

Cambridge University Press

978-1-107-08254-0 - Quantum Mind and Social Science: Unifying Physical and Social Ontology

Alexander Wendt

Index

[More information](#)

Index

- A-Series time 126–130, 199–200. *See also* time-symmetry
- absolute space and time 59, 65–66, 88–89.
See also temporal non-locality
- action at a distance 51, 53–54, 219–220.
See also quantum entanglement
- active information 88
- Addition Effect, temporal non-locality 202–203
- advanced action 174
 relation to reasons as causes 179–181
 and temporal non-locality 187
 and will 221
- Aerts, Diederik 110, 215, 216, 217–220
- agency 174–175, 182–188
 performative model of 163, 172.
 See also will
- agent-causation 184
- agent–structure problem 6–7, 32, 33–34, 210, 243–246, 255–260. *See also* social structure
- agents, matter as 122
- Albert, David 80
- analogy
 humans as quantum systems 3–4
 mental and quantum domains 91–92
- Analytical Philosophy of History* (Danto) 192
- anomalous phenomena 34
 consciousness 14
 social structure 22–23
- anthropological perspectives 36–37, 103
- après-coup 203–204
- Archer, Margaret 247
- Aristotle 64
 causation 63–64, 65, 119–123, 177, 262–263
- arrow of time 126–130, 199–200. *See also* time-symmetry
- as if explanations 26–28, 35–36
- assumptions, classical 11–14, 29, 51–52, 59, 88–89, 111–112. *See also* absolute space and time; atomism; determinism; materialism; mechanism; subject–object distinction
- Atmanspacher, Harald 126, 200
- atomism 59, 60–62, 88–89, 244–245
- B-Series time 126–130, 199–200
- backwards causation 65, 179–181
- bacterial cognition 117–118. *See also* single-celled organisms
- bank teller example, representativeness heuristic 159–161
- Barad, Karen (and intra-action) 172, 238
- Bauer, Edmond 82
- Beck, Friedrich 97
- behaviorism 22, 28
- Bell, John 40
 Experiments 51–54
- Bennett, Jane 133, 146–147
- Bergson, Henri 132
- Bhaskar, Roy 247
- bifurcation of nature 67
- biological perspectives
 definition of life 133–134
 materialist–vitalist controversy 133
 quantum biology 107, 135–136
- biosemiotics 141–142
- bird migration 135
- Bitbol, Michel 91–92
- black box radiation problem 44
- body problem 30. *See also* mind–body problem
- Bohm, David (Bohm Interpretation) 85–89
- Bohr, Niels 48, 49, 50–54, 73–76, 135, 217
- Bose-Einstein condensates (BECs) 98–101
- Broglie, Louis 45, 87
- Bruza, Peter 160
- Burge, Tyler 225, 253
- Busemeyer, Jerome 158, 160–161
- Butler, Judith 163
- Cambridge Changes 195, 287–288
- Carminati, G. Galli 202

Cambridge University Press

978-1-107-08254-0 - Quantum Mind and Social Science: Unifying Physical and Social Ontology

Alexander Wendt

Index

[More information](#)

