	305
	Index	316

## General editors' preface

The history of philosophy, as its name implies, represents a union of two very different disciplines, each of which imposes severe constraints upon the other. As an exercise in the history of ideas, it demands that one acquire a 'period eye': a thorough understanding of how the thinkers whom it studies viewed the problems which they sought to resolve, the conceptual frameworks in which they addressed these issues, their assumptions and objectives, their blind spots and miscues. But as an exercise in philosophy, we are engaged in much more than simply a descriptive task. There is a crucial critical aspect to our efforts: we are looking for the cogency as much as the development of an argument, for its bearing on questions which continue to preoccupy us as much as the impact which it may have had on the evolution of philosophical thought.

The history of philosophy thus requires a delicate balancing act from its practitioners. We read these writings with the full benefit of historical hindsight. We can see why the minor contributions remained minor and where the grand systems broke down: sometimes as a result of internal pressures, sometimes because of a failure to overcome an insuperable obstacle, sometimes because of a dramatic technological or sociological change, and, quite often, because of nothing more than a shift in intellectual fashion or interests. Yet, because of our continuing philosophical concern with many of the same problems, we cannot afford to look dispassionately at these works. We want to know what lessons are to be learned from the inconsequential or the glorious failures; many times we want to plead for a contemporary relevance in the overlooked theory or to consider whether the 'glorious failure' was indeed such or simply ahead of its time: perhaps even ahead of its author.

We find ourselves, therefore, much like the mythical 'radical translator' who has so fascinated modern philosophers, trying to understand an author's ideas in their and their culture's eyes, and, at the same time, in our own. It can be a formidable task. Many times we fail in the historical undertaking because our philosophical interests are so strong, or lose sight of the latter because we are so enthralled by the former. But the nature of philosophy is such that we are compelled to master both techniques. For learning about the history of philosophy is not just a challenging and engaging pastime: it is an essential element in learning about the nature of philosophy—in grasping how philosophy is intimately connected with and yet distinct from both history and science.

The *Routledge History of Philosophy* provides a chronological survey of the history of western philosophy, from its beginnings up to the present time. Its aim is to discuss all major philosophical developments in depth, and, with this in mind, most space has been allocated to those individuals who, by common consent, are regarded as great philosophers. But lesser figures have not been neglected, and it is hoped that the reader will be able to find, in the ten volumes of the *History*, at least basic information about any significant philosopher of the past or present.



Philosophical thinking does not occur in isolation from other human activities, and this *History* tries to situate philosophers within the cultural, and in particular the scientific, context of their time. Some philosophers, indeed, would regard philosophy as merely ancillary to the natural sciences; but even if this view is rejected, it can hardly be denied that the sciences have had a great influence on what is now regarded as philosophy, and it is important that this influence should be set forth clearly. Not that these volumes are intended to provide a mere record of the factors that influenced philosophical thinking; philosophy is a discipline with its own standards of argument, and the presentation of the ways in which these arguments have developed is the main concern of this *History*.

In speaking of 'what is now regarded as philosophy', we may have given the impression that there now exists a single view of what philosophy is. This is certainly not the case; on the contrary, there exist serious differences of opinion, among those who call themselves philosophers, about the nature of their subject. These differences are reflected in the existence at the present time of two main schools of thought, usually described as 'analytic' and 'continental' philosophy. It is not our intention, as general editors of this *History*, to take sides in this dispute. Our attitude is one of tolerance, and our hope is that these volumes will contribute to an understanding of how philosophers have reached the positions which they now occupy.

One final comment. Philosophy has long been a highly technical subject, with its own specialized vocabulary. This *History* is intended not only for the specialist but also for the general reader. To this end, we have tried to ensure that each chapter is written in an accessible style; and since technicalities are unavoidable, a glossary of technical terms is provided in each volume. In this way these volumes will, we hope, contribute to a wider understanding of a subject which is of the highest importance to all thinking people.

G.H.R.Parkinson  
S.G.Shanker

## Notes on contributors

**Robert L. Arrington** is Professor of Philosophy at Georgia State University in Atlanta, Georgia. He is the author of *Rationalism, Realism, and Relativism* (1989) and the co-editor of *Wittgenstein's Philosophical Investigations* (1991) and the forthcoming *Wittgenstein and Quine*. Currently he is writing a history of ethics and editing *A Companion to the Philosophers*.

**John V. Canfield** is Professor Emeritus at the University of Toronto. He is the author of *Wittgenstein: Language and World* (1981), *The Looking-Glass Self* (1990), and papers on Wittgenstein and the philosophy of language. He is the editor (with Frank Donnell) of *The Theory of Knowledge* (1964), *Purpose in Nature* (1966), *The Philosophy of Wittgenstein* (in fifteen volumes, 1986) and (with Stuart Shanker) *Wittgenstein's Intentions* (1993).

**Nino B. Cocchiarella** is Professor of Philosophy at Indiana University. He is the author of *Logical Investigations of Predication Theory and the Problem of Universals* (1986), *Logical Studies in Early Analytic Philosophy* (1987), and numerous articles including 'Conceptualism, Realism, and Intensional Logic' and 'Conceptual Realism versus Quine on Classes and Higher-Order Logic'.

**William James DeAngelis** is Associate Professor of Philosophy at Northeastern University in Boston, Massachusetts, where he has been the recipient of a Presidential Excellence-in-Teaching Award. His publications have been in the area of metaphysics and Wittgenstein studies; currently he is preparing a book on the philosophy of religion.

**George Dickie** lives in Chicago; he is the author of *Art and the Aesthetic* (1974), *The Art Circle* (1984), *Evaluating Art* (1988) and *The Century of Taste* (1996).

**Marilyn Frye** teaches Philosophy and Women's Studies at Michigan State University. Her essays are collected in *The Politics of Reality* (1983) and *Willful Virgin* (1992).

**Sarah Lucia Hoagland** is Professor of Philosophy and Women's Studies at Northeastern Illinois University, in Chicago. She is author of *Lesbian Ethics* (1988), and co-editor of *For Lesbians Only: A Separatist Anthology* (1992).

**Bernard Linsky** is in the Department of Philosophy of the University of Alberta. He has written articles on philosophical logic, modal metaphysics and Bertrand Russell, interests similar to those of his father, Leonard Linsky.

**A.P. Martinich** teaches philosophy at the University of Texas at Austin; he is the editor of *The Philosophy of Language* (1985) and the author of papers in that field.

**Paul K. Moser** is Professor of Philosophy at Loyola University of Chicago. He is the author of *Empirical Justification* (1985), *Knowledge and Evidence* (1989) and *Philosophy after Objectivity* (1993), editor of *Empirical Knowledge* (1986), *A Priori Knowledge* (1987), *Rationality in Action* (1990) and *Human*

*Knowledge* (2nd edn, 1995), among other collections, and author of a number of articles on epistemology. He is the general editor of the new book series, *Routledge Contemporary Introductions to Philosophy*.

**Calvin G. Normore** is Professor of Philosophy at Erindale College, University of Toronto. He has published and lectured widely in a variety of areas including medieval philosophy, social and political philosophy, history of logic and decision theory.

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**Michael Stigl** teaches philosophy at the University of Lethbridge. His research interests include ethical naturalism and various applied issues in biomedical ethics. He is currently editing a book on reforming the Canadian health system.

**Edward Wierenga** is Professor of Religion and chair of the Department of Religion and Classics at the University of Rochester (NY). He is the author of *The Nature of God* (1989) and numerous articles.

# Chronology

The dates assigned to books or articles are the dates of publication. The titles of works not written in English have been translated, unless they are better known in their original form.

