

Conceptual Systems

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First published 2007

by Routledge

2 Park Square, Milton Park, Abingdon, Oxon OX14 4RN

Simultaneously published in the USA and Canada

by Routledge

270 Madison Ave, New York, NY 10016

Routledge is an imprint of the Taylor & Francis Group, an informa business

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Typeset in Times New Roman by Taylor & Francis Books

Printed and bound in Great Britain by Biddles Ltd, King's Lynn

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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

A catalog record for this book has been applied for

ISBN13: 978-0-415-70182-2 (hbk)

ISBN13: 978-0-203-96790-4 (ebk)

Preface

The motto of the age of science might well be: Natural philosophers have hitherto sought to understand “meanings”; the task is to change them.

(CDCM 288)

I have a long-standing interest in the ways our conceptual repertoires change as knowledge develops. It is, I think, clear that human adults in all societies and all historical periods do not somehow already possess the concepts needed to think about all discoveries throughout the past and future history of science, all the various economic, social, and political arrangements that we may come up with, and all of the other endeavors that may engage us. It seems equally clear that the concepts people use to think about aspects of the world often turn out to be inadequate; sometimes the items we think about do not exist at all. But conceptual variation raises serious questions about the evaluation of fundamental scientific theories, as well as about our ability to understand the thought of other cultures, earlier periods of our own culture, and even our neighbors. It also raises questions about the nature of conceptual innovation. While history provides powerful evidence of radical conceptual innovation, any innovation requires substantial continuity with older concepts in order to be intelligible. Thus to understand the development of human knowledge we must understand this interplay between innovation and continuity.

How we deal with these questions depends (in part) on our understanding of the nature of concepts. Attempts to understand new concepts, concepts from other times and places, and even our own concepts, point to the need for conceptual analysis – a central concern of philosophers in the community in which I work. Yet it is also clear that how we pursue this endeavor, and how we assess the adequacy of a proposed analysis, depends on our view of conceptual content. Reflection on conceptual analyses also raises questions about the significance of such analyses. Do analyses clarify the mode of thought of a culture, sub-culture, or individual, or do they have some wider scope? If we take the latter to be the case, how do we know this?

Over the years I became convinced that Wilfrid Sellars provides the best available approach to an account of conceptual content. Sellars is also a scientific realist who recognizes that finding the correct concepts to describe aspects of the world is a task for scientific research – so that realism requires conceptual innovation. Sharing many of Sellars' views, I set out to write a book in which I would explicate Sellars' theory of concepts and then apply it to case studies in the history of science, and to the analysis of two central concepts: causation and truth. I chose these concepts partly because they are central philosophical topics, but also because Sellars discusses these concepts in many places without using the resources of his own theory of concepts. My original plan was to write three papers and then take these as the basis of a book. Two of these papers have appeared (Brown 1986, 1991), but my work on causation encountered major roadblocks. Eventually I became convinced that Sellars' theory of concepts was not adequate as he left it. To pursue the project I would have to do more than just explicate Sellars' account; modifications and extensions were required. Continued work on causation, truth, and the conceptual development of science convinced me of the need for even more drastic modifications of Sellars' approach than I had previously considered. I am still convinced that Sellars provides the best starting point for a theory of concepts, and he remains the central figure in this book. I have attempted to go beyond him in a number of respects and to use my results in ways that he never pursued, but I believe that these attempts to develop and apply his ideas are wholly in tune with the Sellarsian spirit.

Acknowledgments

Several individuals and institutions provided support at various stages of this project. Institutional support includes a Summer Research Stipend from the National Endowment for the Humanities (1990) and National Science Foundation STS Research Grant #9818094 (1999). Northern Illinois University provided a Sabbatical and a Summer Research Stipend. Tomoji Shogenji and Herman Stark commented on the entire manuscript and are responsible for significant improvements. I also received important comments on one or more chapters from Paul Bowen, Raymond Brock, Xiang Chen, Paul Hoyningen-Huene, Howard Sankey, and Michael Shaffer. Alas, I have not always followed their advice.

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Descartes, R. *Principles of Philosophy*, trans. V. Miller and R. Miller, Dordrecht: Kluwer, 1991, with the kind permission of Springer Science and Business Media.

Galileo, *Dialogue Concerning the Two Chief World Systems*, trans. S. Drake, Berkeley: University of California Press, 1967.

Newton, I., *The Principia: mathematical principles of natural philosophy*, trans. I. Cohen and A. Whitman, Berkeley: University of California Press, 1999.