346 Index

- Cartwright, Nancy 8
- causal closure of physics (CCP) 7–11
- causal closure of classical physics (CCCP) 11
- definition 7–8
- and *élan vital* 21
- emergentist–reductionist debate 247–248
- language 211–212
- problem of mental causation 175–176
- and quantum coherence 144
- and social science 11–14, 252, 257–258
- and temporal locality 190–191
- unscientific fictions 27–28
- causal exclusion 261
- causation
- Aristotelian 63–64, 65, 119–123, 177, 262–263
- backwards 65, 179–181
- classical worldviews 64, 177
- counterfactual model 64
- direct perception 224–225
- downward 182, 248, 252, 260–266
- epistemology 287–288
- final or teleological 177–179, 181
- hard problem of time 129
- human nature 152
- problem of mental causation 175–176, 182
- cell theory 279–280. *See also* single-celled organisms
- Chalmers, David 15, 16, 21, 146, 189, 276
- The Conscious Mind* 113
- changing the past 191–205. *See also* temporal non-locality
- Clark, Andy 276
- Clarke, Chris 131
- classical physics. *See* physics
- classical worldview
- assumptions. *See* assumptions (classical)
- causal exclusion 261
- causation 177
- changing the past 193–194
- direct perception 222, 224–225
- emergence 249
- free will 182, 183–184, 186
- human nature 151–153
- language 212–215
- mind-reading 231, 233, 237, 239
- paradigm shifts 58–59
- and quantum theory 40
- separability 208–209
- social science/social structures 11–14, 22, 245
- supervenience 254–255
- temporal non-locality 202–203
- cognition; *See* quantum cognition; quantum consciousness theory
- coherence 164–165, 167–168, 290–291.
- See also* quantum coherence
- collapse of wave functions
- in all matter 119–123
- and Bohm Interpretation 87
- and consciousness 189
- and determinism 62–63
- downward causation 263–265
- experiments 46–48, 54–57
- interpretations of quantum theory 72
- language 216–217
- observation, role 81–85
- quantum coherence 138, 139–141, 145–146
- quantum emergence 256–257
- semantic non-locality 235–236
- subject–object distinction 67–68
- superpositions 278
- temporal non-locality 200–202
- and will 109–111, 120, 121, 174–175, 179–181
- collective consciousness 275–281
- combination problem
- definition 92
- and panpsychism 92, 123–124, 131–132
- commutativity
- and order effects 157–158
- probability 159–160, 161
- complementarity, principle of 35, 64, 74, 75, 135
- Two-Slit Experiment 48–49
- compositionism
- composition vs. context 212–215
- language 212
- computational theory of mind. *See* quantum brain theory
- concept interference, language 217–218
- conjunction fallacy, quantum decision theory 159–161
- “The Conscious Cell” (Margulis) 118
- The Conscious Mind* (Chalmers) 113
- consciousness 14
- collective 275–281
- definition 15, 276–277
- features of 115, 116
- hard problem of 14–18, 21, 147
- idealist vs. materialist interpretations 89
- illusion of 17–18, 220, 249, 283, 289, 292
- and language 220–221
- in all living things 136, 137, 139, 145–146
- in matter 120–121
- Many Minds Interpretation 80–81
- metaphysics of 109–111
- mind–body problem 14–18

Cambridge University Press

978-1-107-08254-0 - Quantum Mind and Social Science: Unifying Physical and Social Ontology

Alexander Wendt

Index

[More information](#)

Index

347

- in plants 118
- in single-celled organisms 117–118, 279–280
- temporal non-locality 189–191
- vitalism 21–22, 146–147
- and will 18–20, 174
- see also* experience; quantum consciousness theory; subjectivity
- constitutive interactions 85
- contextualism
 - composition vs. context 212–215
 - language 212
 - quantum 215–221
- Conway, John 122
- Copenhagen Interpretation 72, 73–76, 86
- correspondence view of rationality 164–165
- counterfactual model of causation 64
- Cramer, John 179, 180, 187–188

- Danto, Arthur 192–193
- Davidson, Donald 176
- decisions 181. *See also* quantum decision theory
- decoherence 3, 96, 104
- Delayed-Choice Experiment 54–57, 127
- delayed choice, temporal non-locality 201–204
- Dennett, Daniel 21
- Descartes, René 83
- d'Espagnat, Bernard 74, 287
- determinism 59, 62–63, 88–89
 - free will 183–184, 186
 - and quantum theory 40–41, 47–48, 50–54
- Devil 27
- DeWitt, Bryce 78
- dialogue. *See* language
- Dirac choice 68–69, 83–84
- direct perception 222–228, 230–233, 242
- disjunction effect, probability 160–161
- downward causation 182, 248, 252, 260–266
- Driesch, Hans 132
- dualism 10, 17, 28–29, 189
 - emergence 248
 - mind-reading 233
 - panpsychism 31
 - and Subjectivist Interpretation 85
 - see also* mind–body problem
- Durkheim, Emile 244

