



## Representation in Cognitive Science

Nicholas Shea

Print publication date: 2018

Print ISBN-13: 9780198812883

Published to Oxford Scholarship Online: October 2018

DOI: 10.1093/oso/9780198812883.001.0001

## (p.285) Index

- aboutness, *see* representational content
- action, goal-conducive 54
- adaptation 49, 79, 206, 213, 214, 221–2
- ALCOVE, neural network 91–3, 183
- algorithm 6, 34–5, 37, 39–40, 51, 69, 75–6, 81, 83–7, 90, 92, 99, 110, 116, 123–4, 150, 160, 179, 187, 189, 198–200, 201, 203, 207, 209, 218, 221, 224
  - implementation 36, 85–6, 138
  - learning 91
- algorithmic level, Marr's 34
- analogue magnitude representation 90, 97–8, 100, 103, 148, 154, 157, 165, 185, 201
- analogue magnitude system 97–8, 100, 151–4, 179, 199, 203, 220
- artefact 28, 64, 123, 200, 212
- artificial force field 53
- artificial neural network 34, 88, 91–3, 115, 134, 162, 166, 216, 217
- associative learning 61, 92, 114, 115, 121, 122, 186, 187
- autonomy of psychology and neuroscience 26
- autopoiesis 58
- Babbage, Charles 3–5
- basic representationalist model 15, 35, 42
- Bayesian models 13
- bee dance, *see* honeybee dance
- behaviour:
  - automatic 55
  - goal-directed 52–5, 200
  - stereotyped 55
- behavioural disposition 8, 22, 38, 48–9, 59–62, 150, 167, 172
- behavioural pattern 22, 38, 83, 85, 172, 188, 191
- behavioural tendency 59, 141
- belief–desire system 159, 162, 187, 192–3
- beliefs and desires 8–9, 12–14, 16, 25–6, 28, 42, 65, 149, 157, 159, 162, 172–4, 178, 187, 192–3, 202, 212, 215, 220, 223, 225

- 
- occurrent/explicit 25-6, 172, 223-4, 225
  - standing/implicit 26, 224
  - biological well-functioning 171, 173-4
  - BOLD signal 85, 133
  - bridge laws 41
  - Burge, Tyler 174-5, 202, 206, 218
  - Bush-Mosteller reinforcement 57
  - cartographic map 111, 118, 125, 127
  - causal chain 11, 30, 64, 148-9, 152, 201
  - causal exclusion 209
  - causal-explanatory relation 88-9, 159
    - interest-relative 88-9
  - causal reasoning 136; *see also* model-based reasoning
  - causal structure 18, 132, 134-7, 186
  - causal understanding 134
  - C. elegans* 97
  - cerebellum 53
  - chemotaxis 58
  - co-activation structure 115-16, 120-2, 124-6, 131, 137, 139, 140-2, 155, 164, 166, 182-3, 185, 187, 193-4
  - cognitive map 9-10, 36, 43, 113-16, 121, 141-2, 143, 148, 154-5, 165; *see also* place cell; grid cell; hippocampus
  - cognitive neuroscience 6-7, 25, 28, 95, 143, 174, 204, 221, 225
  - cognitive revolution, the 6
  - comparator circuit 67, 183-4, 191
  - compositionality 125, 148, 162, 164, 206-7
  - computation 4, 6, 26, 34-5, 40, 90, 97, 106, 127, 130, 133, 135, 138-9, 150, 157, 180, 206-7, 218, 225
    - analogue 34, 97
    - neural 6-7, 26, 85-6, 105-7, 109, 121, 139, 184, 187 *see also* computers
  - computation individuation 34
  - computational process, *see* computation
  - computational structure 138-9, 207; *see also* co-activation structure
  - computational system 32, 175, 206
  - Computational Theory of Mind, *see* Representational Theory of Mind
  - computers 3-4, 28, 32; *see also* computation; computational system
  - concept 9, 11, 13, 76, 156, 162-6, 175-6, 206-7, 216-17, 220, 223-4
    - compositionality of 156, 162, 164-5, 206-7
    - generality constraint on 162-6
    - number 126
    - predicative 162
    - singular 162
    - unsaturated 162-3
  - conceptual role semantics, *see* inferential role semantics
  - conceptual system 164
  - conditional reasoning 178, 193
  - conditioning, classical 20, 61
  - (p.286)** conditioning, instrumental 21, 42, 87, 115, 192
  - connectionist network, *see* artificial neural network
-

