

Index

- abstraction, 9, 47, 64, 108, 158
 and rigor in physiology and psychology, 64
 in experimentation, 37
 Rosen, R., 64
- adaptation, 9, 63, 88, 88n29, 121, 149, 150, 155
- adaptivity
 of physiological inner space, 139
 of psychological inner space, 138
- Adrian, E.D., 120
- Anderson, P.W., xiv, 13, 16
- Aristotle, 147
- Aron, L., 86n24, 87
- artificial intelligence, 29
 Garry Kasparov's criticism, 29
- association
 Freud and James, 124
- association by simultaneity, 54, 151, 160
 Bain, A., 121
 Freud, S., 123
 Hebb, D.O., 124
 James, W., 123
- associationism, 121
 and the neuron doctrine, 127
- Atlan, H.
A tort et à raison, xiii
 reductionism and mysticism, 34
- attachment theory, 85n21
- attractor, 161
- Atwood, G.E., 87
- Australopithecus*, 91
- availability bias, 114, 156
- axons, dendrites and synapse, 115
- Bain, A., 121
- Barzun, J., xiv, 65
- Bethe, H.A., 15
- Bion, W., 82
- bi-stable perception, 77, 79
- Borges, J.R., 57, 58
- Borgesian manifold, 66
- Boring, E.G.
 on mathematization as an escape, 105
- Bowlby, J., 84, 85, 135
- brain volume, 91, 94
- brain-machine interface, 98
- Braitenberg, V., xiii, 129
 on scales, 47
- Bridgman, P.W., xiii, 32
- British psychoanalysis, 86
- Brothers, L., 96
- Cajal, S.R., 119
- Calkins, M.W., 143
- Çatalhöyük*, 76
- category error, 8, 67
 the case of localization, 101

192 Index

- causation
 across scales, 35
 Aristotle, 147
 correlation and basic science,
 38, 41, 42
 downward or final or reversed or
 top-down or right-to-left, 25
 semantically empty, 38
 Tinbergen, 147
- complexity
 all the way down, 24, 25
 Havel, I.M., 33
 reflected in, 24
 scale horizon, 33
 superposing simple elements, 31
 temporal and spatial, 28
 unfathomable, 66
- conceptual nervous system
 scheme, 107
 Skinner, B.F., 103
- condensed matter (physics), 14
- congruent relations, 150, 156, 161,
 163, 167
- contact barrier, 110
- corporate science, 30n24
- corpus callosotomy, 97
- cortex
 anatomy and physiology, 129
 and primitive reflexes, 134
 and the white matter, 132
 as a “mixing machine,” 133
 asymmetry of layers, 130
 bi-laterality, 112
 dimensions, 112
 intrinsic dynamism, spontaneous
 activity, 131
 localization, 130
 relative to other brain structures, 113
 symmetry, 129
 the folded nature of, 133
 types and density of cells, 113
- coupled systems, 161
- Cybernetics, 149, 149n123
- cystic fibrosis, 39
- dendrites, axons and synapse, 115
- Dennett, D.C., 27n21
- Dewey, J., 63, 72, 145
- dialectic, 156, 172
- discontent, 77, 89, 138, 151, 156,
 157, 177
- drive reduction, 154
- drives, 151
- DSM – Diagnostic and Statistical
 Manual of Mental Disorders,
 30n25
- Dunbar, R.I.M., 94
- dynamical systems, 8, 46, 142, 161
- dynamical systems theory
 applied to psychology, 67
 potential impact on psychoanalytic
 theory, 46
- Eccles, J.C., xiv, 91n6, 120
- Edelman, G.M., 142
Neural Darwinism, xiii
- ego, as internal space, 82
- Elsasser, W.M.
*Reflections on a Theory of
 Organisms*, xiii
 unfathomable complexity, 66
- encephalization, 95, 97
- exorcism, 33
- exploration–exploitation
 tradeoff, 110
- Fairbairn, W.R.D., 73, 82
 internal split, 76, 77
 utopian, theoretically perfect
 world, 74
- Feynman, R.
 on More Is Different, 17n9