- Eccles, John 97
- efficient causation, Aristotelian view 119–123, 177
- ego 84–85
- Einstein, Albert 44, 50–54, 75
- Eisert, Jens 169
- élan vital*. *See* life force
- eliminative materialism 22, 28
- emergence 33
 - classical 249
 - of consciousness 16, 124–125
 - Fröhlich tradition 98
 - quantum 33, 255–260, 263, 265–266
 - and social structures 244, 247–250
- enactivism 277
- entanglement, quantum. *See* quantum entanglement
- epiphenomenalism 256
- epistemology 93
 - Copenhagen Interpretation 75
 - changing the past 192–193, 199–200
 - emergence 248–249, 251–252
 - social 284–288
- EPR paper (Einstein, Podolsky and Rosen) 50–54
- Esfeld, Michael 175
- event-causation 184
- Everett, Hugh 78
- exclusion argument, mental causation 256–257
- expected utility theory (EUT) 155–156, 162, 167
- experience 33, 109–111, 141–143. *See also* consciousness; subjectivity
- experiments, quantum mechanics 43
 - Bell Experiments 50–54
 - Delayed-Choice Experiment 54–57
 - Two-Slit Experiment 43–49
- explanation vs. understanding debate 5–6
- explanatory breadth, quantum consciousness theory 291
- explanatory power, quantum consciousness theory 292–293
- extended mind hypothesis 276. *See also* collective consciousness
- externalism, and supervenience 252–255, 259–260

- fascism 143–144
- feminist perspectives 163, 189
- Feynman, Richard 40
- fictionalism (*as if* explanations) 26–28, 35–36
- final causation 177–179, 181
- first-person perspective 109–111. *See also* subjectivity
- flat ontology 33, 244, 247–250, 255, 264–265, 268–269, 277
- Fodor, Jerry 17, 212, 215
- folk psychology 34, 138, 181, 184
- formal causation, Aristotelian view 177
- Foucault, Michel 19
- free will 28, 175
 - classical debate about 62–63, 122, 152, 153

Cambridge University Press

978-1-107-08254-0 - Quantum Mind and Social Science: Unifying Physical and Social Ontology

Alexander Wendt

Index

[More information](#)

348 Index

- free will (*cont.*)
 human nature 152
 illusion of 62, 183–184, 186, 289, 292
 and quantum theory 182–188
 theorem 122, 184–185
 “The Free Will Theorem” (Conway and Kochen) 122
 French, Steven 41, 84–85
 Fröhlich tradition, quantum brain theory 97, 98–101
 Fuchs, Christopher 75
- game theory 32–33, 154, 169–173
 Garrett, Brian 21
 Gell-Mann, Murray 75
 generalized (weak) quantum theory 5, 97
 Giddens, Anthony 243–244
 Gigerenzer, Gerd 165
 Gisin, Nicolas 53
 global supervenience 254
 Glymour, Bruce 63
 God 10–11
 Godfrey-Smith, Peter 27
 Grandy, David 227
 group consciousness 275–281
 GRW Interpretation (Ghirardi, Rimini, and Weber) 76–77
- Haber, Matt 274
 Habermas, Jürgen 19
 Hacking, Ian 192–193
 Hameroff, Stuart 30, 99, 187
 Hanauske, Matthias 171
 hard problem
 of consciousness 14–18, 21, 147
 of life 134
 of time 126–130, 199
 Heisenberg, Werner 49, 73
 Heisenberg choice 67–68, 83–84
 Hiley, Basil 88
 Ho, Mae-Wan, 131, 137
 holism 3, 33, 62, 128
 Copenhagen Interpretation 74
 epistemological 74
 light 228
 mind-reading 233
 organicism 144
 in quantum physics 62, 167, 216
 separability 242
 social 244–245, 249–250, 258–259
 temporal 196
 will 140–141
 holograms/holographic projection 228–230, 239
 holographic state 271–273
- horizontal question, social structures 244–245
 human nature 150–153
 humans, quantum model 3–4, 149–153
 Hume, David 132
 Humphreys, Paul 256
 Husserl, Edmund 84
- idealism 31, 81–86, 89. *See also* panpsychism; realism
 indeterminacy of the past 192
 indirect perception, Time-Lag Argument 239
 individualism 249–250
 mind-reading 233
 ontology 251–252
 social structure 259
 supervenience 250–251
 inference to the best explanation (IBE) 290, 292–293
 information
 Bohm Interpretation 88
 neutral monism 125–126
 subjectivity in living things 117–118, 141–143
 theoretic ontology 125–126
 instrumentalism, Copenhagen Interpretation 75
 intentionality 13–14, 28, 175
 consciousness 18–20
as if explanations 26–28
 social structure 252
see also will
- interaction
 quantum game theory 172
 semantic non-locality 237–238
see also quantum entanglement
 interconnectedness vs. individuality. *See* separability
 interference patterns, light 44, 46
 interference, quantum 160, 161
 internalism, and supervenience 252–255
 interpretations of quantum theory 58–59, 70–73
 Bohmian 85–89
 Copenhagen 72, 73–76, 86
 GWR 76–77
 Many Minds 78, 80–81, 181
 Many Worlds 77–81
 Subjectivist 81–85
 time-symmetric/Transactional 70, 179, 187–188, 229–230
see also panpsychism; realism
 interpretivism 28–29
 anomaly of consciousness 14
 causal closure of physics 8, 10–11
 classical social science 12–14
 intentionality 18–19