Philosophy (general)	Logic
1873	
1877 Peirce, <i>The Fixation of Belief</i>	
1879	Frege, <i>Begriffsschrift</i>
1881	
1883	Bradley, <i>Principles of Logic</i>
1884	Frege, <i>The Foundations of Arithmetic</i>
1891	Frege, 'Function and Concept'
1892 Frege, 'On Sense and Reference'	Frege, 'Concept and Object'
1893 Bradley, <i>Appearance and Reality</i>	Frege, <i>The Basic Laws of Arithmetic</i> (vol. 2:1903)
1895	
1897	
1898	
1899	Hilbert, <i>Foundations of Geometry</i>
1900 Husserl, <i>Logical Investigations</i>	Hilbert's address to the International Congress of Mathematicians: 'Mathematical Problems'
1901	
1902	Russell's paradox
1903 Moore, 'Refutation of Idealism'	Russell, <i>The Principles of Mathematics</i>
Moore, <i>Principia Ethica</i>	Frege, <i>Basic Laws of Arithmetic</i>
1904	
1905 Russell, 'On Denoting'	Meinong, 'Theory of Objects'
Mach, <i>Knowledge and Error</i>	
<b>Philosophy of Science</b>	<b>Science and technology</b>
Jevons, <i>The Principles of Science</i>	1873
	1877
	1879

**Philosophy of Science**Helmholtz, *Popular Lectures*Mach, *The Science of Mechanics*Pearson, *The Grammar of Science*Mach, *Popular Scientific Lectures*Hertz, *The Principles of Mechanics*Poincaré, *Science and Hypothesis*Duhem, *The Aim and Structure of Physical Theory*Boltzmann, *Popular Writings***Science and technology**

Michelson—Morley experiment (speed of light found to be the same in perpendicular directions) 1881

1883

1884

Ehrlich's diphtheria antitoxin establishes field of immunology 1891

Lorentz—Fitzgerald contraction (contraction of objects at high speeds) 1892

1893

Discovery of x-rays (Roentgen) 1895

Cloud chamber developed (Thomson)

Discovery of electron (Thomson) 1897

Charge of electron measured (Thomson)

Term 'radioactivity' coined (M.Curie) 1898

Alpha and beta rays (radioactivity from uranium) discovered (Rutherford)

1899

Quantum theory initiated: substances can emit light only at certain energies (Planck) 1900

Rediscovery of Mendel's 1860s work on genetics

First trans-Atlantic telegraphic transmission (Marconi) 1901

Rutherford and Soddy: 'The Cause and Nature of Radioactivity' 1902

First successful airplane flight (Wright brothers) 1903

Thomson's model of the atom: electrons embedded in sphere of positive electricity 1904

Einstein explains Brownian motion (motion of small particles suspended in liquid); seen as first proof of existence of atoms 1905

Einstein's papers on the special theory of relativity

Einstein postulates light quantum (term 'photon' coined 1926) for particle-like behaviour of light

**Philosophy (general)**

1906

**Logic**

<b>Philosophy (general)</b>	<b>Logic</b>
1907 James, <i>Pragmatism</i> Bergson, <i>Creative Evolution</i>	
1908	
1909	
1910	Russell and Whitehead, <i>Principia Mathematica</i> (1910–13)
1911	
1912	Brouwer, <i>Intuitionism and Formalism</i>
1913 Husserl, <i>Ideas</i>	
1914 Russell, <i>Our Knowledge of the External World</i> Bradley, <i>Essays on Truth and Reality</i>	
1915	
1917	
1918 Russell, <i>The Philosophy of Logical Atomism</i> Schlick, <i>General Theory of Knowledge</i>	Lewis, <i>Survey of Symbolic Logic</i>
1919	Russell, <i>Introduction to Mathematical Philosophy</i>
1920 Whitehead, <i>The Concept of Nature</i>	
1921 Wittgenstein, <i>Tractatus Logico-Philosophicus</i>	Keynes, <i>A Treatise on Probability</i>
1922 Moore, <i>Philosophical Papers</i>	
1923	Skolem, 'Some Remarks on Axiomatic Set Theory'

**Philosophy of Science****Science and technology**

	Existence of 'vitamins' (term coined 1912) postulated (Hopkins); discovered 1928	1906
		1907
Driesch, <i>The Science and Philosophy of the Organism</i>	Minkowski, <i>Space and Time</i> (proposes 4-dimensional universe)	1908
	Term 'gene' coined (Johannsen)	1909
	M.Curie, <i>Treatise on Radioactivity</i>	1910
	Rutherford's atomic theory: positively charged nucleus surrounded by negative electrons	1911
C.L.Morgan, <i>Instinct and Experience</i>	Theory of continental drift proposed (Wegener)	1912
	Bohr's model of the atom: electrons revolve around nucleus in fixed orbits, give off fixed quanta of energy by jumping orbit	1913
	Henry Ford's assembly line	
Broad, <i>Perception, Physics, and Reality</i>	Discovery of proton (Rutherford)	1914
Driesch, <i>The History and Theory of Vitalism</i>	Einstein's general theory of relativity	1915

**Philosophy of Science**

Schlick, *Space and Time in Contemporary Physics*

Campbell, *Physics: The Elements*

Broad, *Scientific Thought*

C.L.Morgan, *Emergent Evolution*

**Philosophy (general)**

1924

1925 Broad, *The Mind and Its Place in Nature*

1926

1927 Heidegger, *Being and Time*

McTaggart, *The Nature of Existence*

1928 Carnap, *The Logical Structure of the World*

1929 Carnap, Hahn and Neurath, *The Scientific World*

*View: The Vienna Circle*

Dewey, *Experience and Nature*

Lewis, *Mind and the World Order*

1930

**Science and technology**

Existence of black holes predicted (Schwarzschild) 1917

1918

1919

Existence of neutron (uncharged particle) proposed (Harkins); discovered 1932 1920

Red shift in spectra of galaxies reported (Slipher)

Copenhagen Institute of Theoretical Physics founded (Bohr)

Insulin discovered (Banting, Best, McLeod, Collip) 1921

1922

Particle-wave duality of matter proposed (de Broglie); confirmed 1927 (Davisson) 1923

**Logic**

Hilbert, *Principles of Mathematical Logic*  
von Mises, *Probability, Statistics and Truth*

Godel's proof of completeness of first-order predicate calculus

**Philosophy of Science**

Whitehead, *Science and the Modern World*

**Science and technology**

Bose statistics for light quanta (Bose) 1924

Galaxies shown to be independent systems (Hubble)

First use of insecticides

Electron spin hypothesized (Goudsmit, Uhlenbeck)

Pauli's exclusion principle (electrons of same quantum number cannot occupy same state)

Quantum mechanics given first comprehensive formulation (Born, Heisenberg, Jordan)

**Philosophy of Science**C.L.Morgan, *Life, Mind, and Spirit*Russell, *The Analysis of Matter*Weyl, *Philosophy of Mathematics and Natural Science*Bridgman, *The Logic of Modern Physics*Eddington, *The Nature of the Physical World*Reichenbach, *The Philosophy of Time and Space*Campbell, *Measurement and Calculation*Woodger, *Biological Principles*Heisenberg, *The Physical Principles of Quantum Theory***Science and technology**

‘Scopes Monkey Trial’ (high-school teacher prosecuted for teaching evolution)

First analog computer (Bush)

Probability interpretation of quantum mechanics (Born) 1926

Fermi-Dirac statistics

Planck’s law derived from first principles (Dirac)

First paper on wave mechanics (Schrödinger); Schrödinger’s equation Morgan, *The Theory of the Gene*

Heisenberg’s uncertainty principle (cannot determine simultaneously position and momentum of electron) 1927

First version of ‘Big Bang’ theory of origins of universe (Lemaitre)

Dirac’s equation combines quantum mechanics with special relativity 1928

Discovery of penicillin (Fleming); production and clinical use not until 1940s

Heisenberg and Pauli’s quantum field theory 1929

Hubble’s law (more distant a galaxy, faster it is receding from Earth)

Discovery of deoxyribose nucleic acids (DNA)

Dirac, *Principles of Quantum Mechanics* 1930

‘Neutrino’ postulated (Pauli); term coined 1932 (Fermi); discovered 1955

Discovery of planet Pluto (Tombaugh)