Abbreviations

Sellars' work is frequently cited throughout this book using the abbreviations below. Most of Sellars' writings consist of articles that appeared in journals or collections of papers. Sellars' books are often collections of previously published papers; NO and SM are exceptions. When citing Sellars I generally use the original publication although this has sometimes been overridden by considerations of accessibility. This is particularly relevant to the collection SPR, which approximates a unified book and is a vital source. Papers in this volume are noted below; in citing these papers I give page references to SPR. Publication dates of other pieces are given as they occur in the reference list at the end of the present book. Other, more local, abbreviations are given in the relevant chapter or section.

CC	"Conceptual Change" (1973)
CDCM	"Counterfactuals, Dispositions, and the Causal Modalities" (1958)
CIL	"Concepts as Involving Laws and Inconceivable Without Them" (1948a)
EAE	"Empiricism and Abstract Entities" (1963a)
ENNW	"Epistemology and the New Way of Words" (1947a)
EPM	"Empiricism and the Philosophy of Mind" (in SPR)
GE	"Grammar and Existence" (in SPR)
IILO	"Imperatives, Intentions, and the Logic of Ought" (1963b)
IM	"Inference and Meaning" (1953)
IV	"Induction as Vindication" (1964)
LRB	"Language, Rules, and Behavior" (1950)
LT	"The Language of Theories" (in SPR)
LTC	"Language as Thought and Communication" (1969)
ME	"Mental Events" (1981)
MFC	"Meaning as Functional Classification" (1974a)
MGEC	"More on Givenness and Explanatory Coherence" (1979a)
NO	<i>Naturalism and Ontology</i> (1979b)
OM	"Obligation and Motivation" (1952)
P	"Phenomenalism" (in SPR)

PPE	"Pure Pragmatics and Epistemology" (1947b)
PSM	"Philosophy and the Scientific Image of Man" (in SPR)
PT	"Particulars" (in SPR)
RM	"Reply to Marras" (1974b)
RNWW	"Realism and the New Way of Words" (1948b)
SAP	"Is There a Synthetic A Priori?" (in SPR)
SE	"Science and Ethics" (1967a)
SK	"The Structure of Knowledge" (1975)
SM	<i>Science and Metaphysics</i> (1968)
SPR	<i>Science, Perception and Reality</i> (1963c)
SRII	"Scientific Realism or Irenic Instrumentalism" (1965)
SRLG	"Some Reflections on Language Games" (in SPR)
SRTT	"Some Reflections on Thoughts and Things" (1967b)
SS	"Sensa or Sensings: Reflections on the Ontology of Perception" (1982)
TA	"Thought and Action" (1966)
TC	"Truth and Correspondence" (in SPR)
TE	"Theoretical Explanation" (1963d)
TWO	"Time and the World Order" (1962)

Notation

For the most part I depend on context to make it clear whether I am discussing a concept, a word, or an item that is neither linguistic nor a concept. When context is not sufficient – and sometimes for emphasis – I use quotation marks to indicate a linguistic item (e.g., “word”) and small capital letters for terms that refer to concepts (e.g., CONCEPT).

Contents

<i>Preface</i>	ix
<i>Acknowledgments</i>	xi
<i>Abbreviations</i>	xii
<i>Notation</i>	xiv
1 Studying Concepts	1
1.1 <i>Orientation</i>	1
1.2 <i>Conceptual Variation</i>	4
1.3 <i>Conceptual Analysis</i>	7
1.4 <i>Concepts and Language I</i>	10
1.5 <i>Biology, Psychology, and Abstract Descriptions</i>	12
1.6 <i>Naturalism</i>	16
1.7 <i>Incommensurability and Relativism</i>	17
2 Conceptual Journeys	20
2.1 <i>Physical Science</i>	21
2.2 <i>Mathematics</i>	34
2.2.1 <i>Numbers</i>	34
2.2.2 <i>Exponents</i>	41
2.2.3 <i>The Gamma Function</i>	44
2.2.4 <i>Calculus</i>	45
2.3 <i>Biology, Technology, and Society</i>	52
2.4 <i>Philosophical Concepts</i>	69
2.5 <i>Some Forms and Generators of Conceptual Change</i>	77
2.6 <i>Some Philosophical Issues</i>	84
3 Some Theories of Concepts	88
3.1 <i>Locke</i>	88
3.2 <i>Berkeley</i>	97
3.3 <i>Hume</i>	104

