CAMBRIDGE

Cambridge University Press
978-0-521-37875-8 - Concepts and Conceptual Development: Ecological and Intellectual Factors in Categorization
Edited by Ulric Neisser
Frontmatter
More information

Emory Symposia in Cognition 1

Concepts and conceptual development: Ecological and intellectual factors in categorization

© in this web service Cambridge University Press www.cambridge.org

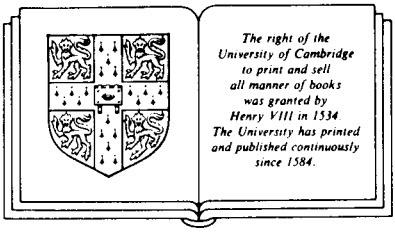
CAMBRIDGE

Cambridge University Press
978-0-521-37875-8 - Concepts and Conceptual Development: Ecological and Intellectual Factors in Categorization
Edited by Ulric Neisser
Frontmatter
More information

Concepts and conceptual development: Ecological and intellectual factors in categorization

Edited by

ULRIC NEISSER



CAMBRIDGE UNIVERSITY PRESS
Cambridge
New York Port Chester Melbourne Sydney

© in this web service Cambridge University Press www.cambridge.org

CAMBRIDGE

Cambridge University Press
978-0-521-37875-8 - Concepts and Conceptual Development: Ecological and Intellectual Factors in Categorization
Edited by Ulric Neisser
Frontmatter
More information

CAMBRIDGE UNIVERSITY PRESS
Cambridge, New York, Melbourne, Madrid, Cape Town, Singapore,
São Paulo, Delhi, Dubai, Tokyo

Cambridge University Press
The Edinburgh Building, Cambridge CB2 8RU, UK

Published in the United States of America by Cambridge University Press, New York

www.cambridge.org
Information on this title: www.cambridge.org/9780521378758

© Cambridge University Press 1987

This publication is in copyright. Subject to statutory exception
and to the provisions of relevant collective licensing agreements,
no reproduction of any part may take place without the written
permission of Cambridge University Press.

First published 1987
First paperback edition 1989
Re-issued in this digitally printed version 2009

A catalogue record for this publication is available from the British Library

Library of Congress Cataloguing in Publication data

Concepts and conceptual development.
(Emory symposia in cognition ; 1)
Papers from the First Emory Cognition Project
Conference, held Oct. 11–12, 1984.
Includes index.
1. Categorization (Psychology) – Congresses.
2. Environmental psychology – Congresses.
3. Cognition – Congresses. I. Neisser, Ulric.
II. Emory Cognition Project Conference (1st : 1984 :
Emory University) III. Series.
BF445.C66 1987 153 86-30740

ISBN 978-0-521-32219-5 Hardback
ISBN 978-0-521-37875-8 Paperback

Cambridge University Press has no responsibility for the persistence or
accuracy of URLs for external or third-party internet websites referred to in
this publication, and does not guarantee that any content on such websites is,
or will remain, accurate or appropriate.

© in this web service Cambridge University Press www.cambridge.org

CAMBRIDGE

Cambridge University Press
978-0-521-37875-8 - Concepts and Conceptual Development: Ecological and Intellectual Factors in Categorization
Edited by Ulric Neisser
Frontmatter
More information

Contents

Preface *page* vii
List of contributors x

1 *Introduction: The ecological and intellectual bases of categorization* 1
ULRIC NEISSER
2 *From direct perception to conceptual structure* 11
ULRIC NEISSER
3 *Category cohesiveness, theories, and cognitive archeology* 25
DOUGLAS L. MEDIN AND WILLIAM D. WATTENMAKER
4 *Cognitive models and prototype theory* 63
GEORGE LAKOFF
5 *The instability of graded structure: implications for the nature of concepts* 101
LAWRENCE W. BARSALOU
6 *Decentralized control of categorization: the role of prior processing episodes* 141
LEE R. BROOKS
7 *Conceptual development and category structure* 175
FRANK C. KEIL
8 *Child-basic object categories and early lexical development* 201
CAROLYN B. MERVIS
9 *Scripts and categories: interrelationships in development* 234
ROBYN FIVUSH
10 *How children constrain the possible meanings of words* 255
ELLEN M. MARKMAN
11 *The role of theories in a theory of concepts* 288
ROBERT N. MCCAULEY

Author index 311
Subject index 315

© in this web service Cambridge University Press www.cambridge.org

CAMBRIDGE

Cambridge University Press
978-0-521-37875-8 - Concepts and Conceptual Development: Ecological and Intellectual Factors in Categorization
Edited by Ulric Neisser
Frontmatter
More information

Preface

This is the first of a projected series of volumes to appear under the sponsorship of the Emory Cognition Project. Because the work of the Project is especially focused on the ecological approach to cognitive psychology, we hope that each volume will serve a dual purpose: not only to present a state-of-the-art summary of research and theory on a particular issue, but to show what an ecological approach can contribute to that state and that art. I believe that this collection of papers on *Concepts and Conceptual Development* achieves both of those aims.

Something close to a consensus seems to be emerging in the study of concepts – a set of assumptions broad enough to make sense to cognitive scientists of many different theoretical orientations, and still so new that it has not yet appeared in textbooks. I do not mean that there are no more disagreements. Many serious differences were aired at the conference that gave rise to this volume, and they remain apparent in the chapters ahead. Nevertheless, those differences seem to lie within an accepted overall framework – a framework that (in my view) includes at least the following propositions:

— categories are never defined by objective similarity alone, but always in relation to what are – in some sense – theories or models;
— nevertheless, perceptual similarity plays a critical role in categorization, especially early in development and especially for "basic-level" categories;
— it is essential to distinguish among (a) the processes by which individual objects are categorized, (b) the gradients of "typicality" that appear so regularly in modern studies of category structure, and (c) the meaning of the category itself;
— language plays a key role in establishing categories, both developmentally and culturally.