Immunization against typhus developed (Zinsser)

**Philosophy (general)**

1931 Tarski, ‘The Concept of Truth in Formalized Languages’

**Logic**

Godel’s incompleteness theorem

Ramsey, *The Foundations of Mathematics*

Carnap, ‘The Logician Foundations of Mathematics’

Heyting, ‘The Intuitionist Foundations of Mathematics’

von Neumann, ‘The Formalist Foundations of Mathematics’

1932 Price, *Perception*

1933



**Philosophy (general)**

- 1934 Carnap, *The Logical Syntax of Language*
- 1935
- 1936 Husserl, *The Crisis of European Sciences and Transcendental Phenomenology*  
Ayer, *Language, Truth, and Logic* Schlick,  
'Meaning and Verification'
- 1937
- 1938
- 1939 Blanshard, *The Nature of Thought*

**Logic**

- Hilbert, *Foundations of Mathematics* (vol.2: 1939)  
Reichenbach, *The Theory of Probability*
- Turing, 'On Computable Numbers' ('Turing machine')
- Godel's proof of consistency of continuum hypothesis with basic axioms of set theory  
Dewey, *Logic: The Theory of Inquiry*  
Nagel, *Principles of the Theory of Probability*  
Carnap, *Foundations of Logic and Mathematics*

**Philosophy of Science**

- Haldane, *The Philosophical Basis of Biology*  
Neurath, 'Physicalism'  
Schlick, 'Causality in Contemporary Physics'  
Carnap, 'Die physikalische Sprache als Universalsprache der Wissenschaft' (*The Unity of Science*, 1934)  
Joad, *Philosophical Aspects of Modern Science*
- Bachelard, *The New Scientific Spirit*  
Popper, *The Logic of Discovery*  
Eddington, *New Pathways in Science*
- Bridgman, *The Nature of Physical Theory*  
Inauguration of *The International Encyclopedia of Unified Sciences* (Neurath, Carnap, Morris)

**Science and technology**

- 'Positron' (positively charged electron) 1931  
postulated (Dirac); discovered 1932  
(Andersen); first form of anti-matter discovered
- Particle accelerator first used to split lithium 1932  
atom (Cockcroft, Walton)  
Heisenberg's model of atomic nucleus:  
neutrons and protons held together by  
exchanging electrons  
Discovery of neutron (Chadwick)  
Morgan, *The Scientific Basis of Evolution*  
Fermi's theory of beta decay (first suggestion 1933  
of weak interaction) Vitamin C synthesized) 1934
- 'Exchange particle' causing attraction between 1935  
particles in atomic nucleus (strong force)  
proposed (Yukawa); called 'meson' (1939),  
now 'pion'  
Richter scale developed (Richter)  
First radar developed (Watson, Watt)
- Isolation of DNA in pure state (Belozersky) 1936  
Primitive digital computer (Zuse)

**Philosophy of Science**

Stebbing, *Philosophy and the Physicists*  
Woodger, *The Axiomatic Method in Biology*  
  
Oparin, *The Origin of Life*  
Reichenbach, *Experience and Prediction*  
Carnap, 'Logical Foundations of the Unity of Science'  
Eddington, *The Philosophy of Physical Science*

**Science and technology**

ABC (Atanasoff-Berry Computer), first electronic computer begun; completed 1939, operational version 1942.  
'Muon' discovered (Anderson); initial claim to be Yukawa meson shown false 1945 (Conversi, Puncini, Picconi) Concept of 'charge conjugation' introduced for particle interactions (Kramers); in 1958 is shown to be invalid for some interactions  
Uranium atom first split (Hahn)  
  
Einstein's letter to Roosevelt: first step in US effort to build atomic bomb Method of calculating properties of material objects from quantum principles developed (Herring) DDT insecticide synthesized (Muller)

**Philosophy (general)**  
1940 Russell, *An Inquiry into Meaning and Truth*  
Collingwood, *An Essay on Metaphysics*  
1941  
  
1942  
1943 Sartre, *Being and Nothingness*  
1944 Stevenson, *Ethics and Language*  
1945  
  
1946  
1947 Carnap, *Meaning and Necessity*  
1948  
1949 Schlick, *Philosophy of Nature*  
Ryle, *The Concept of Mind*

**Logic**  
  
Tarski, *Introduction to Logic and to the Methodology of the Deductive Sciences*  
  
Carnap, *Formalization of Logic*  
  
Waismann, 'Are There Alternative Logics?'  
Carnap, 'The Two Concepts of Probability'  
  
  
Reichenbach, *The Theory of Probability*  
Kneale, *Probability and Induction*

**Philosophy of Science**

**Science and technology**

Penicillin developed as antibiotic (term 'antibiotic' coined 1941) 1940  
Zuse's Z2 computer: electromagnetic relays and punched tape for data entry 1941  
Two-meson theory (Sakata, Inoue) 1942  
First controlled chain reaction (Fermi)

**Philosophy of Science**

	<b>Science and technology</b> First radio map of universe Quantum electrodynamics (QED) developed (Tomonaga) 1943 First operational nuclear reactor (Oak Ridge, Term.) First all-electronic computer, 'Colossus', developed to crack codes (Turing) DNA determined as hereditary material for almost all living beings (Avery) Jet-engine (V-1) and rocket-propelled (V-2) bombs 1944 Atomic bombs dropped on Hiroshima and Nagasaki 1945 ENIAC: first all-purpose, stored-program electronic computer Term 'lepton' introduced for light particles not affected by strong force (Pais, Moller) 1946 'V particle' discovered (Rochester and Butler) Radioactive carbon-14 method developed for dating objects (Libby) 'Pion' (Yukawa meson) discovered (Powell and team) 1947 Lamb Shift discovered; independent development of quantum electrodynamics (QED) 4 years after similar theory of Tomonaga Two-meson theory developed independently 5 years after similar theory of Sakata and Inoue (Marshak, Bethe) Opposed theories of the universe formulated: steady-state theory (Bond, Gold, Hayle) and 'Big Bang' theory (Gamow, Alpher, Harmon) 1948 Discovery of transistor (Shockley, Brattain, Bardeen); will replace vacuum tubes Atomic nucleus not necessarily spherical (Rainwater) 1949
Reichenbach, <i>Philosophical Foundations of Quantum Mechanics</i>	
Lillie, <i>General Biology and Philosophy of Organism</i>	
Frank, <i>Foundations of Physics</i>	
Woodger, <i>Biological Principles</i>	

**Philosophy (general)**

1950	Strawson, 'On Referring'
	Hempel, 'Problems and Changes in the Empiricist Criterion of Meaning'
1951	Quine, 'Two Dogmas of Empiricism'
	Goodman: <i>The Structure of Appearance</i>

**Logic**

	Quine, <i>Methods of Logic</i>
	Carnap, <i>The Logical Foundations of Probability</i>
	von Wright, <i>An Essay in Modal Logic</i>

**Philosophy (general)**

- 1952 Hare, *The Language of Morals*  
 Wisdom, *Other Minds*
- 1953 Wittgenstein, *Philosophical Investigations*  
 Quine, *From a Logical Point of View*
- 1954 Ryle, *Dilemmas*
- 1955
- 1956 Reichenbach, *The Direction of Time*  
 Wittgenstein, *Remarks on the Philosophy of Mathematics*
- 1957 Chisholm, *Perceiving*  
 Chomsky, *Syntactic Structures*
- 1958 Polanyi, *Personal Knowledge*  
 Baier, *The Moral Point of View*  
 Geach, *Mental Acts*
- 1959 Strawson, *Individuals*  
 Hart and Honore, *Causation in the Law*

**Logic**

- Strawson, *Introduction to Logical Theory*  
 Carnap, *The Continuum of Inductive Methods*
- Goodman, *Fact, Fiction and Forecast*  
 Savage, *The Foundations of Statistics*
- von Wright, *The Logical Problem of Induction*