Cambridge University Press

978-1-107-08254-0 - Quantum Mind and Social Science: Unifying Physical and Social Ontology

Alexander Wendt

Index

[More information](#)

Index

349

- methodological atheism 10–11
- quantum consciousness theory 35
- intersubjectivity 74
- intrinsic properties 252
- introspection 84, 110. *See also* subjectivity
- Iraq War 269–270
- irreducibility 248
- it from bit 83–84, 125–126
- Jackson, Frank 16
- Jonas, Hans 282
- Jordan, Pascual 135
- Jung, C. G. 128
- Kahneman, Daniel 156, 159
- Kahneman-Tversky effects 34, 164, 166–167
- Kant, Immanuel 114
- Kim, Jaegwon 26
- Kochen, Simon 122
- Kolak, Daniel 242
- Kuttner, Fred 69
- Lambert-Mogiliansky, Ariane 162
- language 33, 210–212
 - composition vs. context 212–215
 - and experience 190
 - mind-reading 222–223, 233–237
 - quantum contextualism 215–221
- Lapata, Mirella 215
- Latour, Bruno 133
- leaders 270
- Leibniz, Gottfried Wilhelm von 269
- Levine, Joseph 15
- Lewenstein, Maciej 169
- Lewis, David 64
- Libet, Benjamin 185–188
- life
 - definitions of 131–132, 133–134, 137–138, 147
 - hard problem of 134
 - quantum vitalism 131–132
 - and subjectivity 116–118, 136, 137, 139
- life force (*élan vital*) 21–22, 27, 32, 92
- quantum coherence 137–138, 267. *See also* vitalism
- light
 - Bell Experiments 51–54
 - dual nature of 43–49, 226–228
 - visual perception 222–223, 226–228
- linguistics. *See* language
- Litt, Abninder 104–105
- living things. *See* life
- locality, assumption of 51–52, 54, 63–65.
 - See also* non-locality
- location problem, in social ontology 25
- Lockwood, Michael 80
- Loewer, Barry 80
- London, Fritz 82
- machines, humans as 153. *See also* mechanism
- MacKenzie, Alexander 192
- Mackonis, Adolfas 290
- macroscopic systems 68–69, 131
- Malin, Shimon 46
- Many Minds Interpretation 78, 80–81, 181
- Many Worlds Interpretation 77–81
- Marcer, Peter 229
- Margulis, Lynn 117–118
- Martin, F. 202
- material causation, Aristotelian view 177
- materialism 59–60, 88–89, 181
 - Bohm Interpretation 86
 - conflation with physicalism 9
 - consciousness 89
 - definition 59, 60
 - emergence 247–248
 - and experience 189
 - human nature 151
 - language 211–212
 - materialist–idealist debate 6
 - materialist–vitalist debate 132–137
 - mind–body problem 14, 111–112, 114
 - New Materialism 132, 146, 147, 267
 - realism 76–81
 - social structure 267
 - supervenience 251
 - See also* physicalism
- matter (inanimate), distinction from living things 123–124
- Mayr, Ernst 140
- McEvoy, Cathy 219
- McGeever, John 256
- McGinn, Colin 17
- McKemmish, Laura 105–107
- McTaggart, J. M. E. 126–130, 199–200
- meaning, language composition vs. context 212–215
- measurement
 - collapse of wave functions 217
 - Delayed-Choice Experiment 56–57
 - EPR paper 50–54
 - order effects 157–158
 - semantic non-locality 235–236
 - subject–object distinction 66–69
 - Two-Slit Experiment 46
 - See also* observation
- mechanism 59, 63–65, 88–89
- memory
 - language 217
 - temporal non-locality 200–202
- Umezawa tradition 101–102