3.4	<i>Early Twentieth Century Empiricism</i>	111
3.5	<i>Theoretical Terms</i>	122
3.6	<i>C. I. Lewis</i>	130
3.7	<i>The Analytic-Synthetic Distinction I</i>	138
3.8	<i>Conclusion</i>	142
4	Sellars: Exposition, Interpretation, and Critique	144
4.1	<i>Conceptual Status</i>	145
4.2	<i>Descriptive Concepts I</i>	149
4.2.1	<i>Material Rules of Inference</i>	152
4.2.2	<i>Implicit Definitions</i>	157
4.2.3	<i>Entry Transitions</i>	158
4.2.4	<i>Individual Concepts</i>	170
4.3	<i>Formal Concepts</i>	171
4.4	<i>Prescriptive Concepts I</i>	173
4.5	<i>Models, Analogies, and Conceptual Change I</i>	178
4.5.1	<i>Theoretical Entities</i>	178
4.5.2	<i>Modifying Formal Concepts</i>	189
4.6	<i>Conclusion and Preview</i>	190
5	Reconstruction	192
5.1	<i>Concepts and Language II</i>	192
5.2	<i>Commentaries</i>	195
5.3	<i>Descriptive Concepts II</i>	198
5.4	<i>Systemic Role</i>	202
5.5	<i>Prescriptive Concepts II</i>	206
5.6	<i>Models, Analogies, and Conceptual Change II</i>	209
5.7	<i>Conceptual Systems and Theories</i>	211
5.7.1	<i>Descriptive Theories</i>	211
5.7.2	<i>Prescriptive Theories</i>	213
5.8	<i>Individuating Conceptual Systems</i>	215
5.9	<i>Self-reference, Circularity, and Reflexive Consistency</i>	219
5.10	<i>The Concept of a Concept</i>	221
5.10.1	<i>Systemic Role</i>	221
5.10.2	<i>Intra-systemic Relations</i>	223
5.10.3	<i>Extra-systemic Relations</i>	224
5.11	<i>Summary and Conclusion</i>	230
6	Clarifications, Responses, and Refinements	233
6.1	<i>Natural Kinds</i>	233
6.2	<i>Social Content</i>	237
6.3	<i>Informational Atomism</i>	242

6.4	<i>Cognitive-Historical Analysis</i>	246
6.5	<i>The Fine-Structure of Conceptual Content</i>	256
6.6	<i>Conclusion</i>	258
7	Conceptual Analysis I: Causation	259
7.1	<i>Conceptual Analysis</i>	259
7.2	<i>The Causal Relation</i>	262
7.2.1	<i>Implications</i>	262
7.2.2	<i>Extra-systemic Relations</i>	279
7.2.3	<i>Systemic Role</i>	281
7.3	<i>Is Causation a Kind of Necessary Connection?</i>	284
7.4	<i>Conclusion</i>	286
8	Conceptual Analysis II: Epistemic Concepts	290
8.1	<i>The Analytic-Synthetic Distinction II</i>	290
8.2	<i>Propositional Knowledge</i>	295
8.3	<i>Justification</i>	299
8.4	<i>Truth</i>	305
8.4.1	<i>Systemic Role</i>	305
8.4.2	<i>Extra-systemic Relations</i>	311
8.4.3	<i>Implications</i>	315
8.5	<i>Non-Propositional Knowledge</i>	316
8.6	<i>Social Epistemology</i>	318
8.7	<i>Conclusion: The Status of Conceptual Analysis</i>	320
9	Historical Studies I: Seventeenth-Century Physics	326
9.1	<i>Aristotle</i>	326
9.2	<i>Galileo</i>	330
9.3	<i>Descartes</i>	344
9.4	<i>Newton</i>	369
9.5	<i>Conclusion</i>	394
10	Historical Studies II: Interactions	396
10.1	<i>Qualitative Picture</i>	397
10.2	<i>Mathematical Framework</i>	403
10.2.1	<i>Electromagnetic Interaction</i>	405
10.2.2	<i>Weak Interaction</i>	406
10.2.3	<i>Strong Interaction</i>	409
10.3	<i>From Angular Momentum to Isospin</i>	412
10.3.1	<i>Angular Momentum</i>	412
10.3.2	<i>Bohr's Theory of the Atom</i>	413

10.3.3	<i>Quantum Theory</i>	414
10.3.4	<i>Spin</i>	417
10.3.5	<i>Isospin</i>	419
10.4	<i>Forces and Interactions</i>	421
10.5	<i>Unification</i>	422
10.6	<i>Conclusion</i>	427
	<i>Appendix: Some Mathematical Concepts</i>	427
A1	<i>Operators</i>	427
A2	<i>Operators in Quantum Mechanics</i>	429
A3	<i>Invariance</i>	431
A4	<i>Symmetry</i>	432
A5	<i>Groups</i>	433
A6	<i>Representations</i>	434
A7	<i>Generators</i>	435
11	<i>Conceptual Change, Incommensurability, and Progress</i>	437
	<i>Notes</i>	455
	<i>References</i>	485

1 Studying Concepts

Concepts are the glue that holds our mental world together.