**Philosophy of Science**

- Sommerhoff, *Analytical Biology*  
 Bernal, *The Physical Basis of Life*
- Wisdom: *Foundations of Inference in Natural Science*  
 Hempel, *Fundamentals of Concept Formation in Empirical Science*  
 Woodger, *Biology and Language*
- Toulmin, *The Philosophy of Science*  
 Braithwaite, *Scientific Explanation*
- Reichenbach, *Nomological Statements and Admissible Operations*

**Science and technology**

- 1950
- Heart-lung machine developed (Gibson) 1951
- UNIVAC I, first commercially available computer
- Plasmid (structure containing genetic material exchanged by bacteria) discovered (Lederberg) 1952
- Bubble chamber for study of subatomic particles developed (Glaser)
- Thermo-nuclear bomb ('H Bomb') developed (Teller)
- First nuclear reactor accident (Chalk River, Canada)
- Polio vaccine developed (Salk); mass inoculation in 1954; superseded by new vaccine in 1957 (Sabine)
- 'Piltdown Man' revealed as fake
- 'Strangeness' quantum number introduced (Gell-Mann; Nakano, Nishijima) 1953
- Double-helix structure of DNA determined (Crick, Watson)
- European Centre for Nuclear Research (CERN) founded 1954
- Neutrinos observed (Cowen, Reines) 1955

**Philosophy of Science**

Bohm, *Causality and Chance in Modern Physics*

Hanson, *Patterns of Discovery*

Bohr, *Atomic Physics and Human Knowledge*

Bunge, *Causality*

**Science and technology**

FORTRAN, first computer-programming language (Backus, IBM)

LISP, computer language of artificial intelligence, developed (McCarthy)

Anti-neutron discovered (Cook, Lambertson, Picconi, Wentzel) 1956

Parity not conserved for weak interactions (Yang, Lee, Wu) 'Boson' (W particle) proposed as mediator of weak interactions (Schwinger) 1957

Spuntnik I, first artificial satellite, launched by USSR

USSR

1958

1959

**Philosophy (general)****Logic**

1960 Quine, *Word and Object*

Malcolm, 'Anselm's Ontological Arguments'

1961 Austin, *Philosophical Papers*

Grice, 'The Causal Theory of Perception'

Malcolm, *Dreaming*

1962 Black, *Models and Metaphors*

Hart, *The Concept of Law*

1963 Davidson, 'Actions, Reasons, and Causes'

Hart, *Law, Liberty and Morality*

Katz and Fodor, 'The Structure of a Semantic Theory'

Popper, *Conjectures and Refutations*

Shoemaker, *Self-knowledge and Self-identity*

1964 Scheffler, *The Anatomy of Inquiry*

1965 Chomsky, *Aspects of the Theory of Syntax*

Devlin, *The Enforcement of Morals*

1966

1967 Davidson, 'Truth and Meaning'

Frankena, *The Concept of Morality*

Plantinga, *God and Other Minds*

1968 Armstrong, *A Materialist Theory of the Mind*

Fodor, *Psychological Explanation*

Independence of Cantor's continuum hypothesis from axioms of set theory demonstrated (Cohen)

von Wright, *The Logic of Preference*

Quine, *Set Theory and Its Logic*

Hacking, *Logic of Statistical Inference*

Putnam, 'Mathematics without Foundations'

**Philosophy of Science**

Nagel, *The Structure of Science*  
 Harre, *Theories and Things*  
 Capek, *Philosophical Impact of Contemporary Physics*  
 Kuhn, *The Structure of Scientific Revolutions*  
 Sellars, *Science, Perception and Reality*  
 Maxwell, 'The Ontological Status of Theoretical Entities'  
 Hesse, *Models and Analogies in Science*  
 Smart, *Philosophy and Scientific Realism*  
 Grunbaum, *Philosophical Problems of Space and Time*

Hempel, *Aspects of Scientific Explanation*

Hempel, *Philosophy of Natural Science*  
 Scheffler, *Science and Subjectivity*

Becker, *The Biological Way of Thought*

**Philosophy (general)**

1969 Quine, *Ontological Relativity*  
 Searle, *Speech Acts*

**Science and technology**

Mossbauer effect discovered (Mossbauer); used to confirm Einstein's general theory of relativity (Pound, Reblan) 1960

'Resonances' (short-lived particles) discovered (Alvarez)

First laser (Maiman); precursors are

Townes' maser (1954),

Kastler's 'optical pumping' (1950)

First human being to orbit the Earth (Gagarin) 1961

1962

First recognition of a quasar (Schmidt) 1963

Concept of 'quark' introduced (GellMann) 1964

'Green Revolution' inaugurated with strain of rice generating double yield given sufficient fertilizer

Confirmation of 'Big Bang' theory with accidental discovery of radio-wave remnants of 'Big Bang' (Penzias, Wilson) 1965

1966

Strong nuclear force shown to violate parity conservation (Lobashov) 1967

'Electroweak theory' unifies weak and electromagnetic forces (Weinberg, Salam, Glashow)

First pulsar discovered

Keyboards used for computer data entry

Discovery of restrictive enzymes (can cut DNA of virus at particular point); would become a basic tool of genetic engineering 1968

**Logic**

Lewis, *Convention*

<b>Philosophy (general)</b>	<b>Logic</b>
1970 Davidson, 'Semantics for Natural Languages'	Quine, <i>Philosophy of Logic</i> Cohen, <i>The Implications of Induction</i>
1971 Rawls, <i>A Theory of Justice</i> Judith Jarvis Thompson, 'A Defense of Abortion'	Salman, <i>Statistical Explanation and Statistical Relevance</i>
1972 Popper, <i>Objective Knowledge</i>	Kripke, 'Naming and Necessity'
1973	Lewis, <i>Counterfactuals</i> Hintikka, <i>Logic, Language Games and Information</i>
1974 Nozick, <i>Anarchy, State and Utopia</i>	Hacking, <i>The Emergence of Probability</i> Haack, <i>Deviant Logic</i>
1975 Singer, <i>Animal Liberation</i>	
1976	
1977 Dworkin, <i>Taking Rights Seriously</i> Malcolm, <i>Memory and Mind</i>	
1978 Goodman, <i>Ways of Worldmaking</i> Dummett, <i>Truth and other Enigmas</i>	
1979	
1980 Kripke, <i>Naming and Necessity</i> Rorty, <i>Philosophy and the Mirror of Nature</i>	

**Philosophy of Science****Science and technology**

	First human beings on the moon (Armstrong, Aldrin) 1969
	First artificial heart used in a human being
	Single gene first isolated (Beckwith) 1970
Monod, <i>Chance and Necessity</i>	Microprocessor (chip) introduced 1971
	Quantum chromodynamics (QCD) initiated (Gell-Mann) Biblical accounts of creation should receive equal attention as evolutionary theory: California State Board of Education 1972
	Creation of the universe from absolutely nothing under probabilistic laws of quantum mechanics proposed (Tyron) 1973
	First Skylab launched
	Beginning of genetic engineering (Cohen, Boyer)
Sklar, <i>Space, Time and Spacetime</i>	First of GUTs (grand unified theories) unifies strong, weak and electromagnetic forces 1974
Barnes, <i>Scientific Knowledge and Sociological Theory</i>	(Georgi, Glashow) J/psi particle discovered

**Philosophy of Science**

Feyerabend, *Against Method*  
 Bloor, *Knowledge and Social Imagery*

Lauden, *Progress and its Problems*

Feyerabend, *Science in a Free Society*  
 Latour and Woolger, *Laboratory Life*  
 Lakatos, *The Methodology of Scientific Research Programs*  
 van Fraassen, *The Scientific Image*  
 Bohm, *Wholeness and the Implicate Order*

**Science and technology**

(Richter, Trug); confirmation of charm theory of quarks

Personal computers introduced (Altair 8800) 1975

Functional synthetic gene constructed (Khorana) 1976

Upsilon particle discovered (Lederman): confirms quark theory of baryons 1977

Apple II personal computer introduced Earliest known cases of AIDS; disease not recognized until 1981