- conscious experience, *see* consciousness
- consciousness 3, 7–9, 11–12, 25–7, 42, 134, 149, 154, 159, 169, 173, 215, 222–5; *see also* phenomenal character
- conscious state, *see* consciousness
- consequence etiology 48–9, 56–9, 63, 68, 70, 168–9, 171
- constituent structure, semantically significant 26, 39, 128, 162–3, 165–6, 175, 207
- content, *see* representational content
- content-attitude distinction 178, 187, 192
- content-based explanation, *see* representational explanation
- content-constituting role 19, 37, 43, 69, 76, 83–4, 93, 106, 110, 116, 118–19, 120–2, 124, 127, 137, 141, 151, 209
- contribution to persistence 22, 42, 50, 56–60, 62–4, 66, 68–70, 72–4, 82, 84, 100, 110, 150, 167–8, 170–1, 174, 180, 200, 211, 215, 220, 222; *see also* stabilizing process
- corollary discharge 96–7, 173, 180–1, 183
- correlation, nomological 76–7, 78, 107, 153
- cultural evolution 62
- cultural transmission 57, 64, 224
- Cummins' driverless car example 128–31
- Cummins, Robert 14, 51, 58, 112, 128–30, 203
- cybernetics 55
- Darwin, Charles 56, 63
- decision-making 26, 106–10, 134–5, 173
- decision theory 14, 173, 219
- Dennett, Daniel C. 14, 31, 32, 36, 38, 202–3, 212, 224
- design 30, 42, 50, 64–5, 70, 73, 130, 150, 167, 200, 211–12, 213, 220
- desire, *see* beliefs and desires
- direction of fit, *see* mode of representing; representational content, descriptive; representational content, directive
- discriminative capacity 59, 159–61
- DOORKNOB/doorknob problem 216
- doxastic states, *see* beliefs and desires
- Dretske, Fred 12, 21, 22–3, 30, 42, 87–8, 160, 192, 203, 206–7
- Dynamical Systems Theory 40, 219–20
- E. coli* 58, 84
- efference copy, *see* corollary discharge
- Egan, Frances 35, 205, 206–7
- empirical psychology, *see* psychology, scientific
- epiphenomenalism about content, *see* representational content, causal efficacy of
- evolutionary success 16, 19, 64
- explanation 17, 22, 26, 64, 79, 82, 87, 170–1, 212
  - causal 23, 31–2, 63, 73, 77, 83, 87–8, 89–90, 123, 141–3, 150–4, 155–6, 159, 189, 201, 211
  - computational 26
  - consequence etiology 59, 68, 150, 188
  - content-based, *see* representational explanation
  - counterfactual 59
  - direct, *see* explanation, unmediated
  - epistemic view of 88
  - evolutionary 18, 66

- 
- factorized 29–31, 201–4, 208, 211, 213
  - forward-looking 59
  - indirect, *see* explanation, mediated
  - information-processing 25
  - internal-components 51, 116, 167
  - learning-based 60–1
  - mediated 84, 141, 152, 155
  - naturalistic 16
  - neural 26
  - non-semantic, *see* explanation, factorized
  - Normal 18, 156, 158, 188–9
  - ontic view of 88
  - pragmatist 212–13
  - process/program distinction 208
  - realist account of 88, 212
  - scheme of 26, 37, 41, 51, 88, 207
  - scientific 10, 28, 89
  - semantic view of 88
  - stabilization-based 61–2, 84, 151, 181, 185; *see also* stabilizing process
  - structuring cause 23, 87
  - unmediated 84, 90, 103, 151–2, 155, 159–60, 179, 180–2, 185, 191
  - vehicle-based, *see* explanation, factorized
  - why 69, 83 *see also* representational explanation
  - explanatory purchase 23, 32, 42, 48–9, 63, 67–71, 74, 87, 144, 170–1, 174, 185, 198, 200–1, 203–7, 209, 211, 214–15, 218, 224; *see also* representational content, explanatory role of
  - exploitable relation 35–7, 41–3, 47, 51–2, 68, 70, 74, 75–6, 84, 110, 111–12, 119, 121–2, 123, 131, 160, 167, 170, 179, 188, 198, 200, 202, 207, 209–11, 217, 224
    - semantic, inferential connections 76, 224
    - subject-predicate structure 76 *see also* information, correlational; structural correspondence
  - externalism 32, 35, 39, 174, 198, 206; *see also* property, externalist
  - feedback-based learning 22, 42, 49, 53, 56–7, 59–62, 66, 70–1, 85, 98, 211
    - (p.287)** feedback loop 95, 109
  - fitness, contribution to, *see* contribution to persistence; *see also* stabilizing process
  - fMRI 80, 127, 133
    - model-based 80, 85
    - multi-voxel pattern analysis 80
  - Fodor, Jerry A. 13, 23, 26, 150, 164, 178, 207, 216–17
  - free will 3, 9
  - function 27, 32, 34–5, 37, 39, 41–2, 47, 174, 204–5, 209–10, 225–6
    - biological 19, 47, 58, 171, 173
      - normativity of 65, 148, 171
    - causal role 51, 58, 72–3
    - Cummins-, *see* function, causal role
    - derived 19–20, 61
    - design 64, 150
    - etiological 15, 19, 21, 47, 85, 160, 166–9, 188
-

