

Contents

Preface	xi
Acknowledgments	xiii

Introduction

What the Brain's-Eye View Tells the Mind's-Eye View	1
1 <i>After the Goldrush</i>	1
2 <i>Parallel Distributed Processing and Conventional AI</i>	2
3 <i>The Multiplicity of Mind</i>	2
4 <i>The Mind's-Eye View and the Brain's-Eye View</i>	3
5 <i>The Fate of the Folk</i>	5
6 <i>Threads to Follow</i>	6

PART I

The Mind's-Eye View

Chapter 1

Classical Cognitivism	9
1 <i>Cognitivism, Life, and Pasta</i>	9
2 <i>Turing, McCarthy, Newell, and Simon</i>	9
3 <i>The Physical-Symbol-System Hypothesis</i>	11
4 <i>Bringing Home the BACON</i>	13
5 <i>Semantically Transparent Systems</i>	17
6 <i>Functionalism</i>	21

Chapter 2

Situation and Substance	25
1 <i>Stuff and Common Sense</i>	25
2 <i>The Dreyfus Case</i>	25
3 <i>It Ain't What You Know; It's the Way You Know It</i>	27
4 <i>Manipulating the Formal Shadows of Mind</i>	30
5 <i>Showing What We're Made Of</i>	32
6 <i>Microfunctionalism</i>	34

Chapter 3

Folk Psychology, Thought, and Context	37
1 <i>A Can of Worms</i>	37
2 <i>A Beginner's Guide to Folk Psychology</i>	38
3 <i>The Trouble with Folk</i>	39
4 <i>Content and World</i>	42
5 <i>Interlude</i>	46
6 <i>Some Naturalistic Reflections</i>	47
7 <i>Ascriptive Meaning Holism</i>	48
8 <i>Churchland Again</i>	50
9 <i>Cognitive Science and Constitutive Claims</i>	54
10 <i>Functionalism without Folk</i>	58

Chapter 4

Biological Constraints	61
1 <i>Natural-Born Thinkers</i>	61
2 <i>Most Likely to Succeed</i>	61
3 <i>Thrift, the 007 Principle</i>	63
4 <i>Gradualistic Holism and the Historical Snowball</i>	66
5 <i>The Methodology of MIND</i>	74

PART 2

The Brain's-Eye View

Chapter 5

Parallel Distributed Processing	83
1 <i>PDP or not PDP?</i>	83
2 <i>The Space between the Notes</i>	84
3 <i>The Jets and the Sharks</i>	86
4 <i>Emergent Schemata</i>	92
5 <i>Distributed Memory</i>	96
6 <i>Biology Revisited</i>	104

Chapter 6

Informational Holism	107
1 <i>In Praise of Indiscretion</i>	107
2 <i>Information Holism in a Model of Sentence Processing</i>	107
3 <i>Symbolic Flexibility</i>	111
4 <i>Grades of Semantic Transparency</i>	114
5 <i>Underpinning Symbolic Flexibility</i>	118
6 <i>PDP and the Nature of Intelligence</i>	121
7 <i>An Equivalence Class of Algorithms</i>	124

Chapter 7

The Multiplicity of Mind: A Limited Defence of Classical Cognitivism 127

- 1 *Of Clouds and Classical Cognitivism* 127
- 2 *Against Uniformity* 128
- 3 *Simulating a Von Neumann Architecture* 131
- 4 *A Lacuna in the Account of Real Symbol Processing* 136
- 5 *Full Simulation, Intuitive Processing, and the Conscious Rule Interpreter* 137
- 6 *BACON, an Illustration* 139

Chapter 8

Structured Thought, Part 1 143

- 1 *Weighting for Godot?* 143
- 2 *The Systematicity Argument* 144
- 3 *Systematicity and Structured Behavior* 146
- 4 *Cognitive Architecture* 150
- 5 *Two Kinds of Cognitive Science* 152
- 6 *Grammar, Rules, and Descriptivism* 154
- 7 *Is Naïve Physics in the Head?* 157
- 8 *Refusing the Syntactic Challenge* 160

Chapter 9

Structured Thought, Part 2 161

- 1 *Good News and Bad News* 161
- 2 *The Past Tense Acquisition Network* 161
- 3 *The Pinker and Prince Critique* 165
- 4 *Pathology* 168
- 5 *And the Moral of the Story Is...* 169
- 6 *The Theoretical Analysis of Mixed Models* 172

Chapter 10

Reassembling the Jigsaw 177

- 1 *The Pieces* 177
- 2 *Building a Thinker* 178
- 3 *Explaining a Thinker* 180
- 4 *Some Caveats* 183

Epilogue

The Parable of the High-Level Architect 185

Appendix

Beyond Eliminativism 187

- 1 *A Distributed Argument* 187

2	<i>Levels of Description of Connectionist Systems</i>	188
3	<i>Explanation Revisited</i>	196
4	<i>The Value of High-Level Descriptions</i>	199
5	<i>Self-Monitoring Connectionist Systems</i>	202
6	<i>A Double Error</i>	207
	Notes	209
	Bibliography	213
	Index	221