First 'test-tube' baby 1978

Partial meltdown of nuclear reactor at Three Mile Island 1979

Neutrinos may have tiny mass, thus representing 'missing mass' thought to hold galaxies together 1980

'Inflationary universe' model: universe expands rapidly for short time before 'Big Bang' (Guth)

**Philosophy (general)****Logic**

1980

1981 Putnam, *Reason, Truth and History*  
 MacIntyre, *After Virtue*

1982

1983

1984 Feinberg, *The Moral Limits of the Criminal Law*  
 Armstrong and Macolm, *Consciousness and Causality*

1985 Dworkin, *A Matter of Principle*

1986 Malcolm, *Nothing is Hidden*

1987 Feyerabend, *Farewell to Reason*

Lakoff, *Women, Fire and Dangerous Things*

1988

1989 Grice, *Studies in the Way of Words*

**Philosophy of Science****Science and technology**

Revival of 'catastrophism': collision between Earth and large body results in mass extinctions, including extinction of dinosaurs (W. and L. Alvarez) 1980

First transference of genes from one animal to another of a different species 'New inflationary' 1981



**Philosophy of Science**

Cartwright, *How the Laws of Physics Lie*  
 Hacking, *Representing and Intervening*

Fox-Keller, *Reflections on Gender and Science*  
 Harding, *The Feminist Question in Science*

Latour, *Science in Action*  
 Putnam, *The Many Faces of Realism*  
 Hawking, *A Brief History of Time*

**Science and technology**

universe' theory of the origins of the universe  
 (Linde, Albrecht, Steinhardt)

First flight of space shuttle *Columbia*

First commercial product of genetic engineering (human insulin) 1982

Discovery of W and Z particles; further confirms electroweak theory (CERN) 1983

Sheep successfully cloned (Wilkinson) 1984

Hole in ozone layer over Antarctica discovered 1985

Individual quantum jumps in individual atoms observed 1986

Fifth fundamental force, hypercharge, discovered (Fishbach); not universally accepted

Discovery of 'Great Attractor', a point towards which a number of galaxies (including ours) are moving

Explosion of space shuttle *Challenger*

First field trials of genetically engineered organisms (tobacco)

Chernobyl nuclear reactor explosion

US Supreme Court rejection of equal-time concept of teaching for creationism 1987

1988

1989

# Introduction

*John V.Canfield*

This volume presents a chronological survey of some central topics in twentieth-century philosophy in the English-speaking world. A companion volume focuses on logic, the philosophy of science and related subjects, while another covers recent continental philosophy.<sup>1</sup> By way of a broad introduction to the essays printed here I shall discuss some characteristic features of modern Anglo-American philosophy.

Above all what distinguishes that way of thought is its passion for clarity. The attitude is reflected, for example, in Wittgenstein's remark that, 'People who have no need for transparency in their argumentation are lost to philosophy.'<sup>2</sup> The urge towards clarity is itself a concomitant of the so-called 'linguistic turn' that is the distinctive feature of twentieth-century Anglo-American philosophy. The phrase 'the linguistic turn' refers to a change from a relatively small concern with questions about language to a major one. It's not just that by and large, in this century, writers spend more time investigating the nature of language and allied problems, though that is true: compare, for example, the percentage of text devoted to such issues in Locke's *Essay* and Wittgenstein's *Philosophical Investigations*. It is rather that in various ways issues about language become the fundamental ones. This can be seen for instance in A.J.Ayer's famous book *Language, Truth, and Logic* where the first order of business is to establish the bounds of sensible language, and where pretty much everything else is said to follow from that alleged achievement.

The involvement with language that I am discussing has several distinct foci, and in what follows I shall consider three of them: *logical form*, *meaninglessness* and its opposite, *meaning*. A sentence as it appears in some natural language like English may not show forth its correct, underlying structure or form, which must rather be uncovered by the philosopher. Thus a statement's surface form—the form it appears to have—is contrasted with its real or *logical* form. The notion of logical form presupposes our having some way of characterizing those hidden or disguised structures. Historically, and as the term itself indicates, early characterizations of logical form employed the vocabulary of modern logic.

Modern logic was developed by Frege and Russell in the context of an attempt to prove the consistency of mathematics by deriving it from logic. To carry out that programme logic itself had first to be revamped. Here Frege made the essential contribution, by introducing the so called 'quantifiers'.<sup>3</sup> In a radical departure from classical or Aristotelian subject-predicate logic he originated the notion of the universal quantifier 'for all *x*' and the existential quantifier 'there exists an *x*'. Given those tools he was able to analyse sentences like 'All men are mortal' and 'Socrates is a man' in a more perspicuous way than the old logic could. It is the apparatus and vocabulary of the new logic that first inspired the search in recent philosophy for logical form.

Bertrand Russell's original and highly influential essay of 1905, 'On Denoting', applied ideas like those just mentioned from modern or mathematical logic to the discovery of logical form. Thus Russell's paper marks a key point in the development of Anglo-American philosophy. The particular issue he addresses has

a technical or arcane air, but understanding it is essential to grasping the use subsequent thinkers made of his ideas, and thus necessary for understanding one central aspect of the philosophy discussed in this volume. (For a fuller discussion, see Professor Martinich's essay in this volume, 'Philosophy of language'.)<sup>4</sup> In Russell's well-known example the sentence, 'The present King of France is bald' appears to be of subject-predicate form with 'The present King of France' filling the subject role. On this reading the sentence has the same form as 'Jones is bald'. It *seems* that in each case something picked out by a singular referring expression (one that, like a proper name, picks out one individual) is said to have a certain property. This reading of the sentence causes trouble. The present King of France, like the unicorn in my garden, does not exist, so there is nothing for Russell's sentence to be about. If it is about nothing it must, apparently, be senseless. Yet we understand it. In response to that puzzle, Russell argued that when we correctly analyse the statement, and thus get to the level of its true or logical form, the phrase 'the present King of France' disappears; the sentence's true form is quite different from its apparent one. In the analysis we find only variables such as ' $x$ ' and ' $y$ ', the logical functions 'for all  $x$ ' and 'there exists an  $x$  such that', and the *predicates* 'is presently King of France' and 'is bald'. Rendered in English, the statement's logical form is: there is at least one thing that is presently King of France, and any thing that is presently King of France is identical to that one thing, and that thing is bald. Since in fact there is nothing that is presently King of France, the statement in question is merely false, not senseless.

The idea of a hidden logical form underlying the propositions of ordinary or natural language was taken by Wittgenstein as a basic presupposition of his enormously influential book the *Tractatus Logico-Philosophicus* (1921). Wittgenstein thought that it was not necessary for the logician to describe the exact logical form of propositions; it was enough if he could come to know in general terms what that form is. Every proposition, he believed, could be analysed into a collection of elementary propositions linked by the so-called truth-functions *and*, *not*, *or* and *if...then*. Elementary propositions are those that cannot be analysed further. In the *Tractatus*, they consist solely of names of simple objects. The 'molecular propositions' that express ordinary language statements are formed by joining elementary propositions by means of the truth-functions. All meaningful propositions have the logical form just described; all would-be propositions lacking it are meaningless. A sentence can be meaningless even though we think it has sense; it is a question of its logical form.

Wittgenstein's quest to uncover the true logical form of the sentences of our language was motivated by more than the wish to demarcate clearly the line between what could and could not be said. In addition, he believed that the structure of reality mirrors the structure of propositions, so that to discover the form of language is to establish *a priori* the form of the world. For example, to take one clearly momentous would-be result, Wittgenstein holds that first-person sentences like 'I believe that  $P$ ' (where  $P$  is some proposition) have the form '" $P$ " says that  $P$ '. The alleged subject—the believer *qua* Cartesian ego or mind—disappears in the analysis; reality thus contains no such entity as the self. By focusing on language the 'linguistic turn' in no way trivialized philosophy.

