fortunately, these chapters do not gel into a unified set of themes with a clear message. Thus, the reader is left with a series of disconnected insights that do not argue strongly for any point of view.

A central problem with this book is that the discussions of reductionism are not integrated with the chapters on development. For example, Morgado's chapter on representation and Piagetian theory does not really address levels of explanation, but rather provides a historical overview of Piaget's thinking about aspects of representation. As another example, Lightfoot examines how literature might be used to explore adolescents' beliefs about the self. These topics are interesting, but they have little to do with the early chapters on representation and explanation (or with each other).

Sadly, then, the book fails to live up to the promise of its opening chapter. The absence of a coherent set of themes makes the book frustrating to read and leaves the reader without any clear sense of how to proceed to explore the important relationships among development, representation, and explanation. ❑

References

Kelso, J. A. S. (1995). *Dynamic patterns: The self-organization of brain and behavior.* Cambridge, MA: MIT Press.

Marr, D. (1982). *Vision.* New York: W.H. Freeman.

Pylyshyn, Z. W. (1980). Computation and cognition: Issues in the foundations of cognitive science. *Behavioral and Brain Sciences, 3,* 111–169.

Thelen, E., & Smith, L. B. (1994). *A dynamic systems approach to the development of cognition and action.* Cambridge, MA: MIT Press.

The Concept of Big Books

The Big Book of Concepts
by Gregory L. Murphy

Cambridge, MA: MIT Press, 2003. 563 pp. ISBN 0-262-13409-8. $48.00

Review by Evan Heit

I have already recommended to more than 20 colleagues that they buy—not just read—this book. It is an indispensable guide to current research on categorization, describing key theories, and giving details about a large number of experiments in this field. Perhaps what is most impressive about this book is its breadth. It probably would have been acceptable for Murphy to write a book on just the basic topics in adult categorization, but this book also addresses topics, such as conceptual development, word meaning, and relations between categorization and induction. In addition, the chapters on taxonomic organization and conceptual combination are outstanding; they are written by a leading researcher on these topics and would be difficult to improve. Anyone who wants to work on the psychology of concepts should get this book and rely on it as a reference.

It is natural to compare *The Big Book of Concepts* to *Categories and Concepts* by Smith and Medin (1981), which was also an indispensable guide to then-current research. A comparison reveals how the field has changed in the past two decades, and, to some extent unfortunately, how the field has not changed.

Anyone who wants to work on the psychology of concepts should get this book and rely on it as a reference.

Categories and Concepts was very influential in terms of its focus on issues of conceptual representation. That book was organized in terms of three traditional views of representation, known as the classical view, the probabilistic (or prototype) view, and the exemplar view. On the basis of changes in the field, *The Big Book of Concepts* could not possibly be organized in the same way. In particular, there have been three major changes of emphasis in categorization research (see also Heit, 1995, for a review near the midway point between these two books).

First, there has been a great deal of research on how concepts are used, such as for inference, for language use, and for combining with other concepts (also see Markman & Ross, 2003). On these topics there is an increasing emphasis on processing rather than representation. Second, current models of categorization can no longer be pigeonholed as belonging to the classical, prototype, or exemplar views. There are now many mixed models or models that just do not fit into this scheme. Third, there is increasing acknowledgment that category learning involves not just accumulating observations of category members but also applying background knowledge to learning. What is learned about a new category seems to depend greatly on expectations and previous knowledge. Indeed, Murphy describes the knowledge view as being a fourth alternative to the classical, prototype, and exemplar views.

Despite all the changes in the past two decades, *The Big Book of Concepts* is still heavily influenced by this earlier conception of three views. At

GREGORY L. MURPHY, Department of Psychology, New York University.

EVAN HEIT, Department of Psychology, University of Warwick, Coventry CV4 7AL, United Kingdom. E-mail: E.Heit@warwick.ac.uk

the end of most chapters, as well as at the end of the book, there is a dutiful discussion of whether the three traditional views, plus the knowledge view, can account for the results. For the most part, the traditional views cannot account for a variety of results concerning taxonomic organization, category-based induction, conceptual development, word meaning, and so on. The problem is mainly that these traditional views were not designed with these interesting topics in mind, and studies on these topics were not designed to distinguish between these views. So it seems that there is something of a mismatch between the theories and the data.