Cambridge University Press

978-1-107-08254-0 - Quantum Mind and Social Science: Unifying Physical and Social Ontology

Alexander Wendt

Index

[More information](#)

350 Index

- mental causation
 - exclusion argument 256–257
 - problem of 175–176, 182
- mental time travel 182, 240–241
- mentality 85–88, 89, 125. *See also*
 - consciousness; No Fundamental Mentality; panpsychism
- Mercer, Jonathan 277
- meta-interpretive frameworks 71–73. *See also*
 - interpretations of quantum theory
- metaphysics, new 109–111, 289
- meta-theory, international relations (IR)
 - discipline 1
- Meyer, David 169
- microtubules 99–101, 104–107
- mind
 - interpretations of quantum theory 72
 - in all living things 136–137
 - problem of other 33, 116, 230
 - see also* consciousness; panpsychism
- Mind in Life* (Thompson) 136
- mind–body dualism 80, 83
- mind–body problem 14–18, 29, 30, 72, 93
 - dualist and materialist views 111–112
 - experience 116
 - materialism 114
 - neutral monism 125–126
 - quantum brain theory 97
 - subjective world of experience 111
- mind–matter interactions 83, 85
- mind-reading 222–223, 230–242. *See also*
 - direct perception
- minded matter 112. *See also* panpsychism
- Mirowski, Philip 4
- Mitchell, Edgar 272
- Mitchell, Jeff 215
- monads/monadology 269–271
- Monk, Nicholas 66
- Montero, Barbara 9, 30
- Munro, William Bennett 4

- Nakagomi, Teruaki 269
- Nelson, Douglas 219
- Neo-Vitalism 145–146. *See also* New Materialism
- Neuron Doctrine 96, 99, 103, 109
- neuroscientific perspectives, free will 183, 185–188
- neutral monism 93, 111, 124–130, 179
- New Materialism 132, 146, 147, 267
- Newton, Sir Isaac 43
- No Fundamental Mentality 9, 31, 76, 251. *See also* realism
- non-commutativity 157–158
- non-conscious matter, distinction from living things 123–124
- non-locality
 - assumptions of locality 51–52, 54, 63–65
 - causation 54, 64
 - problem of memory 101–102
 - semantic 230–242
 - temporal 54–57, 180, 182, 189–205
- non-separability. *See* separability vs. non-separability

- object–subject distinction. *See* subject–object distinction
- observation, role in quantum phenomena
 - 36–37, 67
 - Bohm Interpretation 87
 - Subjectivist Interpretation 81–85
 - See also* measurement
- Occam's Razor, applied to Many World Interpretation 79
- Okasha, Samir 274
- ontology 93
 - Copenhagen Interpretation 75
 - emergence 248–250, 255–260, 264–265
 - of events (changing the past) 193–198
 - flat 33, 244, 247–250, 255, 264–265, 268–269, 277
 - hierarchical 93, 244
 - individualism 251–252
 - quantum emergence 258–259
 - social 245, 280
 - supervenience 251
 - vitalist sociology 267–268
- Open Individualism 242
- order effects 157–158
- ordered water 100, 102, 106
- organicism 144
- organisms 273–275
- organismic purposiveness 177–178
- other minds, problem of 33, 116, 230
- The Oxford Handbook of Philosophy of Language* 220–221

- pain, experience of 117
- panpsychism 31, 35, 70, 92, 111–114
 - Bohm Interpretation 85–89
 - combination problem and quantum coherence 123–124
 - definitions 114–116
 - and free will 184–185
 - and neutral monism 124–130
 - subjectivity in all matter 119–123
 - subjectivity in living things 116–118
- Panpsychism in the West* (Skrbina) 112
- pan-social ontology 280

Cambridge University Press

978-1-107-08254-0 - Quantum Mind and Social Science: Unifying Physical and Social Ontology

Alexander Wendt

Index

[More information](#)