Many contemporary philosophers operate with some variant of the idea of logical form. Donald Davidson, for example, utilizes something like the classical Russellian idea of logical form. As Bernard Linsky points out in his essay on metaphysics in [chapter 4](#), the aim of Davidson's work on the nature of events is to formulate ordinary event-statements in 'first-order logic'. As in the *Tractatus* the underlying motivation is to discover the true form of reality.

Other philosophers continue to seek a correct analysis, in the sense of finding the underlying form of philosophically significant propositions, but without assuming that this form is to be captured in the vocabulary of logic. *Such* concern with the hidden form of statements is found, for example, in Roderick Chisholm's treatment of the metaphysical question of the nature of appearances—those mysterious mental

objects postulated by Descartes and so many subsequent thinkers, and which give rise to numerous puzzling questions.<sup>5</sup> Chisholm claims that a correct understanding of sentences about how things appear shows them to have an adverbial rather than a substantive core. If something that may or may not actually be red looks red to Jones, we might say that Jones is aware of a red appearance. Instead of this latter way of speaking, Chisholm holds that in truth what we should say is 'Jones is appeared to redly.' A surface grammatical substantive is to be replaced by a depth grammatical adverb. So in contradistinction to the message of surface grammar, reality does not contain such things as *red appearances*. It contains only agents, like Jones, who perceive in a certain way, described by the use of adverbs. Thus the old question about the nature of appearances (aka 'sense data') is rejected; the question, rather, is said to arise from a faulty understanding of the form of appearance-statements. While the search for logical form is one of the family-resemblance elements distinctive of Anglo-American philosophy, that inquiry itself can take on various guises, as just illustrated.

Another of the points at issue in the 'linguistic turn' is that of *meaninglessness*. (The topic is discussed in several places in the following essays, including William James DeAngelis's chapter on metaphysics.) The notion that certain seemingly important philosophical claims may be in fact hidden nonsense is an old one. There are versions of it in Hume and Kant, for example. In our century the early Wittgenstein's ideas were especially influential in bringing the idea of meaninglessness to centre stage. Every meaningful proposition, he held, has the form 'This is how things are,' where the proposition makes some empirical claim about the world; if it makes no empirical claim it is meaningless. This conception was developed by the *logical positivists*, whose empiricist criterion of meaning attempted to give a precise formulation to Wittgenstein's idea. For the positivists a meaningful sentence must either make some in principle verifiable statement about the world or else be 'tautological' like the statements of mathematics and logic. All other statements, despite their appearance of making sense, are to be judged nonsense. The following statement, for example, would fail their test: 'All the measuring rods in the universe, and anything capable of serving as such, are shrinking by one-half every second.' Since no evidence could possibly either confirm or deny the claim, and since it is no empty tautology like 'Either it is raining or it is not raining' the statement is judged senseless. Similarly for Russell's example: 'The universe came into existence five minutes ago, complete with all our memories, the fossil record, all signs of aging and decay pointing to a distant past, and so on.' These are merely illustrative instances; the positivists' test of meaningfulness had a more significant target. It was meant to exclude from the realm of the sensible such would-be questions as 'Does God exist?'—along with most of the other questions of traditional metaphysics. As Carnap wrote in 1950: 'Influenced by ideas of Ludwig Wittgenstein, the [Vienna] Circle [where logical positivism originated] rejected both the thesis of the reality of the external world and the thesis of its irreality as pseudo-statements; the same was the case for both the thesis of the reality of universals...and the nominalistic thesis that they are not real.'<sup>6</sup>

While the verificationism associated with the positivists is not popular nowadays, and while therefore there is little corresponding talk of metaphysics as meaningless, nevertheless the influence of the positivist tradition lives on. For the positivists, when the hopelessly muddled questions or 'pseudo-statements' of traditional metaphysics are seen for what they are, the only job left philosophy is as an adjunct to science. Above all, then, the positivists were in the vanguard of the tradition some have called scientism, according to which philosophy becomes either subservient to or an ancillary of science, and in particular of the hard sciences, especially physics. A prediction made by Morton White at the midpoint of the century has certainly proven to hold, at least for a wide range of contemporary philosophers:

Analytic philosophy will no longer be sharply separated from science, and an unbridgeable chasm will no longer divide those who see meanings or essences and those who collect facts.<sup>7</sup>

The idea of merging philosophy with science is certainly alive and well today, for instance in Carnap's pupil Quine. Again, writers like Jerry Fodor and Paul and Patricia Churchland, in such debates as that over so-called folk psychology, see themselves as doing science, though at a foundational or conceptually oriented level.<sup>8</sup> Correspondingly some social scientists employ ideas drawn from those philosophers in an attempt to establish hypotheses by observation—for instance they deploy field data in an attempt to say whether monkeys have a crude version of 'folk psychology' as Fodor and other philosophers understand that idea.

While concern with *meaninglessness* has certainly abated in our half of the century, concern with its opposite, *meaning*, still rides high. Concern with meaning has two facets: the theoretical problem of saying what meaningfulness or meaning consists in, and the applied problem of uncovering the meaning of particular philosophically important words or claims. Concerning the theoretical issue, perhaps the most influential contribution to it was Frege's distinction between *sense* and *reference*. The theoretical aspect of the problem of meaning is discussed by Professor Martinich; here I turn instead briefly to what I called the applied problem—finding the meaning of individual words.

Russell in his introduction to the *Tractates* claimed that Wittgenstein was concerned with an ideal language rather than with language as it is. Frege, in his ground-breaking discussions, was explicitly concerned with developing a language that would serve the purposes of science, and thus was not concerned with language as it actually exists, in mufti. But that was not Wittgenstein's position. Wittgenstein thought that every ordinary-language statement was perfectly all right as it stands (*Tractatus*, 5.5563); it's just that we do not know its hidden form—something we can only come to through analysis, by finding the 'one and only complete analysis of the proposition' (*Tractatus*, 3.25).

Concern with an improved or ideal language and concern with the natural, unimproved language of ordinary life each take on various forms in the development of Anglo-American philosophy, and sometimes the one strain is dominant, sometimes the other. In the 1950s and 1960s 'ordinary-language philosophy' held a prominent place. Its paradigmatic practitioners were Gilbert Ryle and John Austin, though in fact the two are very different in their approaches. Wittgenstein's later philosophy is also, but I think wrongly, seen as belonging to the tradition of 'ordinary-language philosophy' associated with Austin and Ryle. Philosophers working roughly in that tradition sought to uncover the ordinary meaning of philosophically relevant words, for example the word 'ought' conspicuous in debates in ethics, or the word 'can' featured in discussions about freedom of the will. Would-be accounts of the meaning of such words—analyses of them—were tested against ordinary usage. In particular a would-be analysis could be refuted by 'counter-examples'—cases where 'what we would ordinarily say' is in conflict with a given account of what we would say. The guiding idea behind the enterprise of analysis was this: In talking about 'ought' (for instance) we use a word from our common vocabulary. Its meaning is already fixed by ordinary usage. To really know what we are saying when we use the word we must study it; we must analyse it. In attempting to provide such analyses philosophers would put forward alleged necessary and sufficient conditions for the application of a given word. Thus a much discussed analysis of 'knowledge' was as follows: Jones knows *p* if and only if (1) Jones believes *p*, (2) Jones has reliable evidence for *p*, and (3) *p* is true.

Alternative versions of analysis developed on the 'ideal-language' side. It was argued that one should not seek simply to uncover the ordinary meaning of philosophically significant words, for they might well be vague and perhaps even contradictory. Rather, as some held, one should seek 'rational reconstructions' of such terms, keeping their core meanings but sharpening up their boundaries and eliminating any inconsistencies. This move away from a standard form of 'ordinary-language philosophy' was to prove superior in survival value.