(Murphy 2002: 1)

1.1 Orientation

Studies of concepts are central to several disciplines including, at least, anthropology, cognitive neurobiology, intellectual history, linguistics, philosophy, psychology, and sociology. This is as it should be since concepts play a central role in human thought. Yet this last claim is fraught with ambiguities since how we understand it, and whether we think it true, depends on our view of the nature of concepts. At the same time, our view of the nature of concepts will typically be constrained by the specific questions we are asking – which, in turn, may be a function of the discipline we are coming from and the state of that discipline. For example, when the physiological psychologist Hebb (1949) wrote about concepts he was mainly concerned with identifying neural structures at the basis of what psychologists refer to as concepts. Once he identified these structures he attempted to use them as the starting point for a purely neurological account of thought. Literally, for Hebb, concepts are in the head.

Other researchers, such as Fodor (e.g., 1975, 1988, 1998), agree that concepts are in the head – in the sense that they are mental particulars possessed by individuals – but do not study them in physiological terms. Fodor's work straddles linguistics, philosophy, and psychology; much of this work is focused on language, and thus on the theory of meaning. As a result, one can easily be led to wonder if Hebb and Fodor are studying the same subject; an example will underline the contrast. One of Hebb's key claims is that the neural basis of a concept is a series of neurons that form a closed loop; one of Fodor's key claims is that concepts are semantically evaluable. It is not immediately clear how these views relate. They may be complementary, at odds with each other, or independent parts of a single account.

While Fodor and Hebb view concepts as individual possessions, others reject this thesis. One line of argument is found among philosophers and

2 Studying Concepts

sociologists influenced by Wittgenstein's later work (1953). On this approach concepts are social entities so that it is impossible in principle for an isolated individual to have concepts (cf., Kripke 1982; Winch 1958). For Fodor and Hebb the existence of other people is irrelevant to the question of what concepts I possess – although others may be relevant to an account of how I acquired these concepts. Others reject both psychological and sociological theories of concepts for a quite different reason. Frege (1997), for example, held that concepts are abstract entities that exist independently of what occurs in any mind. He sought to eliminate all psychological considerations from the study of concepts, and it is clear that he would have extended his views to sociological considerations had that been a subject of discussion in his day.

Consider another contrast. Students of intellectual history are often strongly impressed by differences in the concepts we find in various historical settings; many anthropologists and sociologists are equally impressed by variations across societies. But the current practice of conceptual analysis by philosophers assumes that there is some deep sense in which concepts – or, at least, certain key concepts – are universal and unchanging. Philosophers who make this assumption are content to analyze concepts by armchair reflection, and are prepared to debate such questions as whether Aristotle or Descartes got *the* concept of knowledge right.

Some of these disparities arise because of differences in the focal questions of different disciplines. It would be helpful if we had a wider perspective for examining the outcomes of these disparate approaches and assessing whether they contribute to some common project, conflict, or deal with different questions altogether. My main goal in this book is to contribute to this wider project by developing a theory of concepts and using that theory to resolve some of the problems about concepts that are currently in play. Since I do not claim to transcend normal disciplinary limitations, I think it appropriate to give the reader fair warning about the directions from which I approach the topic. My interest in understanding concepts comes largely from studies of the history of science. It seems to me that attempts to find the right concepts for thinking about various aspects of the world constitutes a major theme in the development of science. In pursuing this goal scientists invent concepts, try them out, sometimes improve them, and sometimes abandon them. We will see that such conceptual change occurs in fields besides the sciences. Thus one major task for a theory of concepts is to provide an account of how new concepts are introduced into ongoing research in a coherent manner. Those familiar with the literature of philosophy of science since the late 1950s will recognize the kinds of problems that concern me; I will say a bit more about the nature of these problems in Sec. 1.6. In my view, discussions of conceptual development typically underestimate the scope of conceptual innovation in human thought. Thus in Ch. 2 I will provide a large number of examples of conceptual change in several fields, and a preliminary discussion of some of the forms of conceptual innovation that we find.