Index

351

- Papineau, David 17
 paradox of Wigner's friend 82–83
 parsimony, quantum consciousness theory 292
 particle theory of light 43–49
 past, possibility of changing 191–205. *See also* temporal non-locality
 Peijnenburg, Jeanne 193, 196–197
 Penrose, Roger 30, 99, 186
 perception
 direct 222–228, 230–233, 242
 holographic projection 228–230, 239
 problem of 223–226
 Peres, Asher 75
 performative model of agency 163, 172
 Perus, Mitja 229
 Pettit, Philip 244, 250–251
 phenomenological approach 84–85
 philosophical anthropology 36–37, 103
 photoelectric effect 44–45
 photosynthesis 105, 135
 physical basis of language 211–212
 physicalism 76, 251
 ambiguity of contemporary definitions 88
 definitions 8–9, 10
 No Fundamental Mentality 9, 31, 76, 251
 See also materialism; realism
 physics
 classical 2, 151–153
 dual nature of light 226–228
 of changing the past 198–205
 Pia and the Painted Leaves story 213
 pilot-wave model 87
 Planck, Max 44
 Planck's constant 44
 plants
 photosynthesis 105, 135
 quantum effects 104–105, 107
 subjectivity in 118
 Podolsky, Boris, EPR paper 50–54
 Pointer, Lisa 219
 polarization of light, Bell Experiments 52–54
 politics of vitalist sociology 281–282
 Polonioli, Andrea 165
 positivism 6, 18–20, 28–29
 anomaly of consciousness 14
 causal closure of physics 8, 10
 classical social science 12–13
 intentionality 18
 methodological atheism 10–11
 quantum consciousness theory 35
 post-modernism 74
 power, structural 34–35
 practice turn 264–265
 Pradhan, Rajat 229
 pragmatics, linguistic 211, 214
 preference reversals, quantum decision theory 161–164
 Pribram, Karl 229
 Price, Huw 65
 Primas, Hans 126, 200
 Prisoner's Dilemma, quantum game theory 172
 probability judgment 159–161, 164
 probability, quantum 40–41, 46–48, 159–161
 Process 1 286
Process and Reality (Whitehead) 113
 projection postulate 82, 200
 proximity principle, causality 225
 psyche, definitions 114–116
 psycho-physical duality 84
 purposiveness 177–178
 Putnam, Hilary 253
 Pylkkänen, Paavo 88
 QFT (quantum field theory) 101–102
 quantum biology 107, 135–136
 quantum brain theory 15, 30–31, 35, 92, 95, 97
 current debates 102–108
 Fröhlich tradition 98–101
 holographic projection 230
 memory 200–202
 quantum coherence 144–145
 and quantum decision theory 155
 Umezawa tradition 101–102
 see also quantum decision theory
 quantum cognition 32–33, 154–156
 probability judgment 159–161, 164
 rational choice theory 33, 155–156, 164–169
 see also quantum consciousness theory;
 quantum decision theory
 quantum coherence 123–124
 cognition 139
 as definition of life 131–132, 137–138, 147
 experience 141–143, 145–146
 Fröhlich tradition 98–101
 as life force 267
 materialist–vitalist controversy 132–137
 quantum vitalism 143–147
 superorganisms 274
 will 139–141
 quantum contextualism 215–221
 quantum consciousness theory 5, 30–36, 91–94, 154–156
 elegance/aesthetics 293
 explanatory breadth/power 291, 292–293
 and quantum game theory 169
 quantum vitalism 146–147
 social science 288

Cambridge University Press

978-1-107-08254-0 - Quantum Mind and Social Science: Unifying Physical and Social Ontology

Alexander Wendt

Index

[More information](#)