In subsequent decades ‘analysis’ took various forms. One was the search for so-called ‘criteria’. For instance, the question ‘What is the criterion that governs our ascriptions of personal identity?’ was (and still is) widely discussed. Here the term ‘criterion’ was drawn from Wittgenstein’s later philosophy, but the procedure actually employed in discovering ‘criteria’ seems markedly similar to the old (non-Wittgensteinian) one of searching for an analysis, in the sense of searching for necessary and sufficient meaning-conditions. One surface difference is that now instead of appealing to what we would say, an appeal is made to our intuitions concerning various puzzle cases. What does our intuition tell us, for example, about Lockean examples of alleged change of bodies? If someone wakes up not only in the cobbler’s bed, but occupying the body of the cobbler while retaining all the Prince’s memories, desires, expectations, and so on, is the creature in the lowly cot the Prince?

One’s answer reflects one’s ‘intuition’. Such intuitions fill roughly the role of perceptions in grounding scientific theory. Correspondingly, in recent times the search for analyses has been largely replaced by attempts to provide *theories*, so called. For instance philosophers may seek a theory of personal identity, or of proper names. In the latter instance the theory is supposed to tell us what relationship holds between a given name and its bearer. One such theory—Russell’s — associates a set of definite descriptions with a given name, and holds that the object that meets or satisfies the definite descriptions is the thing the name names. On another theory the relationship between name and bearer is *causal*. These theories resemble analyses of the rational reconstruction type, in that one is allowed more leeway with regard to possible ‘counter-examples’. In this connection, the point is sometimes made that old-style ordinary-language philosophy is conservative; it requires that the concepts we use in philosophy be restricted to those that exist in natural language. And, it is said, where would science be if it were so restricted? Like scientists, philosophers should be allowed their technical terms and their corresponding theories. Here the philosopher seeks to ally him or herself with science, the most prestigious twentieth-century institution.

One form of ‘theory’ was influenced by Chomsky’s work in linguistics. Starting in the 1960s Jerrold J. Katz and Jerry Fodor attempted to extend Chomsky’s ideas by postulating an empirical study of meaning, or ‘semantics’.<sup>9</sup> This was a supposed supplement to Chomsky’s theory of syntax. Katz argued that one could apply the empirical results of such a study to the direct solution of philosophical problems, offering a kind of scientific ordinary-language philosophy. The solutions would come about when we learned, through empirical work, the full-blown meaning in natural language of the terms involved in a given philosophical debate. On the other hand, meta-theoretical terms like ‘analytic’ could be given rational reconstructions in terms of the postulated new science of meaning. Katz’s methodological conjectures were one precursor of later undertakings by others to provide solutions to philosophical problems through scientific inquiry.

We have been examining some of the distinctive roots and paradigms of Anglo-American philosophy in this century. Modern logic first stimulated an interest in, and provided tools for, the study of language, but that study took on a life of its own, and an increased significance as the century progressed. The resulting Anglo-American tradition of inquiry was marked most significantly by the influence, in various ways, of Frege’s account of propositions, Russell’s paradigm of analysis, and Wittgenstein’s *Tractates*, an influence which is still felt strongly even in a time when it is ‘theories’ of various sorts that preoccupy analytic philosophers. As indicated, I believe the most valuable legacy of that triumvirate is a hard-headed search for clarity with regard to the basic problems of philosophy.

In keeping with the obvious historic importance of the linguistic turn the present collection begins with two essays on language. Subsequent articles on metaphysics, ethics and epistemology—those traditionally central areas of philosophy—document the significance of deliberations about language for twentieth-century Anglo-American philosophy, as does the chapter on the later philosophy of Wittgenstein. The remaining six chapters, on various *philosophies of*, vary in the importance they attach to the linguistic turn.

Perhaps counter-intuitively, the essays on aesthetics and the philosophy of religion focus most on issues about language. At the other pole, philosophers' rejection of traditional analytic methodologies is evident in the essay on feminist philosophy and in the later sections of the chapter on political philosophy. The chapters on the philosophy of law and applied ethics fall between those two extremes.

As always, change is in the air. After a period of relative stability there are signs that major transformations are coming; the intellectual fashion seems due for a radical re-make. That outlying area the philosophy of education provides one indicator: it has almost wholly abandoned an until recently dominant analytic focus in favour of various post-modern and continental ideas. In mainstream philosophy the same sort of alteration is signalled by a relatively new concern on some people's part with the writings of Martin Heidegger—the same thinker that philosophers of my generation knew only as a target of Carnap's anti-metaphysical animus and consequently as the infamous author of the claim that 'The Nothing itself nothings.' On the other hand, there is certainly still a lot of vigorous life left in the son of Anglo-American philosophy reported upon in these pages, which explicitly or implicitly pursues conceptual clarification. Pessimistic readers, foreseeing the sorts of changes indicated just above, and unwilling to forsake the quest for clarity, may find comfort in the fact that mainland Europe seems to be moving in the opposite direction, back towards the concerns and methods of analytic philosophy, in a belated recognition of the significance of Frege, Russell, Wittgenstein, Schlick, Carnap and other ground-breaking figures.

One of the most difficult of intellectual tasks is to survey a large and complex body of thought and present it in a clear, well-organized way. Each of my co-authors faced such a task, and I thank them for what they have completed so successfully.<sup>10</sup>

A final note: in recent philosophy science has, by and large, taken over the role once played by religion. Science is widely considered the ultimate source of truth, and as something the philosopher had best emulate or join. Given the importance of science for philosophy, I have reproduced here, from Stuart Shanker's volume IX in this series, and with his permission, a chronological table listing the major events in our century's development of science and technology.

## NOTES

- 1 The presupposed geographic and linguistic contrast between Anglo-American and continental philosophy is a bit misleading. Several of those who formed the Anglo-American viewpoint were German or Austrian nationals, including the godfather of analytic philosophy, Gottlob Frege, the immensely influential figures Schlick and Carnap, and the immortal Wittgenstein. Frege's influence worked in part through Bertrand Russell and other Anglo-American figures, Wittgenstein's intellectual life had Cambridge, England, as its centre, and migrations out of Nazi Germany resulted in the impact of the logical positivism associated with Schlick and Carnap being most felt in Britain and North America. Again, the French writer Pierre Duhem deeply influenced that key contemporary American metaphysician Willard van Orman Quine. More significantly, neither the English-speaking nor the continental side is homogeneous; many markedly different ways of philosophizing fall under the one label and many still different ones under the other. Nevertheless the schools do diverge significantly.
- 2 'Philosophy', ed. Heikki Nyman, trans. C.G.Luckhardt and M.A.E.Aue, in *Ludwig Wittgenstein, Philosophical Occasions 1912–1951*, eds James Klagge and Alfred Nordmann (Indianapolis: Hackett, 1993): 183.
- 3 It is less well known that the American philosopher Charles Sanders Peirce independently made the same invention.
- 4 In fact the following account does not square perfectly with the actual text of 'On Denoting'; I give rather what has come to be commonly accepted in philosophy as the main lesson of that essay.
- 5 *Perceiving* (Ithaca, New York: Cornell University Press, 1957).

- 6 'Empiricism, Semantics and Ontology', reprinted in *Semantics and the Philosophy of Language*, ed. Leonard Linsky (Urbana: University of Illinois Press, 1952):120, 121.
- 7 'The Analytic and the Synthetic: An Untenable Dualism', reprinted in *Semantics and the Philosophy of Language*, ed. Leonard Linsky (Urbana: University of Illinois Press, 1952): 286.
- 8 See for example essays in John D.Greenwood, ed., *The Future of Folk Psychology* (Cambridge: Cambridge University Press).
- 9 See for example Jerrold J.Katz and Jerry A.Fodor, 'The Structure of a Semantic Theory', *Language*, 39 (1963): 170–210.
- 10 In addition I want to thank Bernard Katz, Stewart Candlish, Robert Ennis, Hans Herzberger, John Hunter, Soruren Tegrarian, Lance Ashdown, York Gunther and Patrick Phillips for helpful suggestions.