- 
- evolutionary 16–21, 30, 47–8, 60–1, 63, 72, 73, 78, 79, 93, 124, 154, 159, 209, 213, 215, 222
  - forward-looking 63, 73, 168
  - historical, *see* function, etiological
  - input-output 34, 189
  - long-armed 160
  - modern history theory of 63
  - perspectivalism about 203
  - response function 160
  - robust outcome 48–50, 52–6, 68–72, 74, 83, 124, 150, 167–8, 171, 189, 203, 213–14, 221
  - stabilized 42, 48, 50, 52, 56–8, 61–4, 66, 68–71, 74, 83, 124, 133, 150, 167–9, 203, 209, 213, 220–2
    - learning-based 68, 70–1
  - very modern history theory of 62–3 *see also* task functions; teleofunction; malfunction
  - functional connectivity 39, 104
  - functional specialization 99–100
  - function-for-representation 47; *see also* function
  - Gallistel, Randy 130–2
  - goal-directedness, *see* behaviour, goal-directed
  - Godfrey-Smith, Peter 14–15, 35, 42, 58, 63, 73, 95, 112, 115, 127, 141, 143, 150, 159, 165, 173, 198, 206, 207, 210
  - grid cell 115, 139; *see also* hippocampus; place cell
    - justification 26
  - habit-based learning, *see* model-based learning
  - hippocampus 10, 43, 113–16, 120, 125, 131, 135, 136, 154, 163, 182, 203
  - history:
    - causal 63, 166–9, 176
    - evolutionary 21–3, 48, 50, 56, 63, 69, 70–1, 73, 77, 148, 150, 155, 166–9, 170
    - individual, learning 22, 63–4, 69, 77, 85, 166–9, 170
    - of stabilization 63, 64, 176 *see also* stabilizing process
  - homeostasis 49, 73
  - homeostatic property cluster 51–2, 161; *see also* kind, natural
  - homomorphism 117, 142, 143; *see also* isomorphism; structural correspondence
  - homuncular functionalism 36–7
  - homunculus 36–7
  - honeybee dance 16–18, 37, 71–2, 78, 87, 127, 150, 163–6, 183, 209, 215
  - hormonal signalling 18–19, 214–15
  - imitation, learning by 62
  - immune system 214–15
  - indexicality 39, 155, 220
  - induction 22, 66, 200, 204–5, 210–11
  - inductive potential, *see* induction
  - inferential role semantics 13, 15, 76; *see also* representational content, theories of
  - information 5, 8, 25, 35, 38, 98, 104, 150, 161, 174, 217, 223, 226
    - correlational 12–13, 15, 18, 21, 41, 43, 76, 80–2, 85–6, 88, 90–1, 96, 100–2, 103, 105, 107, 110, 114–15, 116, 127, 128, 137, 149, 151, 154, 156–7, 159, 179, 186, 190, 199, 206, 215, 219, 221–2, 224
-

