Computation, Cognition, and Pylyshyn

edited by Don Dedrick and Lana Trick

A Bradford Book
The MIT Press
Cambridge, Massachusetts
London, England

For information about special quantity discounts, please email special_sales@mitpress.mit.edu

This book was set in Stone Sans and Stone Serif by SNP Best-set Typesetter Ltd., Hong Kong.

Printed and bound in the United States of America.

Library of Congress Cataloging-in-Publication Data

Computation, cognition, and Pylyshyn / edited by Don Dedrick and Lana Trick.
p. cm.
Includes bibliographical references and index.
ISBN 978-0-262-01284-3 (hardcover : alk. paper)—ISBN 978-0-262-51242-8 (pbk. : alk. paper)
1. Cognition. 2. Cognitive science. 3. Pylyshyn, Zenon W., 1937–. I. Dedrick, Don. II. Trick, Lana, 1957–.
BF311.C593 2009
153—dc22

2008042147

10 9 8 7 6 5 4 3 2 1

Preface

Lana Trick was a Ph.D. student of Zenon's at the University of Western Ontario. Don Dedrick read Pylyshyn's work as a philosophy graduate student at the University of Toronto. Coming together in Guelph in 2004 (the twentieth anniversary of the publication of *Computation and Cognition*), the two of us imagined a conference that not only honored Pylyshyn's important work—work that still offers the best model for what can be called "classical cognitive science"—but work that would engage in dialogue with Pylyshyn as well. From the start we thought the idea of a *festschrift* for Pylyshyn to be less than perfect. Not because he was undeserving of delightful respect (he is), but because his views were, and are, far from fossilized. They were, and are, still influential as a real model of the way the mind might work. As Jerry Fodor argues, in the introduction to this book, Pylyshyn's recent work may well solve one of the fundamental problems and puzzles in cognitive science: how our minds are, after all, connected to the external world.

Supported by the Social Sciences and Humanities Research Council of Canada (SSHRC), we organized a conference unofficially called "Zencon" at the University of Guelph, which is west of Toronto in Ontario. It took place April 29 to May 1, 2005. We brought together important cognitive scientists from a range of disciplines, and the conference, as with the book, was divided in a somewhat arbitrary way into contributions dealing either with vision or with the foundations of cognitive science. Some participants, such as Susan Carey and Brian Cantwell Smith, were not able to contribute to this volume. But consider those who have contributed: the philosophers Austen Clark, John Bickel, and Andrew Brook (invited to contribute, after the fact), all engage critically with Pylyshyn's work. Brian Keane, a philosopher converted (or converged) to cognitive science, mixes the conceptual with the empirical (we invited him too, after the conference). The neuroscientist Mel Goodale, a colleague-in-arms with

Pylyshyn at the University of Western Ontario, and Stevan Harnad, the one-time, long-time editor of the journal *Behavioral and Brain Sciences*, write about cognition and action: the former from the perspective of vision, the latter from that of computation. Zenon's erstwhile student, Mike Dawson, has himself written important books on the foundations of cognitive science, and has an essay in this book about what connectionism might be used for. There is also an essay on the foundations of linguistics, by Charles Reiss. Reiss has been so impressed by Pylyshyn's work that he gave his son this middle name: Zenon. Claudia Uller, once a postdoctoral fellow at Rutgers Center for Cognitive Science, writes about number as it is understood by animals, human and otherwise, and Brian Scholl, another former student of Pylyshyn's, continues on with important work in the multiple-object tracking tradition, as does Lana Trick, while Richard Wright exploits Pylyshyn's influential ideas about cognitive penetrability in a paper dealing with visual search. (Trick and Wright, like Brook and Keane, did not present at Zencon.)

The conference, a great success, included posters by graduate students, a keynote address by Zenon, and a great deal of excellent argument and conversation. We hope the reader will find this book, which is derived from those sessions, to be a valuable resource for thinking about computation, cognition, and Pylyshyn.