Murphy acknowledges some possible problems in trying to compare views of representation. One problem is the potential for indistinguishability between models (e.g., Barsalou, 1990): With suitable processing assumptions, one view of category representation might be able to mimic another. A more dramatic possibility, not discussed by Murphy, is that choosing one of these traditional views might not be an empirical issue at all but more of a practical matter. Harman (1999) noted the possibility that some very broad questions, such as whether numbers exist or how to choose a system of arithmetic, could be decided on a pragmagnetic basis, to satisfy various scientific goals. Once such decisions are made, scientists would conduct experiments on finer grained issues that are better suited for empirical study. Likewise, questions such as whether prototypes exist or choosing exemplars versus prototypes just might not be the kinds of questions that are answered by experimentation. Instead, a categorization researcher might adopt one of these frameworks because it meets various goals, such as providing parsimonious explanations or guiding further research. Then the researcher would devise experiments on this basis, to address other questions that are more specifically targeted and more appropriately considered as empirical issues.

The influence of the three traditional views of representation also seems to be manifested in one area of incompleteness in *The Big Book of Concepts.* Although Murphy does provide some valuable discussions of mathematical models of categorization, he acknowledges that several currently important models did not fit into themes of the book and are left out. This would include models such as Ashby, Alfonso-Reese, Turken, and Waldron's (1998) COVIS model; Kruschke's (1992) ALCOVE model; and Nosofsky, Palmeri, and McKinley's (1994) RULEX model. These models include many important innovations for categorization research. For example, COVIS uses neuropsychological evidence to propose separate systems for implicit and explicit categorization. ALCOVE gives a detailed account of how selective attention is allocated dynamically and optimally during learning. RULEX suggests how information about categorization rules and exceptions can be put together, and describes data at the level of individual learners rather than just at the group level. It is central to the success of each model that it does not fit neatly into one of the traditional views of representation.

As previously mentioned, the knowledge view is put forward as an alternative to the traditional views. One of the nicest examples of the knowledge view, also known as the theory view, is from Murphy and Medin (1995): A person who jumps into a swimming pool wearing all his clothes might be categorized as a drunk, because being drunk provides a causal explanation for this behavior. It seems that the notion of causality is crucial to the knowledge view, just as a crucial role of scientific theories is to provide causal explanations. So the knowledge view does not seem to be a direct alternative to the classical, prototype, and exemplar views in terms of ruling out some forms of representation and proposing some other well-specified form of representation instead. Instead, the difference is largely one of content, with the knowledge view encompassing broad knowledge of the world especially information about causality. However, it is even possible for traditional views to represent some forms of background knowledge (Heit, 2001). Overall, the experiments in the chapter on knowledge effects do not really distinguish the knowledge view from the traditional views, because the views address different issues rather than make different predictions.

Reading the *The Big Book of Concepts* makes it clear that categorization research is a very rich and diverse area, and one for which there is great potential for future theoretical development. There is a lot to be optimistic about. When journeying through time from *Categories and Concepts* (Smith & Medin, 1981) to *The Big Book of Concepts,* it is tempting to speculate what further developments in categorization research will, or should, take place over the next decade or two. It seems likely that experiments on a variety of interesting topics will continue to overtake studies comparing the three traditional views of category representation. ❑

References

Ashby, F. G., Alfonso-Reese, L. A., Turken, A. U., & Waldron, E. M. (1998). A neuropsychological theory of multiple systems in category learning. *Psychological Review, 105,* 442–481.

Barsalou, L. W. (1990). On the indistinguishability of exemplar memory and abstraction in category representation. In T. K. Srull & R. S. Wyer (Eds.), *Advances in social cognition. Vol. III. Content and process specificity in the effects of prior experiments* (pp. 61–88). Hillsdale, NJ: Erlbaum.

Harman, G. (1999). *Reasoning, meaning, and mind.* Oxford, United Kingdom: Oxford University Press.

Heit, E. (1995). Categorization by psychologists, computer scientists, and philosophers. [Review of the book *Categorizations by humans and machines*]. *Contemporary Psychology, 40,* 361–364.

Heit, E. (2001). Background knowledge and models of categorization. In U. Hahn & M. Ramscar (Eds.), *Similarity and categorization* (pp. 155–178). Oxford, United Kingdom: Oxford University Press.

Kruschke, J. K. (1992). ALCOVE: An exemplar-based connectionist model of category learning. *Psychological Review, 99,* 22–44.