- 
- carried by a range of states 78, 95–6, 100, 128, 156
  - content-constituting 69, 83–4, 110, 137, 151, 209; *see also* information, Unmediated Explanatory
  - exploitable 41, 43, 68, 76–9, 84, 100, 107–8, 122, 128, 152–3, 154, 156, 158, 180, 186, 189, 192
  - exploited 41, 77, 79, 80, 110, 119, 137, 139, 156, 185
  - genetic 19
  - integration of 100
  - mutual 108, 186
  - probabilistic 26, 106–9
  - semantic 19, 212
  - soft natural 77
  - Unmediated Explanatory (UE) 31, 41, 83–7, 88–91, 93, 99–100, 102–3, 105–6, 108–10, 124, 127, 138–40, 141, 142, 151–3, 156–8, 179–81, 183, 195, 200, 204, 213, 218
    - evidential test for 89–91
    - output-based 86–7, 180, 187
    - vs. UE structural correspondence 137–40
  - (p.288)** information-processing 9, 12, 19, 25, 51, 79, 80, 86, 95, 109, 161
    - automatic 126
    - cyclical 106–9
    - non-conscious 8, 126
  - information theory 12–13, 51, 78, 161
  - informational semantics 12–13, 175; *see also* representational content, theories of
  - inheritance system 19
  - intensional context 88
  - intentionality 8–9, 25, 27–8, 37, 56, 59, 174, 205, 225–6
    - phenomenal 11
    - underived 9 *see also* representational content; representation
  - Intentional Systems Theory/Intentional Stance 14, 224; *see also* representational content, theories of, ascriptionism
  - interference effect 98, 221
  - internal component 31, 36, 51–2, 67–8, 70, 74, 80, 82, 83, 87, 105, 138, 150, 167–8, 174, 180–2, 185, 188, 199, 211–12
  - internal vehicle, *see* internal component
  - intuition 21, 28–9, 31, 43, 47, 69–70, 134, 149, 154, 168, 191
  - isomorphism 112, 117, 143–4
    - direct 131
    - dynamic 186
    - functioning 130–2
    - indirect 131
    - liberality of 112 *see also* structural correspondence; homomorphism
  - JIM, neural network 93
  - kind:
    - historical 22, 169–70
    - natural 22, 51, 169, 186, 217
    - non-historical 22
  - Kolmogorov complexity 203
  - Kullback-Leibler divergence 108
  - magnetotactic bacterium 30, 203, 213
-

- malfunction 47, 65, 159–60
  - vs. misrepresentation 171–3, 176
- map, cartographic 111, 118, 125
  - semantics for 125
- map, topographic 115
- mapping, input-output 34–5, 37, 76, 110, 189, 198–9, 213
- mapping, relation-preserving 111–12, *see also* structural correspondence; isomorphism; homomorphism
- mapping, structure-preserving, *see* mapping, relation-preserving
- Marr, David 34, 91, 137
- meaning, *see* representational content
- mechanism 3, 18, 30, 32, 201
  - comparator 67, 183–4, 191
  - constancy 51, 202, 218
  - diachronic 53
  - frog’s fly-catching, tongue-darting 84, 148–50, 152–3, 161
  - homeostatic 73
  - learning 20–1, 48, 50, 60–1, 73, 124
  - neural 26
  - synchronic 50
- mental image 9, 126
- mental state 5, 9, 10, 14, 28, 52, 65, 166, 222–3; *see also* beliefs and desires
- metacognition 223
- metaphysical dependence relation 88
- meta-representation 218, 223
- Millikan, Ruth 13, 15–19, 21–2, 38, 60, 72, 77, 78, 100, 156, 158–60, 165, 169–72, 183, 188, 189, 191–2, 203, 209
- mirroring, *see* structural correspondence
- mirror neuron system 8
- misrepresentation 10–11, 13, 28, 38, 69, 88, 110, 160, 167, 199, 205, 219
  - systematic 171–4
  - vs. malfunction 171–3, 176 *see also* representation
- model:
  - Bayesian 13
  - computational 55, 101, 106, 109–10
  - forward 67
  - game-theoretic 219–20
  - inverse 67
  - sender-receiver 79, 190, 217, 219–20
  - signalling 79, 190, 219–20
- model-based reasoning 134–5
- model-free learning 134–5, 218
- mode of presentation 220
- mode of representing 178, 180, 188, 194
- Moniac 32–3
- Morris water maze 62
- motor control 26–7, 52–5, 59–60, 67–8, 183; *see also* motor program
- motor program 67, 179–84, 186, 189–90, 192, 201, 218; *see also* motor control
- motor system 29, 60, 70, 90, 96–7, 105