352 Index

- quantum consciousness theory (*cont.*)
 see also panpsychism; quantum brain
 theory; quantum cognition
 quantum decision theory 4–5, 6, 12, 32–33,
 154, 157
 Kahneman-Tversky effects 34
 order effects 157–158
 preference reversals 161–164
 probability 159–161
 and quantum brain theory 155
 quantum emergence 33, 255–260, 263,
 265–266
 quantum entanglement 53–54
 and atomism 61
 emergence 256–257, 263
 language 218–220
 and quantum game theory 169–173
 quantum field theory (QFT) 101–102
 quantum game theory 32–33, 154, 169–173
 quantum interference 160, 161
 quantum potential 86, 87–88
 quantum probability 40–41, 46–48, 159–161
The Quantum Society (Zohar) 2
 quantum theory 29, 39–42, 147, 182–188
 quantum tunneling 100
 quantum vitalism. *See* vitalism
 Quantum Zeno Effect 164
- rational choice theory 33, 155–156, 164–169
 readiness potential (RP) 185–188
 realism 72–73
 assumption 51–52, 54
 idealist interpretations 81–89
 materialist interpretations 76–81
 naïve 223
 social structure 258–259
 see also Copenhagen Interpretation
 reasons as cause of actions (problem of mental
 causation) 175–176, 182
 reductionism 33
 and atomism 61
 causal closure of physics 8
 will 140–141
 reification of social structure 23, 25, 26, 27,
 28, 244
 Reimers, Jeffrey 99
 relativism 74
 relativity theory 65, 227
 Replacement Effect, temporal non-locality
 202–203
 representational models of perception 223, 224
 representativeness heuristic 159
 retro-causality (changing the past) 191–205.
 See also temporal non-locality
 Ricciardi, Luigi 97, 101–102
 Rosen, Nathan, EPR paper 50–54
 Rosenblum, Bruce 69
 RP (readiness potential) 185–188
 Ruetsche, Laura 77, 79
 Russell, Bertrand 113, 114, 126
- Sachs, Mendel 228
 Saussure, Ferdinand de 210
 Sawyer, Keith 251
 Schempp, Walter 229
 Schmid, Hans Bernhard 277
 Schmitt, Carl 281
 Schneider, Jean 235
 Schopenhauer, Arthur 110
 Schrödinger, Erwin 66, 135
 cat thought experiment 68–69, 76–77
 equation 47, 92
 What Is Life? 135
 Seager, William 113
 Searle, John 20, 63, 113
 Sebeok, Thomas 142
 self-consciousness 15
 self-organization in organisms 136
 semantics
 linguistic 211
 non-locality 230–242
 quantum 215–221
 sensory perception, living things 143
 separability vs. non-separability
 classical worldviews 208–209
 human mind 33, 149–150, 152
 light 228
 mind-reading 242
 problem of perception 224–225
 rational choice theory 166
 Silberstein, Michael 256
 simplicity (parsimony), quantum
 consciousness theory 292
 Simulation Theory, theory of mind debate 231,
 232
 single-celled organisms
 learning in 135
 subjectivity/consciousness 117–118, 136,
 279–280
 skeletal past 194–196, 199–200
 Skinner, B. F. 22
 Sklar, Lawrence 8
 Skrbina, David 112
 Smith, Adam 132
 Smolin, Lee 66
 social epistemology 284–288
 social holism 244–245, 249–250, 258–259
 social organisms 273–275
 social science
 classical worldviews 11–14
 quantum consciousness theory 288
 social structure 22–23, 33–34

Cambridge University Press

978-1-107-08254-0 - Quantum Mind and Social Science: Unifying Physical and Social Ontology

Alexander Wendt

Index

[More information](#)