# CHAPTER 1

## Philosophy of language

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### LANGUAGE AND ITS USES

Most philosophers of language<sup>1</sup> in the twentieth century distinguish between three aspects of language or its use: syntax, semantics and pragmatics.<sup>2</sup>

Syntax is the study of the ways that words and other elements of language can be strung together to form grammatical units, without taking the meaning of the sentence into consideration at all. The sentences, 'Smith are happy' and 'Smith happy is', are both syntactically incorrect. The sentence 'Smith is happy' is syntactically correct as is the sentence 'Green ideas sleep furiously'. The latter sentence may appear to be defective. If it is, it is because a literal meaning cannot be assigned to it. But meaning is a concept that belongs not to syntax but to semantics, which will be discussed shortly.

Human languages consist of an infinite number of sentences. It is easy to see how a new sentence can be built out of a simpler sentence indefinitely:

This is the house that Jack built.

This is the malt that lay in the house that Jack built.

This is the mouse that ate the malt that lay in the house that Jack built.

This is the cat that chased....

Since human beings are limited in intelligence and they learn a language in a finite amount of time, its syntax must be finite. That is, a grammar for a human language must consist of a finite number of words and a finite number of rules from which the sentences are formed. Because most of the important work on syntax has been done by linguists and formal logicians, nothing further will be said here about this topic. (See [chapter 2](#).)

Semantics is the study of the meaning of words and sentences. Meaning has generally been thought of as a relationship between words and the world. Reference and truth are the two principal concepts used in semantics. During the 1920s and 1930s, many philosophers thought that it was impossible to have a science of semantics, because semantics tries to use words to do something that words cannot do. Words can be used to talk only about things; but semantics is the attempt to talk about the relationship between words and things. That relationship cannot itself be a thing, because if it were, then one could ask what connects that relationship to those other things. If the answer is that there is some other relationship that connects them, then if that additional relationship itself is a thing, one can ask the very same question over again; and this would lead to an infinite regress. The problem that seems to undermine the possibility of semantics can be

put in global terms. Language represents the world, but semantics exceeds the representational ability of language by trying to represent the *relationship* between language and the world.

In the 1930s, Alfred Tarski showed philosophers a way that semantics could be done without violating the expressive limits of language. Semantics then dominated the philosophy of language until the end of the 1950s. (See pp. 12–18 and 18–21.)

The study of pragmatics began to acquire importance in the early 1950s and flourished until the early 1980s. (See pp. 21–6.) Pragmatics is the study of how language is used. Speakers can use language to make statements, promises and bets; to ask questions; to issue commands; to express condolences; and so on. Pragmatics focuses on the interaction between speakers and hearers. The major idea that guides research in this area is that speaking is intentional behaviour and governed by rules. (For an alternative understanding of pragmatics, see [chapter 2](#).)

Semantical studies were reinvigorated in the early 1970s and continue today. (See pp. 26–31.) But at the same time, some of the assumptions that made possible the distinction among syntax, semantics and pragmatics were challenged by other philosophers, and a very different conception of language has begun to emerge. (See pp. 31–5.)

### THE NAMING THEORY OF MEANING

What originally motivated philosophers in the twentieth century to study the nature of language as intensively as they have is their traditional concern with the nature of truth and reality. An ordinary sentence or statement is true, it seems, when it corresponds with the facts. Truth then would seem to reside in language, and the nature of truth can be fully understood only when the nature of language is. Concerning reality, many philosophers at the beginning of the century were frustrated by the apparent failure of metaphysicians to discover the nature of reality by studying it directly. Thus arose the idea that perhaps reality could be studied indirectly by studying language. Since language reflects reality, discovering the structure of language would reveal the structure of reality. Here then were two reasons for philosophers to study language: to understand the nature of truth and to understand the structure of reality.

One aspect of language, namely referring, received a disproportionate amount of attention, because of its connection with truth. If truth requires correspondence between elements of language and entities in the world, and if language reflects the world, then language must attach to the world at certain points. The way that language attaches to the world is *reference*. Reference is usually thought of as a feature of proper names or subject expressions that denote individual objects, because individual objects existing in space and time seem to be the basic constituents of the world. Such considerations inspired the simplest and perhaps the most resilient semantic theory, the naming theory of meaning.

According to this theory, the meaning of a word is the object it names or refers to. Ludwig Wittgenstein presented a stark version of the theory in *Tractatus Logico-Philosophicus* (first published in German in 1921 and in English translation in 1922). He wrote, ‘A name means [*bedeutet*] an object. The object is its meaning’ (Proposition 3.203). Although names are the basic building blocks of sentences, names alone do not express a thought. Names are concatenated or strung together to form prepositional signs (sentences). Since Wittgenstein defines a fact as an existing configuration of objects (2–2.011), prepositional signs are themselves facts. Imagine a very simple language that expresses thoughts by the arrangement of its names. Then, the sentence

Adam Beth Carol

means that Beth is between Adam and Carol.

European languages are one-dimensional in the sense that the only significant aspect of the arrangement of a word in a sentence is its linear order. But nothing prevents two- or three-dimensional languages, in which information would be conveyed by other geometrical relations among the words. Thus, a two-dimensional language might use

Adam  
Beth Carol

to express that Adam is above Beth and Beth is next to Carol. A three-dimensional language could use blocks as words and count three-dimensional placement of the blocks as semantically significant. Such possibilities inspire Wittgenstein to say that a sentence is a picture or model of reality (Proposition 4.021) and that hieroglyphic script indicates the 'essential nature of a proposition' (4.016). Consequently, what makes a proposition true is analogous to what makes a picture accurate: the meaningful elements of the proposition, that is, the names, must correlate with the objects in the (non-linguistic) fact it purports to describe; and the configuration of the names must be the same as the configuration of the objects in the represented fact. One-dimensional languages, such as English, tend to hide their true form (4.0031). Presumably, most human languages are one-dimensional because as a practical matter such sentences are easier to produce.<sup>3</sup>

Bertrand Russell developed a variation on Wittgenstein's naming theory. According to Russell, there are two kinds of names: proper names and common names. Proper names directly denote individual objects. For him, these individual objects are virtually always sense data, that is, sensations, in contrast with independently existing concrete objects such as tables, chairs, cats and dogs. Common names directly denote what philosophers have variously referred to as concepts, properties and universals. The difference between individuals and concepts can be explained with examples. In looking at a chalk board, a person sees a particular patch of black. This sensation is an individual. But this particular sensation of black is only one of many that can be seen either by the same person at different times or by many people at different times. These particular sensations of black have something in common; they are all instances of a certain general thing. That general thing is the concept, property or universal.

The distinction between individuals and universals gets reflected in language as the distinction between subjects and predicates. All and only proper names are subjects; all and only common names are predicates.<sup>4</sup> (The term 'common name' may be misleading because for Russell, adjectives and verbs are the paradigmatic cases of common names.) A sentence such as 'Socrates sits' is usually understood as having the subject 'Socrates' directly denote Socrates and as having 'sits' express the concept of sitting. The sentence is true just in case Socrates belongs under the concept of sitting.

Russell drew a sharp distinction between proper names and definite descriptions. Russell defined a definite description as any phrase of the form 'The ' (where ' is any noun or noun phrase) such as 'The tallest person in China'. In doing so, he was directly opposing the great nineteenth-century logician Gottlob Frege, who had grouped proper names and definite descriptions together as 'singular terms'. Both kinds of expressions, it seemed to Frege, could occur as subject expressions of sentences and had the same function, namely, to refer to the object of which a property was to be predicated. Also, both denote objects through some sort of cognitive or conceptual element, which he called '*Sinn*' (sense or significance). For example, the phrases 'the third from the left' and 'the second from the right' have different senses, yet each refers to the same thing if four objects are placed in a row. In short, Frege had a two-tiered semantic system: a realm of senses (*Sinne*) and a realm of referents (*Bedeutungen*).