- mountain chickadee 50
- MT, cortical area 104–6, 185
- natural cluster 49–51, 54–5, 56–8, 62–3, 66, 70–2, 74, 110, 168, 170–1, 174, 198, 200, 204–5; *see also* real pattern
- naturalism 5, 11–12, 14, 16, 23, 40–1, 65, 174, 222, 225–6
- natural language 9, 26, 39, 76, 82, 132, 148, 155, 158, 162, 164, 171, 174
- (p.289)** natural selection, evolution by 17–19, 21–2, 32, 42, 47–9, 50, 54, 56–7, 59, 61, 62–3, 66, 72, 87, 110, 150, 166, 183, 200, 206, 207, 211, 213, 220; *see also* stabilizing process
- Neander, Karen 27, 51, 139, 159, 160–1, 173
- neo-Fregean sense 13, 38, 149, 220
- neural:
  - activation space 115, 133–4, 143
  - activity, pattern of 6, 10, 12, 29, 80, 85, 110, 132–3, 139
  - architecture 85
  - areas 6, 26–7, 104, 221
  - circuit 19, 26, 67
  - cycle 139–40
  - firing rate 40, 80–1, 99, 109, 114, 121, 132, 137–8
  - process 25–6, 94, 95, 121, 139
  - realization 26–7; *see also* representation, neural bases of
  - reuse 39, 97, 155, 194
  - similarity space 132–4
  - vehicle 29, 39, 137; *see also* neural activity, pattern of; representation, neural
- normativity 11, 14, 40, 41, 65, 148, 171, 174–5, 204, 224; *see also* representational content, normativity of; function, biological, normativity of
- online guidance control 53
- Papineau, David 15–16, 19, 21, 159–60, 169–71, 209
- parietal cortex 98, 100, 199, 203, 221
- pattern in nature, *see* real pattern; natural cluster
- Peacocke, Christopher 13, 32, 155, 172–3, 206
- perceptual system 29, 96, 161
- personal-level state 28, 42, 162, 169, 174, 216, 222–5; *see also* beliefs and desires
- personal/subpersonal distinction 8, 26–8
- phenomenal character 11, 222–3; *see also* consciousness
- physicalism, reductive vs. non-reductive 40–1
- Pietroski’s snorfs and kimus thought experiment 154, 160
- place cell 16, 113–16, 120–1, 124–6, 128, 137, 139–43, 154–5, 164–6, 182–3, 185, 187, 192–4, 195, 203; *see also* hippocampus; grid cell
- plaid motion detection system 104–5, 157, 163, 166–7, 185
- plasticity 61, 121
- practical reasoning 193, 223
- predication 132, 163–4
- prediction error 67, 85, 201
- prefrontal cortex (PFC) 100–1, 135, 158, 163
- Price, Carolyn 150, 159–60, 189
- priming effect 98, 221
- prismatic goggles 53, 59, 68
- property:



- content 32, 41, 83, 170, 203, 208-9, 212
- disjunctive 41, 122, 153, 155, 159, 189
- dynamical 40
- externalist 32, 174, 198, 206; *see also* externalism
- extrinsic 32, 35-6, 40, 198
- historical 170
- intrinsic 21, 29, 32, 35-6, 38-40, 55, 167, 178, 199, 201, 207, 213-14, 222, 224
- natural 89-90, 122, 155-6, 225
- non-natural 90, 93
- non-semantic 31, 38-40, 197, 207
- projectable 122, 131
- relational 75-6, 85-6, 110, 157, 167-8, 205, 218
- semantic 31-2, 198, 200
  - causal efficacy of 208-9
  - causal relevance of 208-9
- propositional attitude 178, 193-4, *see also* beliefs and desires
- psychology, scientific 6, 8, 12, 28-9, 51-2, 79, 174-5, 201, 204, 216, 222, 225
- Ramsey, William 10, 30, 32, 118, 128, 201, 205-6, 207
- rational decision theory 14, 173
- real cluster, *see* natural cluster; real pattern
- real pattern 14, 32, 49, 66, 71, 167, 202-4, 218; *see also* natural cluster
- recognition, conscious 53, 185, 216
- reinforcement learning 11, 57, 59, 61-2, 64, 124, 135, 192
  - secondary 192-3
- relation:
  - natural 112, 127-8
  - thin notion of 112 *see also* exploitable relation
- replicator dynamics 57, 217
- representation:
  - acquired 19-20, 216
  - analogue 97
  - analogue magnitude 90, 97-8, 100, 103, 148, 154, 157, 165, 185, 201
  - as stand-in 15-16, 51, 74, 75, 143, 165, 167, 198
  - automatic vs. non-automatic use of 191
  - conceptual 156, 159, 162, 166; *see also* beliefs and desires; concept;
  - representation, non-conceptual
  - consumer of 15-19, 28, 30, 35-7, 43, 76, 78, 87, 93, 95-6, 105-6, 110, 116, 127, 156, 159-60, 188, 197
  - decoupled 100, 190-1
  - digital 97
  - (p.290)** descriptive, *see* representational content, descriptive
  - directive, *see* representational content, directive
  - explicit 172-3, 223-4
  - functional role of 178, 181, 186-7, 193-4
  - goal 51-3, 188, 192, 194
  - imperative, *see* representational content, directive
  - implicit 138, 223
  - incorrect, *see* misrepresentation
  - indexical and non-indexical 155; *see also* indexicality