Index

353

- definition 243–244
- downward causation 260–266
- quantum emergence 258–260
- state, role of 23–25
- threat of reification 23, 25, 26, 27, 28, 244
see also agent–structure problem
- Socrates 194, 270
- Sollberger, Michael 225
- space
 - absolute 59, 65–66, 88–89
 - experience of 190
- speed of light 227
- spooky action at a distance 51, 219–220.
See also quantum entanglement
- spreading activation model, language 219–220
- Squires, Euan 87
- Stapp, Henry 73, 84, 186
- Staretz, Robert 272
- state
 - collective consciousness 275–281
 - holographic 271–273
 - as organism 273–275
 - social structure 23–25
- strong argument, quantum brain theory 97.
See also Fröhlich tradition; Umezawa tradition
- structural power 34–35
- structure, social. *See* social structure
- sub-atomic particles, cloud chamber 119
- subject–object distinction 59, 66–69, 88–89
 - interpretations of quantum theory 72, 73, 87
 - light 228
 - temporal non-locality 189
- Subjectivist Interpretation 81–85
- subjectivity 28, 93, 109–111
 - anomaly 7
 - definitions 114–116
 - in living things 116–118
 - in matter 119–124
 - see also* consciousness
- superorganism, state as 273–275
- superpositions 47, 52, 85, 162–163, 258–259, 278
 - definition 32–33
 - see also* collapse of wave functions
- supervenience 80, 250–255, 256
 - definition 61
 - externalism 246, 250–255, 259–260
- sure thing principle 160–161
- swarm intelligence 275
- Tegmark, Max 104
- teleological causation 177–179, 181
- teleology
 - living things 140
 - reasons as causes 175–176, 182
- telepathy 232
- Teller, Paul 61
- temporal non-locality 54–57, 180, 182, 189–205
- temporal symmetry. *See* time-symmetry
- theory of mind debate 230–233
 - Simulation Theory 231, 232
 - Theory-Theory 231
- theory of relativity 65, 227
- thick past 194–196
- Thompson, Evan 136
- time
 - absolute 59, 65–66, 88–89
 - hard problem of 126–130, 199
 - speed of light 227
 - see also* temporal non-locality
- Time-Lag argument, indirect perception 225, 239
- time-reversal invariance 127
- time-symmetry 126–130, 179–181, 189
- Tononi, Giulio 146
- Transactional Interpretations 70, 179, 187–188, 229–230
- trauma, après-coup 203–204
- Trewavas, Anthony 118
- tunneling, quantum 100
- Tversky, Amos 34, 159, 164, 166–167
- Twenty Questions game, quantum 67–68
- Twin Earth thought experiments 253
- Two-Slit Experiment 43–49, 161, 217–218
- type indeterminacy, KT man 162
- Umezawa, Hiroomi 97, 101–102
- unbounded rationality 164–169
- Uncertainty Principle 49
 - atomism 61–62
 - Bohm Interpretation 86
 - materialism 60
 - supervenience 251
- understanding vs. explanation debate 5–6
- unobservable social structures anomaly 7
- unscientific fictions/fictionalized models 26–28, 35–36
- utility maximization 165, 166. *See also* rational choice theory
- Vaihinger, Hans 27
- van Gulick, Robert 261
- van Putten, Cornelis 197, 202–203
- Velmans, Max 228, 229
- vertical question, social structures 244
- visual perception. *See* perception
- vitalism 21–22, 32, 33–34, 92, 131–134
 - cognition 136, 139
 - experience 137, 141–143, 145–146

- vitalism (*cont.*)
 - materialist–vitalist controversy 132–137
 - politics of 281–282
 - quantum 137–138, 267, 268
 - terminological usage 143–147
 - will 136, 139–141
 - see also* life force
- vitalist sociology 276
- volition 175. *See also* will
- voluntarism 282
- von Lucadou, Walter 81
- von Neumann chain 68–69, 84
 - Subjectivist Interpretation 82–83
- von Uexküll, Jakob 142, 281
- Wang, Zheng 158
- war veteran example 202–203
- wave front reconstruction
 - holographic state 272–273
- wave functions 3, 29, 31, 283
 - interpretations of quantum theory 71–72.
 - See also* collapse of wave functions
- wave theory of light
 - Two-Slit Experiment 43–49
- wave-particle duality
 - complementarity, principle of 48–49
- weak quantum theory 5, 97
- “weak” objectivity 74
- Weberman, David 193–198
- Weyl, Hermann 122
- Wheeler, John 55, 67–68, 82, 83–84
- Whitehead, Alfred North
 - Process and Reality* 113
- Wigner, Eugene 82
- Wilkens, Martin 169
- will 33
 - in all living things 136, 139–141
 - in all matter 121–122
 - collapse of wave functions 263–265
 - features of subjectivity 116
 - free will 182–188
 - plants 118
 - problem of mental causation 182
 - single-celled organisms 117–118
- Wilson, David Sloan 273
- Witte, F. M. C. 170
- Wittgenstein, Ludwig 19, 214, 232
- Wolf, Fred Alan 187–188
- World War I 204–205
- World War II 204–205
- Young, Thomas
 - Two-Slit Experiment 44
- Zahle, Julie 225
- Zaman, Frederick 173
- zombies 153