Index

193

- Flugel, J.C., xiv
 on American psychology, 3
 on associationism, 91
 on inhibition, 135
 on localization, 100
- Freud, S.
 biologism (against), 19
 biologism (in favor of), 21
 his neural network image, 125
 in Worcester, 2
 journey to Worcester, 2
 on America and Americans, 4n11, 5
 on brain localization, 99
 on More Is Different, 19
 on physiological constraints to psychological theory, 12
 on psychiatry, 20
 on splitting the inner space, 79
Project for Scientific Psychology, 12
- Friston, K., 46n45
- functional–dynamic, 142, 147, 150, 156, 170, 174
- functionalism, 143, 144
- fundamental laws (physics), 15
- funnel view, 11, 13, 17, 23, 25, 31
- gastrulation, 140
- generative relations, 54, 57, 60, 63, 67, 84, 107, 166
- Golgi, C., 119
- Hall, S., 2
- Havel, I.M.
 and reductionism, 33
 the concept of scale horizon, 27n20
- Hebb, D.O.
 association by simultaneity, 125
 neurologizing, 106
 on the conceptual nervous system, 106
- Hodgkin, A., 120
- Hominidae, 91
- Homo sapiens*, 91
- Huxley, A., 120
- indeterminacy, 27
- inferences in psychoanalysis and physiology, 52
 heterarchical topology, 54
- inner (or internal) space
 awareness, 136
 physiological, 131, 136
 psychological, 73, 75, 77, 79, 82, 88, 89, 128, 137
- instinct, 71, 73
- intellectual autonomy, 17
- internal model theorem, 88
- internal object relations, 83, 85, 89
- interpretation–projection cycles, 165
- intersubjective, 71, 87, 93, 161, 172
- intersubjective psychology, 69, 76, 86, 87
- intersubjectivity, 89
- Isaacs, S., 71, 75, 82
- Jackson, H., 135
- James, H., 176
- James, W.
 abstraction and details, 112
 and empiricism, 1, 6, 56
 in Worcester, 1
 on brain and psychology, 6
 on Freud, 3, 4
 on phrenology, 102
 pragmatic relations, 28, 61, 137, 147
Pragmatism, 2, 62
 pragmatism and active sensing, perception-action, predictive brain models, 62
 pragmatism and Dewey's ideas, 63
Principles of Psychology, 1
 too much neuroanatomy, 112

194 Index

- Jerne, N., 157
- Jung, C.G.
 good and terrible mother, 77
 journey to Worcester, 2, 2n5
- Kahneman, D., 156
- Kandel, E.R., 43, 45
- Kasparov, G., 29–30
 on artificial intelligence, 29
- Katz, B., 120
- Kitten Carousel experiment, 146
- Klein, M., 71, 72, 77n9, 82
- Krippendorff, K., 149
- learning, 103n40, 110, 121, 149,
 149n123, 152n125
- Less Is Not Simpler, 23, 25, 27, 28, 29,
 31, 35, 38, 48, 152, 159
- Lewontin, R.C., xiii, 128, 173, 174
- localization
 as an explanation, 102
 Freud, S., 99
 in genetics, 100
 in the gross, but not in the fine, 103
 James, W., 102
 naive, 98
 phrenology, 98
 reorganization, following experience
 or damage, 101
 symptom versus function, 101
- Loewi, O., 119
- Mach, E., 7
- mechanism
 and reverse engineering, 27
 indeterminacy, 27
- membranes
 action potential, 115
 resting potential, 114
- microscopic–macroscopic relations,
 11, 18, 21
- in psychoanalysis, 39
 in physiology, 39
- Mitchell, S.A., 85, 87
- More Is Different*, xiv
- mother, 73, 74
 Çatalhöyük breast, 76
 good and bad, 76, 83
 Jung, C.G., 77
 My wife and my mother-in-law, 77
- movement
 assumed regularities, 56
 definition of behavior, 56
 generative relations, 57
- multiple selves, 85
- neural activity group, 121, 148, 152,
 155, 158
- neural network, 22, 33, 42, 121, 123,
 126, 129
- neuromodulation, 118
- neuropsychology, 43
 criticism, 44–5
- Noble, D., xiv, 36n34, 145n116
 on localization, 100n34
- object relations, 52, 77, 85, 163
- Ogden, T.H., xiv, 60n12, 85,
 158, 160
 internal object relations, 82, 83
 object internalization, 83
- Osheroff versus Chestnut Lodge, 7
- phantasy, 71, 72
 as prior hypothesis, 72
 frustration, 75
 higher-order, 75
 in adult, 75
 innate phylogenetic knowledge, 72
 noisy, 73
 primitive, 72, 75, 79
 validation, testing, 72, 73