- 
- linguistic 132, 155; *see also* natural language
  - neural 7, 12–13, 14, 26–7, 79–80, 197, 216
  - neural bases of 26
  - non-conceptual 27, 161, 162–6; *see also* representation, conceptual
  - non-propositional, *see* representation, non-conceptual
  - offline 115–16, 155, 163–4, 166, 182–3, 186, 193–5
  - online 115, 124, 187, 194
  - perceptual 100, 174–5
  - personal-level 28, 42, 162, 169, 174, 216, 222–5; *see also* beliefs and desires
  - probabilistic 106–7
  - pluralism about 42–3, 65, 160, 174, 197, 215, 225
  - producer of 16, 95, 188, 215
  - psychologically proprietary 174–5
  - public 127
  - pushmi-pullyu 180–1, 183, 185, 191, 193
  - realism about 15, 19, 35, 37–43, 207
  - redundancy of 117, 142
  - saturated 162–4, 166, 175, 194
  - subpersonal, *see* representational content, subpersonal
  - unsaturated 117, 162–4, 166, 194
  - representational content 4–7, 9
    - as character 220
    - ‘as if’ 14, 66
    - causal efficacy of 31, 208–9
    - causal relevance of 206–7, 208–9
    - deflationism about 206–7
    - descriptive 86–7, 97, 100, 124, 159, 164, 171, 172, 177–8, 192–5, 214, 218
      - based on UE information 177–9, 180–2, 183–5
      - based on UE structural correspondence 185–7 *see also* representational content, descriptive–directive distinction
    - descriptive–directive distinction 179, 188–91
    - (in)determinacy of 10–11, 12–13, 82–3, 84, 103, 105, 124, 128, 141, 143, 147–60, 165–6, 175
      - amount of 157–8
      - disjunction problem 11–13, 82, 147–8, 155–6
      - distality problem 11, 147–8, 151
      - frog’s tongue-darting reflex 84, 148–50, 152–3, 161
      - natural properties and 155–6
      - qua* problem 11, 147
      - specificity problem 149, 151
      - UE correlational information and 151–4, 156–7, 158
      - UE structural correspondence and 154–5
    - directive 86, 97, 124, 159, 164, 172, 177, 191, 192–5, 214, 218
      - based on UE information 178–82, 183–5
      - based on UE structural correspondence 182–3, 185–7 *see also* representational content, descriptive–directive distinction
    - directly derivative 65
    - epistemology of 221–2
    - explanatory role of 10, 22–3, 28, 29, 31, 43, 48–51, 67, 144, 198, 216
-