All these points are elaborated in subsequent chapters.

This new consensus has arisen in the aftermath of what I like to call the "Roschian revolution" – the radical reformulation of the study of categories that was brought about by the work of Eleanor Rosch in the 1970s. It seems to me that the spirit of Rosch's work was essentially

© in this web service Cambridge University Press www.cambridge.org

CAMBRIDGE

Cambridge University Press
978-0-521-37875-8 - Concepts and Conceptual Development: Ecological and Intellectual Factors in Categorization
Edited by Ulric Neisser
Frontmatter
More information

ecological. She and her collaborators – especially Carolyn Mervis – were interested in culturally existing rather than experimentally designed categories; moreover, they were more concerned with describing the actual structure of those categories than with modeling the cognitive processes of category users. Their discoveries – particularly the discovery that natural categories always have a graded structure (i.e., include more and less typical exemplars) – left the "classical" theory of concepts in a shambles. To say that an object is a *chair* (or a *bird*, or any such category term) is evidently not a matter of claiming that the object has just exactly a certain set of defining features. But – as we shall see – neither is it just a matter of the object's overall similarity to a certain prototype. What is it, then, to be a chair? A new – and still at least partially ecological – way of thinking about such questions has gradually taken shape since the Roschian revolution. By now, it seems to have crystallized into the framework of assumptions described above.

This book is the final product of a process that began in my first year at Emory University, when Larry Barsalou and I decided to offer a graduate seminar entitled "Concepts and Conceptual Development." By a fortunate coincidence Douglas Medin was at Emory in that spring of 1984, and agreed to join us in leading the seminar. A lively group of faculty, graduate students, and regular visitors soon formed; among the most stimulating was Bob McCauley, who had just arrived to join the Emory Philosophy Department. From the first, we were determined to examine the *development* of categorization as well as the structure of adult or expert categories; the Emory Cognition Project is committed to the principle that the study of cognitive development is an integral part of the study of cognition itself. We were also determined not to let traditional disciplinary boundaries interfere with our pursuit of the issues: psychologists, philosophers, linguists, and anthropologists have all made important contributions to the study of categorization.

Although the primary purpose of the seminar was to gain the best possible understanding of categorization, we soon developed a secondary goal as well: to identify individuals who were doing interesting and important work in the area, so that we could invite them to come and talk with us. Our discussions eventually resulted in the first Emory Cognition Project Conference, held on October 11–12, 1984: *The Ecological and Intellectual Bases of Categorization*. The Conference was an extraordinary intellectual experience for all of us: collegial, stimulating, and – somewhat to our own surprise – ultimately coherent.

After a meeting, a book: each chapter of the present volume is an expanded version of a talk given at the 1984 conference. I believe the contributors have largely succeeded in preserving the force of their ideas through the transition from speech to print, and hope that

© in this web service Cambridge University Press www.cambridge.org

CAMBRIDGE

Cambridge University Press
978-0-521-37875-8 - Concepts and Conceptual Development: Ecological and Intellectual Factors in Categorization
Edited by Ulric Neisser
Frontmatter
More information

through this book their readers may experience some of the same intellectual excitement that characterized the Conference itself. For me the entire experience, from the first plans for our seminar to the final preparation of the manuscript, has been a very rewarding one.

I am deeply grateful to all the contributors to this book, not just for their hard work and their cheerful compliance with my demands but even more for having such good ideas and being willing to share them with us. It has been a pleasure to work with Susan Milmoe and the Cambridge University Press in what I hope is the beginning of a continuing relationship. The graduate students in the concept seminar deserve a special note of appreciation, especially those who helped out with so many concrete details of the conference: Robert Soloway, Jody Usher, Dan Sewell, Juliana Lancaster. Most of all I am grateful to Emory University for its consistent support of me and my work, for making the Emory Cognition Project possible, and generally for making me feel so welcome here. Thanks!

Ulric Neisser

© in this web service Cambridge University Press www.cambridge.org

CAMBRIDGE

Cambridge University Press
978-0-521-37875-8 - Concepts and Conceptual Development: Ecological and Intellectual Factors in Categorization
Edited by Ulric Neisser
Frontmatter
More information

Contributors

LAWRENCE W. BARSALOU is Assistant Professor of Psychology at Emory University.

LEE R. BROOKS is Professor of Psychology at McMaster University.

ROBYN FIVUSH is Assistant Professor of Psychology at Emory University.

FRANK C. KEIL is Professor of Psychology at Cornell University.

GEORGE LAKOFF is Professor of Linguistics at the University of California, Berkeley.

ELLEN M. MARKMAN is Professor of Psychology at Stanford University.

ROBERT N. MCCAULEY is Assistant Professor of Psychology at Emory University.

DOUGLAS L. MEDIN is Professor of Psychology at the University of Illinois, Champaign-Urbana.

CAROLYN B. MERVIS is Associate Professor of Psychology at the University of Massachusetts, Amherst.

ULRIC NEISSER is Robert W. Woodruff Professor of Psychology at Emory University.

WILLIAM D. WATTENMAKER is a Research Associate in Psychology at the University of Illinois, Champaign-Urbana.

© in this web service Cambridge University Press www.cambridge.org