Index

195

- phrenology, 98
 James, W., 102
 modern, 98
 physiological chauvinism, 9
 physiological objects, 134, 143, 148,
 151, 155, 158, 160, 166, 168
 plasticity, 46, 101, 109, 110n48, 125, 156
 Plato (*Meno*), 153
 pragmatic, 61, 137
 pragmatism, 147, 163, 165, 172
 and adaptation, 150
 and validation by congruence, 62
Pragmatism, 62
 production rules in psychoanalysis
 and physiology, 53
 projection, 61
 projective identification, 84
 Purkinje, J.E., 119

 reductionism
 aesthetics, 32
 and mysticism, 34
 exorcism, 33
 in intersubjective, relational
 context, 87
 mature, 35
 naive, 9, 28
 reasons to reduce, 32
 scale horizon, 33
 reflexes, infantile or primitive, 72, 88,
 89, 128, 134, 136, 139
 reflexive, 128, 132, 136, 137, 160
 reflexive inner (or internal) space
 physiological, 139
 psychological, 88, 128
 relational, 88
 relational brain, 93
 relational context, 93, 138, 169, 170
 relational dynamics, 86, 166, 168,
 170, 174
 relational objects, 69, 89
 relational psychology, 69, 76, 86, 87
 Remak, R., 126
 reverse engineering, 90n4, 156, 159
 Richardson, R.D., xiv, 1
 Rosen, R.
 Life Itself, xiii
 model relations, 50
 on abstraction, 64
 the Natural Law, 57n9
 Rosenzweig, S., xiv

scala naturae, 94
 scale
 concept of, 36
 or lack thereof, 38
 scale horizon, 27, 27n20, 33, 35, 48, 67
 Schwann, T., 119
 scientific psychology, 7
 Freud on experimental
 psychology, 20
 the Wundtian vision, 18
 Segal, H., 72, 82
 self psychology, 69
 semantically empty causal relations,
 9, 38, 41
 Sherrington, C.S., 119, 125
 Simon, H., 144
 Skinner, B.F.
 conceptual nervous system, 103
 social brain hypothesis, 94
 emergence of language, 95
 social grooming, 95
 Socrates, 153
 solid state (physics), 14
 Solms, M., 142
 somatic drive, 73
 Spencer, H., 121
 spike-timing dependent
 plasticity, 125
 stability–plasticity tradeoff, 109
 Freud, S., 110

196 Index

- Stolorow, R.D., 9, 46n45, 71, 72, 77, 87, 96, 121
- structuralism, 143, 144, 172
- structural-programmatic, 140–2, 147, 151, 156, 169, 173, 174
- symmetry, 74
- breaking, 74, 75, 78, 89
 - Fairbairn, 74
 - inhibition and breaking, 135
 - primal, 88, 134, 139
- symmetry breaking, 77, 83, 85, 86, 89, 123, 134, 139, 150, 157, 166
- synapse, axons, and dendrites, 115
- systematic, structured languages
- aesthetics, 55
 - and formal languages, 50
 - and intellectual alienation, 51
 - dynamical system metaphor, 54
 - generative relations, 54
 - graph metaphor, 54
 - incompleteness, 55
 - inferences, 52
 - production rules, 53
 - psychoanalysis and physiology, 49
 - Rosen, R., 50
 - underlying assumptions, 51
 - validity of inferences, 52
- Szymborska, W.
- Utopia*, 31
- technological singularity, 30
- theory of everything, 15
- Tinbergen, N., 147
- Tobias, P.V., xiv
- Tomasello, M., 91n7, 96
- gaze direction in human infants, 95
- transference, 84
- tripartite relations, 65
- underlying assumptions in psychoanalysis and physiology, 51
- universal neural principles, 111
- validation by congruence, 85, 162, 166
- and pragmatism, 62
 - interpretation, 61
 - projection, 61
 - the analyst, 60
 - the physiologists, 60
 - tripartite relations, 65
 - wild interpretation, 63
 - wild projection, 63
 - wild psychoanalysis, 63
- Vygotsky, L.S., 73, 77, 90, 90n4, 91, 97, 120, 171, 172
- Weisskopf, V.F., 14
- Winnicott, D.W., 82
- Wolpert, L., 140
- Wundt, W., 18, 19
- Yourcenar, M., xiii, 174, 175n6
- Zeno of Bruges, xiii, 174, 175
- Φ neurons (or system), 109, 110, 152, 158
- Ψ neurons (or system), 109, 110, 152, 158