- 
- in varitel semantics 199-200
      - bridging relations 203-4, 213
      - vs. eliminativism about representational explanation 204-5
      - vs. non-semantic explanation 200-4 *see also* representational explanation
    - functional 219-20, 222
    - imperative, *see* representational content, directive
    - indicative, *see* representational content, descriptive
    - naturalistic approaches to, *see* naturalism
    - normativity of 65, 148, 171-5; *see also* normativity; function, biological, normativity of
    - personal, *see* representation, personal-level
    - portability of 224-5
    - pragmatism about 88, 207, 212-13
    - referential 13, 38, 155, 220
    - saturated 162-4, 166, 175, 194
    - subpersonal 8, 26-9, 38, 43, 65, 74, 174, 195, 214, 216, 222, 224-6
    - suppositional or hypothetical 164, 178, 194
    - underived 9, 65
    - unsaturated 117, 162-4, 166, 194
    - vehicles of, *see* representational vehicles
    - what determines, metaphysical vs epistemic senses 9
  - representational content, theories of 8, 9, 10-11
    - ascriptionism 14, 38, 197, 203, 212-13, 224
    - (p.291)** conceptual role semantics, *see* inferential role semantics
    - eliminativism about 6, 204-5
    - functional role semantics, *see* inferential role semantics
    - inferential role semantics 13
    - informational semantics 12-13, 16, 175
    - infotel semantics 43
    - interpretivism 14, 31, 37
    - structural representation 13-14, 41, 116-19, 127-8, 135, 137-9, 182, 186-7, 207
    - teleosemantics 15-23, 32, 47-8, 63, 71, 73, 76, 79, 93, 95, 149, 158-60, 171, 175, 188, 197, 209-10
      - consumer-based 16, 19-20, 95, 105-6, 150, 159, 175 *see also* teleosemantics; varitel semantics
  - representational explanation 6, 15, 21, 26, 29-32, 34-8, 42, 47, 49, 51, 55, 57, 63, 66, 68-9, 71-2, 74, 81, 83, 88, 89, 99, 106, 110, 112, 123, 149, 157, 160, 167, 170-1, 174, 176, 189, 198-204, 205-6, 207-8, 209, 210, 211-12, 216, 221
    - in varitel semantics 199-200
      - vs. non-semantic explanation 200-4, 211-12
  - Representational Theory of Mind 4, 14-15, 19, 31, 37, 40, 165, 203, 206, 225
  - representational vehicle 15, 18, 19, 21, 26, 29, 31-2, 51, 75-6, 80-1, 84, 86, 88, 89-90, 95-7, 99-103, 105-6, 107-8, 112, 115, 117-27, 129, 131, 134, 137, 138-9, 141-2, 144, 152, 156-8, 160, 163-6, 174, 178, 179, 181-2, 184-7, 189, 192-3, 197-201, 203, 206-7, 212, 216-17, 218, 220-2, 224
    - realism about 14-15, 35, 37-41
  - resemblance:
    - first-order 118, 143-4
-

- 
- second-order 138, 139 *see also* structural correspondence; isomorphism; homomorphism
  - retinotopy 115, 120
  - robustness 48–50, 52–6, 58, 59–62, 64, 66, 68, 79, 83, 86–7, 89–90, 116, 123, 130, 133, 141, 170, 180, 181, 188, 200, 205, 211–12, 213–14; *see also* function, robust outcome
  - Roth-Erev reinforcement 57
  - semantic memory 223
  - sender–receiver model 190, 217, 220
  - sensitization 61
  - sentence, inner 36
  - Shagrir, Oron 40, 118, 206–7
  - Shannon, Claude E. 12, 78
  - signalling:
    - animal 18–19, 43, 72, 79, 95–6, 119, 150, 183, 215, 220
    - Skyrms-style 57, 79, 190, 219–20
  - similarity judgement 133
  - similarity space, experiential 133–4
  - similarity structure 13, 132–4
  - simple representational system 18
  - SINBAD mechanism 161, 186–7, 192
  - singular term 26, 155, 163, 164, 165, 220
  - Skyrms–Lewis signalling game 57, 79, 190, 217, 219, *see also* model, sender–receiver
  - social feedback 60–1, 62, 66, 71
  - spatial navigation 124, 182, 203; *see also* hippocampus
  - species 55, 77, 84, 169–70
  - stabilizing process 21–2, 37, 42, 48–51, 57, 60, 62, 65, 69–70, 74, 100, 110, 121, 123, 133, 141, 143, 150, 164, 176, 180, 198–9, 205, 207, 210–11, 214–15, 217, 220, 222, 224
    - contribution to fitness 62, 72–3, 149–50, 171, 174
    - contribution to persistence 22, 42, 50, 56–60, 62–4, 66, 68–70, 72–4, 82, 84, 100, 110, 150, 167–8, 170–1, 174, 180, 200, 211, 215, 220, 222
    - contribution to survival 48–51, 124
    - forward-looking 62–3
    - learning 48–51, 60–2, 64, 68, 83, 103, 116, 124, 169, 183, 199, 217
    - natural selection, evolution by 48–51, 87, 153, 169, 209 *see also* function, stabilized; task function; natural selection, evolution by
  - state space 132, 217
  - Sterelny, Kim 64, 189–90, 202
  - stimulus-independence 115; *see also* representation, decoupled
  - structural correspondence 13–14, 15, 37, 41, 110, 111–12, 116–17, 205, 210, 225–6
    - approximate instantiation of 140–2
    - content–constituting 116, 118–19, 120–4, 127
    - exploitable 43, 113, 116, 119, 120–4, 125–6, 131, 144, 188
    - exploited 41, 116, 126–31, 204
    - liberality of 41–2, 112–13, 120
    - unexploited 119, 126–31
    - unmediated explanatory (UE) 31, 41, 88, 113, 123–6, 127, 130, 132–7, 154–5, 182–3, 185–7, 194, 195, 200, 204, 218
      - evidential test for 142–3
-