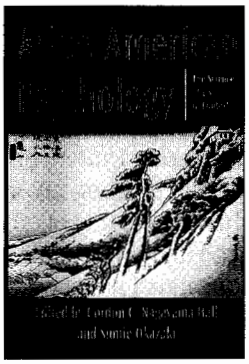
Markman, A. B., & Ross, B. H. (2003). Category use and category learning. *Psychological Bulletin, 129,* 592–615.

Murphy, G. L., & Medin, D. L. (1985). The role of theories in conceptual coherence. *Psychological Review, 92,* 289–316.

Nosofsky, R. M., Palmeri, T. J., & McKinley, S. C. (1994). Rule-plus-exception model of classification learning. *Psychological Review, 101,* 53–79.

Smith, E., & Medin, D. (1981). *Categories and concepts.* Cambridge, MA: Harvard University Press.

Understanding the Multidimensionality and Heterogeneity of the Asian American Experience



Asian American Psychology: The Science of Lives in Context
by Gordon C. Nagayama Hall and Sumie Okazaki (Eds.)

Washington, DC: American Psychological Association, 2002. 223 pp.
ISBN 1-55798-902-8. $39.95

Review by Christine Yeh and Tai Chang

The rapidly growing Asian American population in the past few decades (U.S. Census Bureau, 2000) has prompted social science researchers to pay increasing attention to this important group. Asian Americans represent a heterogeneous group of over 40 distinct subgroups (Sandhu, 1997) differing in languages spoken, immigration history, religion, and cultural worldviews (Sue & Sue, 2002, p. 328). This heterogeneity is also reflected in the increasing numbers of multiracial and transracially adopted Asian Americans as well as in demographic differences, such as age, generation status in the United States and social class. Provided this complexity, understanding conceptual and methodological research approaches with this group becomes increasingly important.

Asian American Psychology: The Science of Lives in Context seeks to present a "picture of a developing science of Asian American Psychology" (p. 8). Chapters are ordered with increasing specificity so that broader topics are addressed in the beginning and later chapters deal with more specific and understudied issues in Asian American psychology. In particular, Chapters 1–3 discuss general methodological and conceptual issues as they relate to cultural orientation and development and span across Asian American populations, whereas later chapters deal with particular areas of importance in Asian American psychology, such as aging (Chapter 4), career (Chapter 5), violence (Chapter 6), and multiracial research (Chapter 7). The intended audience for this book includes scholars, students, and those interested in the social scientific approaches to Asian American psychology.

The Preface by Stanley Sue and introductory chapter by the editors provides the groundwork by introducing relevant terminology and the most pertinent challenges facing Asian American psychology. For example, the first wave of Asian American psychology research was dominated by Chinese and Japanese samples and research emerging from clinical psychology and psychiatry. Much of the research in previous decades sought to prove or disprove the "model minority myth" and oftentimes allowed for generalizations across Asian ethnic groups. Only in the past decade or two has Asian American psychology moved from a study of race to one of within-group differences. The book highlights the importance of moving beyond correlational studies and infusing methodologies from other areas such as social and cognitive psychology. It also discusses important considerations regarding recruitment and retention of particular Asian American populations (e.g., see Chapter 4 on aging).

The multidimensionality and complexity of Asian Americans warrants an appreciation for interdisciplinary approaches. Nagayama Hall and Okasaki do not attempt to present one unified conceptual or theoretical framework of psychological research on Asian Americans. Rather, they have gathered clinical, counseling, developmental, social, and cognitive psychologists (as well as others) to share various perspectives regarding Asian American psychological research. By sharing these diverse views, the authors underscore the heterogeneity of Asian Americans and the importance of pursuing work in traditionally underresearched areas

GORDON C. NAGAYAMA HALL, Department of Psychology, University of Oregon.

SUMIE OKAZAKI, Department of Psychology, University of Illinois at Urbana–Champaign.

CHRISTINE YEH, Department of Counseling and Clinical Psychology, Columbia University Teachers College, 525 West 120th Street, New York, NY 10027. E-mail: cy101@colmbia.edu

TAI CHANG, Counseling, Research, Special Education, and Rehabilitation Department, Hofstra University, 163 Hagedorn Hall, Hempstead, NY 11549. E-mail: Tai.Chang@hofstra.edu