I have a second major concern in this book that derives from my professional concerns as a philosopher. Acknowledging large-scale conceptual change in the course of human cognitive history raises fundamental problems about the nature and purpose of conceptual analysis. Studies of conceptual change require analysis of the concepts being studied, but philosophers typically hold that the outcome of a conceptual analysis is not just a description of a local mode of thought. Indeed, such historical study is an empirical endeavor, and many philosophers maintain that their studies of concepts are, in some deep sense, *a priori*. I examine the nature of conceptual analysis in some detail in Chs 7 and 8, after I have developed the theory of concepts I wish to propose. In the present chapter I will give a somewhat more extended sketch of the main issues that I plan to address in this book, and explain my own philosophical approach in more detail. Still, what I say in this chapter should be read as a preliminary orientation; my views on many of the topics I am now discussing will become fully clear only as my detailed theory of concepts develops. I return to several of these issues throughout the book, but I want to stress two features of my approach at the outset.

First, many studies of concepts, particularly in philosophy and psychology, focus on relatively simple concepts and on the ways in which these are learned – with special emphasis on how they are learned by young children. This is important work, but I will not pursue it here. My primary focus will be on some of the most sophisticated concepts in our repertoire, and the theory I propose will be developed to handle sophisticated adult thought.¹ This approach need not be viewed as a competitor to the more common approach since an adequate theory of concepts will have to encompass both ends, as well as the middle ground. I prefer to think of the relation between studies of conceptual development in children and studies of highly sophisticated concepts as analogous to driving a tunnel under a mountain from both ends. In modern tunnel building it is reasonable to expect that the two parts will meet, and if we are really lucky something like this will happen with studies of concepts that start from these opposite ends. At the present stage in studies of concepts it is more likely that the two strands will miss and that adjustments to each will be needed. I will not attempt anything quite so grandiose here. Although I will propose a general theory of concepts, I think of this theory as an attempt to contribute to a larger project whose completion lies in the future.

Second, I want to state where I stand on three types of questions that are commonly raised about concepts. Consider first two *ontological* questions: what kinds of entities concepts are, and where in reality they are located. In this book I will treat concepts as mental entities – items that exit in the minds of individual cognitive agents whatever minds ultimately turn out to be. (Thus I will leave the first of my two ontological questions open.) In treating concepts as mental entities I will be following a practice that is standard in psychology, but rejected by many contemporary philosophers –

although not by all (e.g., Prinz 2002; Rey 1999). Whatever role society plays in an individual's acquisition and use of concepts, there is still a distinction between individuals who have a particular concept and those who do not. Something must occur in an individual when a concept is acquired, and whatever this is, it may remain in place if that individual leaves the society in which that concept was acquired. *Next*, given this view of the ontological status of concepts, the key question in dispute is the nature of *conceptual content*. Thus the expression "theory of concepts" should be read as an abbreviation for "theory of conceptual content" unless explicit reasons are given for some other reading. *Finally*, there is an *epistemological* question: What reasons do we have for believing that concepts, understood as mental entities, exist? In my view concepts are a theoretical postulate introduced to explain a variety of cognitive phenomena; the explanatory success of this postulate provides the grounds for accepting it. Thus I will propose a theory of conceptual content and defend that theory on the basis of its explanatory power. The assumption that concepts are mental entities will be central to that theory, and the argument for this theory will thus constitute an argument for the claim that concepts exist.

1.2 Conceptual Variation

Even brief reflection suggests that new concepts are introduced both in the course of individual lives and across human history. That individuals acquire concepts as they mature from infancy seems beyond doubt. Even if one holds that there is some set of basic, perhaps innate, concepts that all humans share, it seems clear that people are not born with full mastery of such concepts as boson, isotope, fuel injector, split infinitive, corn futures, standard deviation, transcendental argument, coming-out party, royal flush, or balk. These concepts and many others are acquired in the course of a life. Moreover, these examples include concepts that are not learned by all people, and that are not found in all contemporary cultures or in all historical periods of our own culture. As already indicated, this study will focus on those who are sufficiently mature to have acquired a native language and a body concepts that is rich enough to deal with the objects and situations they encounter in the normal course of their lives. But even adults enter into situations in which they acquire new concepts, for example, as they learn a vocation, adopt an avocation, pursue a wider education, or encounter people from different cultures and sub-cultures. In a society of any complexity there will be considerable variation in the conceptual repertoires of various people. Those in a particular profession – say, electricians, arbitragers, sculptors, neurosurgeons, or astrophysicists – will have specialized bodies of concepts for dealing with objects, situations, materials, tools, and processes they encounter in their professional activities. In a similar way, those interested in opera, stamp collecting, antiques, horse racing, and so forth will also acquire specialized concepts that are not universally shared. Since human beings are