- 
- vs. UE correlational information 137–9 *see also* structural representation; isomorphism; homomorphism
  - (p.292)** structural representation 13–14, 41, 116–19, 127–8, 135, 137–9, 182, 186–7, 207; *see also* structural correspondence
  - sub-propositional constituent 9
  - success semantics 16
  - supposition 164, 178, 194; *see also* representational content, suppositional or hypothetical
  - synapse 29
  - syntactic description 35, 39–40, 200–4, 206, 209, 211–12
  - syntactic type 38, 39–40, 165, 219
  - system 28
    - control 55
    - lineage of 55, 57, 62, 63, 84
    - out-of-equilibrium 50, 58, 215
    - self-maintaining 58
    - self-producing 50, 58, 63, 215
    - subpersonal 71, 74, 172, 174
  - systematicity 100, 148, 163–6, 206–7; *see also* concept
  - 'system property' view 54
  - Swampman thought experiment 21–3, 48, 148, 166–71, 211; *see also* swamp system
  - swamp system 69–71, 166–7, 169–70; *see also* Swampman thought experiment
  - task functions 31, 32, 34–7, 42, 48, 50–2, 64–72, 73, 75–6, 82, 83–7, 89–90, 91, 93, 98–9, 102–3, 105, 108, 110, 111–12, 116, 120–4, 126–7, 130, 133, 140–4, 151–7, 159–60, 164, 166–9, 171, 173, 176, 179–82, 187–91, 197–9, 202, 205, 207, 211, 213–15, 217–21, 224
    - determinacy of 150–1
  - teleofunction 42–3, 48, 51, 56, 59, 63, 76; *see also* function; teleosemantics
  - teleological causation 56, 59, 63
  - teleology, Aristotelian 48, 56, 200; *see also* consequence etiology
  - teleosemantics 15–23, 32, 47–8, 63, 71, 73, 76, 79, 93, 95, 149, 158–60, 171, 175, 188, 197, 209–10
    - challenges to 19–23, 93–4, 105
    - consumer-based 16, 19–20, 95, 105–6, 150, 159, 175
    - high-church and low-church 159–60 *see also* representational content, theories of
  - teleosemantic theory of content, *see* teleosemantics
  - two-step task 135
  - type, non-semantic, *see* syntactic description; syntactic type
  - unsaturated representational constituent 162–4, 166, 175, 194
  - V2, cortical area 104–5, 185
  - varitel semantics 41–3, 47–8, 85, 88, 106, 110, 116, 119, 120, 122–3, 143, 147, 152, 158, 160–1, 176, 177, 179, 194–5, 198, 200–4, 207, 209–10, 212–15, 217–19, 221–2, 224–6
    - and causal efficacy vs. causal relevance of content 208–9
    - comparison to other theories 186–91, 210
    - objections to
      - liberality 174, 207, 213–16
      - normativity 171–5
      - psychologically proprietary representation 174–5
      - swampman 166–71 *see also* representational content, theories of
-

verificationism 160-1  
vervet monkey alarm calls 119, 215  
visual system 94, 103-4, 137, 157, 161, 163, 185  
Weber's law 98  
Wright, Larry 56-7, 63

Access brought to you by: